CJHP JCPH

The Canadian Journal of Hospital Pharmacy
Le journal canadien de la pharmacie hospitalière

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Vol. 61, Supplément 1 (CPP), janvier 2008

39TH ANNUAL PROFESSIONAL PRACTICE CONFERENCE
39E CONFÉRENCE ANNUELLE SUR LA PRATIQUE PROFESSIONNELLE

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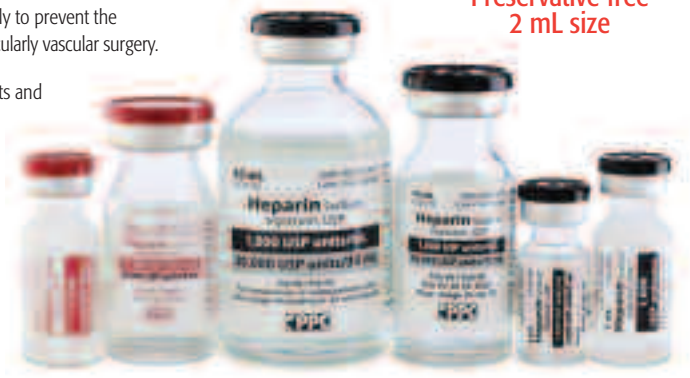

INDICATION Used in the treatment of thrombophlebitis, phlebothrombosis, and cerebral, coronary, and retinal vessel thrombosis to prevent extension of clots and thromboembolic phenomena. Also used prophylactically to prevent the occurrence of thromboembolism, and to prevent clotting during dialysis and surgical procedures, particularly vascular surgery.

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PAAB

Dear Colleague:

On behalf of the Officers, Council and staff of the Canadian Society of Hospital Pharmacists (CSHP), it is my pleasure to welcome you to CSHP's 39th Annual Professional Practice Conference.

This year we will be holding the conference at a new venue – the Sheraton Centre Toronto Hotel. The hotel is located right downtown by the Eaton Centre, a location more easily accessible to our delegates. Over the last 10 months, CSHP's Educational Services Committee has worked hard to assemble an impressive faculty of pharmacy specialists and develop a program of exceptional educational value.

This conference is designed to maximize your opportunities for professional development, networking and socializing with practitioners from across the country. It is our hope that you are able to take full advantage of the 2008 offerings – and enjoy yourself in the process.

As part of its Vision 2010 strategic plan, CSHP will officially launch CSHP 2015 at the Conference, a 7-year project to improve patient medication outcomes and safety by inspiring practice excellence, and will also foster leadership and professional growth. Several presentations have been included in the program to meet these goals.

At anytime throughout the conference, the Officers and staff of CSHP are available to you. Please let us know if we can answer any of your questions, address any of your concerns or be of assistance in any way. Be sure to take a few minutes and stop by the CSHP booth during the exhibits program and say hello.

We look forward to welcoming each of you to another spectacular conference.

Thank you for your ongoing support of CSHP!

Carolyn Bornstein
BScPhm, ACPR, FCSHP
CSHP President

Myrella Roy
BScPhm, PharmD, FCCP
Executive Director

Chères (Chers) collègues,

Au nom de la Direction, du Conseil et du personnel de la Société canadienne des pharmaciens d'hôpitaux (SCPH), j'ai le plaisir de vous souhaiter la bienvenue à la 39e Conférence annuelle sur la pratique professionnelle de la SCPH.

Cette année, la conférence déménage dans un nouveau lieu et se tiendra à l'hôtel Sheraton Centre de Toronto. L'hôtel est situé en plein centre-ville, tout près du Centre Eaton, un emplacement plus facilement accessible à nos congressistes. Au cours des dix derniers mois, le Comité des services éducatifs de la SCPH s'est affairé à rassembler un groupe impressionnant de conférenciers spécialisés en pharmacie et à vous préparer un programme d'une valeur éducative exceptionnelle.

Ce congrès est destiné à maximiser les possibilités de perfectionnement professionnel, de réseautage et de rencontre avec d'autres praticiens de toutes les régions du pays. Nous espérons que vous pourrez tirer pleinement profit de ce que nous vous offrons en 2008 – tout en vous divertissant.

Dans le cadre de son plan stratégique Vision 2010, la SCPH lancera officiellement SCPH 2015, un projet qui s'échelonnera sur les 7 prochaines années et qui vise à améliorer les résultats et la sécurité de la pharmacothérapie des patients en inspirant l'excellence de la pratique, et favorisera aussi le leadership et le perfectionnement professionnel pour ses membres. Plusieurs présentations ont été incluses au programme afin d'atteindre ces objectifs.

Nous vous rappelons qu'au cours du congrès, la Direction et le personnel de la SCPH seront à votre entière disposition. Nous ferons tout en notre pouvoir pour répondre à vos questions, discuter des sujets qui vous préoccupent et vous aider au besoin de quelques manières que ce soit. Pendant le programme d'exposition, assurez-vous d'effectuer un arrêt au stand de la SCPH afin de nous saluer!

Nous sommes impatients de vous accueillir à cet autre congrès exceptionnel et vous remercions de votre appui soutenu à la SCPH.

Carolyn Bornstein,
BSc Pharm, ACPR, FCSHP
Présidente de la SCPH

Myrella Roy,
B Sc Pharm, Pharm D, FCCP
Directrice générale

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INTRODUCING

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Ceftriaxone Sodium for Injection is indicated in the treatment of the following infections when caused by susceptible strains of the designated micro-organisms: lower respiratory tract infections, (complicated and uncomplicated), bacterial septicemia, skin and skin structure infections, bone and joint infections, intra-abdominal infections, meningitis and uncomplicated gonorrhea (cervical/urethral, pharyngeal and rectal). Please refer to the Indications and Clinical Uses section of the Product Monograph for the specific identification of causative organisms. Ceftriaxone Sodium may also be used as prophylaxis before vaginal or abdominal hysterectomy, coronary artery bypass surgery, or in patients at risk of infection undergoing biliary tract surgery.

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*Product monograph and patient information are available upon request.

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(au moment de l'impression)

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Sandoz Canada Inc.

TEVA Novopharm

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(at time of printing)

2007-2008 Entreprises membres du secteur hospitalier
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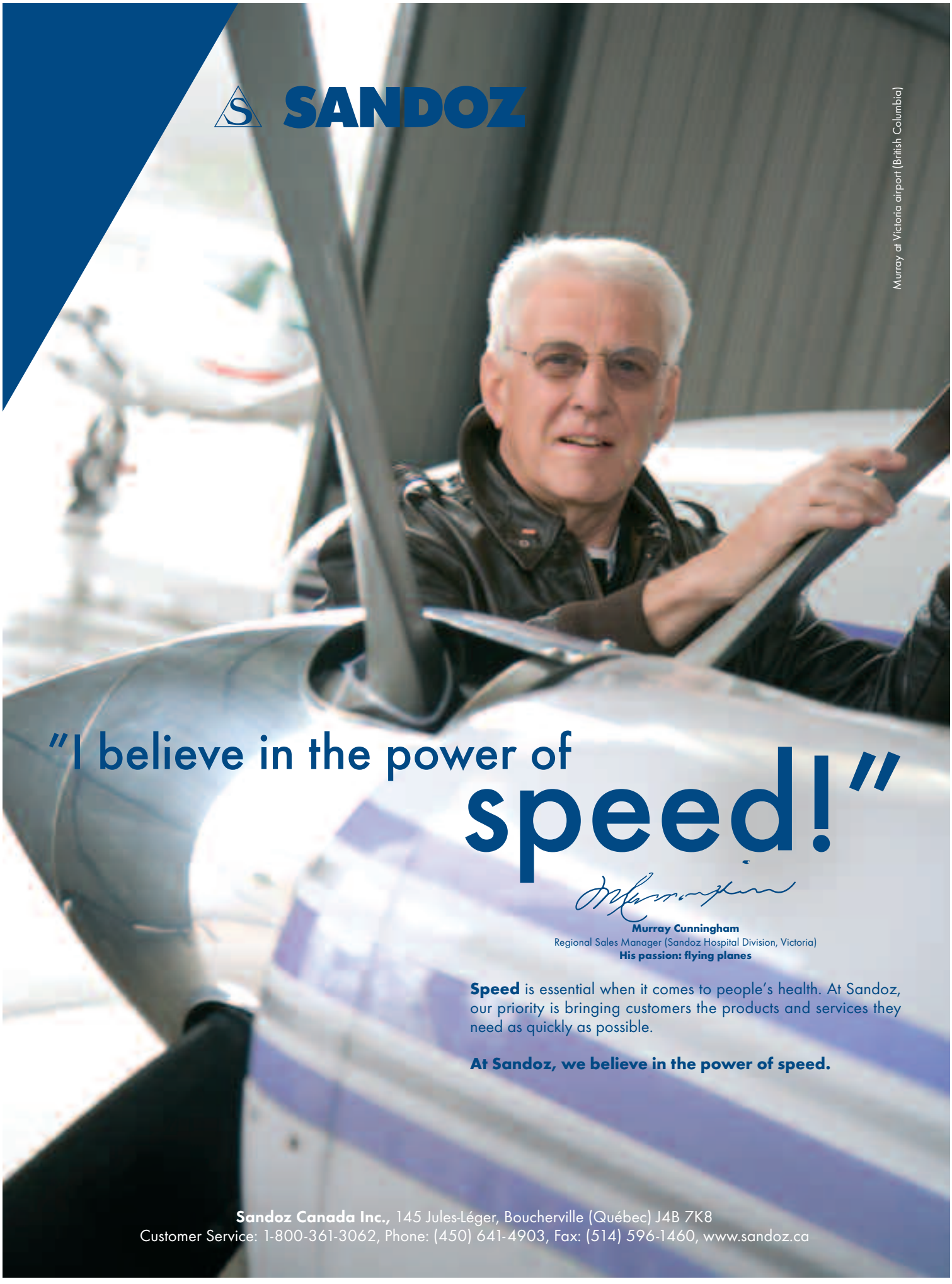
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New CSHP Sponsorship Structure

Starting with AGM 2007 in Regina, CSHP's sponsorship structure has changed.

New Time Frame!

All donations received within the previous calendar year are included in the calculation of the sponsorship level.

For example, the sponsorship listing in the PPC 2008 final programme reflects donations collected from January 1 to December 31, 2007.

New Levels!

Also new this year are the range of values associated with each sponsorship level.

New Addition!

Included in all totals are donations given to CSHP branches.

Nouvelle structure de commandite de la SCPH

Depuis l'AGA 2007 à Régina, la SCPH utilise une nouvelle structure de commandite.

Nouveau calendrier!

Tous les dons reçus au cours de l'année civile précédente sont comptabilisés pour déterminer l'échelon de commandite.

Par exemple, la liste de commandite dans le programme final du CPP 2008 reflètera les dons recueillis entre le premier janvier et le 31 décembre 2007.

Nouveaux échelons!

Notre structure de commandite étrenne aussi cette année une nouvelle échelle de valeurs.

Nouvelle addition!

Les dons remis aux sections de la SCPH sont dorénavant incorporés dans les totaux.

CSHP Sponsors 2007

The following list reflects all CSPH Sponshorships received from January 1 to December 31, 2007.

Commanditaires de la SCPH en 2007

La liste suivante reflète toutes les commandites reçues du premier janvier au 31 décembre 2007.

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Please note: Sponsor levels for 2007 listed at time of printing. Updated signage on site at PPC 2008.

Distinguished Service Award
Prix pour service distingué

Sponsored by Ortho Biotech Division of Janssen-Ortho Inc.
$1,500

This award recognizes outstanding achievement in hospital pharmacy practice.

Individuals are nominated by their peers.

Past Winners

1967 Michael J.V. Naylor
1968 Jacqueline McCarthy
1969 Isabel E. Stauffer
1970 Gordon Brown*
1971 Paule Benfante
1972 J. Edwin Smith*
1973 Leonard Gibson*
1974 Anne O'Toole
1975 Muriel Hale
1976 Orest Buchko
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1978 Douglas J. Stewart*
1979 Jack L. Summers*
1980 Betty C. Riddell
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1983 Mary T. Gannon
1984 Sister Grace Sauvé
1985 Donna M. Shaw*
1986 William R. Foltas*
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1988 Bruce R. Schnell
1989 Alan Samuelson
1990 Reta Fowler
1991 C. Brian Tuttle
1992 William Wilson
1993 Pauline Beaulac
1994 William McLean
1995 James L. Mann
1996 Kevin Hall
1997 Rosemary Bacovsky
1998 Scott Walker
1999 Bonnie Salsman
2000 James Blackburn
2001 Charlie Bayliff
2002 Glen Brown
2003 Robert S. Nakagawa
2004 Garry King
2005 Bill Bartle
2006 Linda Poloway
2007 Thomas W. Paton

*Deceased

Isabel E. Stauffer Meritorious Service Award
Prix Isabel E. Stauffer pour service méritoire

Sponsored by Pharmaceutical Partners of Canada Inc.
$1,500

This award recognizes prolonged service and involvement in CSHP, primarily at the branch or chapter level.

Individuals are nominated by their peers.

Past Winners

1986 Herbert A. Dixon
1986 A.W. Stanley Garvin
1987 Alan Samuelson
1988 D. Bryce Thompson
1989 Fred Rumpel
1990 Doris A. Thompson
1991 David Windross
1991 Louanne Twaites
1992 Cecilia Laskoski
1992 John Iazzetta
1993 No candidates this year
1994 Rosemary Bacovsky
1994 Roy A. Steeves
1995 Kristina Wichman
1995 Donna Pipa
1996 Robert S. Nakagawa
1996 Dennis Leith
1997 No candidates this year
1998 Larry Legare
1998 Emily Somers
1999 Kenneth McGregor
1999 Linda Poloway
2000 Kelly Babcock
2001 No candidates this year
2002 Margaret Colquhoun
2003 Margaret Gray
2004 Nancy Roberts
2005 Donna Wheeler-Usher
2006 Susan Poulin
2007 Harry S. Hopkins

New Hospital Pharmacy Practitioner Award
Prix du nouveau praticien en pharmacie hospitalière

Sponsored by Sandoz Canada Inc.
$1,500 x 2

This award recognizes new hospital pharmacy practitioners, who through their service to patient care, to education or research, to the profession and to the society, are worthy of recognition that devotes promising leadership, dedication and commitment to practice excellence and professional growth.

Past Winners

2005 Stephanie Ong & Kerry Wilbur

2006 Dawn Dalen & Gloria Tsang

2007 Tracy Cheung & Jennifer Dyck

Hospital Pharmacy Student Award
Prix de l'étudiant en pharmacie hospitalière

Sponsored by Canadian Society of Hospital Pharmacists
$500

This award recognizes pharmacy students who show promise as future hospital pharmacy practitioners through their student activities or their experiential training in direct patient care, research or education. The winners exhibit eagerness, dedication and a positive attitude toward the academic learning, the practice, and the profession of hospital pharmacy.

Past Winner

2006 Justin Lee
2007 Cathryn Sibbald

2007-2008 Awards Committee
Comité des prix 2007-2008

Sincere appreciation is extended to the Awards Committee and to our 2007-2008 Award Appraisers.

Chairperson
Présidente

Rosemary Zvonar

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2007-2008 Awards Program
Programme des prix 2007-2008

Clinical Pharmacy Program Award

Sponsored by Bristol-Myers Squibb Canada
$1,500

Innovation in Safe Medication Practices Award

Sponsored by Baxter Corporation
$1,500

Long Term Health Care Award

Sponsored by Pfizer Canada Inc.
$2,000

Management Issues in Pharmaceutical Care Award

Sponsored by Apotex Inc.
$1,500

New Programs in Patient Counselling Award

Sponsored by TEVA Novopharm
$1,500

Oncology Award

Sponsored by Hospira Healthcare Corporation
$1,500

Rational Drug Use Award

Sponsored by Merck Frosst Canada Ltd.
$1,500

Specialties in Pharmacy Practice Award

Sponsored by Hoffmann-La Roche Limited
$1,500

Tribute to Appraisers
Hommage aux évaluateurs

Many thanks to the appraisers of this year's award submissions. We are very grateful to you for sharing your time and expertise in support of the CSHP Awards Program. Without your dedicated efforts on the Society's behalf, the program would not exist.

Alison Alleyne
Rosemary Bacovsky
Annie Brooks
Glen Brown
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Amanda Ung
Régis Vaillancourt
Wally Watrad
Kerry Wilbur
Sharon Yamashita
Peter Zed

If you are interested in acting as an appraiser for the 2008/2009 Awards Program, please contact Gloria Day at the National office by phone, 613-736-9733, ext. 231 or by e-mail at gday@cshp.ca.

Upcoming Events
Événements à venir

Professional Practice Conference (PPC) 2009
January 31-February 4, 2009
Sheraton Centre Toronto Hotel

Professional Practice Conference (PPC) 2010
January 30-February 3, 2010
Sheraton Centre Toronto Hotel

Professional Practice Conference (PPC) 2011
January 29-February 2, 2011
Sheraton Centre Toronto Hotel

Professional Practice Conference (PPC) 2012
February 4-8, 2012
Sheraton Centre Toronto Hotel

Professional Practice Conference (PPC) 2013
February 2-6, 2013
Sheraton Centre Toronto Hotel

Please note that we do offer an exhibits program at both CSHP conferences. Attendance at PPC is approximately 1100-1200 attendees and at AGM it is approximately 250-400 attendees.

For further information, please contact Desarae Davidson, CSHP National Office.
Tel.: 613-736-9733, ext. 229
Fax: 613-736-5660
Email: ddavidson@cshp.ca

Annual General Meeting (AGM) 2008
August 9-12, 2008
Hilton Saint John
Saint John, NB

Annual General Meeting (AGM) 2009
August 8-11, 2009
Delta Winnipeg
Winnipeg, MB

Annual General Meeting (AGM) 2010
August 7-10, 2010
Delta Barrington & Marriott Hotel
Halifax, NS

Annual General Meeting (AGM) 2011
August 6-9, 2011
Sheraton Wall Centre
Vancouver, BC

Annual General Meeting (AGM) 2012
August 11-14, 2012
TBA
Charlottetown, PEI

Poster Abstract Reviewers
Réviseurs des présentations par affiches

Sincere appreciation is extended to the abstract reviewers for PPC 2008.

Margaret Ackman
Toni Bailie
Claudia Bucci
Allison Callaghan
Clarence Chant
Elaine Chong
Judy Chong
Sean Gorman
Jeff Nagge
Payal Patel
Co Q.D. Pham

Satellite Symposiums
Symposiums satellites

CSHP would like to thank the following sponsors of Satellite Symposiums for their participation in conjunction with the PPC 2008

- Drug Intelligence Inc. Sponsored by Abbott
- Wyeth Pharmaceuticals
- Canadian Cardiovascular Pharmacists Network
- Pfizer Canada Inc.
- sanofi-aventis Canada Inc.
- Novartis Pharmaceutical Canada Inc.
- Merck Frosst Canada Ltd.
- Abbott

Registration is required. Visit the CSHP website (ww.cshp.ca) to download the satellite registration form. See the program section for more details.

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The Educational Services Committee (ESC) of CSHP has been working for approximately 10 months on the content and format of PPC 2008. The Committee also works on the Annual General Meeting and its educational sessions, in conjunction with the local host committee and the national office. The ESC is comprised of a core committee of 15 hospital pharmacists as well as 8 corresponding members from the CSHP branches.

Canadian Council on Continuing Education in Pharmacy

Le Comité des services éducatifs travaille depuis près de 10 mois à l'élaboration du contenu et de la forme de la CPP 2008. Le Comité prépare aussi l'Assemblée générale annuelle et ses séances éducatives en collaboration avec le Comité d'accueil local et le personnel de la SCPH. Le Comité comprend 15 membres principaux et 8 membres correspondants des sections de la SCPH.

Goal and Objectives for the 2008 PPC Program

Goal:

- To provide registrants with quality educational sessions.

Objectives:

- To provide registrants with educational sessions which inform, educate and motivate clinical practitioners and managers.
- To provide leadership in hospital pharmacy practice by presenting sessions on innovative pharmacists' roles, pharmacy practice and pharmacy programs.
- To promote life-long learning skills through active participation in problem-based workshops.
- To provide registrants with networking and sharing opportunities through the exhibits program, poster sessions and interactive facilitated discussions.
- To promote excellence in pharmacy practice through oral and poster presentations on original work and award winning projects.
- To provide an opportunity for Pharmacy Specialty Networks to meet.

But et objectifs du programme de la CPP 2008

But :

- Présenter des conférences éducatives de qualité aux participants.

Objectifs :

- Présenter aux personnes inscrites des conférences éducatives susceptibles d'informer, d'instruire et de motiver les cliniciens et les gestionnaires.
- Orienter la pratique de la pharmacie hospitalière en présentant des conférences sur les nouveautés touchant le rôle du pharmacien, la pratique de la pharmacie et les programmes de pharmacie.
- Développer des habiletés pour un apprentissage continu par une participation active à des ateliers de formation axés sur la résolution de problèmes.
- Donner aux participants des occasions de réseautage et d'échanges grâce au salon des exposants, aux séances d'affichage et aux discussions interactives structurées.
- Promouvoir l'excellence dans la pratique de la pharmacie par des présentations orales et des séances d'affichage sur des travaux originaux et des projets primés.
- Donner l'occasion aux réseaux de spécialistes en pharmacie de se réunir.

Program
Programme

Saturday, January 26
Samedi 26 janvier

13:00-17:00 **Stakeholder Consultation Workshop: 2010 CHPRB (Residency) Accreditation Standards**

CONFERENCE ROOM B/C

15:00-17:00 **Registration**
Inscription

COATCHECK

Sunday, January 27
Dimanche 27 janvier

07:30-17:00 **Registration**
Inscription

COATCHECK

08:00-08:15 **Opening Remarks**
Remarques préliminaires

DOMINION BALLROOM

08:15-9:45 **Blueprint for Pharmacy: Designing the Future Together** – Panel Discussion

DOMINION BALLROOM

Marie-Anik Gagné, PhD – Moderator
Canadian Pharmacists Association
Ottawa, ON

David Hill, EdD, FCSHP
Chair, Task Force on a Blueprint for Pharmacy
Vancouver, BC

Régis Vaillancourt, OMM, CD, BPhm, PharmD, FCSHP
Children's Hospital of Eastern Ontario
Ottawa, ON

Peter Zed, PharmD, FCSHP
QEII Health Sciences Centre
Halifax, NS

Lois Cantin, BScPhm
Concordia Hospital
Winnipeg, MB

10:00-10:30 **Break, Posters**
Pause, Affiches

CHURCHILL ROOM & DOMINION FOYER

10:45-11:30 **Concurrent Sessions**
Sessions concomitantes

1. **The Top Ten List of Cardiology Stuff You Need to Know**

CONFERENCE ROOM B

Margaret Ackman, BScPhm, PharmD
Regional Pharmacy Services, Capital Health
Edmonton, AB

2. **Update on Colorectal Cancer**

CONFERENCE ROOM D/E

Pat Trozzo, BScChem, BScPhm, BCPS, FCSHP
CancerCare Manitoba
Winnipeg, MB

3. **Top 10 Tips for Managing an Outbreak**

CONFERENCE ROOM C

Kathryn Slayter, PharmD
Capital Health
Halifax, NS

11:40-12:25 **Concurrent Sessions**
Sessions concomitantes

1. **Clinical Pearls**
   Trésors cliniques

   a. **Misoprostol for Induction of Labour: A Hyperstimulating Overview**

   CONFERENCE ROOM B

   Cindy Wong, BScPhm, ACPR
   Mount Sinai Hospital
   Toronto, ON

   b. **Breast Feeding with UTI: Which Antibiotics Are Safe?**

   CONFERENCE ROOM B

   Kelly Mendham, HonBSc, BScPhm
   Mount Sinai Hospital
   Toronto, ON

   c. **The Ceftriaxone and Calcium Interaction: Is it for Real?**

   CONFERENCE ROOM B

   Elaine Lau, PharmD, MSc
   The Hospital for Sick Children
   Toronto, ON

2. **CSHP 2015 – Sharing our Success**

CONFERENCE ROOM D/E

Douglas Doucette, BScPhm, PharmD, FCSHP
South-East Regional Health Authority
Moncton, NB

3. Invasive Pneumococcal Pneumonia: The Vancouver Downtown Eastside Experience

CONFERENCE ROOM C

Tim Lau, PharmD, ACPR, FCSHP
Vancouver Coastal Health
Vancouver, BC

12:30-14:00 **Satellite Symposiums** (luncheon included)
Symposiums satellites (déjeuner inclus)

1. Update on the Management of Upper GI Bleed and Controversies in PPI Use

ESSEX BALLROOM

Hosted by: Drug *Intelligence* Inc.
Sponsored by: Abbott

2. Antimicrobial Resistance in the Canadian Hospital Environment – *Clostridium difficile:* A Problem Pathogen

WINDSOR ROOM

Hosted by: Wyeth Pharmaceuticals

3. The Shocking World of Atrial Fibrillation

CITY HALL ROOM

Hosted by: Canadian Cardiovascular Pharmacists Network

14:10-16:00 **Workshops** (registration is required – see PPC registration form)
Ateliers (inscription requise – voir le formulaire d'inscription de la CPP)

1. Feedback on the Fly: Practical Tips to Make it Useful for You and Your Student

CONFERENCE ROOM B

Debbie Kwan, BScPhm, MSc, FCSHP
University Health Network
Toronto, ON

Brenda Mori, BScPT, MSc
St. Michael's Hospital
Toronto, ON

2. The Art of Creating Effective Poster Presentations

CONFERENCE ROOM D/E

Lisa Burry, PharmD
Mount Sinai Hospital
Toronto, ON

3. Evidence-Based Medicine: How to Use Cohort Studies to Assess the Risks and Benefits of Drug Therapy

CONFERENCE ROOM C

Linda Levesque, BScPhm, MSc, PhD
Queens University
Kingston, ON

14:10-1600 **Pharmacy Specialty Networks Sessions (PSN)** – Everyone Welcome
Séances des Réseaux de spécialistes en pharmacie (RSP) – Bienvenue à tous

1. Infectious Disease PSN RSP en Infectiologie

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

CONFERENCE ROOM F

Controversies in Antifungal Therapy

Barrie McTaggart Lecture

Alfred Gin, PharmD, FCSHP
Health Sciences Centre
Winnipeg, MB

Calls to Abandon Vancomycin: Impulse or Evidence?

Sheryl Zelenitsky, PharmD
University of Manitoba
Winnipeg, MB

2. Drug Use Evaluation PSN RSP en Évaluation de l'utilisation des médicaments

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

CONFERENCE ROOM G

Pump up the Evidence: Strategies for Optimal PPI Use in GERD, Dyspepsia and Peptic Ulcer Disease

Pam McLean-Veysey, BScPhm
Capital Health
Halifax, NS

Knowledge Translation and Behavioral Change: An Overview of Interventions, Evidence and Evaluation Methods

Stephen Graham, BScPhm, PhD
Nova Scotia Department of Health
Halifax, NS

16:15-17:45 **Awards Ceremony and Cocktail Reception**
Everyone welcome
Cérémonie de remise des prix et cocktail
Bienvenue à tous
CITY HALL ROOM

17:45-19:30 **Career Opportunities Evening**
Soirée de perspectives d'emploi
CIVIC BALLROOM

Monday, January 28
Lundi 28 janvier

07:30-17:00 **Registration**
Inscription
COATCHECK

08:15-9:30 **The Safety Dance: Medication Safety and Me**
DOMINION BALLROOM

Neil MacKinnon, PhD, FCSHP
Dalhousie University
Halifax, NS

New Fellows Presentation

9:45-10:15 **Break, Exhibits, Posters**
Pause, Kiosques, Affiches
SHERATON HALL

10:30-11:15 **Concurrent Sessions**
Sessions concomitantes

1. **Mentoring Your Staff Members for Management**

CONFERENCE ROOM B

Richard Jones, BSP, BSc, RPh
London Health Science Centre
London, ON

Kevin Hall, BScPhm, PharmD
Winnipeg Regional Health Authority
Winnipeg, MB

2. **Breathtaking, Groundbreaking, Earthshaking: Clinical Trials that will Change Your Practice in Acute Care**

CONFERENCE ROOM C

Curtis Harder, BScPhm, PharmD, ACPR
Vancouver Island Health Authority
Victoria, BC

3. **Meta-Analysis with Rosiglitazone: What's the Fuss?**

CONFERENCE ROOM D/E

Jan Friedrich, MD, DPhil, FRCPC(C)
St. Michael's Hospital
Toronto, ON

4. **Oral Presentations**
Présentation orales

CONFERENCE ROOM F

11:25-12:10 **Interactive Facilitated Discussions**
(previously round tables)
Discussions interactives structurées
(jadis tables rondes)

1. **Effective Strategies for Medication Reconciliation at Hospital Discharge**

CONFERENCE ROOM B

Sonia Mota, BScPhm
University Health Network
Toronto, ON

Gwen Liu, PharmD
St. Joseph's Healthcare Hamilton
Hamilton, ON

2. **Bar Coding Medication Safety**

CONFERENCE ROOM G

Anne Marie Lang-Berkowitz, BScPhm, MBA
Credit Valley Hospital
Mississauga, ON

3. **Using Information Technology to Improve Pharmaceutical Care**

CONFERENCE ROOM D/E

Carlo DeAngelis, BScPhm, PharmD
Sunnybrook Health Sciences Centre
Toronto, ON

4. **Oral Presentations**
Présentations orales

CONFERENCE ROOM F

5. **Concurrent Session**
Session concomitante

CONFERENCE ROOM C

Rx&D Code of Conduct : What Pharmacists Need to Know

Chrisoula Nikidis, BA, LLB
Canada's Research-Based Pharmaceutical Companies (Rx&D)
Ottawa, ON

John McBride, BScPhm
Kingston General Hospital
Kingston, ON

12:15-13:50 **Lunch, Exhibits, Posters**
Déjeuner, Kiosques, Affiches
SHERATON HALL

14:00-15:00 **Opening Doors to Real Change in Health Care: A Legislative Update**
DOMINION BALLROOM

Moderator:
Jean-François Bussières, BPharm, MSc, MBA, FCSHP
Centre hospitalier universitaire Sainte-Justine
Montréal, QC

Carmine Stumpo, PharmD
Toronto East General Hospital
Toronto, ON

Jeff Whissell, BScPhm, ACPR
Capital Health
Edmonton, AB

15:10-17:10 **Workshops** (registration is required – see PPC registration form)
Ateliers (inscription requise – voir le formulaire d'inscription de la CPP)

1. **Feedback on the Fly: Practical Tips to Make it Useful for You and Your Student**
   CONFERENCE ROOM B

   Debbie Kwan, BScPhm, MSc, FCSHP
   University Health Network
   Toronto, ON

   Brenda Mori, BScPT, MSc
   St. Michael's Hospital
   Toronto, ON

2. **The Art of Creating Effective Poster Presentations**
   CONFERENCE ROOM D/E

   Lisa Burry, PharmD
   Mount Sinai Hospital
   Toronto, ON

3. **Evidence-Based Medicine: How to Use Cohort Studies to Assess the Risks and Benefits of Drug Therapy**
   CONFERENCE ROOM C

   Linda Levesque, BScPhm, MSc, PhD
   Queens University
   Kingston, ON

15:10-17:10 **Pharmacy Specialty Networks Sessions (PSN)** – Everyone Welcome
Séances des Réseaux de spécialistes en pharmacie (RSP) – Bienvenue à tous

1. **Critical Care PSN**
   RSP en Soins intensifs
   BUSINESS MEETING TO FOLLOW
   RÉUNION D'AFFAIRES SUIVRA
   CONFERENCE ROOM F

   Update on Corticosteroids in ARDS

   Rob Ariano, BCPS, PharmD, FCCM
   St. Boniface General Hospital
   Winnipeg, MB

   Update on HIT in the ICU

   Chistopher Daley, BScPhm, PharmD, ACPR
   St. Michael's Hospital
   Toronto, ON

2. **Geriatrics PSN**
   RSP en Gériatrie
   BUSINESS MEETING TO FOLLOW
   RÉUNION D'AFFAIRES SUIVRA
   CONFERENCE ROOM G

   Should We Listen to People Affected by Dementia in Deciding about Treatment?

   Kenneth Rockwood, MD, FRCPC
   Capital Health
   Halifax, NS

   Sorting Through the Alphabet Soup of the MMSE, BCRS, FAST and MoCA: Cognitive Assessment for Pharmacists

   Susan Bowles, PharmD, FCSHP
   Capital Health
   Halifax, NS

18:00-19:00 **Reception, Silent Auction**
Everyone welcome
Réception, Vente aux enchères par écrit
Bienvenue à tous
ESSEX BALLROOM

19:00-21:00 **Research and Education Foundation Dinner with Keynote Speaker Cheryl Cran, Leadership and Communications Expert**
Tickets available –
see PPC registration form

Dîner de la Fondation pour la recherche et l'éducation avec la conférencière Cheryl Cran, spécialiste du leadership et de la communication
Billets disponibles, voir le formulaire d'inscription de la CPP

ESSEX BALLROOM

Tuesday, January 29
Mardi 29 janvier

07:30-17:00 **Registration**
Inscription

COATCHECK

08:15-9:30 ***Moving Forward:*** **Pharmacy Human Resources for the Future: A Progress Report**

Kevin Hall, BScPhm, PharmD
Winnipeg Regional Health Authority
Winnipeg, MB

New Fellows Presentation

DOMINION BALLROOM

9:45-10:15 **Break, Exhibits**
Pause, Kiosques

SHERATON HALL

10:30-11:15 **Concurrent Sessions**
Sessions concomitantes

1. **Canada Vigilance Program: Adverse Reaction Monitoring in Canada**

   CONFERENCE ROOM C

   Aaron Leung, RPh, BA HonChem, BScPhm
   Ontario and Nunavut Health Products and Food Program Health Canada
   Toronto, ON

2. **Preceptor 101: Tips for Starting and Planning a Successful Clinical Rotation**

   CONFERENCE ROOM B

   Susan Bowles, PharmD, FCSHP
   Capital Health
   Halifax, NS

3. **Oral Presentations**
   Présentations orales

   CONFERENCE ROOM F

4. **Interactive Facilitated Discussion**
   (formerly Round Table)
   Discussion interactive structurée
   (jadis table ronde)

   CONFERENCE ROOM D/E

   Understanding Challenges for Medication Reconciliation at Internal Hospital Transfer

   Kori Leblanc, BScPhm, ACPR
   University Health Network
   Toronto, ON

   Jennifer Harrison, BScPhm, MSc
   University Health Network
   Toronto, ON

11:25-12:10 **Interactive Facilitated Discussions**
(previously round tables)
Discussions interactives structurées
(jadis tables rondes)

1. **Implementation and Use of Smart Pump Technologies**

   CONFERENCE ROOM C

   Mark Duffett, BScPhm
   Hamilton Health Sciences
   Hamilton, ON

2. **Developing Pharmacist Mentorship Programs**

   CONFERENCE ROOM B

   Carmine Nieuwstraten, BScPhm, ACPR
   St. Joseph's Healthcare Hamilton
   Hamilton, ON

   Karen Davis, BScPhm, BA, MBA
   St. Joseph's Healthcare Hamilton
   Hamilton, ON

3. **How Pharmacists Can be Involved in Humanitarian Volunteer Efforts**

   CONFERENCE ROOM D/E

   Linda Dresser, BScPhm, PharmD
   North York General Hospital
   North York, ON

   Daniel Cortes, BScPhm, RPh
   St. Michael's Hospital
   Toronto, ON

4. **Sharing Practices: Pharmacy Technicians Partnering with Pharmacists for Medication Reconciliation**

   CONFERENCE ROOM G

   Susan Fockler, BScPhm, ACPR
   Ross Memorial Hospital
   Lindsay, ON

   Susan MacDonald, CPHT
   Ross Memorial Hospital
   Lindsay, ON

Bruce Tugwood, BScPhm
Trillium Health Centre
Mississauga, ON

5. Oral Presentations
Présentations orales

CONFERENCE ROOM F

12:15-13:50 **Lunch, Exhibits, Posters**
Déjeuner, Kiosques, Affiches

SHERATON HALL

14:00-15:00 **Developing Yourself as a Leader**

DOMINION BALLROOM

Robert E. Smith, PharmD
Auburn University
Auburn, AL

15:10-17:10 **Workshops** (registration is required – see PPC registration form)
Ateliers (inscription requise – voir le formulaire d'inscription de la CPP)

1. Collaborating with Physicians

CONFERENCE ROOM D/E

Barbara Farrell, BScPhm, PharmD, FCSHP
SCO Health Services
Ottawa, ON

2. Case Management in Gastroenterology

CONFERENCE ROOM B

Peter Thomson, BScPhm, PharmD
Winnipeg Health Science Cnetre
Winnipeg, MB

3. The Highs and Lows of Antiepileptic Drug Monitoring: Practical Approach to Management for the Pharmacist

CONFERENCE ROOM C

Tejal Patel, PharmD
Mississauga, ON

15:10-17:10 **Pharmacy Specialty Networks Sessions (PSN)** – Everyone Welcome
Séances des Réseaux de spécialistes en pharmacie (RSP) – Bienvenue à tous

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1. Cardiology PSN
RSP en Cardiologie

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

CONFERENCE ROOM F

The Use of Fish Oil Supplements for Cardiovascular Health and Disease Treatment: Fishing for the Truth!

Glen Pearson, BSc, BScPhm, PharmD, FCSHP
University of Alberta
Edmonton, AB

NSAIDs in Cardiovascular Disease: Should We Stick with Tradition?

Karen McFarlane, BScPhm
Markham Stouffville Hospital
Markham, ON

PPAR Agonists: Pal or Peril for CV Patients?

Alice Hogg, RPh
Markham Stouffville Hospital
Markham, ON

Conundrums with Combinations: Triple Therapy Blood Thinners

Uchenwa Genus, BScPhm, ACPR
University Health Network
Toronto, ON

2. Paediatric PSN
RSP en Pédiatrie

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

CONFERENCE ROOM G

Infusion Confusion in Kids: The Need for Standard Concentrations for Paediatric High-Alert Medications

Régis Vaillancourt, OMM, CD, BPhm, PharmD, FCSHP
Children's Hospital of Eastern Ontario
Ottawa, ON

Extended Interval Dosing of Aminoglycosides in Neonates: A Discussion

Anna Chiu, BScPhm, ACPR
Trillium Health Centre
Mississauga, ON

17:30-19:30 **Satellite Symposiums** (dinner included)
Symposiums satellites (dîner inclus)

1. **The Role of the Pharmacist in Thromboprophylaxis**

CITY HALL ROOM

Hosted by: sanofi-aventis Canada Inc.

2. New Frontiers in Hypertension: Attacking the Renin System at the Point of Activation

WINDSOR ROOM

Hosted by: Novartis Pharmaceutical Canada Inc.

Wednesday, January 30
Mercredi 30 janvier

06:45-8:15 **Satellite Symposium**
(breakfast included
Symposium satellite
(petit déjeuner inclus)

Smoking Cessation in the 21st Century: What Every Pharmacist Should Know!

CITY HALL ROOM

Sponsored by: Pfizer Canada

07:30-15:00 **Registration**
Inscription

COAT CHECK

08:15-9:15 **Demystifying Knowledge Translation and Quality Improvement: A Primer for Pharmacists**

DOMINION BALLROOM

Christopher Hayes, MD, FRCP(C)
St. Michael's Hospital
Toronto, ON

09:15-10:15 **Optimal Prescibing and Medication Use in Canada: Challenges and Opportunities**

DOMINION BALLROOM

Ingrid Sketris, PharmD, MPA(HSA)
Dalhousie University
Halifax, NS

10:15-10:45 **Break, Posters**
Pause, Affiches

CHURCHILL ROOM & DOMINION FOYER

10:55-11:40 **Concurrent Sessions**
Sessions concomitantes

1. Recent Studies that May Change Your Practice in Primary and Ambulatory Care Settings

CONFERENCE ROOM B

Jeff Nagge, PharmD, ACPR
Centre for Family Medicine
Kitchener, ON

2. Tips and Tricks for Answering Drug Information Questions

CONFERENCE ROOM C

Andrew Wyllie, BScPhm, ACPR, PharmD
Mount Sinai Hospital
Toronto, ON

3. Strategic Directions for Medication Safety

CONFERENCE ROOM D/E

Phil Hassen, MPH, FCCHSE
Canadian Patient Safety Institute
Edmonton, AB

11:50-12:35 **Concurrent Sessions**
Sessions concomitantes

1. Managing Type 2 Diabetes: Making Sense of it All

CONFERENCE ROOM B

Christine Papoushek, PharmD
TWH Academic Family Health Team
Toronto, ON

2. Making Better Use of the Medical Literature

CONFERENCE ROOM C

Karen Agro, BScPhm, PharmD, MSc
Agro Health Associates Inc.
Burlington, ON

3. Secondary Stroke Prevention Guidelines: A Critical Review

CONFERENCE ROOM D/E

Tania Mysak, BSP, PharmD
Capital Health
Edmonton, AB

12:40-14:10 **Satellite Symposiums**
(luncheon included)
Symposiums satellites
(déjeuner inclus)

1. Type 2 Diabetes: Current and Emerging Options

ESSEX BALLROOM

Hosted by: Merck Frosst Canada Ltd.

2. Advances in Biologic Therapy in Crohn's Disease

CITY HALL ROOM

Hosted by: Abbot

14:15-15:00 **Pharmacy Controversies and Issues Forum** – Panel Discussion

DOMINION BALLROOM

Moderator:
Brenda G. Schuster, BSP, ACPR
Regina Qu'Appelle Health Region
Regina, SK

Derek Jorgenson, BSP, PharmD
Saskatoon Health Region
Saskatoon, SK

Allan Mills, PharmD
Trillium Health Centre
Mississauga, ON

Ann Thompson, BScPhm, ACPR
Capital Health
Edmonton, AB

15:15 –17:15 **Workshops** (registration is required – see PPC registration form)
Ateliers (inscription requise – voir le formulaire d'inscription de la CPP)

1. Collaborating with Physicians

CONFERENCE ROOM D/E

Barbara Farrell, BScPhm, PharmD, FCSHP
SCO Health Services
Ottawa, ON

2. Case Management in Gastroenterology

CONFERENCE ROOM B

Peter Thomson, BScPhm, PharmD
Winnipeg Health Science Centre
Winnipeg, MB

3. The Highs and Lows of Antiepileptic Drug Monitoring: Practical Approach to Management for the Pharmacist

CONFERENCE ROOM C

Tejal Patel, BScPhm
Mississauga, ON

15:15-17:15 **Pharmacy Specialty Networks Sessions (PSN)** – Everyone Welcome
Séances des Réseaux de spécialistes en pharmacie (RSP) – Bienvenue à tous

1. Primary Care PSN
RSP en Soins de santé primaires

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

WINDSOR ROOM

Starting Innovative Pharmacy Services in the Primary Care Setting

Jeff Nagge, PharmD, ACPR
Centre for Family Medicine
Kitchener, ON

Delegation of Diabetes Care through Medical Directives

Lisa Kwok, BScPhm, PharmD
North York Family Health Team
North York, ON

Passport to Health: Timely Transference of Medication Information and Chronic Disease Management

Iris Krawchenko, BScPhm, CGP
Dell Pharmacy
Hamilton, ON

2. Medication Safety PSN and Home Care PSN
RSP en Sécurité des médicaments et
RSP en Soins et services à domicile

BUSINESS MEETING TO FOLLOW
RÉUNION D'AFFAIRES SUIVRA

CONFERENCE ROOM G

CCHSA Focus on Managing Medications: What You Need to Know

Jessica Peters, MPA
Canadian Council on Health Services Accreditation
Ottawa, ON

Janice Munroe, BScPhm
Fraser Health Authority
Langley, BC

Moving Medication Reconciliation into the Community : What is Happening with Home Care?

Margaret Colquhoun, BScPhm, RPh, FCSHP Institution for Safe Medication Practices Canada Toronto, ON	**17:15**	**Close of the 39th Annual Professional Practice Conference** **Clôture de la 39e Conférence annuelle sur la pratique professionnelle**

You're invited to [redacted]

Where: CSHP AGM 2008 in Saint John, New Brunswick
Host hotel: Hilton Saint John
1 Market Square, Saint John, Canada E2L 4Z6 1-506-693-8484

When: August 9-12, 2008

Social Events Include:

Saturday August 9th

Golf at Algonquin Golf Course and Academy in beautiful St. Andrews by the Sea. Ranked by Score Magazine (2006) in the Top 100 Courses in Canada and Best in New Brunswick.

For the non-golfer St. Andrews offers a historic tour, shopping, and lunch.

Opening Reception at the Saint John Museum. Have a "Whale" of a time at this unique venue...learning can be fun...

Sunday, August 10th

Fun Run/Walk We'll see you bright and early just outside the host hotel for a 5K run/walk on the newest addition to Saint John's waterfront, the Harbour Passage. Breakfast to follow in the Market Square Atrium.

Fun Night over looking the Kennebecasis River at Riverside Golf and Country Club. Enjoy a Maritime lobster dinner (or steak) with "Ceilidh" style entertainment you won't soon forget! Be prepared to bring your instruments and talent!

Monday, August 11th

Past Presidents Dinner at the Delta Brunswick Hotel, featuring the comedy of Chuck and Albert, but don't forget your dancing shoes because Radiofactory will soon follow.

Hope to see you there

Extend your stay and plan a vacation in New Brunswick
Links
www.tourismnewbrunswick.ca ; www.standrewsnb.ca;
www.tourismsaintjohn.com

Blueprint for Pharmacy: Designing the Future Together

David Hill, EdD, FCSHP, Chair, Task Force on a Blueprint for Pharmacy, Vancouver, BC, Régis Vaillancourt, OMM, CD, BPhm, PharmD, FCSHP, Children's Hospital of Eastern Ontario, Ottawa, ON, Peter Zed, PharmD, FCSHP, QEII Health Sciences Centre, Halifax, NS, Lois Cantin, BScPhm, Concordia Hospital, Winnipeg, MB

Where is the pharmacy profession going? What is the profession doing about all the system changes? For the first time the profession is getting together to develop a common vision and strategic plan for the future of pharmacy. Come and hear about the Blueprint for Pharmacy process and the main concerns of hospital pharmacists. We have panelists that will react to the work done to date from the hospital pharmacy perspective. Come design the future of pharmacy together by listening, learning and speaking up!

The Top Ten List of Cardiology Stuff You Need to Know

Margaret L. Ackman, BScPhm, PharmD, Capital Health, Edmonton, AB

The goal of this session is to provide hospital pharmacists with an update concerning recent guidelines, publications and presentations in the field of cardiology.

Recently released guidelines recommend antibiotic prophylaxis for the prevention of infective endocarditis only in high-risk patients undergoing specific procedures. The new NSTEMI guidelines recommend the use of LMWH or fondaparinux for up to 8 days or until hospital discharge and also support proton pump inhibitor prophylaxis in patients with previous GI bleeds who require ongoing antiplatelet therapy.

Cohort evidence supports the need for continuation of dual antiplatelet therapy for a period of at least 6 months and perhaps longer in patients with drug-eluting stents. The current practice of combining oral anticoagulants and ASA is not supported by a recent meta-analysis, except in patients with mechanical heart valves.

For atrial fibrillation, the management strategy of rate control being as good as rhythm control has been extended to patients with congestive heart failure. Use of perioperative beta blockade in at risk patients undergoing non-cardiac surgery is not as clear with a reduction in myocardial infarction, coronary revascularization and atrial fibrillation, but an accompanying increase in death and stroke.

As one might expect, discontinuation of medications following myocardial infarction is associated with an increased risk of mortality. More importantly, a single question asked of outpatients "In the past month, how often did you take your medications as the doctor prescribed?" was predictive of an increased rate of CHD death, myocardial infarction or stroke.

Goals and Objectives

1. To provide hospital pharmacists with an update concerning recent guidelines, publications and presentations in the field of cardiology.
2. To briefly review the evidence influencing new guideline recommendations and perhaps making older guidelines obsolete.

Self-Assessment Questions

1. Should all patients with valvular heart disease receive prophylactic antibiotics prior to dental procedures?
2. What is the preferred choice of single antiplatelet therapy for a patient with a previous GI bleed and cardiovascular disease?

Update on Colorectal Cancer

Pat Trozzo, BScChem, BScPhm, BCPS, FCSHP, CancerCare Manitoba, Winnipeg MB

The goal of this session is to provide pharmacists with an understanding of some of the recent advances in the treatment of colorectal cancer.

Colorectal cancer is the fourth most common cancer diagnosed in Canada with nearly 21, 000 new cases predicted for 2007. It is second only to lung cancer with almost 9,000 deaths predicted for 2007. Over the last decade there have been considerable advances in the both the metastatic and adjuvant treatment of colorectal cancer. The session will focus on many of these changes. As well, the session will detail some of the new targeted therapies expected over the next 12 months.

Goals and Objectives

1. To provide pharmacists with an overview of the most recent advances in the treatment of colorectal cancer.
2. To enable pharmacists to gain an understanding of the toxicity management strategies associated with some of these new therapies.

Self-Assessment Questions

1. Do you believe that fluorouracil is the only effective treatment for the treatment of colorectal cancer?
2. Do you think of the diagnosis of colon cancer as a chronic disease?
3. Should patients with stage II colon cancer be treated with adjuvant chemotherapy?

Top 10 Tips for Managing an Outbreak

Kathryn Slayter, BScPhm, PharmD , Division of Infectious Diseases, Pharmacy Department, Capital Health, Dalhousie University, Halifax, NS

The goal of this session will be to provide pharmacists with strategies on managing "common infectious outbreaks" within the healthcare setting.

With the ever expanding role of the pharmacist, many new opportunities may arise with outbreak management including crisis immunization, pandemic planning, antimicrobial and infection control and reporting of novel vaccine adverse events.

Canada is currently facing many "mini outbreaks" including that of B1/NAP1 strain of clostridium difficile, seasonal influenza, pandemic influenza, community acquired MRSA, mumps, and measles. The role of the pharmacist will be explored and tips for managing these outbreaks will be presented.

Goals and Objectives

1. To provide pharmacists with an overview of outbreak management and strategies that can be utilized
2. To enable pharmacists to identify their role in outbreak management

Self-Assessment Questions

1. Who should receive an MMR vaccine during an outbreak?
2. Should antimicrobials be restricted to help curb the clostridium difficile outbreak?
3. What is the role of the pharmacist in crisis immunization?

CSHP 2015 – Sharing our Success

Douglas Doucette, BScPhm, PharmD, FCSHP, South-East Regional Health Authority, Moncton, NB, on behalf of the CSHP 2015 Atlantic Collaborative.

"Practice Excellence Through CSHP 2015" is 1 of the 4 pillars of CSHP Vision 2010. The aim of CSHP 2015 is to improve patient medication outcomes and safety by advancing practice excellence. It is comprised of 6 goals related to effective, scientific and safe medication use, and community health.[1]

The CSHP 2015 Atlantic Collaborative will be described in terms of its objectives and methods employed to adopt CSHP 2015 into health authorities in its regions. Following presentations at recent PPC and AGM to introduce CSHP 2015 to its members, hospital pharmacy managers in the Maritime Provinces were polled to establish priorities of the 2015 objectives in their respective institutions/regions. The poll results were presented at a regional pharmacy management meeting and attendees participated in interactive breakout sessions to share ideas on how to implement 2015 objectives and achieve targets.

Examples will be provided as to how 2015 objectives were introduced into a number of sites in the Maritimes. Challenges encountered included establishing priority objectives, determining baseline and desired targets, developing action plans to achieve targets, and obtaining "buy-in" from members of the pharmacy team and from other disciplines / departments when success (or roadblocks) depend on external consultation and cooperation.

Goals and Objectives

1. To share the early success of CSHP 2015 and the Atlantic Collaborative
2. To describe the Atlantic Collaborative and its early progress in implementing CSHP 2015.
3. To familiarize with the CSHP 2015 Self-Assessment Tool.
4. To leave listeners feeling encouraged that CSHP 2015 can be adopted using a variety of approaches, i.e. single vs multiple facilities; small, medium or large hospital (number of beds); and within a province or a larger inter-provincial region.

Self-Assessment Questions

1. Where can I find comprehensive information about CSHP 2015?
2. According to the results of the CSHP 2015 Self-Assessment Tool, what objectives have we fully implemented in some areas or throughout our site/region? What objectives have we not yet implemented nor dedicated any discussion or activity to?
3. By sharing successes or barriers encountered (i.e. policies, procedures, order sets, etc.), identify at least 2 examples each where our site/region can assist AND can learn from other sites/health authorities in adopting and implementing action plans to meet CSHP 2015 objectives.

Invasive Pneumoccal Pneumonia: The Vancouver Downtown Eastside Experience

Tim T.Y. Lau, PharmD, FCSHP, Vancouver General Hospital, Vancouver Coastal Health, Vancouver, BC

The purpose of this session is to provide pharmacists with an overview of the invasive pneumococcal pneumonia outbreak that occurred in the Vancouver Downtown Eastside. Treatment and prevention strategies will be discussed.

Serotype 5 Streptococcus pneumoniae was previously an uncommon pathogen in BC. In August 2006, an increase of cases was observed. Surveillance data indicated that cases were associated with high-risk populations in the Vancouver Downtown Eastside. Risk factors included homelessness, rooming house habitation, use of crack cocaine and other illicit drugs, and medical risk factors such as HIV or hepatitis C infection. In response to the outbreak, Vancouver Coastal Health initiated a pneumococcal immunization campaign. Polysaccharide

pneumococcal (23-valent) vaccine was provided to shelters, food banks, and other community locations.

In the session, a typical patient case with invasive pneumococcal pneumonia will be presented. The treatment alternatives will be reviewed and the immunization considerations will be discussed.

Goals and Objectives

1. To provide pharmacists with an overview of the invasive pneumococcal pneumonia outbreak that occurred in the Vancouver Downtown Eastside.
2. To provide pharmacists with a review of the therapeutic alternatives for pneumococcal pneumonia.
3. To familiarize pharmacists with the polysaccharide and conjugate pneumococcal vaccines.

Self-Assessment Questions

1. What is an appropriate empiric antimicrobial regimen for pneumococcal pneumonia?
2. What are the main differences between the polysaccharide and conjugate pneumococcal vaccines?
3. In which patient would I consider giving pneumococcal vaccine?

Feedback on the Fly: Practical Tips to Make it Useful for You and Your Student

Debbie Kwan, BScPhm, MSc, FCSHP, Toronto Western Hospital, Brenda Mori, BScPT, MSc, Centre for Faculty Development, University of Toronto, Toronto, ON

Feedback can be defined as a formative process by which the teacher provides students with information about their performance for the purpose of improving future performance. The goal of this workshop is to provide pharmacists with useful information for enhancing the process of giving feedback to students. The context used in this workshop will focus on feedback situations that occur during clinical practice placements.

The literature consistently reports that the quality of feedback provided to health professional students is suboptimal. In addition, students frequently comment that they would like to receive more feedback. In a busy clinical environment, it is a challenge to be able to provide effective feedback within the confines of limited time availability. However, providing constructive and regular feedback has been shown to improve student performance.

Effective feedback requires the incorporation of 3 essential elements: a sample of current behavior, a clear model of desired behavior and a demonstration of the difference. Several models of providing feedback have been described in the literature. This workshop will give participants an opportunity to practice behaviors related to giving feedback using one of these models.

The session will consist of an interactive presentation, deconstruction of sample feedback scenarios and experiential learning through small group role-play and discussion.

Goals and Objectives

At the end of this workshop, participants will be able to:

1. Define and explain why feedback is important.
2. Describe the elements of effective feedback.
3. Employ behaviors used to give feedback.

Self-Assessment Questions

1. Describe one model for providing effective feedback to a student.
2. Explain how student self-assessment can enhance the feedback process.

The Art of Creating Effective Poster Presentations

Lisa D. Burry, BScPharm, PharmD, FCCP, Mount Sinai Hospital, Toronto, ON

Poster sessions are frequently used as a means to convey information in a brief format (typically 4' x 8') in classrooms, conferences and symposia, and workshops. Designing effective poster presentations is an art unto itself. This session will provide resources to make this process easier. This workshop will review the basis for making effective posters, review examples of various poster formats and will allow time for the critique of several posters! By the end of this workshop pharmacists will better understand the dos & don'ts of poster presentations.

"It takes intelligence, even brilliance, to condense and focus information into a clear, simple presentation that will be read and remembered. Ignorance and arrogance are shown in a crowded, complicated, hard-to-read poster." Mary Helen Briscoe

Goals and Objectives

This session will review

1. the guidelines for creating effective visual aids to support public display of research, case reports, etc;
2. how to prepare for an effective poster discussion;
3. sample judging criteria.

Evidence-Based Medicine: How to Use Cohort Studies to Assess the Risks and Benefits of Drug Therapy

Linda Lévesque, BScPhm, MSc, PhD, Queen's University, Kingston ON

The goal of this workshop is to provide pharmacists with the tools necessary to critically appraise the results of cohort studies and determine the applicability of such findings in their practice.

Randomized controlled trials (RCTs) are considered the "gold standard" for evaluating the beneficial effects of a treatment; however, such studies are not without limitations. For example, RCTs are generally underpowered to detect less common but serious adverse effects and the presence of these can often only be confirmed using observational (nonrandomized) studies. Some recent examples of this include COX-2 inhibitors and cardiovascular events, gatifloxacin and dysglycemias, and TDZs and myocardial infarctions and cardiovascular deaths. In addition, the inclusion and exclusion criteria of RCTs often limit the study population to a small fraction of the individuals who will require treatment in practice. For these reasons, pharmacists will often not find RCT evidence to answer certain clinical questions, particularly those related to the harmful effects of drugs, and will need to consider evidence from observational studies such as cohort studies.

Using two recently published cohort studies, this session will demonstrate how to identify common sources of bias in cohort studies, how to calculate the relative and absolute impact of a treatment, and how to apply the results to patient care. A framework for the critical evaluation of cohort studies will be presented and participants will have the opportunity to apply this framework during a group exercise.

Goals and Objectives

1. To provide pharmacists with an understanding of where observational studies fit in terms of the hierarchy of evidence.
2. To provide pharmacists with the tools necessary to evaluate the validity of results from cohort studies, assess how large and how precise the results are, and determine the applicability of these results in their practice.

Self-Assessment Questions

1. When should you consider evidence from cohort studies?
2. Should evidence of harm be considered differently than that of beneficial effects?
3. What factors do you need to consider before applying the results of a cohort study to a patient?

Controversies in Antifungal Therapy

Alfred Gin, BScPhm, PharmD, Health Sciences Centre Winnipeg, Winnipeg, MB

Significant morbidity and mortality are associated with invasive fungal infections especially in severely immunocompromised patients. Amphotericin B has been considered the "gold standard" but has been overshadowed to some degree by its renal and infusion related toxicities. The echinocandins and the new triazoles have presented clinicians with addition antifungal treatment options not previously available for the management of invasive fungal infections (IFIs).

The role of amphotericin B continues to be debated among pharmacists and physicians. Recently, proposed guidelines from the Infectious Diseases Society of America for the management of candidiasis, recommended the echinocandins as the drugs of choice where fluconazole could not be used due to resistance or susceptibility. In Canada, micafungin (echinocandin) and posaconazole (triazole) have recently received notice of compliance. The availability of two echinocandins (caspofungin and micafungin) has stimulated a competitive environment and has generated considerable discussion with their role in the treatment of IFIs, placement on the hospital formulary and whether they are interchangeable. In contrast, this has occurred to a much lesser degree with voriconazole and posaconazole. However questions regarding role of therapeutic drug monitoring (TDM) have arisen with reports of breakthrough infections with the azoles.

This presentation will review and compare the new antifungals with respect to the pharmacology, efficacy, adverse effects and role in therapy.

Goals and Objectives

1. To provide pharmacists with an overview of the newer antifungals and their role in therapy
2. To identify issues for pharmacists for consideration with respect to equivalency and TDM.

Self-Assessment Questions

1. What patient populations are most likely to receive these new agents?
2. Which antifungal and which type of patient should TDM be performed?

Call to Abandon Vancomycin: Impulse or Evidence?

Sheryl A. Zelenitsky, BScPhm, PharmD, Faculty of Pharmacy, University of Manitoba, Winnipeg, MB

With the reemergence of Gram positive infections, Staphylococcus aureus has become an important pathogen in institutional and community settings. Methicillin-resistant S.aureus (MRSA) has also been on the rise, and has most recently surfaced as a major public health concern in community-acquired infections. Although vancomycin has been the long-standing drug of choice for MRSA, there is mounting alarm that its efficacy is compromised by MIC creep, slow bacterial kill, inoculum effect and poor tissue penetration.

In response, notable changes to vancomycin use are being widely adopted in practice. Microbiology laboratory standards have reduced the susceptible MIC breakpoint in an attempt to better identify strains unlikely to respond to vancomycin. Also, opinion leaders and clinical guidelines have recommended, amidst great debate, more aggressive vancomycin dosing to maintain troughs of 15–20 ug/mL versus the traditional 5–10 ug/mL. Will higher troughs really improve clinical outcome? Will higher vancomycin

doses actually lead to increased nephrotoxicity? During this session, current knowledge on vancomycin pharmacodynamics and clinical evidence relevant to these key questions will be presented.

Other responses to the vancomycin concern have included calls to simply abandon the agent in favour of alternatives when faced with serious S.aureus infections. Clinical support for such action will be examined including, among others, two controversial studies showing survival benefit with linezolid compared to vancomycin in the treatment of MRSA pneumonia. The status of other new and investigational agents expanding the arsenal against this increasingly prevalent and life-threatening pathogen will also be reviewed.

Goals and Objectives

1. To provide attendees with an understanding of the current vancomycin debate
2. To enable attendees to evaluate the evidence supporting more aggressive vancomycin dosing, and that claiming increased toxicity
3. To enable attendees to evaluate the pros and cons of available alternatives

Self-Assessment Questions

1. What are the limitations of vancomycin use?
2. Should higher vancomycin doses be used without appreciable concern about toxicity?
3. Are there better alternatives which should be considered first-line?

Pump up the Evidence: Strategies for Optimal PPI Use in GERD, Dyspepsia and Peptic Ulcer Disease

Pam McLean-Veysey, BScPhm, Capital Health, Halifax, NS

Proton pump inhibitors (PPIs) are commonly prescribed and widely used in Canada, with 12.4 million PPI prescriptions dispensed in 2004. However, questions exist about whether PPIs are being prescribed and used appropriately. Both over- and under-utilization of PPIs have been reported, and costs associated with inappropriate prescribing and use may be considerable.

To optimize the prescribing and use of PPIs in Canada, the Canadian Agency for Drugs and Technologies in Health (CADTH), through its Canadian Optimal Medication Prescribing and Utilization Service (COMPUS) program, identified and is promoting evidence-based, clinical and cost-effectiveness information on optimal PPI prescribing and use.

The COMPUS Scientific Report contains evidence-based statements specifically addressing the use of PPIs for the management of gastroesophageal reflux disease (GERD), dyspepsia, and peptic ulcer disease (PUD). Other areas of focus include double-dose therapy, the clinical equivalence of PPIs, gastro-protection for non-steroidal anti-inflammatory drug (NSAID) users and the role of PPIs in asthma, laryngeal symptoms & chronic cough associated with GERD. Three key messages were identified: 1. All PPIs are equally efficacious in the initial treatment of GERD, dyspepsia and other common GI conditions. 2. Doubling the standard daily doses of PPIs, as initial therapy, is no better than standard daily dose therapy, 3. PPIs are not efficacious in treating cough, asthma or laryngeal symptoms associated with GERD.

Pharmacists need to be aware of the strategies, tools, and services developed by COMPUS in order that these resources may be utilized in interventions designed to encourage appropriate prescribing of medications.

Goals and Objectives

1. Identify potential clinical situations where proton pump inhibitor prescribing is not consistent with best practice prescribing for the treatment of GERD, dyspepsia and peptic ulcer disease.
2. Discuss the evidence for the following PPI issues:
   - Efficacy of one PPI vs. another; or vs. H2RAs
   - Double-dose PPI as initial therapy
   - Role in asthma, laryngeal symptoms & chronic cough associated with GERD
3. Identify key references and tools to assist in the best practice prescribing of proton pump inhibitors.

Self-Assessment Questions

1. Is there a benefit of starting a patient on twice daily PPIs as initial therapy?
2. Are there any differences in the clinical efficacy of the various PPIs?
3. Based on the evidence statements and tools developed by COMPUS, what interventions could be implemented in your practice setting?

Knowledge Translation and Behavioral Change: An Overview of Interventions, Evidence and Evaluation Methods

Graham Stephen D, BScPhm, PhD, Nova Scotia Department of Health, Halifax NS

Interventions aimed at influencing prescribing behaviour have been implemented to varying degrees of success. Numerous reviews showing the effectiveness of interventions including; continuing education meetings and workshops, academic detailing (educational outreach) visits, audit and feedback, local opinion leaders, reminders (computerized physician order entry and clinical decision support systems) have been published. Critical components of a successful intervention include; the preparation and planning preceding intervention implementation, appropriate format and content of the intervention, effective methods of intervention presentation, and evaluation of the intervention effect on targeted behaviour.

This presentation will review the format and content of different interventions aimed at influencing prescribing behaviour and the effectiveness of the interventions. It will utilize and instruct in the use of the 'Rx for Change' online database developed by the Canadian Agency for Drugs and Technologies in Health (CADTH) and the Cochrane Effective Practice and Organisation of Care Group (EPOC). 'Rx for Change' is a comprehensive review of systematic reviews on the topic of influencing prescribing behaviour and it is formatted and written such that decision makers can quickly understand the nature of an intervention and easily access the most relevant evidence to support the summary statements. The eight essential components of a successful intervention as presented by Soumerai and Avorn will be reviewed and applied to the development of an actual Academic Detailing Intervention. Finally, evaluations of interventions aimed at influencing prescribing behaviour often do not lend themselves to the randomized controlled trial design. An overview of quasi-experimental evaluation methods for determining intervention effect will be discussed.

Goals and Objectives

1. To enable pharmacists to select an appropriate educational intervention aimed at influencing prescribing behaviour and to review a freely available web-based tool which can be accessed at the time of intervention planning.
2. To provide pharmacists with an overview of quasi-experimental (non-RCT) methods when planning an evaluation to determine the effectiveness of an educational intervention.

Self-Assessment Questions

1. What is the effectiveness of educational interventions aimed at influencing prescribing behaviour?
2. What are the essential components of a successful face to face educational intervention?
3. How can I measure the effectiveness of an intervention if randomization of groups is not possible?

Monday, January 28 • Lundi 28 janvier

The Safety Dance: Medication Safety and Me

Neil J. MacKinnon, PhD, FCSHP, Dalhousie University, Halifax, NS

The goal of this session is to provide pharmacists with a summary of key studies and initiatives related to medication safety and to discuss the implications for hospital pharmacy practice in Canada.

Several important studies have been published in the past year, providing greater insight into both medication and patient safety. One of these studies is the Commonwealth Fund's international healthcare comparison survey, released on November 1st. According to this survey, 17% of Canadians surveyed reported experiencing a medical, medication or laboratory error in the past year. This number increased to 28% for patients with two or more chronic conditions and 30% for those who saw three or more physicians. While Canada was not the worst of the seven countries included in the survey, clearly patient safety remains a real concern in our country.

In addition to new research, there are several national and international initiatives that have direct implications for hospital pharmacy practice. The Canadian Patient Safety Institute (CPSI) continues to be an important stakeholder for fostering change as many hospital teams are participating in the second phase of the national patient safety campaign, Safer Healthcare Now! CPSI is also preparing to roll out a new knowledge brokerage model that will help to integrate research into practice. Canada is one of seven countries participating in the new World Health Organization initiative, "Action on Patient Safety: High 5s". Canada will be taking the lead on one of the five initiatives, medication reconciliation. Also, the new 2008 medication management accreditation standards from the Canadian Council on Health Services Accreditation will impact hospital pharmacy. All of these above initiatives will be reviewed in this plenary presentation, with emphasis will be placed on the application of the results to hospital pharmacy practice in Canada. Finally, Dr. MacKinnon will highlight the key messages from his new book "Safe and Effective" with its strategies for improving the safety and quality of Canada's medication-use system.

Goals and Objectives

1. To provide pharmacists with the highlights of recently published sentinel medication safety studies and national and international medication safety initiatives.
2. To enable pharmacists to consider how best to apply the results of these studies to their own practice setting.

Self-Assessment Questions

1. What changes do I need to make in my own pharmacy practice based on the results of these studies and on these initiatives?
2. What themes are common in these recently published medication safety studies?

3. How can I best communicate the results of these studies to other hospital pharmacists, physicians, nurses and hospital administrators?

Mentoring Your Staff Members for Management

Kevin W. Hall, BScPhm, PharmD Director of Pharmacy, Winnipeg Regional Health Authority, Winnipeg, MB, Richard Jones, BSP, BSC, RPh, London Health Sciences Centre, London, ON

The goal of this session is to provide conference attendees with a brief overview of several management mentoring initiatives, for both pharmacists and technicians that have been developed by the Winnipeg Regional Health Authority's Regional Pharmacy Program. The pharmacist mentoring program was initiated by including a management mentoring component in the posting for a one-year term position that was primarily focused on a medication safety initiative (i.e. implementation of regional medication order writing standards). The pharmacist recruited to this one-year term position was invited to attend and participate in our biweekly management meetings and was assigned several management projects during her one-year term. The technician mentoring program is a more formal initiative that is being implemented as part of a major restructuring of pharmacist and technician roles. In addition to classroom lectures, selected pharmacy technicians will spend time working directly with Senior Pharmacists, observing and learning supervisory functions such as staff scheduling, day to day staff performance management, hiring processes, etc.

Goals and Objectives

1. To provide conference attendees with an example of how one health region has attempted to provide management mentoring opportunities for its staff pharmacists and technicians.
2. To discuss the opportunities and challenges that these management mentoring initiatives have presented.

Self-Assessment Questions

1. What are some management mentoring options for pharmacists and technicians that my organization might consider implementing?
2. How might the opportunities associated with a management mentoring program be maximized, and the risks minimized?

Breathtaking, Groundbreaking, Earthshaking: Clinical Trials that will Change Your Practice in Acute Care

Curtis Harder, BScPhm, ACPR, PharmD, Vancouver Island Health Authority, Victoria BC

The goal of this session is to review a few key publications from the last 2 years that have the promise to change the way that we practice in acute care. Publications discussed will be from a variety of practice areas including infectious diseases, neurology, and cardiology/general medicine.

Infectious diseases

- Metronidazole and vancomycin have been recently compared in the treatment of Clostridium difficile associated disease (CDAD). The results challenge the conventional treatment strategy for this disease. Is it time to change our approach, and if so, how?
- A recent meta-analysis supports the use of probiotics for the prevention of antibiotic associated diarrhea and the treatment of CDAD. Should we be adopting probiotics as adjuvant therapy for these indications? Which one(s), what dose, and for how long?

Neurology

- Results recently published by the SPARCL Investigators have demonstrated benefit to patients with ischemic or hemorrhagic stroke or TIA. Have statins found yet another indication?

Cardiology/General Medicine

- Recent randomized control data has shown decreased hospital admissions and mortality with a smoking cessation intervention in high-risk patients with cardiovascular disease, highlighting the importance of this intervention. How do we, as pharmacists, respond to such significant outcome data?

This session will focus on the critical appraisal of these recent publications and a practical and rational approach to applying the data in the everyday clinical practice of acute care pharmacists.

Goals and Objectives

1. To provide pharmacists with a "bottom-line" critical review of some key acute care publications from the last 2 years.
2. To suggest a practical approach for translating these important recent findings into everyday clinical pharmacy practice.

Self-Assessment Questions

1. When should vancomycin be used for the treatment of CDAD? Should a probiotic be given concomitantly?
2. What promise do statins hold for the treatment of cerebrovascular disease?
3. What role do pharmacists have in discharge counseling for smokers admitted to hospital with complications of cardiovascular disease?

Meta-Analysis with Rosiglitazone: What's the Fuss?

Jan O. Friedrich, MD, DPhil, FRCP(C), St. Michael's Hospital, Toronto, ON

Using rosiglitazone as an example, the goal of this session is to illustrate to pharmacists how the results of meta-analysis can be highly dependent on how it is carried out, especially when events are rare and results are of borderline statistical significance, which should allow them to better critically appraise the results of such studies.

A recently published and provocative meta-analysis suggested that rosiglitazone increased cardiovascular morbidity and mortality, however, it was based on very few events. Adding the results of a subsequently published phase III trial investigating cardiovascular outcomes (RECORD Study), the effect on cardiovascular death is no longer significant but the potential increased risk of myocardial infarction remains. A meta-analysis of trials with sparse events can vary substantially depending on methodologic and statistical decisions. For rosiglitazone these comprise, 1) the inclusion of trials in which the intervention and control groups differ in ways other than only rosiglitazone, 2) the use of an effect measure that excludes trials with no events in either group, and 3) the choice of outcome measure. Depending on how these issues are handled, meta-analysis suggests a range of cardiovascular risks, from statistically significant to not. These limitations underscore the challenge of attributing rare risks to a particular drug and highlight the importance of using sensitivity analyses when the results are of borderline statistical significance. Clinicians need to have some understanding of these limitations since they can potentially affect the clinical interpretation of other therapies associated with rare adverse events. For rosiglitazone, because available clinical trial data do not suggest improved clinical outcomes and because alternative agents are available, even this question of possible harm may lead clinicians to greatly reduce the prescription of rosiglitazone without more definitive safety data being generated.

Goals and Objectives

1. To more fully understand the strength of the evidence supporting rosiglitazone's increased risk for cardiovascular morbidity and mortality.
2. To appreciate issues involved in the conduct of meta-analysis and how these can potentially affect the clinical interpretation when events are rare and results are of borderline statistical significance.

Self-Assessment Question:

1. What are some of the methodologic and statistical issues with which readers of meta-analyses should be aware, as illustrated by the rosiglitazone data?
2. Does the data support a role for rosiglitazone in the management of diabetes?

Rx&D Code of Conduct: What Pharmacists Need to Know

Chrisoula Nikidis BA, LL.B, Rx& D Canada's Research Based Pharmaceuticals, Ottawa, ON; John McBride, BscPhm, Kingston General Hospital, Kingston, ON

The goal of this session is to provide pharmacists with an understanding of Canada's innovative pharmaceutical industry's Code of Conduct and the impact the Code can have on hospital pharmaceutical practices.

Ethics are taking more and more space in all aspects of life, including the corporate world. This is notably true in the pharmaceutical research community. The Code has strengthened in recent years, showing the Code is a living document evolving and adapting to new developments.

Canada's Research Based Pharmaceutical (Rx&D) member companies must abide by the Code of Conduct as a condition of membership. Approximately 90% of Canada's innovative bio-pharmaceutical manufacturers are members of Rx&D. Members companies believe in the self-regulatory model with tough and transparent sanctions.

Our goal as an organization is to continue discussions on issues of mutual interest with organizations, to educate, inform, seek input, listen to and address concerns of stakeholders on issues related to the Code of Conduct while working towards seeking closer alignment on ethical issues and gaining a better understanding of each other's organizations.

Code education is an essential aspect of stakeholder outreach. The Code has evolved, and keeping up to date can be a challenge. An overview of the Code and its 11 guiding principles will focus on the relevant sections of the Code as well as the complaint/infraction process.

Goals and Objectives

1. To provide pharmacists with a better understanding of the Code of Conduct.
2. To address situations specific to hospital pharmacy practices in which the Code of Conduct might apply.

Self-Assessment Questions

1. Are the policies in our hospitals in alignment with the current Rx&D Code of Conduct?
2. What is the course of action to follow should I have a concern with hospital or pharmaceutical industry practices that I believe contravene the Code of Conduct?

Opening Doors to Real Change in Health Care: A Legislative Update Perspectives from Ontario, Quebec and Alberta

Jean François Bussières, BPharm, MSc, MBA, FCSHP, Centre hospitalier universitaire Saine-Justine, Montréal, QC, Carmine Stumpo, PharmD, Toronto East General Hospital, Toronto, ON, Jeff Whissell, BScPhm, ACPR, Capital Health, Edmonton, AB

Health care will undergo transformational change in Ontario, Quebec and Alberta. These changes will be enabled by legislation that has recently been enacted in each province. The role of Pharmacists and Pharmacy Technicians is changing. Pharmacists are being seen as medication management experts and this role is being supported in legislate scope of practice changes which involve pharmacist prescribing, medication histories, medication reviews and chronic disease management. Pharmacy Technicians will become regulated health professionals, enhancing their autonomous role in the community pharmacy practice, mirroring the innovative pharmacy technician functions that currently exist in hospitals. These combined changes create an unprecedented environment of opportunity in changing the delivery health care and ensuring patients have access to pharmacist's unique knowledge and skills.

Goals and Objectives

1. To summarize the legislative changes in Ontario, Quebec and Alberta.
2. To provide an update on the activities of the Ontario Pharmacy Council in promoting the provision of Professional Services under the Transparent Drug System for Patients Act.
3. To outline the pharmacist scope of practice changes in Alberta and the opportunities they provide to enhance patient care.
4. Highlight opportunities for the evolution of pharmacy practice within Ontario, Quebec and Alberta.

Update on Corticosteroids in ARDS

Robert E. Ariano, PharmD, BCPS, FCCM St. Boniface General Hospital, Winnipeg MB

Ever since the discovery of the inflammatory nature of this syndrome over 40 years ago, corticosteroids have been tried with variable success throughout all phases of acute respiratory distress syndrome (ARDS). Current evidence, however, does not support the use of corticosteroids for any phase of acute lung injury (ALI). Theoretically, there are numerous mechanisms through which steroids could have a beneficial role in this disorder. With respect to early administration (i.e., less than 3 days from onset) of methylprednisolone in ALI/ARDS many trials have found no difference in mortality. Indeed some reports suggested a trend towards increased mortality with early initiation of therapy. A recent study examining continuously infused corticosteroids in early ARDS found evidence of improved oxygenation and reduced length of ICU stay; however, no benefits on survival.

Another large clinical trial in those with late phase ARDS (i.e. of at least 7 days duration); found a slight improvement in oxygenation, shock-free days, and ventilator-free days, however again no change in overall mortality. Surprisingly, as well, there was a higher risk of death, if steroids were started after 14 days from the onset of ARDS.

Corticosteroids may have a role in those with clear evidence-based indications such as adrenal insufficiency, concurrent PCP pneumonia, or bronchiolitis obliterans organizing pneumonia (BOOP).

A brief overview of all therapeutic strategies that may have a beneficial role in the management of patients with ARDS will also be discussed.

Goals and Objectives

1. The goal of this session is to provide pharmacists with an understanding of the potential roles and limitations of corticosteroids in patients with ARDS.
2. To identify appropriate therapeutic strategies to assist patients with ARDS.

Self-Assessment Questions

1. How do you identify a patient with ARDS?
2. Is it reasonable to initiate corticosteroids in any phase of ARDS?
3. What therapies can you recommend for this disorder?

An Update on HIT in the ICU

Christopher J.A. Daley, BScPhm, ACPR, PharmD, St. Michael's Hospital, Toronto, ON

The goal of this session is to provide pharmacists with an understanding of the diagnosis and therapeutics of heparin-Induced thrombocytopenia (HIT) and to provide an appreciation for the evidence supporting practice.

Heparin-induced thrombocytopenia is a potentially life threatening prothrombotic immune-mediated disorder which often perplexes even the most competent of clinicians. Not only is it difficult to accurately diagnose and treat, but it often occurs in the most complicated of patients – the critically ill. An understanding of the evidence/science behind the diagnosis and therapeutics of HIT coupled with an understanding of medication use principles in the critically ill is crucial for the successful care of these patients.

In this session, the diagnosis and therapeutics of HIT will be reviewed and the evidence supporting practice will be appraised. Furthermore, strategies for the care of ICU patients with confirmed/suspected HIT will be discussed.

Goals and Objectives

1. To provide pharmacists with an understanding of the diagnosis and therapeutics of HIT and to provide an appreciation for the evidence supporting common practices.
2. To enable pharmacists to develop treatment strategies for critically ill patients with confirmed/suspected HIT.

Self-Assessment Questions

1. How do I know if my patient has HIT?

2. What are the treatment options for HIT?
3. What evidence supports current treatment options for HIT?
4. How do I apply all this to critically ill patients?

Should We Listen to People Affected by Dementia in Deciding about Treatment?

Kenneth Rockwood, MD, FRCPC, Capital Health, Halifax, NS

Currently, there is no treatment that will prevent or cure Alzheimer's Disease. At the present time, three cholinesterase inhibitors have been approved by Health Canada for symptomatic management of this disease. However, considerable controversy exists regarding the efficacy of these agents as treatment. This controversy is not related to the reliability or validity of standardized measures of response used in clinical trials, rather it lies in the question of the clinical meaningfulness of changes in these measures, and the relevance of those changes to the every day life of a patient with dementia. The use of Goal Attainment Scaling as a measure of treatment response is a novel approach to address the issue of clinical meaningfulness by which we listen to patients/caregivers to target a few symptoms, and follow how those symptoms change with treatment. This presentation will review whether the existing dementia therapeutic literature suggests that treatment is clinically meaningful and describe the Goal Attainment Scaling approach to the evaluation of clinical meaningfulness.

Goals and Objectives

At the end of this presentation, participants should be able to:

1. Understand the concept of clinical meaningfulness as it applies to the pharmacologic treatment of dementia.
2. Understand the concept of Goal Attainment Scaling as it applies to measuring efficacy and effectiveness of the pharmacologic treatment of dementia.
3. Understand what clinicians need to listen for in making clinical decisions about the pharmacologic treatment of dementia.

Self-Assessment Questions

1. Describe the difference between a small effect size and medium effect size.
2. Outline the five steps in utilizing Goal Attainment Scaling as a measure of treatment response to cholinesterase inhibitors?
3. Outline the strengths and weaknesses of standard response measures of treatment effect used in dementia clinical trials.

Sorting Through the Alphabet Soup of the MMSE, BCRS, FAST and MoCA: Cognitive Assessment for Pharmacists

Susan Bowles, PharmD, FCSHP, Capital Health, Halifax, NS

Numerous instruments are available for cognitive and functional assessment. These include the Modified Mini-Mental Status Examination (MMSE), the Brief Cognitive Rating Scale (BCRS), the Montreal Cognitive Assessment Battery (MoCA) and the Functional Assessment Staging Tool (FAST). However, each instrument has limitations, and a proper cognitive assessment involves more than simply using a variety of instruments to compare individual patient scores with standardized norms, but when used in conjunction with a thorough cognitive and functional history, these assessment tools can be important for both the diagnosis of dementia and to follow it's progression over time. Pharmacists must have a comprehensive understanding of cognitive and functional assessment in order to initiate and monitor pharmacologic therapy in persons with dementia. This presentation will review each of the above mentioned assessments, outline their limitations, and provide case examples of how they might be used to initiate and monitor drug therapy for dementia.

Goals and Objectives

At the completion of the workshop, participants will:

1. Understand the role the Modified Mini-Mental Status Examination (MMSE, Brief Cognitive Rating Scale (BCRS), Montreal Cognitive Assessment Battery (MoCA), and Functional Assessment Staging Tool in the diagnosis of dementia and monitoring it's progression over time.
2. Understand the importance of the cognitive and functional history in the diagnosis and monitoring of dementia.
3. Utilize the components of a comprehensive cognitive assessment to initiate and monitor therapy for persons with dementia.

Self-Assessment Questions

1. How would you incorporate use of the Montreal Cognitive Assessment Battery and the Functional Assessment Staging Tool to differentiate between early Alzheimer's disease and Mild Cognitive Impairment?
2. What factors might account for a similar MMSE score in someone who has early Alzheimer's Disease in comparison to someone who is in the moderate stages of the disease?
3. How would you utilize the Functional Assessment Staging Tool to follow changes in instrumental and basic activities of daily living over time?

Tuesday, January 29 • Mardi 29 janvier

Moving Forward: Pharmacy Human Resources for the Future: A Progress Report

Kevin W. Hall, BScPhm, PharmD, Winnipeg Regional Health Authority and Co-Chair, "Moving Forward: Pharmacy Human Resources for the Future", Winnipeg, MB

The goal of this session is to provide conference attendees with a progress update on the work that has been accomplished through a pharmacy human resources initiative known as "Moving Forward: Pharmacy Human Resources in Canada". The final report of this 30 month study, funded by a $1.5 million dollar grant from Human Resources and Social Development Canada, is scheduled for release in June of 2008. The human resource issues that the study is investigating and attempting to fully understand include:

- the future role of the pharmacy profession in Canada's evolving healthcare system
- the future practice models that the profession will use to deliver its services,
- the future roles of pharmacists and pharmacy technicians that in those practice models,
- the educational and training requirements needed to fulfill those future roles,
- the changes in certification and regulation that can be anticipated as the role of pharmacists and pharmacy technicians evolve
- the role that foreign-trained pharmacists will play in fulfilling pharmacy's manpower needs, and how the integration of those individuals into the profession can be improved.

Goals and Objectives

1. To provide conference attendees with some of the key results of the research that has been completed to date.
2. To discuss some of the possible implications of these findings for the future of hospital and community pharmacy practice in Canada.
3. To provide information on when and how the final results of the study will be formulated into recommendations that the profession, governments, and other stakeholders will asked to act upon.

Self-Assessment Questions

1. What is "Moving Forward", who is managing this initiative, and how have individual pharmacists and pharmacy technicians been asked to participate?
2. How might the results of this study affect the profession, as well as me personally?

Canada Vigilance Program: Adverse Reaction Monitoring in Canada

Aaron Leung, RPh, BA(Hon)Chem, BScPhm, Health Canada, Toronto, ON

The goal of this session is to provide pharmacists with an understanding of the role of adverse reaction reporting in monitoring the safety and effectiveness of health products on the Canadian market.

Health Canada, through the Canada Vigilance Program, is responsible for collecting and assessing adverse reaction reports to prescription and non-prescription medications, including natural health products and radiopharmaceuticals. At the time of marketing, safety information regarding these products is limited to data available through clinical trials. Post-market adverse reaction monitoring allows for the detection of new adverse reactions and contributes to the ongoing assessment of safety and effectiveness information that occurs once health products are marketed.

Adverse reactions reported to the Canada Vigilance Program are most often suspected associations; proof that a health product caused an undesirable patient effect is not a requirement for reporting. Pharmacists should report all clinically significant suspected adverse reactions, but especially those that are either unexpected, serious, or related to recently marketed health products.

Adverse reactions can be reported in a number of ways. To report adverse reactions online or to download a copy of the Canada Vigilance Reporting Form, visit the MedEffect Canada Web site at www.healthcanada.gc.ca/medeffect, a useful source of health product safety information such as advisories and recalls. A copy of the form is also available in the back of the Compendium of Pharmaceuticals and Specialities. To report an adverse reaction, pharmacists may use the Canada Vigilance Toll Free Phone and Fax Lines at:

Telephone: 1-866-234-2345
Fax: 1-866-678-6789

Goals and Objectives

1. To provide pharmacists with an understanding of the role of adverse reaction reporting in monitoring the safety and effectiveness of health products on the Canadian market.
2. To enable pharmacists to determine what adverse reactions should be reported, and how to report them to the Canada Vigilance Program

Self-Assessment Questions

1. Why do adverse reactions need to be monitored once a health product is available on the market?

2. What are the different ways that adverse reactions can be reported to Health Canada's Canada Vigilance Program?

Preceptor 101: Tips for Starting and Planning a Successful Clinical Rotation

Susan Bowles, PharmD, FCSHP, Capital Health, Halifax, NS

There are many rewards to functioning in the role of preceptor for pharmacy trainees. It is an investment in the future of the profession, provides continuing education opportunities for the preceptor, and enhances job satisfaction. Yet, many hospital pharmacists are reluctant to offer clinical rotations as they feel they don't have the necessary teaching skills and find the process of setting rotation-specific learning objectives intimidating. This interactive session will provide a hands-on approach to planning and starting clinical rotations. Participants will be asked to inventory a list of their day to day clinical activities. Then they will be asked to consider what they need to know (knowledge-based competencies) and what they need to do (skill-based competencies) in order to effectively carry out these responsibilities. Finally, they will be asked to use these competencies to construct specific learning objectives.

Goals and Objectives

At the completion of this session participants will:

1. Understand the difference between knowledge and skill-based competencies.
2. Determine which competencies should be successfully mastered upon completion of a specific clinical rotation.
3. Define learning objectives for a specific clinical rotation based on specific competencies.

Self-Assessment Questions

1. List five clinical activities that you carry out on a daily basis as a clinical pharmacist.
2. For each of the five clinical activities identified above, outline one knowledge-based competency and one skills-based competency necessary to effectively carry out these responsibilities.
3. Select one knowledge-based competency and one skill-based competency and write a learning objective for each one.

Developing Yourself as a Leader

Robert E. Smith, PharmD, Harrison School of Pharmacy, Auburn University, Auburn, AL

The goal of this presentation is to enable individuals to see themselves as leaders in all aspects of their lives. The concepts presented will help to create the realization that before one effectively leads others he/she must efficiently and effectively lead their own lives. Life leadership proceeds group or organizational leadership. The leadership of one's life is our own personal responsibility. We are indeed responsible for creating our future.

Leadership and management are terms describing two distinctly different activities. Leadership relates to the direction and destination one is headed, while management describes the processes and systems we will used to arrive at this destination. Most of us are managers and not leaders. We may be efficient in our activities, but have never truly delineated the "true north" direction we should be headed. We have never determined what is truly important, and while we may be going about our activities in an efficient manner, it may not matter as we have a good chance of heading in the wrong direction. The good may be substituting for the better and best in our lives.

Goals and Objectives

At the conclusion of the presentation, participants will be able to:

1. Understand that leading one's life comes before one leads others,
2. Conceptually design a personal set of priorities for one's life,
3. Discuss the difference between leadership and management, and
4. Differentiate between the good, better and best in one's life.

Self-Assessment Questions

1. Discern between the good, better and best activities for your life.
2. How do the activities of a leader integrate into your personal life?
3. Describe what you would need to do to enhance your effectiveness as a leader in both your personal and professional life.

Collaborating with Physicians

Barbara Farrell, BScPhm, PharmD, FCSHP, SCO Health Service, Ottawa ON

This interactive workshop will focus on discussion of the challenges of collaborating with physicians and allow sharing of approaches to improve collaboration.

Determinants of successful collaboration and a review of research in this field will be presented. Participants will share knowledge of the physician culture and experience, as well as, challenges they've encountered in their own attempts at collaboration. A staged model of collaborative working relationship development will be described. Stages include an initial Professional Awareness, to progress through a Professional Recognition stage, Exploration and Trial stage, Professional Relationship Expansion stage, and finally a Commitment to a Collaborative Working Relationship stage. Results from the IMPACT (Integrating family Medicine and Pharmacy to Advance primary Care Therapeutics) project and other

related research and experience will be used to illustrate how pharmacists and physicians can move from stage to stage. Participants will have opportunities to focus on identifying practical steps to improve collaboration and to practice specific tasks such as improving verbal or written communication of recommendations to resolve drug-related problems. This workshop has evolved over the last year and will include mechanisms (eg. round table discussions) to address previously raised challenges such as collaborating with physicians in a small hospital where physicians are not located on-site. Pharmacists intending to participate are encouraged to send their collaboration challenges (and useful approaches) ahead of time to the presenter. Common challenges will be selected for discussions and a summary of useful approaches provided.

Send collaboration challenges and useful approaches by Jan. 20th to bfarrell@scohs.on.ca

Goals and Objectives

Participants will be able to:

1. Identify challenges in collaborating with physicians in a variety of work settings
2. Describe differences in how pharmacists and physicians communicate and deal with problem situations
3. Identify practical approaches that could improve the effectiveness of verbal and written communication with physicians

Self-Assessment Questions

1. What are the determinants of successful collaboration?
2. What are the different stages of pharmacist-physician collaborative working relationship development?
3. What steps can I take to move my collaborative working relationship with a physician to the next stage?

Case Management in Gastroenterology

Peter Thomson BScPhm, PharmD, Winnipeg Health Sciences Centre, Winnipeg, MB

Within the field of gastroenterology, pharmacists have the opportunity to contribute to patient care in numerous ways. Pharmacists should not only think about issues directly related to drug therapy but also gaps in care that impact on patient outcome. Issues related to proper diagnostic follow up do have a direct relationship to drug related problems.

This workshop will discuss a few different patient scenarios encompassing both the fields of gastroenterology and hepatology.

Goals and Objectives

1. Provide hospital pharmacists with an overview of issues related to transitioning a patient with peptic ulcer disease complication back to the community setting
2. Help pharmacists provide patients with recommended treatment and follow up in the community setting with dyspepsia

By the end of the session participant should be able to:

1. Discuss with patients what questions they should ask their family MD after discharge following a peptic ulcer related bleed
2. Identify both advantages and disadvantages with intermittent and “on demand” use of acid suppressive therapy
3. Recognize inappropriate diuretic use in ascites

The Highs and Lows of Antiepileptic Drug Monitoring: Practical Approach to Management for the Pharmacist

Tejal Patel, PharmD, Mississauga, ON

The goal of this session is to provide clinical pharmacists with the skills to appropriately interpret antiepileptic drug concentrations and to guide therapy based on the clinical presentation of the patient.

Clinical pharmacists are routinely called upon to interpret concentrations of antiepileptic drugs, and to provide clinical recommendations based on these concentrations. However, the interpretation of the drug concentrations if often challenging as concentrations may be acquired under non-ideal conditions. Drug concentrations may be drawn prior to steady state, or after a recent change in patient’s clinical status or concurrent medications, or a change in the formulation of the monitored drug.

Additionally, drug concentrations, especially those outside of the therapeutic range, have to be correlated with the clinical presentation of the patient and with the indication for use of these agents. In addition to seizures and epilepsy, antiepileptic agents are also used to treat psychiatric conditions, headache disorders and neuropathic pain.

Of all the antiepileptic agents, carbamazepine, phenytoin and valproic acid are most commonly used and are subject to frequent pharmacokinetic monitoring to assess efficacy, toxicity and non-compliance.

To meet the goal of this session, patient cases will be presented for an interactive discussion on the interpretation of drug concentrations, and further pharmacotherapeutic management of the patients.

Goals and Objectives

1. To briefly review the pharmacokinetic monitoring of carbamazepine, phenytoin and valproic acid.
2. To provide the clinical pharmacist with the skills to interpret concentrations of carbamazepine, phenytoin and valproic acid.

Self-Assessment Questions

1. How should phenytoin concentrations drawn in patients with chronic renal failure be interpreted and managed?

2. How should valproic acid concentrations be interpreted and managed in patients with psychiatric disorders compared to patients with seizure disorders?

The Use of Fish Oil Supplements for Cardiovascular Health and Disease Treatment: Fishing for the Truth!

Glen J. Pearson, BSc, BScPhm, PharmD, FCSHP, University of Alberta, Edmonton, AB

Fish and fish oils are rich in two kinds of omega-3 polyunsaturated fatty acids (PUFA's): eicospentaeoic acid (EPA) and docasahexanoic acid (DHA). Epidemiologic studies have shown an inverse relationship between dietary consumption of fish containing EPA and DHA and mortality form coronary heart disease. Randomized controlled trials with dietary fish intake or fish oils supplements enriched with these omega-3 fatty acids have investigated their potential to reduce cardiovascular events and mortality, and prevent sudden cardiac death in patients at risk. The proposed cardioprotective effects of EPA/DHA are diverse and appear to be independent of their cholesterol lower properties. The diverse mechanisms by which omega-3 fatty acids might exert their cardiovascular benefits include: decreasing blood pressure, triglycerides, production of thromboxane (anti-inflammatory), and the vasospastic response to catecholamines; or increasing prostacyclin production by endothelial cells (endothelial relaxation) and fibrinolysis.

While the evidence about the benefits of dietary omega-3 fatty acids on cardiovascular disease continues to accumulate, patient specific recommendations regarding the role of supplements is less clear. Nevertheless, patients frequently seek out these supplements and include in their pharmacologic armamentarium for treating and preventing cardiovascular disease. The goal of this session is to provide pharmacists with an understanding of the current state of the evidence for fish oil supplementation for promoting cardiovascular health and preventing cardiovascular disease events.

Goals and Objectives

1. To provide pharmacists with an understanding of the current state of the evidence for fish oil supplementation for promoting cardiovascular health and preventing cardiovascular disease events.
2. To enable pharmacists to make recommendations to patients regarding fish oil supplement selection and dosing to promote cardiovascular health and disease prevention.

Self-Assessment Questions:

1. What is the correct dose of EPA + DHA to achieve a triglyceride lowering effect form fish oil supplements?
2. What does the American Heart Association recommend for omega-3 fatty acid intake for patients with and without documented coronary heart disease?
3. Which of the available omega-3 fatty acid supplement products is the most cost effective way to achieve the recommended doses of EPA + DHA for cardiovascular disease prevention?

NSAIDS in Cardiovascular Disease: Should we Stick with Tradition?

Karen McFarlane, BScPhm, Markham Stouffville Hospital, Markham, ON

The goal of this session is to review the evidence of cardiovascular risk with nonselective and selective NSAIDS to assist pharmacists in weighing the risks for their patients.

Traditional NSAIDS have been available on the market for many decades but the concern over gastrointestinal side effects prompted the production of more specific NSAIDS, the COX-2 inhibitors. Starting in 1999, 4 COX-2 selective inhibitors have been available on the Canadian market, however, only 1 agent remains. The others have been withdrawn from the market or have had their sales suspended due to concerns over cardiovascular toxicity. Now the view is turning back towards the traditional NSAIDS as a safer alternative for patients with cardiovascular risk factors.

The mechanism of action of the NSAIDS as well as the proposed mechanism by which they increase cardiovascular risk will be reviewed. The evidence suggesting an increase in cardiac events with the COX-2 inhibitors will be explored and consideration given for the traditional NSAIDS as a potentially safer alternative to the more selective COX-2 inhibitors.

Suggestions on management from key organizations for patients that are candidates for NSAIDS for pain and inflammation relief will be summarized.

Self-Assessment Questions

1. What should be discussed with patients with cardiovascular risk factors who are currently taking NSAIDS?
2. Are traditional NSAIDS a better alternative for patients with cardiovascular risk factors?

PPAR Agonists: Pal or Peril for CV Patients?

Alice Hogg BScPhm, Markham Stouffville Hospital, Markham, ON

Rosiglitazone and pioglitazone are members of the class of drugs know as thiazolidinediones or PPAR agonists. These agents agonize the peroxisone proliferation-activated receptor (PPAR) which regulates the transcription of a variety of genes encoding proteins involved in glucose homeostasis and lipid metabolism. Rosiglitazone and pioglitazone are both widely used to treat patients with type 2 diabetes. Following the

publication of a number of studies, Health Canada and GlaxoSmithKline issued safety warnings regarding the use of rosiglitazone in patients with or at risk of heart disease. The indications for the use of rosiglitazone were also updated taking into account the safety issues associated with this medication. Around the same time a meta-analysis examining the potential cardiac benefit of pioglitazone was published. Patients currently taking a PPAR agonist have been advised by Health Canada and other associations to talk to their health care providers about the risks associated with continuing this therapy. This presentation will provide pharmacists with the knowledge to discuss with their patients the potential risks and benefits of the use of this class of medication in heart disease.

Goals and Objectives

1. To understand the mechanism of action of the PPAR agonists and the similarities and differences between rosiglitazone and pioglitazone.
2. To understand the evidence that has been published to date surrounding the safety of the PPAR agonists in patients with or at risk of heart disease.
3. To be able to explain the potential risks and/or benefits associated with rosiglitazone and pioglitazone to patients with or at risk of heart disease.

Self-Assessment Questions

1. What are the safety concerns surrounding the use of rosiglitazone?
2. What are the approved indications for the use of rosiglitazone in Canada?
3. What should pharmacists tell their patients about the use of PPAR agonists if they have or are at risk of developing heart disease?

Conundrums with Combinations: Triple Therapy Blood Thinners

Uchenwa Genus, BScPhm, ACPR, University Health Network, Toronto, ON

The goals of this session are to present the challenge of patients prescribed the triple therapy combination of Acetylsalicylic acid, Clopidogrel, and Warfarin and provide pharmacists with a framework to evaluate indications for therapy, identify risks and benefits with the combination and implement strategies to successfully manage patient outcomes.

Antiplatelet and Anticoagulant therapy play an important role in the management of patients with cardiovascular disease and related conditions. Challenging clinical dilemmas can arise when patients require treatment with Acetylsalicylic acid, Clopidogrel and Warfarin due to the increased risk of bleeding. Pharmacists need to identify the indications for antiplatelet and anticoagulant therapy and weigh the evidence for each, considering the risk of thrombotic events and durations of therapy required. There is a paucity of robust clinical evidence discussing the issue of triple therapy. Current literature evidence has several limitations including being small, retrospective, non-randomized studies with varying medication doses and durations used. However, they are useful in characterizing bleeding events.

Managing triple therapy patients is multidimensional; with both the health care team and patients doing their respective part to ensure successful outcomes. Pharmacists have a unique role in alerting the team to potential patients, calculating ischemic risks and outlining bleed risks, reviewing medication related issues, making pharmacotherapeutic recommendations and facilitating discharge with full counseling. Triple therapy can be successfully implemented in select patients with the appropriate teaching, monitoring and close follow-up.

Goals and Objectives

1. To provide pharmacists with an understanding of what indications may require triple therapy blood thinning regimens and how to evaluate the ischemic and bleeding risks in their patients.
2. To describe the role of the pharmacist and the health care team in the management of the triple therapy patient and present some strategies to ensure successful outcomes.

Self-Assessment Questions

1. Do you consider the use of the triple therapy combination of ASA, Clopidogrel and Warfarin to be more harmful than helpful?
2. How should patients being discharged on the triple combination of ASA, Clopidogrel and Warfarin be counseled?

Infusion Confusion in Kids: The Need for Standard Concentrations for Paediatric High-Alert Medications

Régis Vaillancourt, OMM, CD, BPhm, PharmD, FCSHP, Children's Hospital of Eastern Ontario, Ottawa, ON

The goal of this session is to provide pharmacists with an understanding of the rationale for Standard Drug Concentrations (SCs). The implementation process for a SC program will be presented.

To reduce the risk of medication errors in paediatric patients, the Joint Commission on Accreditation of Healthcare Organizations is requiring that SCs replace patient-specific formulations for high-alert intravenous infusions as of 2008. . The Canadian Council on Health Services Accreditation endorses the standardization and limiting of drug concentrations available within an organization.

SCs were implemented in the Emergency Department, Operating Room and Paediatric Intensive Care Unit (PICU) at the Children's Hospital of Eastern Ontario, Ottawa, Canada. Practice change involved addressing concerns raised during stakeholder consultations, developing a computer program, and educating and testing staff in the new method.

The major barrier to acceptance of SCs was possible fluid overload in small patients. Thus infusions received by 48 successive infants in the PICU were compared to theoretical SC infusions. Volumes were not significantly different, and there was no trend towards proportionally larger volumes in smaller patients. Medication error reporting was very low before implementation, and SC errors remained low while new online reporting led to higher reporting of other errors. A survey indicated excellent staff acceptance, and beliefs that patient safety and continuity of care were improved.

SCs were successfully instituted with computer support in lieu of "smart pumps" across multiple critical care areas in a paediatric institution. The initial program is being expanded to 40 continuous infusion drugs, plus Paediatric Advanced Life Support bolus medications.

Goals and Objectives

1. To be familiar with common pediatric infusion methods and their pitfalls.
2. To understand the rationale supporting SCs for high-alert medication infusions.
3. To be familiar with the implementation process for a SC program.
4. To be familiar with possible roadblocks to the implementation of a SC program.
5. To be acquainted with the outcome from one institutions conversion to a SC program

Self-Assessment Questions

1. What organizations endorse the use of SCs for pediatric infusions?
2. What are possible barriers to implementation of a SC program?

Wednesday, January 30 • Mercredi 30 janvier

Optimal Prescribing and Medication Use in Canada: Challenges and Opportunities

Ingrid Sketris, PharmD, MPA(HSA), Dalhousie University, Halifax, NS

Community pharmacists dispense over 400 million prescriptions every year at an average cost of $700 per person per year. Many of these prescriptions are for chronic diseases and are initially written by specialist physicians. Suboptimal prescribing including underuse, overuse and inappropriate use of drugs occurs. The National Pharmaceuticals Strategy has noted challenges to optimal prescribing including improper drug selection, inappropriate doses, adverse drug reactions, drug interactions, therapeutic duplication and patient noncompliance and is developing mechanisms to improve the system to provide safe, effective, affordable drug use. This presentation will describe the complex system in which prescribing, provision of pharmaceutical services and drug use by patients is embedded. It will discuss the effectiveness of various approaches to improve prescribing and drug use including patient and provider educational interventions, financial incentives, health system changes, regulatory and control approaches, and clinical decision support systems. Finally, selected Canadian and international promising practices to improve prescribing will be highlighted.

Goals and Objectives

1. To identify strategies to improve prescribing and medication use
2. To describe the factors influencing prescribing including those related to the patient, prescriber, practice environment and health system
3. To discuss the effectiveness of interventions to improve prescribing and the medication use system
4. To provide Canadian and international examples of promising practices to improve drug use

Recent Studies that May Change Your Practice in Primary and Ambulatory Care Settings

Jeff Nagge, PharmD, ACPR, Centre for Family Medicine, Kitchener, ON

Staying abreast of new research findings is a constant challenge for the busy pharmacy clinician. During this session, several of the most recent and significant papers that may affect the practice of clinical pharmacists in ambulatory and primary care settings will be reviewed.

Goals and Objectives

1. To review the results of recently published studies that are of interest to clinical pharmacists practicing in ambulatory and primary care settings.
2. To discuss possible practice implications of recent studies for clinical pharmacists practicing in ambulatory and primary care settings.

Self-Assessment Questions

1. What recently published studies am I aware of the may change my practice in ambulatory or primary care?

Tips and Tricks for Answering Drug Information Questions

Andrew RJ Wyllie, BScPhm, ACPR, PharmD, Mount Sinai Hospital, Toronto, ON

The goal of this session is to provide pharmacists with some ideas of how they can be more efficient when researching and answering drug information questions.

An important step in improving efficiency is being aware of and having access to reliable references that arrange information in a clinically useful manner. In order to gain access to some of these references, there is an initial investment that has to be made, part of which can be funded by savings from better selection of pharmacy journals and other references and selective use of local medical libraries.

Completing a literature search can be long, drawn-out and painful which unfortunately leaves many with uncertainty about whether their search was comprehensive or not. There are several steps pharmacists can take which will make literature searches faster, painless and reassuring. First, find a database which is easy and fast to access and has an uncomplicated menu. Second, use features of the database which are designed to help you search more efficiently. Third, develop an understanding of the nature and quality of data you require and set your expectations of what you should look for accordingly.

Ensuring that responses to drug information questions are clinically useful is essential. In many instances, callers lack expertise in the area they are inquiring about and benefit best from having some decision support offered to them. This requires that the pharmacist go beyond merely relaying drug information and begins to incorporate some assessment of the strength of the data and how, when and in whom can the data be applied to. This assessment permits the pharmacist to make a useful recommendation rather than just relay information.

Goals and Objectives

1. The goal of this session is to provide pharmacists with some ideas of how they can be more efficient when researching and answering drug information questions.
2. Objectives of the presentation are to inform pharmacists about useful specialty references and ways to free up money to pay for those references, to provide steps to take that will improve the audiences' efficiency and confidence in their literature searches and to recall the value of forming clinically useful answers to questions.

Self-Assessment Questions

1. List three specialty references which can be useful to quickly learn and make decisions about drug toxicities.
2. List three things that can be done to make literature searches more efficient.
3. Describe the need for and value of being able to provide decision support to callers.

Managing Type 2 Diabetes: Making Sense of it All

Christine Papoushek, PharmD, TWH Academic Family Health Team, Toronto, ON

The management of Type 2 Diabetes is a significant challenge for health care providers. As pharmacists, we have a significant role to play in managing this chronic illness since we can assist in optimizing drug therapy. Surprisingly enough, the question still remains though, "how best do we do this?" As we await the arrival of the CDA 2008 guidelines, we sift through meta-analyses and reports on the cardiac safety of the "glitazones" and we say good-bye to inhaled insulin before it even enters the market, we are left to wonder, "What are the best strategies for improving our patient's glucose control in a safe and effective manner?"

Although there may not be new drugs in Canada to help us fight this battle, there are still a selection of effective and beneficial options that can be used with success. More importantly, recent data on the level of HbA1c control in Canadians, the impact of post-prandial blood sugars on HbA1c and the efficacy of various insulin regimens lends significant support to changing our philosophy of practice and our "go-to" step-wised approach. Using this information, an overview of new strategies that can be applied with old agents, including insulin will be presented. A brief highlight of new agents will also be provided.

Goals and Objectives

1. To provide pharmacists with an understanding of how various components of pathophysiology and the natural progression of Type 2 DM can impact the choice of drug therapy.
2. To enable pharmacists to incorporate the evidence and safety of available agents in making individualized drug therapy decisions for Type 2 DM.
3. To provide pharmacists with an understanding of the role of insulin therapy in managing Type 2 DM.
4. To list newer agents for managing Type 2 DM.

Self-Assessment Questions

1. What factors influence HbA1c control and how can I use this information to make drug therapy decisions?
2. Are "glitazones" still considered a "safe and effective option for managing Type 2 DM?
3. What is the rationale for using insulin therapy earlier in the management of Type 2 DM?

Making Better Use of the Medical Literature

Karen Agro, BScPhm, PharmD, MSc, Agro Health Associates Inc., Burlington, ON

The goal of this session is to help pharmacists efficiently and effectively critique medical and health information.

Pharmacists are routinely asked to review clinical information. Whether it is in the form of a literature article from a colleague, a detail aid from a sales representative or a newspaper article from a consumer, critical appraisal skills are required.

The first step is to determine what type or level of evidence you are reviewing. The next step is to use a process for assessing whether the evidence is valid and the results worth reading. Not all evidence is created equally. However, different research designs (e.g., meta-analyses, randomized controlled clinical trials, cohort and case controlled studies or unsystematic clinical observations) are required depending the question being answered.

Interpreting the results is also important. Relative risk, absolute risk reduction, relative risk reduction, number needed to treat and odds ratios are commonly used. Clinical trials and the consumer media sometimes report results differently. Understanding how and why this occurs can help pharmacists assess consumer articles brought to them by their patients.

One problem with the medical and consumer literature is balancing the volume of information with pharmacists' time-pressured busy professional lives. Knowing "what to look for" will help pharmacists efficiently assess and apply the information to patient care.

Goals and Objectives

During this session, participants will learn how to:

1. Examine different types of evidence
2. Appraise a trial about therapy
3. Appraise a detail aid
4. Appraise a consumer article
5. Find valid information

Self-Assessment Questions

1. What are the common types of study designs?
2. What are the main questions to ask yourself when assessing a randomized clinical trial?
3. How should you assess a detail aid or a consumer article?

Secondary Stroke Prevention Guidelines: A Critical Review

Tania Mysak, BSP, PharmD, Capital Health, Edmonton, AB

The goal of this session is to provide pharmacists with an overview of recent secondary stroke prevention guidelines, highlighting areas of controversy and areas requiring further study.

Stroke is the fourth leading cause of death and the leading cause of long term adult disability in Canada. It burdens our health care system with annual costs of approximately $3 billion due to hospitalization, long term care, rehabilitation, drug use and lost productivity. Furthermore, the risk of secondary stroke is high, with estimates between 5-20% annually depending on time from event and other patient specific risk factors. The costly sequelae of ischemic stroke highlight the importance of secondary stroke prevention, which includes antithrombotic therapy and management of risk factors, such as hypertension and hyperlipidemia.

Published guidelines can both summarize available evidence as well as provide front line care workers with a "checklist" of objectives to meet to provide quality care. However, it is important to critically evaluate the evidence and rationale that support guideline recommendations. This allows clinicians the ability to truly provide evidence-based, patient specific drug therapy.

Goals and Objectives

1. To provide pharmacists with an overview of recent secondary stroke prevention guidelines as they relate to drug therapy.
2. To provide pharmacists context in which guideline recommendations are made, to enable them to make patient-specific choices in their practice.

Self-Assessment Questions

1. What are the agents of choice for management of hypertension in patients with a recent stroke?
2. What is the appropriate antithrombotic to use for a patient who has experienced a stroke while on ASA?

Pharmacy Controversies and Issues Forum

Allan Mills, PharmD, Trillium Health Centre, Mississauga, ON; Derek Jorgenson, BSP, PharmD, Saskatoon Health Region, Saskatoon, SK; Ann Thompson, BScPhm, ACPR, Capital Health, Edmonton, AB

This forum is designed to allow leaders in our profession to debate as well as facilitate discussion among pharmacists about important current issues/ controversies facing Pharmacy. The issues to be debated will be finalized closer to the conference with a dynamic group chosen to represent a variety of different perspectives. This session is aimed to educate and enrich your thinking on the hot issues in our profession. We welcome you to share ideas, opinions and input during the discussion. Come to this session to expand your thinking!"

Starting Innovative Pharmacy Services in the Primary Care Setting

Jeff Nagge, PharmD, ACPR, Centre for Family Medicine, Kitchener, ON, Lisa Kwok, BScPhm, PharmD, North York Family Health Team, North York, ON, Iris Krawchenko RPh, BScPhm, CGP, Dell Pharmacy, Hamilton, ON

This session, hosted by the CSHP/CPhA Primary Health Care Pharmacists PSN, will present a panel of

three pharmacists working in primary care who are involved in innovative primary care pharmacist clinical services. Each speaker will briefly discuss their innovative pharmacy service in:

- Anticoagulation: Development of an anticoagulation clinic in a Family Health Team setting utilizing point-of-care INR testing.
- Collaborative Practice Agreements in Diabetes Care: Development of medical directives for the management of diabetic patients, to allow the pharmacist to adjust medications and order relevant blood work.
- "Passport to Health": This a collaborative cardiovascular program which also formalizes the transfer of medication information, The program educates, informs and empowers patients, promotes shared care and fosters best practices in disease management while ensuring allied health professionals have access to timely and accurate medication and medical history in a continuum of care.

Each will focus on their process for implementing, main activities, support systems and practice tools, major successes and challenges/lessons learned encountered during the implementation process. Large group and round table discussions will take place to provide opportunities for further questions and networking.

Goals and Objectives

1. To briefly discuss three innovative clinical services in primary care.
2. To discuss the implementation of each service, pharmacists activities, successes and challenges.
3. To provide an opportunity for pharmacists to network with colleagues to share practice tips and tools for implementing an innovative clinical service in the primary care setting.

CCHSA Focus on Managing Medications: What You Need to Know

Jessica Peters, MPA, Canadian Council on Health Services Accreditation, Ottawa, ON; Janice Munroe, BScPhm, Fraser Health, Langley, BC

The presentation will provide insight into the managing medications accreditation requirements for member organizations and the evaluation approach used by surveyors when on-site.

Practical approaches to demonstrating compliance with the requirements will be reviewed.

The presentation will provide:

- Project context and rationale
- Overview of the development process
- Review of key program components
- Standards
- Required Organizational Practices
- Performance Measures
- Overview of the Evaluation Process for Surveyors
- Practical approaches to demonstrating compliance with the new requirements

Goals and Objectives

1. To improve pharmacists understanding of the CCHSA requirements for managing medications.
2. To provide pharmacists with recommendations to address barriers they may encounter in demonstrating compliance with the CCHSA requirements. .

Self-Assessment Questions

1. What are the three CCHSA program components that focus on the quality and safety of managing medications?
2. Which barrier is most frequently encountered when implementing CCHSA ROPs?

Moving Medication Reconciliation into the Community: What is Happening with Homecare?

Margaret H. Colquhoun, RPh, BScPhm, FCSHP, ISMP Canada, Toronto, ON

The goal of this session is to provide homecare pharmacists with an update of the activities taking place in Canada to move reconciliation from an acute care focus across the continuum into home care.

The adoption of medication reconciliation in acute care facilities over the last 24 months provided evidence that unintentional discrepancies regularly occur and can be reduced using a structured medication reconciliation process.

Homecare settings are extremely variable, with many factors influencing the use of medications. The "intention" behind decisions in the home may not be that of the physician, but rather that of the client or their family. Thus the process for medication reconciliation in the community will be somewhat different than acute care. A Safer Healthcare Now! project is identifying and testing processes, and measures of success in homecare.

Goals and Objectives

1. To provide pharmacists with an update of national activities related to medication reconciliation in homecare
2. To enable pharmacists to introduce processes for medication reconciliation in homecare in conjunction with homecare providers

Self-Assessment Questions

1. What homecare patients are candidates for medication reconciliation?
2. What are the processes being tested for medication reconciliation in homecare?
3. How can I contribute to medication reconciliation in homecare?

Call for Abstracts for Posters

2008 AGM and Educational Sessions

Hilton Saint John, Saint John, New Brunswick
August 9-12, 2008

GENERAL INFORMATION

Category

Author must specify the category that best suits the particular poster.

1. Original Research (includes Pharmaceutical/Basic, Science/Clinical Research, Drug Use Evaluations, Systematic Reviews and Meta-Analysis, Pharmacoeconomics Analysis, etc.)
2. Case Reports
3. Pharmacy Practice (includes Administration Projects, Health Professional Education, Medication Safety Initiatives, etc.)

Abstract Submissions

All abstract submissions must be submitted no later than 1800 (Eastern Daylight Time) on May 9, 2008.

Abstracts MUST be submitted electronically, online at CSHP's Web site (http://www.cshp.ca) and by e-mail to ddavidson@cshp.ca. Please provide 2 copies of your abstract. One copy should be blinded (remove authors' affiliations and identifying features in body of abstract). Please indicate in the filename which copy is blinded. Please submit your file in MS Word Format.

The following information must be included in your e-mail or online submission:

- Name of corresponding author
- Institution
- Address
- Phone and fax numbers, e-mail address
- Title of abstract
- Category under which you wish your abstract to be considered

Abstract grading is blinded. Abstracts are selected on the basis of scientific merit, originality, level of interest to pharmacists, and compliance with style rules. Sample abstracts will be available on the CSHP website shortly at www.cshp.ca/event/AGM2008.

Encore presentations will be considered with the strict exception of abstracts previously presented at National PPCs and AGMs. Clearly indicate "encore presentation" in the body of the email and the unblinded abstract. Research in progress will not be accepted.

Accepted abstracts will be published in the Canadian Journal of Hospital Pharmacy.

Authors of accepted abstracts will be notified within 3 to 4 weeks. Expenses associated with the submission and presentation of the abstract are the responsibility of the presenter. Early registration fees will apply to all accepted poster applications. Guidelines for posters will be provided to authors of accepted abstracts.

Demande de résumés d'affiches

2008 AGA et séances éducatives

Hilton Saint John, Saint John, Nouveau-Brunswick
9 au 12 août 2008

RENSEIGNEMENTS GÉNÉRAUX

Catégorie

L'auteur doit indiquer à laquelle des trois catégories suivantes l'affiche correspond :

1. Recherche initiale (recherche pharmaceutique ou fondamentale, recherche scientifique ou clinique, évaluations de l'utilisation des médicaments, examens systématiques et méta-analyses, analyses pharmacoéconomiques, etc.)
2. Observations cliniques
3. Pratique pharmaceutique (projets administratifs, formation des professionnels de la santé, projets liés à la sécurité des médicaments, etc.)

Présentation des résumés

Tous les résumés doivent être reçus avant le 9 mai 2008 à 18 h (heure avancée de l'est).

Le résumé DOIT être présenté par voie électronique. En effet, vous devez le soumettre sur le site Web de la SCPH (http://www.cshp.ca.) et l'envoyer par courriel à l'adresse suivante : ddavidson@cshp.ca. Veuillez fournir deux copies de votre résumé, dont l'une doit être anonyme (dans le corps du texte, l'établissement auquel les auteurs sont affiliés et les renseignements qui révèlent l'identité des auteurs doivent être supprimés). Le fichier doit être présenté en format MS Word, et son nom doit préciser quelle copie est anonyme.

Lorsque vous envoyez votre résumé par courriel ou le soumettez en ligne, vous devez indiquer les renseignements suivants :

- Nom de l'auteur-ressource
- Établissement
- Adresse
- Numéros de téléphone et de télécopieur, et adresse électronique
- Titre du résumé
- Catégorie à laquelle le résumé devrait appartenir

La copie anonyme du résumé est celle qui sera évaluée. La sélection des résumés sera fondée sur la valeur scientifique, l'originalité, l'intérêt pour les pharmaciens et le respect des règles de présentation. Des directives à l'intention des auteurs et des exemples de résumés seront affichés d'ici peu sur le site Web de la SCPH à l'adresse suivante : www.cshp.ca/event/AGM2008.

Vous pouvez nous faire parvenir un résumé pour une affiche ayant déjà été présentée. En pareil cas, vous devez préciser le nom et la date de la conférence au cours de laquelle l'affiche a été produite, et inscrire clairement « affiche en rappel » dans le texte du courriel et du résumé qui n'est pas anonyme. Les recherches en cours ne seront pas acceptées.

Les résumés qui auront été acceptés seront publiés dans le Journal canadien de la pharmacie hospitalière. Les auteurs de ces résumés recevront de nos nouvelles d'ici trois à quatre semaines. Les frais associés à la présentation des résumés doivent être assumés par les auteurs. Tous les auteurs des résumés acceptés auront droit aux frais d'inscription anticipée. Des directives concernant les affiches seront fournies aux auteurs dont les résumés auront été acceptés.

Failure to comply with style rules could mean rejection of submission.

Authors are responsible for obtaining research ethics board approval as appropriate for their institution. Abstracts and posters cannot contain any confidential patient identifiers (in accordance with applicable provincial privacy legislation).

Style Rules

Title should be brief and should clearly indicate the nature of the presentation. Do not use abbreviations in the title. List the authors, institutional affiliation, city, and province. Omit degrees, titles, and appointments.

Organize the body of the abstract according to the selected category as follows:

Original Research:
a. rationale/objectives,
b. methods,
c. results,
d. conclusion.

Case Reports:
a. rationale,
b. case description,
c. causality assessment,
d. literature summary evaluation.

Pharmacy Practice:
a. rationale,
b. description of project,
c. evaluation,
d. conclusion.

Abstract Text
- Recommended font: Times 12.
- Capitalize only the first letter of each word of the title.
- List authors.
- List each author's institutional affiliation and city.
- Abstract body (not including title and authors) is limited to 300 words.
- A table is equivalent to 30 words.
- A graphic is equivalent to 60 words.
- Do not indent the start of a paragraph.
- Use standard abbreviations.
- Place special or unusual abbreviations in parentheses after spelling them the first time they appear.
- Use numerals to indicate numbers, except to begin sentences.
- Use only generic names of drugs, material, devices, and equipment.

Email Confirmation of Abstract Submissions

You should receive an email confirmation of your abstract submission. If you have not received an e-mail confirmation by the deadline, please contact Desarae Davidson by phone at: (613) 736-9733, ext. 229.

Les résumés qui ne respectent pas les règles de présentation pourront être refusés.

S'il y a lieu, les auteurs ont la responsabilité d'obtenir eux-mêmes l'approbation du comité d'éthique de la recherche de votre établissement. Les résumés et les affiches ne peuvent contenir d'information confidentielle pouvant identifier un patient, ceci en conformité avec les lois provinciales pertinentes sur la protection des renseignements personnels.

Règles de présentation

Le titre doit être bref, indiquer clairement la nature de la présentation et ne comprendre aucune abréviation. Le nom des auteurs, l'établissement auquel ceux-ci sont affiliés ainsi que la ville et la province où est située l'établissement doivent être précisés, tandis que les diplômes, les titres et les affectations ne doivent pas être mentionnés.

Le texte du résumé doit être organisé comme suit, conformément aux règles propres à la catégorie à laquelle le résumé appartient :

Recherche initiale :
a. justification/objectifs;
b. méthodologie;
c. résultats;
d. conclusion.

Observations cliniques :
a. justification de l'observation clinique;
b. description du cas;
c. analyse de la causalité;
d. évaluation de la documentation.

Pratique pharmaceutique :
a. justification;
b. description du concept, du service, du rôle ou de la situation;
c. évaluation;
d. conclusion.

Corps du résumé
- Police recommandée : Times, taille 12.
- Seule la première lettre du premier mot du titre doit être en majuscule.
- Les auteurs doivent être nommés.
- L'établissement auquel chaque auteur est affilié ainsi que la ville où se trouve cet établissement doivent être indiqués.
- Le corps du résumé (excluant le titre et les auteurs) ne doit pas dépasser 300 mots.
- Un tableau compte pour 30 mots.
- Un graphique compte pour 60 mots.
- Le début des paragraphes ne doit pas être précédé d'un alinéa.
- Les abréviations reconnues doivent être employées.
- Abréviations spéciales ou peu utilisées : la première fois que le terme est employé, il doit être écrit au long et suivi de l'abréviation entre parenthèses.
- Les nombres doivent être écrits en chiffres, sauf lorsqu'ils représentent le premier mot d'une phrase.
- Seuls les noms génériques des médicaments, du matériel, des instruments et de l'équipement doivent être employés.

Confirmation par courriel de la réception du résumé

La réception de votre résumé devrait être confirmée par courriel. Si vous n'avez pas reçu de confirmation par courriel avant la date limite, veuillez téléphoner à madame Desarae Davidson au (613) 736-9733, poste 229.

Sunday, January 27, 10:00 – 15:00
Churchill Room

1. Meropenem Drug Use Evaluation: Before and After the Introduction of Institutional Order Form
2. Factors Influencing Pharmaceutical Care Provided by Community Pharmacists Aimed at Improving Asthma Control: The PRO-RESPIR Study
3. Pregabalin-Associated Seizures
4. Medication Reconciliation on a General Surgery Service: Implementation and Evaluation
5. Successful Implementation of a Standardized Subcutaneous Insulin Order Set: A Project Update
6. Practice Changes to Improve Delivery of Surgical Antibiotic Prophylaxis
7. Assessment of Antibiotic Prescribing in Response to Positive Blood and Catheter Tip Cultures for Coagulase-Negative Staphylococcus
8. Use of Anti-Arthritic Medications among Glucosamine Recipients in the Canadian Forces
9. Retrospective Survey of Adverse Drug Reactions in Canadian Forces Members
10. Development of a Hospital-Wide Correction Factor System to Dose Supplemental Insulin
11. Patients' Perspectives on the Problems with Medication Histories
12. Severe Systemic Reaction to Diltiazem Confirmed by Inadvertent Re-Challenge

Monday, January 28, 12:15 – 14:15
Sheraton Hall

1. The Impact of a Clinical Practice Guideline on Infants with Neonatal Abstinence Syndrome
2. Capturing Outcomes of Clinical Activities Performed by a Rounding Pharmacist Practicing in a Team Environment: The COLLABORATE Trial
3. Qualitative Investigation of Collaborative Working Relationships between Pharmacists, Physicians and Nurse Practitioners in the Inpatient Medical Setting: A Sub-Study of the COLLABORATE Trial
4. Measuring Collaborative Working Relationships between Pharmacists and Physicians in the Inpatient Medicine Setting: A Sub-Study of the COLLABORATE Trial
5. Impact of an Educational Intervention on Antibiotic Usage for Respiratory Tract Infections in a Long-Term Care Setting
6. Academic Detailing and Technology Enabled Academic Detailing by Pharmacists in British Columbia
7. Pharmacist Time and Strategies Involved in Managing Non-Formulary Drug Requests
8. Risperidone-Associated Respiratory Depression: A Case Report
9. Improving Patient Safety by Eliminating the Use of Bismuth-Iodoform-Paraffin-Paste in Nasal Packings for the Treatment of Epistaxis
10. Administration of 24% Sucrose for Procedural Pain Management in Neonates: An Evidence-Based Approach to Changing Practice
11. Design, Development and Evaluation of Pictographic Instructions for Diverse Cultures
12. Standard Concentrations of High Alert Drug Infusions across Paediatric Acute Care

Tuesday, January 29, 12:15 – 14:15
Sheraton Hall

1. Restructuring Clinical Pharmacy Services in a Tertiary Teaching Care Hospital
2. Implementation of an Admission Medication Reconciliation Process in Acute Mental Health Services
3. Evaluating the Safety of Iron Dextran versus Iron Sucrose or Sodium Ferric Gluconate Complex in Sucrose: A Systematic Review
4. Assessment of the Contributing Factors to Variations in Hemoglobin in Hemodialysis Patients Receiving Erythopoietin Hormone Replacement Therapy by Pharmacist-Initiated Dosing Algorithm
5. Management of Metabolic Bone Disease in Pre-Dialysis Patients in Kidney Function Clinic
6. Digital Camera Use to Allow Asynchronous Validation of Sterile Product Preparation
7. Évaluation pré-post de la contamination par des agents cytotoxiques dans une pharmacie satellite d'hématologie-oncologie
8. Canadian National Active Surveillance Network for Adverse Drug Reactions: Genotypic Adjustment of Therapeutics in Children (GATC): The First Year
9. Implementation of a Medical Refrigeration Monitoring Program
10. Drug Utilization in End of Life and Respite/Transition to Home Paediatric Patients at Rogers House
11. Medication Reconciliation in a Long-Term Care Facility: Six Month Results
12. Proton Pump Inhibitors versus Histamine 2 Receptor Antagonist for Stress Related Mucosal Bleeding Prophylaxis in Critically Ill Patients: A Meta-Analysis

Wednesday, January 30, 10:15 – 15:00
Churchill Room

1. A Drug Use Evaluation of Intravenous Pantoprazole: Prescribing Patterns and Adherence to Hospital Guidelines
2. Pharmacist Role Description Promotes Knowledge Component of Inter-Professional Care
3. Dihydropyridine Calcium Channel Blockers and Cardiovascular Outcomes in Elderly Patients: A Population Base Study
4. A Survey to Assess the Culture, Attitudes and Educational Needs of Front Line Hospital Health Care Providers Regarding Medication Incident Reporting in a Tertiary Teaching Hospital
5. Development of a Hospital Medication Safety Seminar Focused on Medication Incident Reporting and Safety Culture
6. Ciprofloxacin Use at Toronto East General Hospital (TEGH)

7. Baseline Evaluation of Medication Discrepancies for the Medication Reconciliation Strategies for Transfer (MRS-T) Study
8. Failure of Dapsone Prophylaxis against Pneumocystis Jiroveci in a Lung Transplant Recipient
9. Derivation and Prospective Validation of an Equation Used to Convert Serum Creatine Measured Using Alkaline Picrate and Isotope Dilution Mass Spectrometry Assays
10. Peer-Guided Professional Skills Enhancement Workshop for Pharmacist
11. Ten Years of Experience in Peer Review Assessment for Pharmacists

Sunday, January 27 • Dimanche 27 janvier

MEROPENEM DRUG USE EVALUATION: BEFORE AND AFTER THE INTRODUCTION OF AN INSTITUTIONAL ORDER FORM

Heather Lummis[1,2], Bernadette Chevalier[1], Nasima Khan[2], Roberta Baker[1], Shelly McNeil[1,2,] Kathy Slayter[1,2]
[1]Capital Health, Halifax, NS
[2]Dalhousie University, Halifax, NS

Purpose: Meropenem is a broad spectrum antibiotic reserved in our institution for the treatment of febrile neutropenia, serious multi-resistant gram negative infections, and certain intra-abdominal infections. An antimicrobial order form (AOF) with restricted indications was implemented April 2006 to improve prescribing for meropenem and other antimicrobials.

Objectives: To determine compliance with restricted indications in May – July 2005 (pre-AOF) and May – July 2006 (post-AOF).

Methods: Relevant data were collected retrospectively from the health records of a random sample of 40 patients in each time period. Compliance was independently assessed by 3 reviewers. Differences were analyzed using Fisher's exact test.

Results: In 2005, 85% of patients (mean age 53.6 years, 45% male) were treated in compliance with restricted indications. These included serious gram negative infections (n=6), febrile neutropenia (n=27), and empiric treatment of sepsis (n=1). Inappropriate indications included serious infections that did not meet criteria (n=2), nosocomial pneumonia (n=1), empiric treatment of non-neutropenic fever (n=1), diabetic foot infection (n=1), and a gram positive brain abscess (n=1).

In 2006, significantly fewer patients (mean age 56.0 years, 63% male) were treated in compliance with restricted indications (63% vs. 85%, p=0.02). Appropriate indications included serious gram negative infections (n=5) and febrile neutropenia (n=20). Inappropriate indications included serious infections that did not meet criteria (n=5), empiric treatment of non-neutropenic fever (n=2), ventilator-associated pneumonia (n=2), urosepsis (n=2), pneumonia (n=1) and others (n=2). Patients admitted to critical care and hematology/oncology wards were more often treated in compliance with restrictions than those admitted to medical and surgical wards.

Conclusions: Appropriate use of meropenem significantly decreased after the introduction of an antimicrobial order form. Reasons are unclear but may have resulted from a demonstrated reduction in ciprofloxacin use and greater awareness of meropenem's value in treating serious infections. Educational efforts should be concentrated on medical and surgical services.

FACTORS INFLUENCING PHARMACEUTICAL CARE PROVIDED BY COMMUNITY PHARMACISTS, AIMED AT IMPROVING ASTHMA CONTROL: THE PRO-RESPIR STUDY

Khamla Y., René-Henri N., Nadaira N., Ouellet C., Beauchesne M.-F., Lalonde L, Collin J., Blais L., Faculté de pharmacie, Université de Montréal, Montréal, QC

Introduction: Factors influencing the interventions of community pharmacists have previously been identified. However, little data exists concerning those specifically influencing the interventions in the field of asthma in Canada.

Objectives: To identify the factors influencing community pharmacists' interventions in asthma and to describe the frequency of these interventions.

Methodology: A pre-tested and auto-administered questionnaire was sent out to all Québec pharmacists listed at l'Ordre des pharmaciens du Québec in November and in December 2006. The questionnaire asked about interventions of pharmacists in the field of asthma, factors influencing the application of these and the characteristics of the respondents. Community pharmacists who worked 15 hours or less per week, who graduated after January first 2006, or who did not work in a community pharmacy since January first 2006 were excluded from the analysis.

Results: A questionnaire was sent out to 4587 pharmacists; 917 of them responded (response rate: 20%) and 877 were eligible for the study. From this sample of pharmacists, 97.7% stated having given verbal information to patients on their asthma medication at the time of their first prescription, but only 46.1% them evaluated the efficacy of treatment upon follow-up. Although 98.9% of them stated that they had a definite role to play in the management of asthma, 71.2% and 39% of respondents respectively admitted that time restraints as well as lack of accessibility to doctors were barriers in their proper and optimal intervention among their asthma patients.

Conclusion: Community pharmacists would usually intervene amongst their asthmatic patients when serving them their new medication, but because of time and personnel constraints, follow-ups would not be done as frequently.

Key words: Pharmaceutical care, asthma, community pharmacy

PREGABALIN-ASSOCIATED SEIZURES

Sarah Pang, Colleen Bycraft, Matthew Feltham, London Health Sciences Centre, London, ON

Rationale: Pregabalin is a drug approved by Health Canada for the treatment of neuropathic pain associated with diabetes mellitus and postherpetic neuralgia. Since it is a new drug, there is little information on pregabalin toxicity. We report a case of seizure associated with pregabalin toxicity with renal impairment.

Description: A 47-year-old man with neuropathic pain secondary to type II diabetes was admitted to the hospital after having a witnessed generalized seizure in the emergency room. Five days earlier, he started pregabalin 75mg/day for his neuropathic pain. Following this, he developed fatigue, had difficulty concentrating and had three episodes of falls. He was admitted to the hospital and given supportive treatment for his seizure. This patient had a long history of psoriatic arthritis, type II diabetes and hypertension and was taking ketoprofen, metformin and perindopril as part of his therapies. On admission, his serum creatinine was 499 µmol/L and his urea 28.6 mmol/L. The ketoprofen, perindopril, metformin and pregabalin medications were held upon admission. By day 4, his serum creatinine decreased to 148 µmol/L and his urea to 17 mmol/L. His cognition returned to his previous level of function and he was discharged from the hospital.

Analysis: Pregabalin is renally cleared as an unchanged drug and dosage reduction with decreased renal function is recommended. The patient's renal dysfunction was thought to be due to his long-term ketoprofen therapy as his creatinine returned to normal after it was discontinued. It was not resumed upon discharge. A Naranjo ADR probability scale of 4 suggests a possible adverse drug reaction.

Importance to Pharmacy Practioners: Pregabalin is a widely prescribed medication for neuropathic pain associated with diabetes and postherpectic neuralgia. It is important for pharmacists and health care professionals to be aware of the potential toxicity of pregabalin in those with impaired renal function.

MEDICATION RECONCILIATION ON A GENERAL SURGERY SERVICE: IMPLEMENTATION AND EVALUATION

Elena Andrews, Don Mills, Anne-Marie Bombassaro, Joel Lamoure, John Baskette, Inpatient Pharmacy Department, London Health Sciences Centre, London, ON

Reason for Initiative: Medication Reconciliation (MedRec) constitutes part of the "Safer Healthcare Now!" (SHN) campaign and hospital accreditation standards.

Description: A MedRec program was initiated and evaluated on a general surgery service at a teaching hospital. Initiation was prospective and consisted of 2 phases: baseline (2 weeks) and implementation (6 weeks). Implementation included collaborative development of a "Medication History" form as a permanent part of the medical record and pharmacy involvement in obtaining a pre-admission Best Possible Medication History (BPMH), with reviews of the BPMH and medication orders at admission, transfer and discharge (ATD). The number and categories of medication discrepancies were compared between phases at ATD, using SHN criteria. MedRec process data was also collected.

Evaluation: Enrolment included 31 and 35 adults into the baseline and implementation phases, respectively. The mean number of medications per patient during baseline was 5.8±3.7 versus 5.7±3.6 during implementation. The mean number of undocumented intentional and unintentional medication discrepancies per patient decreased at ATD during implementation. Reductions in undocumented intentional and unintentional discrepancies exceeded the SHN target of 75% at admission (100% and 95% respectively) and discharge (83% and 80% respectively). The rates of potential harm based on unintentional discrepancies decreased by 87%, 37% and 59% at ATD, respectively. The Success Index across all care points ranged from 13-66% at baseline versus 65-98% after implementation, with the greatest improvement occurring at discharge.

During implementation, the mean pharmacy time required to perform MedRec, from pre-admission through to discharge, was 52.6±19.3 minutes per patient. Obtaining the BPMH required 14.5±19.3 minutes per patient. No major barriers to implementation, including access to patients, medical records or health care providers were encountered.

Importance: This multi-faceted MedRec program demonstrated reductions in medication discrepancies and potential harm across all points of care, with the greatest reductions occurring at admission and discharge.

SUCCESSFUL IMPLEMENTATION OF A STANDARDIZED SUBCUTANEOUS INSULIN ORDER SET: A PROJECT UPDATE

Douglas Doucette, Mary Catherine MacSween, Michelina Mancuso, South-East Regional Health Authority, Moncton, NB

Rationale: Hyperglycemia in the hospital setting is associated with increased morbidity and mortality. Meticulous glycemic control using a basal-bolus insulin regimen in a standardized order set has been show to improve clinical outcomes in this setting. This poster will report updated data from our pilot site[1] and new data from the expanded implementation to family medicine and geriatric rehabilitation units.

Concept: Observational study and clinical audit to evaluate the impact of a Standardized Subcutaneous Insulin Order Set (SSIOS) for in-hospital use in a variety of patient care units.

Setting: Level II hospital, Moncton, NB, Canada.

Process for Change: As previously described,[1] a variety of strategies were utilized to optimize successful implementation of a SSIOS in patient care units including education of physicians, pharmacists and nurses; available support personnel; introduce to limited numbers of patient care units at a time to allow slow adaptation; prospectively measure and analyze glucometer readings to identify trends and offer feedback to clinicians; work as a cohesive interdisciplinary team.

Evaluation: Nine months after SSIOS implementation in our pilot unit, the percentage of capillary blood glucose (%CBG) reads >10 mmol/L was 16% (20% lower than pre-implementation). Following initiation of SSIOS in early 2007 to family medicine and geriatrics units, %CBG reads >10 mmol/L were reduced 24% and 31%, respectively, compared to pre-implementation. In all units, the occurrence of %CBG <3.4 mmol/L remained very low (0.2 to 1.0%). Overall, surgical site infections decreased and basal insulin usage increased in affected units.

Importance to Practice: Quality improvement and clinical audit techniques assisted an interdisciplinary team to successfully implement a SSIOS. Future efforts will focus on expansion to remaining inpatient units and further improvement in outcome measures.

[1] Can J Hosp Pharm 2007; 60(suppl 2): 34

PRACTICE CHANGES TO IMPROVE DELIVERY OF SURGICAL ANTIBIOTIC PROPHYLAXIS

Rosemary Zvonar, Virginia Roth, Pam Bush, The Ottawa Hospital, Ottawa, ON

Rationale: Timely administration of appropriate antibiotics pre-operatively can decrease the incidence of surgical site infection. Patient safety agencies and campaigns in both the USA and Canada have identified the prevention of surgical site infections and appropriate antimicrobial prophylaxis as a primary quality target. An improvement in the delivery of surgical prophylaxis following a change in policy at The Ottawa Hospital (TOH) was previously reported.

Objective: To assess the ongoing compliance with quality indicators in the delivery of antimicrobial surgical prophylaxis at TOH and to evaluate the impact of a "Pre-operative Pause" on the timing of pre-operative dosing.

Study Design and Methods: In 2002, 50 patient charts from five surgical divisions were retrospectively evaluated for the following quality indicators: appropriateness of antimicrobial selection, dose, timing, intra-operative dosing, and duration of post-operative prophylaxis. As part of the continuous quality improvement process, audits were repeated in 2004 and 2006 using the same methodology to determine effects of implemented changes and identify further areas requiring improvement.

Results:
Summary of Surgical Prophylaxis Quality Indicators

	Approp Agent	Approp Dose	Approp Timing	Extra Dose Given If Reqd	Extra Dose Timed Approp	Duration D 24 Hrs
TOTAL 2002 (N=290)	93.4%	72.4%	36%	39.4%	N/A	89.6%
TOTAL 2004 (N=261)	92.3%	83%	67.7%	54%	81%	N/A
TOTAL 2006 (N=273)	92.5%	89.7%	78.5%	38%	67%	89.4%

Based on the 2002 audit results, a new surgical prophylaxis policy was approved and included administration of pre-operative doses by the anesthesiologist, and an automatic substitution for higher doses of antibiotics for select patients. Following the review in 2004, a pre-operative pause was implemented, which further improved the delivery of the pre-operative dose.

Conclusion: Continuous quality assessment and subsequent practice changes resulted in significant and sustained improvement in the dosing and timing of surgical prophylaxis. Further efforts will be implemented to address intra-operative administration.

This is an encore presentation, originally presented at the Inter-Science Conference on Antimicrobial Agents and Chemotherapy (ICAAC) on September 18, 2007 (Abstract K-1120).

ASSESSMENT OF ANTIBIOTIC PRESCRIBING IN RESPONSE TO POSITIVE BLOOD AND CATHETER TIP CULTURES FOR COAGULASE-NEGATIVE STAPHYLOCOCCUS

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Rationale: When interpreting cultures, distinguishing contamination or colonization with coagulase-negative staphylococcus (CoNS) from infection is often difficult for the clinician, and may result in unnecessary antibiotic use, particularly vancomycin.

Objective: To evaluate the management of positive CoNS blood and catheter tip cultures at The Ottawa Hospital.

Methods: During a four-month period in 2004, charts of patients identified by the microbiology lab as having a positive blood or catheter tip culture for CoNS were concurrently reviewed. Using predetermined definitions, the cultures were categorized as definite bacteremia/infection (DBI), contamination/colonization (CC), or indeterminate. All "indeterminate" cases were reviewed by an Infectious Disease Specialist (IDS) for further classification.

Results: From May to September 2004, 167 positive cultures for CoNS in 145 patients were assessed; 51.5% blood, 42% catheter tips, and 6.5% both. 66% of patients had at least one risk factor for CoNS bacteremia, the majority being a central catheter. 52% of blood cultures were nosocomial. Based on study definitions, 14/167 (8%) of all cultures were initially classified as DBI, 80/167 (48%) CC, and 73/167 (44%) were indeterminate. Following IDS review, 55/73 or 75% of the indeterminate cases were considered CC, 16/73 (22%) DBI, and 2/73 (3%) were "uncertain", for final classification of 30/167 (18%) DBI, 135/167 (81%) CC and 2/167 (1%) "uncertain". Antibiotics were prescribed in all cases of DBI, but also in 45/135 (33%) CC cases (51% originally defined as CC, and 49% indeterminate), resulting in 239 days of unnecessary antibiotic use, the majority of which was vancomycin.

Conclusion: Blood and catheter tip cultures positive with CoNS are frequently unnecessarily treated with antibiotics at our institution. In almost half of cases, the significance of the culture was not easily interpretable. In order to aid clinicians, an algorithm for assessing blood cultures with CoNS was developed and will be prospectively evaluated.

This is an encore presentation, originally presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) on September 19, 2007 (Abstract K-1743).

USE OF ANTI-ARTHRITIC MEDICATIONS AMONG GLUCOSAMINE RECIPIENTS IN THE CANADIAN FORCES

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Rationale: Although evidence to support its efficacy was limited at the time, glucosamine was added to the Canadian Forces (CF) drug benefit list in 2002. This decision was made assuming that use of this product would be sustained among those who respond to such therapy, and overall use of anti-arthritic medications would be reduced among responders.

Objectives: To describe usage of glucosamine in our population, and determine if use of anti-arthritic medications is indeed reduced following initiation of glucosamine.

Study Design and Methods: Retrospective review of pharmacy records was performed to identify members receiving glucosamine between September 2002 and September 2006. Subjects were excluded if they did not receive at least a 6-month course of glucosamine, were non-compliant (defined as taking <80% of prescribed doses), were prescribed DMARDs, or if insufficient data was present in the pharmacy record. Odds ratio was calculated to determine likelihood of ongoing anti-arthritic drug therapy post-glucosamine, and average days' supply of anti-arthritic drugs was compared pre- and post-glucosamine initiation using Student's t-test.

Results: A total of 7577 patients received one or more prescriptions for glucosamine, of which 6338 patients were excluded. Over 90% of these subjects were excluded due to short duration of therapy or non-compliance (n=5954). Among patients who received a therapeutic course of treatment (n=1218), use of anti-arthritic medications increased from 55.6% at baseline to 64.08% after initiation of glucosamine (OR=1.43, 95% CI 1.24-1.64). Average days supply of anti-arthritic medication per subject also increased following initiation of glucosamine, from 37 to 60 days' worth of medication (p<0.0005).

Conclusions: Use of glucosamine in our population does not appear to mirror the usage proposed in the scientific literature to date. Given recent clinical trials and results from this DUE, continued provision of glucosamine in our population will be re-evaluated.

RETROSPECTIVE SURVEY OF ADVERSE DRUG REACTIONS IN CANADIAN FORCES MEMBERS

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Rationale: Reporting of adverse drug reactions (ADRs) forms an integral part of post-marketing surveillance. The Canadian Forces (CF) drug benefit program currently includes two programs designed to monitor and detect ADRs. To complement these programs, two questions regarding ADRs were incorporated into the 2004 Health and Lifestyle Information Survey (HLIS) to gain insight into the occurrence rate and specific medications associated with ADRs among CF personnel.

Objectives: To obtain data on the occurrence rate and outcomes of ADRs among CF members.

Study Design and Methods: The HLIS was conducted among full-time, actively serving members of the Canadian Forces between April and November 2004. Reminder notices and additional surveys were mailed out to non-responders in an attempt to increase the response rate. Medications implicated in causing ADRs were categorized according to the WHO Anatomical Therapeutic Chemical Classification System.

Results: Among 2934 returned surveys, a total of 337 ADRs were reported among 269 members. Only 29 reactions could not be analyzed because of illegibility of the written response or inability of the respondent to recall the name of the medication. The three most commonly implicated drug categories were nervous system agents (31.5%), respiratory (22.5%) and musculoskeletal system agents (13.4%). The majority of reported ADRs were associated with prescription drugs. Thirteen ADRs caused the member to be less productive at work, and 12 caused them to miss work completely.

Conclusion: Prescription drugs and medications affecting the nervous system, respiratory tract and musculoskeletal system were major sources of ADRs among CF members surveyed. Almost 1 in 10 respondents who experienced an adverse drug reaction noted a negative impact on their work performance.

DEVELOPMENT OF A HOSPITAL-WIDE CORRECTION FACTOR SYSTEM TO DOSE SUPPLEMENTAL INSULIN

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Rationale: Sliding scale insulin is frequently used in the inpatient setting to help control blood glucose values in acute and post-surgical cases. However, this method of dosing insulin is reactive in nature and does not take into account patient factors, which can increase the propensity for hypo- and hyperglycemia to occur[1,2]. Correction factors estimate the effect of one unit of insulin on blood glucose in mmol/L as determined from patient specific parameters and can be used to individualize supplemental scales. The use of supplemental scales based on a correction factor, in addition to regularly scheduled doses of insulin, has the potential to reduce glycemic excursions in the inpatient setting.

Description/ Implementation: Supplemental insulin scales using a correction factor and standardized blood glucose target ranges were formulated by a pharmacist and endocrinologist group and incorporated into a set of preprinted physician orders. Specific order sets were written for various clinical situations: type 1 patients newly starting on insulin; type 2 patients newly starting on insulin; type 1 patients not eating; type 2 patients not eating; and type 2 patients on oral diabetes medications needing supplemental insulin coverage.

Evaluation: Face and content validity of the preprinted orders were evaluated through expert panel review. Usability of the correction factors were evaluated through physician (15 participants) and nursing (5 participants) focus groups. Participants in the focus groups completed preprinted orders for a prewritten case. Both groups of focus group participants found the preprinted orders to be comprehensive and easily understood.

Conclusion: A set of preprinted orders incorporating correction factors designed for inpatient insulin management proved workable in a clinical test setting. Use of correction factors has the potential to reduce hypo- and hyperglycemic excursions in our inpatients.

[1]Glycemic Control and Sliding Scale Insulin Use in Medical Inpatients With Diabetes Mellitus Volume 157(5), 10 March 1997, pp 545-552

[2]Gill G, MacFarlane I: Are sliding-scale insulin regimens a recipe for diabetic instability? Lancet 349:1555, 1997

PATIENTS' PERSPECTIVES ON THE PROBLEMS WITH MEDICATION HISTORIES

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Rationale: Medication history taking is fraught with the potential for errors, which has been identified as a contributor to medication errors[1]. An increased understanding of the problems associated with medication history taking has the potential to allow solution development.

Objective: This qualitative study attempts to determine the problems associated with medication history taking from a patient perspective.

Methods: The design of this study involved individual audiotaped patient interviews conducted by trained assistants using a standardized patient interview process. Patients' responses/ audiotapes were transcribed verbatim and grouped into major themes through horizontalization and forming coded units.

Results: Twenty-five patients from a mixture of inpatient (surgical and medical units) and outpatient settings in a tertiary care hospital were interviewed. Several major themes emerged from the data analysis: a) up-to-date medication histories were universally seen as important; b) knowledge of medications and changes to medications was critical information for health care providers to have; c) problems with patients not knowing or health care providers not knowing medication histories included the fear of drug interactions, and the lack of awareness of side effects and their occurrences; d) several solutions to these problems included the use of regularly updated lists to remember and communicate medication histories, centralized databases of medication histories for health care professionals, and increased patient awareness and education regarding the use and purpose of medications.

Conclusion: These themes, identified problems and potential solutions are helpful in solving the potential errors with medication history taking.

[1]Cornish PL, Knowles SR, Marchesano R et al. Unintended medication discrepancies at the time of hospital admission. Arch Intern Med. 2005;165:424-9.

SEVERE SYSTEMIC REACTION TO DILTIAZEM CONFIRMED BY INADVERTENT RE-CHALLENGE

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Diltiazem is used for heart rate control in patients with atrial fibrillation, and is generally well tolerated. We describe a case of a severe systemic reaction induced by diltiazem.

A 75 year-old women was admitted to hospital with pneumonia and concomitant atrial fibrillation and was treated with cefotaxime and clarithromycin and was started on an amiodarone infusion. Her past medical history was remarkable for previous pneumonia and a history of atrial fibrillation. She had a history of rash from diltiazem.

The patient initially showed clinical improvement of pneumonia on antibiotics however her tachyarrhythmia was difficult to manage and she received digoxin, metoprolol and diltiazem. Over the next few days she became increasingly unwell, was intermittently febrile with increased respiratory rate and pulse, and developed a marked leukocytosis of up to 34.4 x 109/L. Upon further questioning it was determined that the patient had a severe reaction after taking diltiazem for approximately 2 weeks. She had presented to the emergency room with a diffuse maculopapular rash and felt generally unwell. The raised rash initially began on her abdomen, and subsequently spread to cover her entire body and became increasingly pruritic over 24 hours. Diltiazem was discontinued and the patient was treated with an antihistamine with gradual improvement.

The increase in leukocytes and febrile presentation was thought to be the prodrome associated with erythema multiforme, and after diltiazem was discontinued the patient's leukocytes (without other changes in medical management) steadily decreased to 16.6 x 109/L and the patient improved clinically. Ultimately she was given amiodarone for rate control.

The Naranjo Probability Scale was applied with a score of 6-8, a probable reaction. This case illustrates the importance of a thorough assessment of severity of patient's allergies and need for clear documentation of the nature of intolerances.

Monday, January 28 • Lundi 28 janvier

THE IMPACT OF A CLINICAL PRACTICE GUIDELINE ON INFANTS WITH NEONATAL ABSTINENCE SYNDROME

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Rationale: Apply a multidisciplinary team approach to developing an evidence-based Clinical Practice Guideline (CPG), with the goal of improving pharmacologic treatment guidelines for infants experiencing Neonatal Abstinence Syndrome (NAS).

Objectives:

- Standardized infant toxicology screening based on risk factors
- Standardized NAS scoring procedure
- Increased emphasis on non-pharmacological soothing methods and caregiver teaching & support
- Modified and standardized pharmacologic treatment and weaning based on NAS score
- Strengthened pre and postnatal community partnerships to improve care to pregnant women and infants with NAS.

Study Design and Methods: A retrospective cohort comparison design was utilized to compare the hospital record data from infants born in the six months prior to, and infants born in the six months after the implementation of the new CPG. The data was analyzed for change in NAS scores to compare the groups.

Discussion: The implementation of a CPG was successful in improving care of infants with NAS. Impressive improvements were shown in:

- Screening and identification of infants with NAS
- Statistically significant reduction in symptoms of NAS in infants (23% in mean NAS scores, $p < 0.0001$, t-test, ANOVA)
- Shorter length of hospital stay (21%) and shorter stay in NICU (32%)
- Reduced total average number of morphine doses administered to each neonate (44%)
- Reduced average NAS scores for neonates treated with morphine (27%) or Phenobarbital (28%)
- Reduced average number of NAS scores performed per neonate (72%), signifying the neonatal NAS symptoms improved more quickly
- Decreased rate of infants discharged into the custody of a child welfare agency (5.3%)

Conclusion: This study demonstrated multifaceted improvements in outcomes for infants with NAS with the implementation of a hospital-based CPG. In addition, the care of infants with NAS was standardized to provide consistency.

CAPTURING OUTCOMES OF CLINICAL ACTIVITIES PERFORMED BY A ROUNDING PHARMACIST PRACTICING IN A TEAM ENVIRONMENT: THE COLLABORATE TRIAL

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Background: Medical inpatients are at risk of suboptimal outcomes from under-use of evidence-based therapies.

Objective: To determine if the integration of clinical pharmacists into the patient care team improves process of care and patient outcomes.

Methods: Multicentre, controlled clinical trial, using an "on-off" design, enrolling consecutive patients admitted to four internal and family medicine teams at 3 hospitals between January 30th, 2006 and February 2nd, 2007. All patients admitted during pharmacist team care were eligible to receive proactive clinical pharmacy services (medication history, patient-care round participation, identification and resolution of drug-related issues, and medication counselling) from a team-based pharmacist. Usual care patients received typical "reactive" clinical services (e.g., drug-related issues identified by profile review) from a ward-based pharmacist. The primary outcome, mean percentage of drug-therapy quality indicators (DTQI) achieved, was assessed retrospectively by a blinded chart reviewer for patients with a most responsible or primary diagnosis of heart failure, chronic obstructive pulmonary disease, community acquired pneumonia, type 2 diabetes, or coronary artery disease.

Results: A total of 452 patients (mean age: 74 yrs, 46% male) met eligibility criteria. In the 220 pharmacist team patients, a mean of 56.4 ± 30.4% of DTQI were achieved, compared to 45.3 ± 28.8% in the 231 usual care patients (adjusted $p<0.001$). Compared with usual care patients, pharmacist team patients experienced a lower rate of readmission at 3 months [45.5% vs. 36.2%; adjusted odds ratio: 0.61 (95% confidence interval: 0.41, 0.91)] but not at 6 months.

Conclusions: In patients admitted to internal and family medicine teams, the integration of a clinical pharmacist into the team improved the quality of medication use and reduced rates of hospital readmission. (ClinicalTrials.gov number, NCT00351676)

QUALITATIVE INVESTIGATION OF COLLABORATIVE WORKING RELATIONSHIPS BETWEEN PHARMACISTS, PHYSICIANS, AND NURSE PRACTITIONERS IN THE INPATIENT MEDICAL SETTING: A SUB-STUDY OF THE COLLABORATE TRIAL

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Background: While collaborative, team-based care has the potential to improve medication use, reduce adverse drug events, and reduce cost; little attention is paid to understanding the processes of well functioning teams.

Objective: To study the integration process of a clinical pharmacist into the health care team, the nature and extent of collaborative working relationships developed, as well as pharmacist, physician, and nurse practitioner experiences including program successes, perceived challenges or barriers, and ideas for innovations.

Methods: Sub-study of a multicentre, controlled clinical trial, of team-based pharmacist care in hospitalized medical patients. Key informant interviews with the participating pharmacists, physicians, and nurse practitioners and reflective journaling with the participating pharmacists were conducted. Data analysis was carried out using a phenomenological approach. Content analysis was the primary tool for unitizing, categorizing, and identifying emerging themes.

Results: Pharmacists experienced highs (developing trusting relationships and making positive contributions to patient care) and lows (struggling with documentation and workload) during integration into the medical care team. From the perspective of the participating pharmacists, nurse practitioners and physicians, the integration of the pharmacist on the team was felt to have facilitated positive patient outcomes by improving team drug-therapy decision making, continuity of care and patient safety. Additionally, the study increased awareness by all team members of the potential roles that pharmacists, nurses, and physicians could play and of the benefit in working together as a team.

Conclusions: Focused attention to team structure, team process, appropriate infrastructure, and ongoing support would enable successful implementation of this model of clinical pharmacist care in a larger context.

MEASURING COLLABORATIVE WORKING RELATIONSHIPS BETWEEN PHARMACISTS AND PHYSICIANS IN THE INPATIENT MEDICINE SETTING : A SUB-STUDY OF THE COLLABORATE TRIAL

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Background: Collaborative care between physicians and pharmacists has the potential to improve processes of care and patient outcomes, yet little attention is paid to understanding collaborative working relationships between physicians and pharmacists.

Objective: To determine the impact of a team-based model of clinical pharmacist practice on physician-pharmacist collaborative working relationships using the validated Physician-Pharmacist Collaboration Index (PPCI).

Methods: Sub-study of a multicentre, controlled clinical trial, of team-based pharmacist care in hospitalized medical patients. Attending physicians and medical residents providing service to the internal and family medicine wards were invited to complete the online PPCI once, near the completion of the main study. Physicians who worked with the study pharmacist for ≥ 1 week were categorized as "exposed", while the remainder were categorized as "not-exposed." The main endpoints were the median scores on each of the three domains of the PPCI.

Results: A total of 194 surveys were distributed of which 26 (13%) were returned. Only 3 (2%) of a possible 130 surveys were returned by those categorized as not exposed. Respondents in the exposed group were older and had more years in practice. Physicians in the exposed category had higher median domain scores for relationship initiation [11 interquartile range (IQR):13-15 vs. 8 (IQR 8-11); p=0.005] and trustworthiness [40 (IQR 37-42) vs. 36 (IQR 9-36); p=0.03) but not for role specification [29 (IQR 26-32) vs. 26 (IQR 5-30); p=0.024].

Conclusions: We believe the low response rate in the not exposed physicians is indicative of poor collaborative working relationships between physicians and pharmacists practicing in the current ward-based model of clinical pharmacist care. Our results suggest that assigning a pharmacist directly to the medical team to provide patient care promoted stronger collaborative working relationships between physicians and pharmacists.

IMPACT OF AN EDUCATIONAL INTERVENTION ON ANTIBIOTIC USAGE FOR RESPIRATORY TRACT INFECTIONS IN A LONG-TERM CARE SETTING

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Rationale: Antibiotics are frequently prescribed for the treatment of pneumonia in long-term care settings. However, the inappropriate use of antibiotics can contribute to antibiotic resistance and poor clinical outcomes. Adherence to published guidelines ensures high quality care.

Objectives: To assess the feasibility of an educational strategy to translate evidence-based guidelines for treating nursing home-acquired pneumonia (NHAP) into practice.

Study Design: This was a retrospective chart review of NHAP during two periods: November 2003 to April 2004 (316 episodes in 214 patients) and November 2004 to April 2005 (265 episodes in 174 patients). Data on antibiotic use was obtained from hospital pharmacy records. An educational intervention was delivered by an infectious disease specialist in September 2004. The specific aims of the intervention were to reduce 1) use of respiratory fluoroquinolones for multiple treatment courses, without antibiotic rotation, 2) use of combination therapy with clindamycin for aspiration pneumonia, 3) use of combination therapy with metronidazole for aspiration pneumonia, and 4) use of second generation macrolides as monotherapy for NHAP. Comparisons of the frequency of antibiotic use and incidence of treatment failures before and after the intervention were made using Fisher's exact test.

Results: The frequency of fluoroquinolone use (57 (32%) to 22 (17%); P = .0052) and the use of combination therapy with clindamycin (10 to 0; P = .0025) declined significantly following the delivery of a physician directed educational intervention. Use of combination therapy with metronidazole improved in all but one prescriber, but failed to reach statistical significance. The percentage of treatment failures did not change.

Conclusions: We demonstrated that an educational intervention delivered by an infectious disease specialist to a defined group of prescribers significantly improved selected prescribing practices. Additional reinforcement may be required to achieve a higher degree of adherence to specialist-delivered messages.

ACADEMIC DETAILING AND TECHNOLOGY ENABLED ACADEMIC DETAILING BY PHARMACISTS IN BRITISH COLUMBIA

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Rationale: Academic detailing (AD) occurs when a clinical pharmacist visits a physician in their office to objectively discuss an evidence-based therapeutic topic. Trained pharmacist detailers are scarce, therefore our solution was to conduct "technology enabled academic detailing" (TEAD) visits through an electronic interface which allowed live interaction between detailers and physicians. This enabled pharmacists to detail beyond their catchment area.

Description: In 2005-2007, we implemented a province-wide study to determine the feasibility of TEAD by comparing AD versus TEAD. Physicians were assigned to a pharmacist, and 1 of 3 visit modalities: AD, TEAD, AD + TEAD.

Implementation: Over a 23 month period, pharmacists visited their physicians 3-4 times. Pharmacists were trained to conduct an academic detailing session, to use the technology, and on 4 diabetes topics.

Evaluation: 105 physicians and 12 academic detailer pharmacists participated. Data were collected through surveys, visit logs, interviews, and focus groups. The average time per pharmacist-physician visit was 34.6 minutes (AD), and 46.16 minutes (TEAD) (not significant). The average total time spent by pharmacists per topic was 81 minutes (door-to-door), and 49 minutes (dial-up-hang-up), $p<0.05$. This difference was attributed to driving, and waiting room time. The utility of support tools was ranked: drug chart (4.25/5), newsletter (4.11/5), numbers-needed-to-treat chart

(3.93/5). Physicians perceived no difference in utility between TEAD and AD, and felt both were positive learning environments that met their needs. Physicians and pharmacists benefited from their discussions, and the interactions provided insight into one another's practice. Provincial administrative databases are being accessed to determine the impact on prescribing.

Importance: We demonstrated that TEAD is a feasible alternative to AD. Physicians in rural and remote areas felt that TEAD was valuable. Data from this project served as the basis for a recent submission to the BC Ministry of Health to expand AD and TEAD.

PHARMACIST TIME AND STRATEGIES INVOLVED IN MANAGING NON-FORMULARY DRUG REQUESTS

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Rationale: Workload and patient outcomes associated with drug formularies have been controversial. The objectives of this review were to determine the number of non-formulary requests (NFR), resolution strategies, times and clinical impact.

Description: This acute care hospital has a process for approving NFR requiring that the prescriber contact Pharmacy and Therapeutics (1-DRUG) to obtain drug approval when alternate strategies are unacceptable.

Steps: Pharmacists completed tracking forms for NFR for one month. NFR referred to drugs not approved within the institution and not addressed by auto-substitution. The resolution strategy employed, pharmacist time to initiate the strategy, response time by the health care team or 1-DRUG, and pharmacist assessment of clinical impact were recorded.

Evaluation: Pharmacists required 17.1 hours to resolve 140 NFR, representing approximately 0.7% of pharmacist hours and 0.35% of total prescriptions, respectively. Resolution strategies included: patient's supply (51.4%), 1-DRUG (22.1%), changed to formulary drug (15.7%), discontinued (4.3%), held (4.3%), other (2.1%).

The median pharmacist time (range) per request was 5 minutes (1 to 40) and the median total time (pharmacist plus response times) was 7 minutes (1 to 7202). The median total time involved with the patient supply strategy was significantly less than the combination of the remaining strategies which required prescriber contact (5 versus 15 minutes, $p \leq 0.0001$). Seventy-four percent (103/140) of NF requests were processed as prescribed, mainly via patient's supply (72) and 1-DRUG (30/31) approval. Of the 37 requests that involved modification there was no perceived clinical impact in 32 and a positive impact in 5.

Relevance: NFR contributed minimally to overall prescription numbers and pharmacist hours. The patient supply resolution strategy was most common and time efficient. Given that ~ ¾ of NFR were processed as prescribed, the formulary should be frequently monitored and updated to avoid unnecessary time and inconvenience in order to maximize benefit.

RISPERIDONE-ASSOCIATED RESPIRATORY DEPRESSION: A CASE REPORT

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Risperidone is a high potency atypical antipsychotic. It is indicated for the treatment of Schizophrenia, acute mania, and used in cases of agitation and delirium. Common adverse drug reactions include: somnolence, hypotension, tachycardia, dystonia, impaired concentration, and altered body temperature regulation. We report a case of acute respiratory depression in a patient with advanced chronic obstructive pulmonary disorder (COPD) newly treated with risperidone.

A 63 year-old woman with severe emphysema was admitted for an acute exacerbation of COPD and treated with bronchodilator, antibiotic, and corticosteroid therapy. She had a recent 2-day history of lorazepam use and continued to receive this on admission. While taking lorazepam, her pCO2 changed from her baseline of 40mmHg to a level of 71mmHg with subsequent improvement to 56mmHg when lorazepam was discontinued. Due to ongoing anxiety psychiatry was consulted and risperidone 0.25mg BID was initiated. Over the next 3 days she again became more hypercapnic with pCO2 increasing to 77mmHg. In discussion, psychiatry elected to discontinue risperidone and pCO2 decreased to 51mmHg shortly after. She was discharged with normalized blood gases and without anxiolytic therapy.

The Naranjo ADR Probability Scale rates this event attributable to risperidone as probable (score 5-8). Not previously hypercapnic, our patient had 2 episodes of respiratory deterioration coinciding with administration of firstly lorazepam and secondly risperidone. Each time, her status resolved with withdrawal of the offending agent. While respiratory depression has been reported with risperidone in situations of overdose, this is the first case of respiratory depression in a patient receiving a usual dose.

It would appear that patients with severe disease and pre-existing hypercarbia may be at increased risk and should be prescribed risperidone with care. Pharmacists need to be aware of the potential for risperidone to cause respiratory depression.

IMPROVING PATIENT SAFETY BY ELIMINATING THE USE OF BISMUTH-IODOFORM-PARAFFIN-PASTE IN NASAL PACKING'S FOR THE TREATMENT OF EPISTAXIS

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Bismuth Iodoform Paraffin Paste (BIPP) impregnated ribbon gauze has been used for decades in wound dressings and packings despite lack of evidence of benefit and despite serious safety concerns. Adverse reactions that have been described include nausea, vomiting and headache, often triggered by the pungent and irritating iodoform odour, hypersensitivity reactions of variable severity and CNS effects like confusion, delirium, encephalopathy and coma.

These safety concerns led to an initiative to ban the use of BIPP at Brandon Regional Health Centre. This was met with resistance by Emergency Room and Primary Care physicians who wanted to continue to use it for nasal packings in patients presenting with epistaxis and cited literature support for their position.

A literature search identified five pertinent review articles from the 2004 – 2005 period. Four of them recommended the use of BIPP impreganted gauze as a nasal packing. None gave a rationale for its use, most articles listed vaseline as an alternative agent.

In presentations to the practitioner groups and meetings with the department heads education regarding the dangers of BIPP, the use of alternative treament aproaches, e.g nasal sponge tampons, and alternative substances for nasal packings was provided. Concerns about toxic shock syndrome and its prevention were addressed.

This approach facilitated the removal of BIPP from the hospital formulary. Since then no requests for BIPP have been recieved and an informal evaluation nine month after the removal showed practitioner satisfaction with the available treatment options.

BIPP serves as an example how traditional treatments involving dangerous drugs are still part of current peer-reviewed therapy guidelines. This initiative was successful in overcoming these recommendations, resulting in a safer and better tolerated therapy for a commonly encountered condition in emergency and primary care practice.

ADMINISTRATION OF 24% SUCROSE FOR PROCEDURAL PAIN MANAGEMENT IN NEONATES: AN EVIDENCE-BASED APPROACH TO CHANGING PRACTICE

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Lessons learned from initiating a change in clinical practice allowed problems to be identified early and actions were taken to empower and educate nurses allowing them to feed a form of liquid sugar to infants with the goal of easing their pain during medical procedures.

Project Objective: To monitor the implementation and utilization of 24% sucrose for procedural pain for all neonates admitted to the ward floor during a 9-week period. To develop better practice guidelines based on collected evidence to support a hospital-wide implementation.

Target Groups: Pain management in the neonatal population is sub-optimal, such that the uses of simple, safe and effective pain-relieving interventions are necessary. Sucrose, with and without non-nutritive sucking (pacifiers), is a recognized therapeutic analgesic in the neonatal population. As a result, healthcare professionals throughout CHEO were encouraged to initiate and administer sucrose to relieve neonatal pain.

Activities: Hospital pain committees conducted extensive planning to develop the administration of 24% sucrose policy. Indications and benefits of sucrose as an analgesic were presented to management and clinical staff prior to policy implementation. Administration of sucrose encouraged by: in-service education and ongoing communication with staff, mini-posters to reinforce assessing opportunities for sucrose usage, and creation of a pamphlet to educate parents/guardians for use of sucrose as pain relief. Social marketing and advertising techniques were used to effectively launch the study. Policy compliancy assessed by weekly chart audits and reviewed by a multidisciplinary focus group found that 85% of patients had sucrose initiated on the physician order sheet (n = 48). Sucrose was given prior to 67% of medical procedures, but less frequently prior to suctioning procedures. Feedback and follow-up with staff and clinicians found that administration of sucrose is a clinical decision based on the clinical state of the neonate.

Deliverables: Lessons learned from the pilot study ensured barriers to implementation were identified early and actions were taken to provide pediatric nurses with the information needed to incorporate oral sucrose usage into current care practices for neonatal pain management. Information was shared with leadership teams in other inpatient areas to help facilitate hospital-wide practice.

DESIGN, DEVELOPMENT, AND EVALUATION OF PICTOGRAPHIC INSTRUCTIONS FOR DIVERSE CULTURES

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Objective: To design, develop and evaluate culture-sensitive pictographic instructions for use within a multicultural practice setting.

Background: This initiative focused on patients from different cultures with potential low literacy or communication barriers.

Activities: In collaboration with the International Federation of Pharmacy Students, culture-specific pictograms were created by a graphic designer and submitted to the students from various geographical regions for their approval. A total of 8 pictograms were originally submitted to the students under 7 categories: Take with water, Take with food, Do not drink alcohol, Frequency – Morning, Frequency – Noon, Frequency – Evening, and Frequency – Night.

Results: Based on feedback, additional pictograms were designed to address culture-specific differences: In total, 14 new pictograms were created and approved. Totals of all pictograms are: Take with water (2), Take with Food (6), Do not drink alcohol (5), Frequency – Morning (2), Frequency – Noon (1), Frequency – Evening (3), Frequency – Night (3), to be used for patients specific to Finland, United Kingdom, Egypt, Singapore, Hungary, Australia, Indonesia, Serbia and Taiwan. Pictograms not tested were Ointment, Optic, Otic, Sachet, and Keep Away from Children.

Practice Implications: This study has shown that culturally sensitive pictograms in the format of a storyboard, along with written and verbal counseling, can produce positive results in the comprehension of drug information when it takes into consideration cultural differences. This initiative responds well to Canada's changing diversity and the need to find supporting tools of communication.

STANDARD CONCENTRATIONS OF HIGH ALERT DRUG INFUSIONS ACROSS PAEDIATRIC ACUTE CARE

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Objective: To improve continuity of care and to reduce the risk of medication errors, by implementing Standard Concentrations (SCs) of high-alert drug infusions across critical care areas. The Joint Commission on Accreditation of Healthcare Organizations requires this as of 2008.

Setting and Methods: SCs were implemented in the Emergency Department, Operating Room and Pediatric Intensive Care Unit (PICU) at the Children's Hospital of Eastern Ontario in Ottawa, Canada. Prior to implementation,

concerns raised during stakeholder consultations were addressed, a computer program was developed, and staff were educated and tested in the new method.

Results: The concern that SCs may cause fluid overload, particularly in infants, was the major barrier to acceptance of SCs. This was addressed by examining infusions for 48 successive infants less than 20 kg in the PICU, and calculating theoretical volumes had SCs been used. Infusion volumes were not significantly different, and there was no trend towards proportionally larger volumes in smaller patients. The computer program for SC selection and infusion rate calculation features redundant inputs, a "deviation" column indicating how closely the prescribed dose matches the infused dose, and a print-out that includes all necessary information and facilitates dose verification back-calculation. Medication error reporting was very low before implementation. SC errors remained low, even when implementation of online reporting led to higher reporting of other medication errors. A survey indicated excellent staff acceptance, and beliefs that patient safety and continuity of care were improved.

Conclusions: This is one of the first reports of SCs being instituted with computer support in lieu of "smart pumps" across multiple units in a pediatric institution. SCs were well received and staff perceived that patient safety and care improved. The initial program with 8 medications is being expanded to 40 continuous infusion drugs, plus Pediatric Advanced Life Support bolus medications.

Tuesday, January 29 • Mardi 29 janvier

RESTRUCTURING CLINICAL PHARMACY SERVICES IN A TERTIARY TEACHING CARE HOSPITAL

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Background: Clinical pharmacy services at our institution were largely reactive in nature, with patients and units receiving inconsistent coverage.

Objective: To develop and evaluate an evidence-based model of practice delivery that could be delivered proactively and consistently.

Description: A review of the literature was conducted to determine a "core" set of pharmacist services that would be associated with the largest patient impact. Based on levels of staffing, services were restructured and pharmacists were assigned to a limited number of patient care units or teams to proactively provide the core services outlined. Other units continued to receive a "reactive" troubleshooting-based service triaged by the dispensary.

Evaluation: A satisfaction survey was distributed to all pharmacists, nurses, and physicians 18 months after restructuring.

Results: Of the 26 pharmacists who responded, 89% strongly agreed that the restructuring of services improved job satisfaction, 58% felt that patient safety was improved, and 58% felt that other health care professionals valued their contribution to patient care. Nurses and physicians from units where pharmacists were assigned to provide proactive services ranked pharmacist services more favorably across the board than those from units where pharmacist services were reactive. Pharmacists, nurses and physicians all felt that proactive pharmacist services should be more widely available. Challenges for pharmacists were related to increased documentation expectations and some guilt in "cutting back" services.

Implications: Restructuring clinical pharmacy services in an evidence-based manner has improved pharmacist satisfaction and created demand from stakeholders to provide this level of service for all patients.

IMPLEMENTATION OF AN ADMISSION MEDICATION RECONCILIATION PROCESS IN ACUTE MENTAL HEALTH SERVICES

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Incomplete or inaccurate medication histories contribute to adverse events during and after hospitalization. The gaps in information transfer lead to medication discrepancies on admission to hospital. Medication reconciliation helps to reduce these discrepancies, but there is no formalized process for reconciling medications at our hospital and many others across Ontario. While seemingly simple and intuitive, medication reconciliation has proved challenging for many hospitals to implement.

We propose a five-step process for medication reconciliation involving physicians and pharmacists. Our pilot project implemented this process for new admissions to the psychiatry service in a tertiary-care hospital from November 2006 to March 2007. An admission medication history (AMH) form was developed as a tool for this process. Psychiatry medical residents were instructed how to use this form and how to obtain an accurate medication history. A pharmacist was responsible for verifying the accuracy of the medication history and reconciling discrepancies.

Unintentional discrepancies decreased from 1.63 per patient to 1.29 (p=0.430), while undocumented intentional discrepancies went from 0.33 to 0.11 per patient (p=0.242). The AMH form was used for 87/309 (28%) of admissions over 5 months (range 11 to 44% admissions per month), and verification occurred in 63% of these patients. The average time required for the pharmacist to obtain the best possible medication history was 29.2 minutes, and medication reconciliation was completed on average 31 hours from admission.

Following the study, the AMH form was re-evaluated and simplified based on study feedback. This form has been incorporated into the Psychiatry Emergency Assessment booklet to be used for all new psychiatry patient admissions. The medication reconciliation project team recommended implementation of the AMH form and this five step medication reconciliation process on all other inpatient services. We hope the results of this project may also assist other hospitals attempting to implement medication reconciliation.

EVALUATING THE SAFETY OF IRON DEXTRAN VERSUS IRON SUCROSE OR SODIUM FERRIC GLUCONATE COMPLEX IN SUCROSE: A SYSTEMATIC REVIEW

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Background: *The safety of intravenous iron preparations has been incompletely studied.*

Objective: Perform a systematic review to determine whether perceived safety differences between iron dextran (DEX) and iron sucrose (SUC) or sodium ferric gluconate complex in sucrose (SFG) are real.

Methodology: Three electronic databases were systematically searched (up to July 2007). English-language randomized controlled trials (RCTs) and observational studies (OS) comparing the safety of DEX versus SUC or SFG were included. Odds Ratios (OR), 95% confidence intervals (95%CI) and number needed to treat (NNT) were reported.

Results: One RCT and 9 OS were found. The RCT reported a non-significant difference in the incidence of adverse reactions between DEX and SUC [OR 0.76; 95% CI 0.27-2.13]. In two of four OS comparing DEX to SUC, DEX was associated with a greater risk of any adverse event (AAE) (OR 2.0, 95%CI 1.7-2.5 to 7.2, 95%CI 2.5-20.6), but the NNT was high (40,161 to 49,020). In four of six OS comparing DEX to SFG, DEX was associated with a greater risk of AEE (OR range: 2.1, 95%CI 1.7-2.5 to 5.6, 95%CI 2.9-10.6; NNT range: 20 to 53,764). One of four OS comparing DEX to SUC reported DEX was associated with increased risk of life-threatening events (OR 5.8; 95%CI 2.2-15.4), but the NNT was high (421,763). Two of seven OS comparing DEX to SFG suggested DEX increased life-threatening events (OR range: 3.6, 95%CI 1.7-7.4 to 15.3, 95%CI 2.1-113.5); but the NNT range was large (176 to 421,763).

Conclusions: Considerable uncertainty exists regarding the relative safety of DEX versus SUC and SFG. Available evidence is limited almost entirely to retrospective OS, and suggests that adverse reactions are rare and that safety differences between products, if they exist, are extremely small with wide confidence intervals.

ASSESSMENT OF THE CONTRIBUTING FACTORS TO VARIATIONS IN HEMOGLOBIN IN HEMODIALYSIS PATIENTS RECEIVING ERYTHROPOIETIN HORMONE REPLACEMENT THERAPY BY PHARMACIST-INITIATED DOSING ALGORITHM

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Rationale: Anemia is a common complication of chronic kidney disease with increasing incidence in patients with end stage renal disease. Untreated anemia can lead to fatigue, dyspnea, decreased exercise tolerance, left ventricular hypertrophy, congestive heart failure, and an overall decreased quality of life. In recent years, there is a growing interest in pharmacist-implemented anemia management protocols. Studies have found pharmacist-administered erythropoietin dosing protocol to be as effective as physician-based anemia management. As a result, the hemodialysis unit at this institution adopted a pharmacist-based erythropoietin dosing protocol in October 2005. About half of the patients were found to fall outside of the target haemoglobin range by both the dosing algorithm and individualized dosing by nephrologists. These patients may be at risk for increased morbidity or mortality secondary to suboptimal anemia management. Hence, an evaluation of the possible contributing factors may potentially identify areas for improvement in the current protocol.

Objectives: To identify contributing factors for failure to meet target hemoglobin range and provide recommendations to improve anemia management in hemodialysis patients at this institution.

Study Design and Methods: A retrospective chart review was conducted in hemodialysis patients with hemoglobin values outside of the target range of 110-125g/L. Patients were evaluated for potential contributing factors which have lead to the deviations in hemoglobin values.

Results: A total of 320 patients were screened for the study, of whom 185 satisfied the inclusion and exclusion criteria. Of these patients, 39 patients had hemoglobin below the target range while 34 patients had hemoglobin above the target range. In the low hemoglobin group, iron deficiency and hospitalizations were the most common contributors. In the high hemoglobin group, recent administration of accelerated iron protocol was the most common contributor.

Conclusion: In patients with hemoglobin values outside of the target range, the variations were closely related to their iron management. As a result of this study, the iron protocol was revised.

MANAGEMENT OF METABOLIC BONE DISEASE IN PRE-DIALYSIS PATIENTS IN KIDNEY FUNCTION CLINIC

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Rationale: Chronic Kidney Disease (CKD) affects about 2 million Canadians and is one of the faster growing health concerns. Elevated serum phosphorus level and calcium-phosphate product have been linked to excess cardiovascular risk, including coronary artery disease, acute myocardial infarction, and cardiac arrest. The goal of this continuous quality improvement project was to assess the current management of metabolic bone disease (MBD) in pre-dialysis patients attending the Kidney Function Clinic (KFC).

Objectives: The objectives were: 1) To determine the percentages of KFC patients with normal calcium, phosphorus, and iPTH laboratory values at baseline as defined by Kidney Disease Outcome Quality Initiative (K/DOQI) Clinical Practice Guidelines for Bone Metabolism and Disease in Chronic Kidney Disease, and 2) To determine the types of problems identified in patients who did not meet target and whether interventions were made and in compliance with the K/DOQI Guidelines.

Study Design/Methods: All pre-dialysis patients attending KFC at St. Paul's Hospital were included in the study. Using BC Provincial Renal Agency (BCPRA)'s Outcome Management Information System (PROMIS) database, data were collected on patient demographics and relevant laboratory results (serum calcium, phosphorus, iPTH, serum albumin). For patients who did not achieve target values as defined by K/DOQI guidelines, they were categorized into 6 subgroups (high serum calcium, high serum phosphorus, high iPTH, low serum calcium, low serum phosphorus, and low iPTH levels). Twenty patients from each subgroup were then randomly selected for a retrospective chart review to further determine

whether interventions were made and in accordance with K/DOQI guidelines.

Results: Of the 218 Stage 3 CKD subjects, 90% had serum phosphorus and calcium values within K/DOQI targets while 40% had iPTH values within K/DOQI target. Of the 260 Stage 4 CKD subjects, 77%, 90%, and 21% were within K/DOQI targets for serum phosphorus, calcium, and iPTH levels, respectively. Of the 72 Stage 5 CKD subjects, 61%, 46%, and 29% were within K/DOQI targets for serum phosphorus, calcium, and iPTH levels, respectively. A total of 148 interventions were made in the selected study groups, of which 70% were considered in compliance with K/DOQI recommendations.

Conclusions: The serum phosphorus and calcium levels were well controlled in majority of Stages 3 and 4 CKD patients and in only about half of the Stage 5 patients. K/DOQI targets for iPTH were not fully endorsed by the nephrologists; hence, the management of abnormal iPTH values varied. A standardized approach in the management of MBD will further optimize the care of pre-dialysis patients.

DIGITAL CAMERA USE TO ALLOW ASYNCHRONOUS VALIDATION OF STERILE PRODUCT PREPARATION

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Rationale: Sterile products preparations require several steps which must be validated individually to ensure the quality of the final preparation. In daily practice, this validation is the cause of frequent interruptions in the work of pharmacy technician and pharmacist.

Description of Concept: Taking pictures of the different steps of preparation allow technicians not to interrupt the production for pharmacist's validation. Once the product is ready and out of the cleanroom, the pharmacist can validate all of the preparation steps with the help of photographs. Digitized images are linked to a medication order in the pharmacy software.

Resolution: The following criteria were used to identify the camera that would fullfill our needs (2 Mpx. live video stream, a POE connexion and integrated web server). Three IQeye 702 ® cameras (1500$) were installed outside the hood's windows. Camera focus is preset on the central area of the hood. A computer screen enables the pharmacy technician to watch the video stream from the camera to position products. The pharmacy technician takes a photograph by activating a USB foot switch. A larger image is briefly shown on the screen and technician makes sure patient identification, volume, vials, lot number are visible. The picture is transfered in a validation spool in the pharmacy software.

Evaluation: The chain of work is now totally asynchronous. During the week of Oct. 1st, 2007, 469 interruptions were avoided over 40 hours of service. This equates to a reduction of 11.7 interruptions/ hour for personel.

Usefulness and Importance: Literature on the use of cameras in pharmacy is scarce. The current use of cameras in hospital allows pharmacist to validate from a distinct setting without having to enter in the cleanroom. Our experience describes the first use of digital photographs to spool the validation process of sterile products preparation.

ÉVALUATION PRÉ-POST DE LA CONTAMINATION PAR DES AGENTS CYTOTOXIQUES DANS UNE PHARMACIE SATELLITE D'HÉMATOLOGIE-ONCOLOGIE

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Justification : Depuis quelques années, plusieurs études portant sur la surveillance environnementale, biologique ou médicale ont révélé la présence de contamination cytotoxique sur les surfaces de travail servant à la préparation des antinéoplasiques au sein des établissements de santé. Ces résultats ont incité les pharmaciens d'établissement à mettre en place des mesures d'évaluation de la contamination et les organismes de santé et sécurité du travail à proposer des seuils maximaux de contamination et des recommandations et/ou des lignes directrices concernant la préparation et la manipulation de ces médicaments qualifiés comme dangereux.

Objectif : Évaluer pré-post la contamination des surfaces de travail servant à la préparation des médicaments dangereux dans une pharmacie satellite d'hématologie-oncologie (60 m2) (phase I) ainsi que suite au réaménagement de celle-ci dans un environnement plus conforme (125 m2) (phase II).

Méthodologie : Cinq échantillons ont été prélevés sur des sites spécifiques et différents de la pharmacie durant 15 jours consécutifs par un seul manipulateur. Le dosage des échantillons a été effectué par une technique de séparation par HPLC-MS-MS afin de quantifier les traces de cyclophosphamide, d'ifosfamide et de méthotrexate. Une différence est considérée significative si $p<0,05$.

Résultats : On observe que le nombre de prélèvements positifs est significativement plus élevé en post pour l'ifosfamide ($p < 0,001$), mais pas pour le cyclophosphamide et le méthotrexate. Les sites les plus contaminés sont en ordre décroissant la grille métallique frontale de la hotte, suivi de la surface de travail de la hotte et le passe-plat. Les valeurs moyennes de contamination quantifiée varient de 0 à 0,865 ng/cm2 d'ifosfamide, de 0,412 ng/ cm2 de cyclophosphamide et de 0,751 ng/ cm2 de méthotrexate.

Conclusion : Cette étude confirme la présence de traces de cyclophosphamide, d'ifosfamide et de méthotrexate dans deux environnements distincts de préparations de médicaments dangereux.

CANADIAN NATIONAL ACTIVE SURVEILLANCE NETWORK FOR ADVERSE DRUG REACTIONS: GENOTYPIC ADJUSTMENT OF THERAPEUTICS IN CHILDREN (GATC): THE FIRST YEAR

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Background: Adverse Drug Reactions (ADRs) cause significant morbidity and mortality in children. 95% of ADRs are never reported. Active surveillance may be more effective

than voluntary reporting in identifying and collecting comprehensive case information for severe ADRs.

Objectives:

1. Establish a network of full-time clinical surveillors in eight major paediatric hospitals across Canada
2. Document ADR cases with all relevant clinical data;
3. Identify ADR and matched control patients and collect biomaterial to determine the role of genetics in the occurrence of specific ADRs.

Methods: Network surveillors identify children who have suffered ADRs (and matched controls) from inpatient, outpatient and emergency departments at paediatric tertiary care hospitals in Canada. Consistent, high quality clinical data is obtained and documented through interview and chart review. Biological samples are obtained from patients for genotyping. Biomarkers of drug risk are identified via analysis of single nucleotide polymorphisms in genes controlling drug kinetics. Identified biomarkers will be validated by pharmacokinetic studies. The aim will be to create genotype specific dosing recommendations and a test to detect ADR biomarkers to prevent the occurrence of serious ADRs.

Results: National network development required 18 months and included collaboration at multiple levels: senior administration; department heads; clinicians; support staff. Other activities included: recruiting and hiring of surveillors; addressing privacy concerns; local ethics approvals; protocols for ADR reporting; sample collection processes; remote project orientation and support. In one year, 325 ADRs and 1257 control patients were enrolled. Biomarkers for three serious ADRs have been identified: anthracycline cardiotoxicity, cisplatin ototoxicity, maternal-infant codeine CNS depression.

Conclusion: Active ADR surveillance networks like GATC require extensive planning and ongoing support. GATC is effective for ADR reporting and drug safety biomarker research. Design of the network allows capture of a broad range of ADR cases and targeted surveillance of specific drugs/ADRs of principal concern.

IMPLEMENTATION OF A MEDICATION REFRIGERATION MONITORING PROGRAM

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Introduction: Quality audits of medication refrigerators conducted by Pharmacy in fall 2006 indicated that fridge temperatures were not being monitored or maintained consistently across the patient care areas. As medications and vaccines are highly sensitive to changes in temperature, if they are not maintained at a specific temperature, they may become ineffective and therefore must be destroyed. In the first audit, fridge temperatures, cleanliness, inappropriate storage of food alongside medications as well as frequency of monitoring (documentation) were assessed. Of 21 refrigerators checked at the first audit, 47% (less than half) had temperatures within acceptable ranges.

Methods: The hospital's Clinical Risk and Patient Safety committee and Pharmacy department initiated a coordinated approach to resolving this issue focused on preserving the "cold chain" (maintaining the material, equipment and procedures) to ensure the medications we give our patients were kept safe. Each patient care area with a medication refrigerator was responsible for designating a staff person to check the temperatures daily and report any temperatures falling outside the acceptable range to pharmacy (to assess need for destruction of medications) and physical plant (to repair/replace the fridge). A policy on medication refrigerator temperature monitoring was developed and implemented. Educational materials (quick reference guide, brochure and powerpoint presentation for group education) were also provided to the patient care areas.

Results: Significant improvements have been seen in the adherence to the medication refrigeration temperature monitoring policy as evidenced by the audits completed over the ensuing 6 months. As of March 2007, 100% of fridges had temperatures within range and almost all were clean and not storing food.

Conclusion: As staff becomes more comfortable with their duties as they relate to medication storage and monitoring, supported by education, regular auditing and action to resolve issue, significant improvements can be implemented in a short period of time.

DRUG UTILIZATION IN END OF LIFE AND RESPITE/TRANSITION TO HOME PAEDIATRIC PATIENTS AT ROGER'S HOUSE

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Background: Roger's House (RH) is an eight-bed, pediatric palliative care hospice in Ottawa committed to easing the distress of children who are living with progressive life-limiting illnesses and providing support to their families.

Rationale: A drug use evaluation (DUE) of medications used in paediatric respite/transition to home (RTTH) and acute end of life care (EOLC) at Roger's House will enable clinical leaders to focus for medication-related education to meet the needs of patients.

Methods: A retrospective chart review of all Roger's House patients admitted from May 15/06 to May 15/07 (n= 55) was performed in order to determine drug utilization for patients receiving RTTH and EOLC.

Results: Analysis of the retrospective review showed that 71% (n=39) of patients received RTTH and 29% (n=16) received EOLC. A dose comparison for RTTH (7 doses/day "7, n=7781 doses, n=854 patient days) and EOLC (18 doses/day, "14, n=4868 doses, n=260 patient days) patients confirmed an expected higher level of medication use in EOLC patients. A review of EOLC patient medications determined the most commonly used medications included: gabapentin, hydromorphone, methotrimeprazine, midazolam, morphine, phenobarbital, ranitidine, and scopolamine.

Impact on Practice: The results of this study will enable improved education for front-line staff in regards to the most commonly prescribed medications for RTTH and EOLC patients seen at Roger's House.

MEDICATION RECONCILIATION IN A LONG-TERM CARE FACILITY – SIX MONTH RESULTS

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Rationale: Medication reconciliation is a required organizational practice (ROP) occurring upon admission to an organization or at referral or transfer to the next care

provider. Policies and procedures are required to implement medication reconciliation.

Description of the Concept: The process of medication reconciliation aims to ensure that medication discrepancies do not occur inadvertently during transitions in care. Pre-admission documentation that accompanies a newly admitted patient may be up to 2 months old. This report describes medication discrepancies discovered on 80 consecutive admissions over a 6-month period.

What was Done: The pharmacists in Aging & Veterans Care prepared a policy statement detailing our process for medication reconciliation for both newly admitted patients and patients transferred from Acute Care, as a requirement for hospital accreditation. Pharmacists reviewed accompanying documentation, medication packages, interviewed the patient, or contacted the patient's community pharmacy or family doctor to identify and resolve medication discrepancies. A standard data collection form was used to document discrepancies.

Evaluation: Patients admitted from April 1 to Sept 28, 2007 were using a total of 798 medications or 9.4 medications per patient. Pharmacists identified 108 discrepancies of which 17 were intentional and documented, 34 were intentional and undocumented and 57 were unintentional. The average number of discrepancies per patient was 1.4. Of the new admissions, 47 (59%) had at least one discrepancy while 33 (41%) had no discrepancies. Some of the unintended discrepancies related to inaccurate or outdated medication history information provided in the pre-admission documentation and others were due to transcription errors. Some of the unintended discrepancies had the potential to lead to adverse patient outcomes.

Importance to Practice: Medication discrepancies occurred in 60% of new admission to our long-term care facility. Undetected medication discrepancies at the time of admission to residential care exposes patients to an avoidable risk. This risk can be reduced through medication reconciliation.

PROTON PUMP INHIBITORS VERSUS HISTAMINE 2 RECEPTOR ANTAGONISTS FOR STRESS RELATED MUCOSAL BLEEDING PROPHYLAXIS IN CRITICALLY ILL PATIENTS: A META-ANALYSIS

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Background: Stress-related mucosal bleeding (SRMB) causes significant morbidity and mortality. H2-receptor receptor antagonists (H2RA) have been shown to reduce SRMB rates, yet randomized trials (RCTs) assessing proton pump inhibitors (PPIs) have yielded conflicting results.

Objective: To evaluate the efficacy of PPIs versus H2RAs in the prophylaxis of SRMB in critically ill adults with risk factors for bleeding.

Methods: Searches of the past 4 decades in MEDLINE, EMBASE, CENTRAL (Q4-2006), and ISI WEB OF KNOWLEDGE were conducted. Only fully published RCTs published in English were included, if the required data could be extracted. We reviewed all RCTs comparing the efficacy of PPIs to controls (H2RAs, sucralfate, or placebo). Outcomes measured were the decreases in rates of clinically significant bleeding (B, primary outcome of the meta-analysis), nosocomial pneumonia (P), and mortality (M) (secondary outcomes). Study heterogeneity was sought and quantified. Results are reported as odd-ratios (OR) with 95% confidence intervals using a random effect model (Review Manager 4.1).

Results: Three RCTs met the inclusion criteria; of the 8 arms contained in these studies, the meta-analysis assessed the six treatments arms that compared PPIs to H2RAs (omeprazole (n=3), cimetidine (n=1), ranitidine (n=1), and famotidine (n=1)). Prophylactic PPI administration did not yield any significant decrease in the incidence of bleeding (N=569 patients, OR 0.41, [0.15;1.14]); with no observed heterogeneity (p=0.26, I^2=26.4%). Moreover, no statistical differences were apparent for the development of nosocomial pneumoniae (n=3, N=569 pts, OR=0.72, [0.25;2.10]), in which moderate heterogeneity was found p=0.05 I^2=66.7%, or for mortality (n=2, N= 502 pts, OR=1.35, [0.82;2.22]), for which there was no observed heterogeneity (p=0.95, I^2=0%). Interestingly, although all studies showed lower rates of bleeding for PPIs versus H2RAs, only one study with a high rate of bleeding in both groups compared to current general estimates significantly favored their use.

Conclusion: In critically ill patients with recognized risk factors for the development of SRMB, PPI prophylaxis did not significantly decrease rates of clinically significant bleeding, nosocomial pneumonia, or mortality. It is possible that the meta-analysis is currently underpowered to show a significant improvement in bleeding attributable to PPI's. Additional studies are required to definitively exclude any possible benefit, and as initial step, an attempt at getting more complete information from trials published in English only as abstracts is warranted.

Wednesday, January 30 • Mercredi 30 janvier

A DRUG USE EVALUATION OF INTRAVENOUS PANTOPRAZOLE: PRESCRIBING PATTERNS AND ADHERENCE TO HOSPITAL GUIDELINES

Lina Ho, Wilma Hopman, Alistair Packman, Kingston General Hospital, Kingston, ON

Rationale: Over-utilization of intravenous proton pump inhibitors is common in the hospital setting.

Objective: To examine the prescribing patterns of intravenous pantoprazole at a university-affiliated tertiary care hospital.

Methods: Prescribing parameters and clinical outcomes of 38 patients initiated on intravenous pantoprazole were collected prospectively and analyzed descriptively using means, standard deviations, ranges, frequency tables and percentages. Patients with a Gastroenterology consultation were compared to those without using chi-square tests and independent samples t-test.

Results: Twenty-eight patients (74%) met hospital restrictions. Recommended dosing regimens were used

in 21 patients (75%) who met restrictions. The mean duration of continuous infusion was 82.9 ± 85.9 hours and the mean duration of intermittent therapy was 101.7 ± 130.0 hours. Endoscopically confirmed high-risk lesions were found in 7 (41%) and low-risk lesions in 3 (18%) of 16 endoscoped patients. The mean duration of pantoprazole infusion in endoscoped patients was 108.0 ± 107.3 hours; 15 (94%) were initiated before endoscopy (average 46.9 ± 37.5 hours pre-endoscopy), of which 10 were initiated within 24 hours pre-endoscopy. In 6 (60%) of 10 patients without endoscopically confirmed high-risk lesions, the infusion was continued beyond 12 hours post-endoscopy. In patients with a Gastroenterology consultation, there was a trend towards higher adherence to restrictions (79% vs. 56%, p = 0.205), longer duration of infusion (mean 87.5 vs. 42.9 hours, p = 0.124), shorter duration of intermittent therapy (mean 80.4 vs. 144.1 hours, p = 0.302), and shorter hospital stay (mean 18 vs. 33 days, p = 0.170).

Conclusions: Adherence to formulary restrictions was high, but dosing and duration of therapy required improvement. An update of formulary guidelines and development of a preprinted order for acute UGIBs are recommended. Accompanying strategies may include education of housestaff and system alerts for pharmacists for prompt enteral step-down therapy.

PHARMACIST ROLE DESCRIPTION PROMOTES KNOWLEDGE COMPONENT OF INTERPROFESSIONAL CARE

Lawrence Jackson, Edward Kung, Sonia Dyett, Victoria Hsu, Dean Yang, Froozan Amin, Sunnybrook Health Sciences Centre, Toronto, ON

Rationale: The pharmacist team serving Sunnybrook's veteran residents participated in a collaborative project, in conjunction with staff from 10 other health disciplines, to improve the management of chronic pain in the elderly using an inter-professional care (IPC) approach. This report describes the steps taken to enhance the knowledge component of IPC and associated outcomes.

Description of Concept: Inter-professional care requires knowledge of the roles of other health professionals, skills such as communication with others, and attitudes such as mutual respect and willingness to collaborate. We undertook to increase staff knowledge of the pharmacist's role in pain management through creation of a role description poster and provision of in-service education.

What was Done: As part of a broader collaborative effort by all the disciplines, the pharmacists created a description of their role in the management of chronic pain, using a group reflection process. The role information was summarized under 9 subheadings (including medication appropriateness and altered drug handling in the elderly) and presented in poster format. The poster was showcased on two poster display days for staff during September 2007. Educational in-services were conducted for staff on patient care units, followed by a pre-and post-test, to assess knowledge translation, and a satisfaction survey.

Evaluation of Project: The average pre-test score of 75% increased to 95% on the post-test. The average satisfaction core was 4.5/5. Staff comments included: "role sharing was very worthwhile" and "I have a better understanding of the pharmacist's role on the team".

Importance to Practice: Knowledge of other discipline's roles is essential to the practice of IPC. It enhances skills in building inter-professional relationships and maximizing team function. Students in the health disciplines also benefit from practical experiences with functioning IPC teams. A pharmacist's role description can be created to reflect any practice setting or disease management issue.

DIHYDROPYRIDINE CALCIUM CHANNEL BLOCKERS AND CARDIOVASCULAR OUTCOMES IN ELDERLY PATIENTS: A POPULATION-BASED STUDY

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Purpose: Dihydropyridine calcium channel blockers (CCBs) are widely used for the treatment of hypertension and angina. Despite safety concerns associated with short-acting agents, increasing evidence supports the safety of long-acting dihydropyridines. Although amlodipine is the best-studied of these, it has not been directly compared to nifedipine.

Objective: To examine the association between hospitalization for acute coronary syndromes and treatment with amlodipine or extended-release nifedipine in patients aged 65 years and older. The primary objective was a composite of hospital admission for angina or acute myocardial infarction.

Design & Setting: This population-based retrospective cohort study used linked healthcare databases from Ontario, Canada. Propensity scores were used to identify highly similar patients begun on amlodipine or extended-release nifedipine between April 1997 and March 2002. Time-to-event analysis was conducted using Cox proportional hazards models.

Results: The analysis included 24,190 patients (44% male, mean age 75 years) treated with amlodipine or extended-release nifedipine (n=12,095 each). The number of patients reaching the primary endpoint was 362 (3%) and 294 (2.4%) in the amlodipine and nifedipine groups. The groups were similar for a large number of demographic and clinical characteristics. No significant differences were observed among users

of extended-release nifedipine (adjusted rate ratio 0.91, 95% CI 0.74-1.13) relative to amlodipine.

Conclusion: These findings suggest that amlodipine and extended-release nifedipine are not associated with differential rates of acute coronary events in older patients. In the absence of a direct comparative trial, these results imply a class effect of long-acting dihydropyridine CCBs in patients with a history of ischemic heart disease. This comparative data is needed to aid in making clinically-sound and cost-effective decisions.

A SURVEY TO ASSESS THE CULTURE, ATTITUDES AND EDUCATIONAL NEEDS OF FRONT LINE HOSPITAL HEALTH CARE PROVIDERS REGARDING MEDICATION INCIDENT REPORTING IN A TERTIARY TEACHING HOSPITAL.

Soltys I., Heffer M., Leung D., Toronto Western Hospital, University Health Network, Toronto, ON

Encore Presentation: originally presented at CSHP AGM August 12, 2007, Regina, Saskatchewan.

Reason for Initiative: The Toronto Western Hospital interdisciplinary Safe Medication Practice Committee reviews all hospital medication incidents and identified a need for an education initiative regarding the quality of medication incident reporting. The importance of medication safety staff education was also identified in our organizations accreditation report through the Canadian Council on Health Services Accreditation. In addition, the Pharmacy and Therapeutics Committee acknowledges that more education is needed to enhance awareness of physicians, nurses and allied health professionals concerning the process for reporting and methods of assessing medication incidents. This project is in line with our corporate goals and objectives outlined in the UHN Balanced Score Card where there is an indicator measuring success in reducing medication incidents.

Description of Initiative: This project was a joint initiative between the pharmacy and risk management departments. A survey was designed to assess the prevailing culture and attitudes towards medication incident reporting, the current knowledge base regarding the incident reporting process, awareness of hospital medication safety initiatives and the review and analysis process. In addition, the survey assesses the practical knowledge, comfort level and skill in accessing and filling out the medication incident e-form.

Evaluation of Initiative: The survey allowed us to identify focus areas for medication safety education initiatives that met the nursing unit specific needs.

Importance and Usefulness of Initiative for Pharmacists: Pharmacists are integral members of the organizations Safe Medication Practice Committee and act as leaders and advocates for medication safety as members of front-line health care teams. This survey will provide information regarding educational needs of staff with the goal of designing nursing unit specific seminars that will address these areas for knowledge and skill development. This project also facilitates pharmacists in our organization to collaborate with other disciplines to meet the medication safety needs of front-line staff.

DEVELOPMENT OF A HOSPITAL MEDICATION SAFETY SEMINAR FOCUSED ON MEDICATION INCIDENT REPORTING AND SAFETY CULTURE

Soltys I., Heffer M., Leung D., Toronto Western Hospital, University Health Network, Toronto, ON

Encore Presentation: originally presented at Halifax 7: The Canadian Healthcare Safety Symposium October 12-14, 2007, Ottawa, Ontario

Reason for Initiative: The Toronto Western Hospital interdisciplinary Safe Medication Practice (SMP) Committee identified a need for an education initiative to enhance awareness and improve the quality of medication incident reporting. A Medication Safety Seminar (MSS) would potentially improve reporting efficiency and clarity of data to facilitate identification of medication incident trends.

Description of Initiative: Our main objective was to determine the content of a Medication Safety Seminar. A survey was designed to assess the prevailing culture and attitudes towards medication incident reporting, the current knowledge base regarding incident reporting, the analysis process, awareness of hospital medication safety initiatives, and skill in filling out the medication incident Eform.The survey identified focus areas for seminar content. A comprehensive 60 minute MSS was designed and piloted, consisting of a multimedia, interactive presentation to stimulate discussion regarding safety culture , to mould the values, beliefs and behaviours regarding medication safety and improve knowledge and technical skills for incident reporting through a hands on training session on the electronic medication incident submission process.

Evaluation of Initiative: Feedback was obtained from participants through an evaluation form, which showed an overall satisfaction ranking of 8 out of 10 or higher from 91% of participants. The feedback comments will also facilitate improvements in delivery of content. The intent is to conduct a follow-up survey to measure the knowledge translation of the Seminar content and to evaluate the change in culture regarding medication safety.

Importance and Usefullness of Initiative for Pharmacists: Pharmacists , as collaborative members of front-line health care teams and the SMP Committee

are in an ideal position to act as advocates for medication safety . The MSS is the ideal forum for pharmacists to lead discussions on medication safety culture and provide practical training on medication incident reporting skills for front line staff.

CIPROFLOXACIN USE AT TORONTO EAST GENERAL (TEGH)

Valerie Leung, Emily Charlesworth, Carmine Stumpo, James Downey, Toronto East General Hospital, Toronto ON

Ciprofloxacin use has been steadily increasing at TEGH. The cost of IV ciprofloxacin has more than doubled over the last 3 years. Antimicrobial resistance is also an increasing problem. Our microbiological data show that Pseudomonas aeruginosa susceptibility to ciprofloxacin was 67% in 2006 vs. 74% in 2003. Therefore, a drug use evaluation (DUE) was conducted with the objective of identifying areas where use of ciprofloxacin could be optimized.

Based on criteria from literature and in consultation with our Infectious Disease specialist, a list of appropriate indications was generated. Data was collected prospectively for all in-patients receiving ciprofloxacin over 1 month in 2007.

Ninety patients were started on ciprofloxacin during the evaluation (53% IV: 47% PO). Ciprofloxacin was most often prescribed by our Surgery, Geriatric and Urology services. 7.8% (7) of patients were prescribed ciprofloxacin for a first-line indication vs. 70% (63) for a second-line indication, most frequently for UTI and abdominal infections. Of those prescribed ciprofloxacin for a second-line indication, slightly less than half met second-line criteria, defined as having an allergy to penicillins/cephalosporins or reduced renal function (Clcr < 30 ml/min). The remainder were prescribed ciprofloxacin for an inappropriate or unknown indication. 80% (72) were treated empirically. Where positive cultures were available during therapy, ciprofloxacin was most appropriate or therapy was changed or discontinued appropriately in 55.9% (19) of cases. 41.7% (20) of patients started on IV ciprofloxacin were switched to oral therapy after 48 hours, 55% (11) by pharmacists via medical directive. The average duration was 4.7 days per patient.

Given the changing trends in microbial susceptibility and the recent Safer Healthcare Now! antibiotic resistance initiative, ongoing DUEs are an important component of antimicrobial stewardship. Our DUE revealed that our medical directive was successful in enabling pharmacists to facilitate step down to oral ciprofloxacin in a considerable number of patients started on IV therapy but that the use of ciprofloxacin for empiric treatment of UTI and abdominal infections could be optimized. Strategies to promote optimal use of ciprofloxacin included communication of findings to clinicians in a timely manner and highlighting alternatives through the publication of a TEGH set of empiric guidelines for antimicrobial use.

BASELINE EVALUATION OF MEDICATION DISCREPANCIES FOR THE MEDICATION RECONCILIATION STRATEGIES FOR TRANSFER (MRS-T) STUDY

Justin Lee[1]; Kori Leblanc[1]; Olavo Fernandes[1,2], Jin Huh[1], Gary Wong[1]; Bassem Hamandi[1]; Neil Lazar[1]; Dante Morra[1]; Jana Bajcar[2]; Jennifer Harrison[1]

[1]University Health Network, Toronto, ON;
[2]Leslie Dan, Faculty of Pharmacy, University of Toronto, Toronto, ON

Rationale: Internal hospital transfer has been identified as a vulnerable moment for medication discrepancies.

Objectives: The study objectives were to: (1) determine the number of patients with at least 1 unintentional medication discrepancy upon internal hospital transfer, (2) characterize the unintentional medication discrepancies by type, (3) assess the potential clinical impact and severity of unintentional medication discrepancies identified and (4) assess the impact of transfer medication reconciliation on pharmacist workload.

Study Design and Methods: Patients transferred between 10 pre-selected inpatient units at 2 tertiary care hospitals were prospectively assessed for medication discrepancies. Transfer types included transfers between: (1) paper-based units, (2) computerized physician order entry (CPOE)-based units and (3) paper- and CPOE-based units. Medication discrepancies were defined as differences between the medication transfer orders and the Best Possible Medication Transfer List (BPMTL). The BPMTL was defined as a list of all medications for which the patient had a valid indication at the time of transfer based on pharmacist clinical assessment. Discrepancies were classified as intentional or unintentional, where the latter were characterized by type and assessed independently for clinical impact and severity.

Results: Out of 129 enrolled patients, 80 patients (62.0%) had at least 1 unintentional medication discrepancy. Forty-seven patients (36.4%) had at least 1 unintentional discrepancy with the potential to cause patient discomfort or clinical deterioration, while 15 patients (11.6%) had at least 1 unintentional discrepancy with the potential to cause a severe outcome. The most common discrepancy was omission of a medication (55.6%). The average time needed for medication reconciliation by the pharmacist was 26.7 +/- 17.0 minutes per patient.

Conclusion: Clinically significant medication discrepancies occur commonly upon internal hospital transfer regardless of the medication ordering environment (paper and/or CPOE). A structured medication reconciliation process is needed to prevent medication discrepancies upon transfer.

FAILURE OF DAPSONE PROPHYLAXIS AGAINST PNEUMOCYSTIS JIROVECI IN A LUNG TRANSPLANT RECIPIENT

Penny Demas-Clarke, Teresa Yi, Muhammad Zuberi, Jennifer Harrison, University Health Network, Toronto, ON

Pneumocystis jiroveci (formerly Pneumocystis carinii) pneumonia (PCP) is a life-threatening but preventable opportunistic infection that can occur in solid organ transplant recipients (SOTR). In the absence of prophylaxis, ~10% of this population may develop PCP. The drug of choice for prophylaxis is Trimethoprim-Sulfamethoxazole (TMP-SMX). Dapsone is an alternative agent for PCP prophylaxis in SOTR with a history of mild hypersensitivity reactions with TMP-SMX (eg.rash, pruritis). Cross-reactivity is estimated at 22%. We report a case of dapsone prophylaxis failure in a lung transplant recipient with a reported "allergy" to TMP-SMX.

A 57 year-old male double-lung transplant recipient with a TMP-SMX "allergy" was re-admitted with 1-2 day history of SOB, chest pain, and fever. Chest x-ray showed bilateral interstitial infiltrates. The patient progressed to respiratory failure requiring intubation and ventilation. Despite empiric antibiotic therapy, he failed to improve. Subsequent broncheoalveolar lavage was positive for pneumocystis and intravenous pentamidine was initiated. Over the next few days, he improved and was transferred to the ward.

The patient was receiving dapsone 100mg Mon-Fri for 5 months before admission. Upon further investigation of his "allergy", the patient reported that as a child he developed a rash to TMP-SMX. On re-challenge in the hospital, the patient had no reaction. He was then successfully treated with oral TMP-SMX for 21 days. He was discharged on oral TMP-SMX for PCP prophylaxis.

Studies have shown that failure rates amongst HIV patients receiving dapsone prophylaxis are as high as 18%. There is limited data in the SOTR population. Since TMP-SMX has been shown to be more efficacious than dapsone in preventing PCP in HIV and BMT patients, it is important that a timely and thorough allergy assessment occurs. For SOTRs with a remote TMP-SMX "allergy", consideration should be given to re-challenge or desensitization so that patients receive optimal PCP prophylaxis.

DERIVATION AND PROSPECTIVE VALIDATION OF AN EQUATION USED TO CONVERT SERUM CREATININE MEASURED USING ALKALINE PICRATE AND ISOTOPE DILUTION MASS SPECTROMETRY ASSAYS

Yana Shamiss, Patricia Ferguson, Harriet Hull, Roman Khaykin, Murray Weingarten, Southlake Regional Health Center, Newmarket, ON

Rationale: Glomerular filtration rate (GFR) as clinically estimated by Cockcroft-Gault equation (CG) is frequently used in medication dose adjustment. CG equation relies on creatinine (Cr) measured using the Alkaline Picrate assay (Cr(AP)). New calibration standards suggest using isotope dilution mass spectrometry (IDMS) to estimate GFR. Creatinine reported by IDMS (Cr(IDSM)) differs from that reported previously and should not be used to estimate GFR using CG without an adjustment factor.

Objectives: The purpose of this analysis is to derive and validate prospectively, an adjustment factor that converts Cr(IDMS) and allows its incorporation into the CG equation.

Methods: Creatinine was measured using both IDMS traceable (VitrosÒ, Ortho-Clinical Diagnostics) and the Cr(AP) in 57 patients treated at an Ontario hospital (64% male, age 65±15 years, weight 85±18 kg). Linear regression was used to describe the relationship between Cr(IDSM) and Cr(AP). Creatinine was then measured in a second cohort of 164 patients (52% male, age 67±14 years, weight 80±22 kg). The correlation coefficient and average percent variance between CG GFR estimated using Cr(AP) versus corrected Cr(IDMS) were computed.

Results: There was a significant difference between creatinine measured using Cr(IDSM) and the Cr(AP) assay (63±22 vs 83±23, $p<0.0001$). Equation derived from the original cohort (Cr(AP)=Cr(IDSM) + 20.81) provided an R2 of 0.99 and average variance of 10% when applied to the second cohort. The R2 was 0.97 for those with Cr(AP) CG GFR of <30 mL/min, 0.98 for those with Cr(AP) CG GFR between 30-60 mL/min and 0.47 for those with Cr(AP) CG GFR > 60mL/min. Corresponding average variances were 3%, 3% and 13%.

Conclusions: The derived equation adequately convert creatinine values measured using Cr(IDSM) to those measured using the Cr(AP), particularly in patients with diminished creatinine clearance. With uniform transition to Cr(IDSM), this equation can be used when dosing medications.

PEER-GUIDED PROFESSIONAL SKILLS ENHANCEMENT WORKSHOP FOR PHARMACISTS

Certina Ho[1], Della Croteau[1], Sandra Winkelbauer[1], Zubin Austin[2], Anthony Marini[3]

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[2]University of Toronto, Toronto, ON
[3]University of Calgary, Calgary, AB,

Encore Presentation: This poster will be presented at the Canadian Association of Continuing Health Education Conference (Oct 13-15, 2007). The oral presentation of this poster has been presented at the Life Long Learning in Pharmacy Conference (Jul 1-4,

2007) and will be presented at the National Continuing Competence Conference (Nov 1-3, 2007).

Rationale: Approximately 10 percent of pharmacists who were randomly selected to participate in the Ontario College of Pharmacists (OCP) Quality Assurance Peer Review process were identified to be in need of an improvement in their clinical knowledge and/or patient counseling skills. A peer-mentoring Professional Skills Enhancement Workshop (PSEW) was developed as a resource for these practitioners, so that they can be reacquainted with the current standards of practice of the profession.

Description: The PSEW consists of two half-day sessions, one on clinical knowledge and the other on communication skills. Both sessions include a didactic introduction, followed by small group activities. Participants have the opportunity to interact with their colleagues and facilitators.

Implementation: During the PSEW, participants were provided with a review of drug information resources and systematic techniques to solve case-based scenarios. They had the opportunity to role-play with standardized patients and practice their patient interviewing skills. Constructive feedback was offered to them by the facilitators, standardized patients, and their peers.

End Result and Evaluation: Over 90 percent of participants either agreed or strongly agreed that the PSEW was a valuable resource in helping them achieve and maintain the standards of practice. Upon completion of the PSEW, some participants were reassessed in the Quality Assurance Peer Review for clinical knowledge and/or patient counseling skills. About 70 percent of them successfully met standards in their reassessments.

Importance and Usefulness for Pharmacy Practice: The Quality Assurance Peer Review has shown that there is a need for a resource to help pharmacists maintain the expected level of competency. Professional skills enhancement plays a significant role in continuous professional development. The PSEW can be adapted to other health professions as it offers practitioners a peer-supported environment for skills training in clinical knowledge and patient counseling.

TEN YEARS OF EXPERIENCE IN PEER REVIEW ASSESSMENT FOR PHARMACISTS

Certina Ho[1], Della Croteau[1], Sandra Winkelbauer[1], Zubin Austin[2], Anthony Marini[3]
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Encore Presentation

This poster will be presented at the Canadian Association of Continuing Health Education Conference (Oct 13-15, 2007) and the National Continuing Competence Conference (Nov 1-3, 2007).

Rationale: Peer Review is part of the Ontario College of Pharmacists (OCP) Quality Assurance program. It is developed based on the competencies that were incorporated into a national model competency document developed by the National Association of Pharmacy Regulatory Authorities.

Description: Approximately 240 pharmacists per year are randomly selected to participate in the Peer Review. The entire Peer Review process is peer-driven. The Minimum Performance Level (MPL) and the standards for assessment are set by the practitioners. Participants are assessed by their peers with respect to their skills in 4 components:

1. Clinical Knowledge
2. Gathering Information
3. Patient Management and Follow Up, and
4. Communication.

Implementation: The Peer Review consists of three sessions – a learning portfolio sharing session, an open-book clinical knowledge assessment (CKA) consisting of 15 cases each followed by four multiple choice questions, and standardized patient interviews (SPI) during which interactions with trained standardized patients in 5 case scenarios will be assessed by peer assessors. Clinical Knowledge is assessed by the CKA session of the Peer Review, while the other three components are assessed during the SPI.

End Result: Participants receive their performance reports in the four assessed components with the MPL to indicate whether they have met or fallen below the expected level of competency. Results of the past 10 years have been consistent. About 10 percent of the participants require peer-guided education or remediation to reacquaint themselves with the current standards of practice.

Importance and Usefulness for Pharmacy Practice: Results of the Peer Review have shown that pharmacists who entered the peer-guided learning category are likely to be the international pharmacy graduates and those who have graduated for more than 25 years. These practitioners may benefit by enrolling in a professional skills enhancement program in order to keep abreast of the current standards of practice.

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Carolyn Bornstein, BScPhm, ACPR, RPh, FCSHP

Carolyn is a graduate of the Faculty of Pharmacy, University of Toronto. After completing a hospital residency at Mount Sinai Hospital, she worked at Sunnybrook Health Sciences Centre in general medicine and then as a pharmacy supervisor in the geriatric care satellite. She has worked as a Drug Use Evaluation pharmacist and ICU pharmacist at Southlake Regional Health Centre (formerly York County Hospital) in Newmarket.

Currently Carolyn works in the Arthritis Program at Southlake Regional Health Centre, an ambulatory clinic where she provides individual patient consultation and education, group patient education, and participates in interdisciplinary rheumatology clinics. She also teaches in the monthly arthritis program for patients at Headwaters Health Care in Orangeville, Ontario.

Carolyn has served as a preceptor for many pharmacy interns and was trained as a SPEP (structural pharmacy experiential program) teaching associate in 1997. She has supervised many PharmD candidates during their rotations in the arthritis program at Southlake and has been an assessor for the PEBC OSCE exams since 2004. Carolyn is a CE coordinator for the Ontario College of Pharmacists and is Co-Chair of the York North Pharmacists' Association.

CSHP involvement began when Carolyn was a pharmacy student. Over her 25-plus years as a CSHP member she has served as a Chapter Chair, as Co-Chair of the DUE Professional Specialties Group, as a Delegate for Ontario Branch, on various National task forces, and most recently as a presidential officer. She is currently the President of CSHP. In that role she is responsible for Vision 2010, strategic planning, and the exciting project, CSHP 2015 – a pharmacy practice excellence initiative.

Carolyn has done numerous presentations on various topics. Recently she presented a historical overview of the development of hospital pharmacy in Canada at the international conference, Improving the Quality of Pharmaceutical Care in North America, which was held in Mexico and at the National Oncology Pharmacy Symposium.

Commitment to professional involvement and continuing education are very important to Carolyn. Since 1998 Carolyn has been presenting on medication safety and the role of the pharmacist to grade 3 students at a local school. She received the E. Amy Eck award from CSHP Ontario branch in 2005 for this community project. She also received the Douglas Steward Award from CSHP and the In Celebration of Women in York Region award for her professional commitment and community involvement in 2003.

In addition to school council activities and charity work, Carolyn enjoys travelling, live theatre, photography and classical music. With two children in university, a teenager who loves to participate in sports and drama, and her community pharmacist husband who's also active in pharmacist professional activities, life is rather hectic, but extremely rewarding in the Bornstein household.

Michelle Foisy, PharmD, FCSHP

Michelle Foisy obtained her Bachelor of Science in Pharmacy degree at the University of Alberta in 1988 and completed a hospital pharmacy residency at the Ottawa General Hospital in 1990. The residency was a pivotal experience in her career and after an inspiring HIV/Infectious Diseases rotation with Jan Sahai, PharmD Michelle developed a keen

interest in HIV-related therapeutics. She worked as a staff pharmacist at the Ottawa General Hospital in a newly created position to implement HIV clinical pharmacy services.

From 1991-93, Michelle pursued a Doctor of Pharmacy at the State University of New York at Buffalo. She was then employed with the University of Toronto and Wellesley Hospital as Assistant Professor/Clinical Instructor with the Doctor of Pharmacy Program. After four years of inpatient HIV Medicine and Infectious Diseases she moved to an outpatient HIV practice in a primary care setting at the Health Centre at St. Michael's Hospital, Toronto. Since 2002, Michelle has had an ambulatory HIV practice with the Northern Alberta HIV Program in Edmonton, Alberta. Michelle has collaborated on numerous projects with her peers; in particular Alice Tseng, PharmD, and Christine Hughes, PharmD. She has been the co-recipient of 15 awards for innovation in pharmacy practice, teaching/precepting, and publications.

Michelle's main scholarly activities have been related to drug interactions, adverse drug reactions, seamless care, drug adherence, and perinatal HIV care. As one of the first pharmacists in Canada to establish a specialty practice in HIV, Michelle has co-founded several programs and groups, including the Canadian HIV/AIDS Pharmacists Network, the Ontario HIV Pharmacists Specialty Group, and a Specialty HIV Residency based out of Toronto. Michelle has been an active participant in CSHP and has held positions with the Education Services Committee, the Awards Program, and as a CSHP conference abstract reviewer. She has served as a manuscript reviewer for Hospital Pharmacy Practice, Annals of Pharmacotherapy, Expert Opinion Ashley Publications, and CJHP. More recently she was invited to review research grant proposals for The Canadian Foundation for HIV/AIDS Research.

Dr. Janice Irvine-Meek, BScPhm, PharmD, FCSHP

Dr. Irvine-Meek received her Bachelor of Science in Pharmacy from Dalhousie University, completed her residency at Camp Hill Hospital, Halifax, and a Doctor of Pharmacy degree from the Philadelphia College of Pharmacy and Science. She has held senior clinical pharmacy positions at the Winnipeg Health Sciences Centre and Toronto General Hospital, as well as academic appointments at the University of Manitoba and the University of Toronto.

Dr. Irvine-Meek currently practices as Clinical Pharmacy Specialist in the Family Practice/Geriatrics Program of the SouthEast Regional Health Authority, Moncton, NB. She holds the academic appointment of Lecturer, Faculty of Medicine, Dalhousie University and teaches in the Dept. of Family Medicine (Northumberland Unit-Moncton) Residency Program. Other teaching responsibilities include undergraduate pharmacy students, the Pharmacy Residency program and, Pharm.D. students enrolled in the University of Toronto program. She has extensive experience in direct patient care, patient counselling, practice based research and education, primarily in the field of Geriatrics, and has a special interest in Parkinsons Disease. Her current research interest is in the development and testing of a self-medication assessment tool for use in the geriatric population.

Janice is married to Gary Meek, B.Sc(Pharm), MBA. They have two children, Andrew who is a high school teacher in Perth-Andover, NB and Hilary, a sonographer in the Ultrasound Dept of the Georges Dumont Hospital, Moncton.

Neil Johnson, BScPhm, MBA, FCSHP

Neil Johnson is a graduate of the Faculty of Pharmacy at the University of Toronto and the School of Business and Economics at Wilfrid Laurier University. After completing a hospital pharmacy residency at Kingston General Hospital, Neil joined the Pharmacy Department at Victoria Hospital in London, Ontario, practicing in oncology and palliative care. He has held various staff and management positions and became Pharmacy Manager of the newly merged London Health Sciences Centre (LHSC) in 1996. In that role, he led many pharmacy and corporate projects and initiatives. In 2003, Neil became Vice President, Medicine Services at LHSC and in 2006 moved into an integrated portfolio across St. Joseph's Health Care and LHSC.

Neil has been actively involved the Canadian Society of Hospital Pharmacists serving locally as Chapter Chair as well as Chair of the AGM Host Committee in 1995, provincially as Ontario Branch Delegate and nationally as Presidential Officer. During his presidential term he led the redevelopment of CSHP's governance, leadership and operations. Neil also developed CSHP's plans for advocacy and, with other CSHP members, led such advocacy efforts as the response to the Baker-Norton Canadian Adverse Events Study illustrating the role that pharmacists play in patient care and the media and organizational response to a significant medication error which garnered national media attention. Neil chaired CSHP's Advocacy Committee for two years after leaving the presidential office leading further advocacy efforts on behalf of hospital pharmacists.

Since 2001, Neil has served as an editor and is currently the Executive Editor of the Hospital Pharmacy in Canada Editorial Board, which publishes an extensive benchmarking report on the state of hospital pharmacy in Canada every two years and

sponsors the Millcroft Pharmacy Leadership Symposium.

Neil is also involved in health system policy and operations. Neil developed and chaired the Council of Academic Hospitals of Ontario, Drugs and Therapeutics Committee; a committee designed to bring together Ontario teaching hospitals to pool resources and advise hospitals and government on the effective use of medications. He served as Chair of the Hospital Pharmacy Residency Forum of Ontario. Since leaving pharmacy management he has continued to participate in efforts to shape pharmacy practice on provincial initiatives such as the OHA/MoH Pharmacy Working Group - Pharmacy Transformation Project and the Cancer Care Ontario Provincial Working Group on the Delivery of Oncology Medications for Private Payment in Ontario.

In his current role, Neil has been provided leadership in many areas of the health system including the relocation of 200 beds and movement of emergency services in the London hospitals, development of an advanced home care team, implementation of an electronic patient record, the development of the strategic plan for the Ontario Stroke Strategy and is founding board member of the Thames Valley Family Health Team. He is currently the executive lead for patient access for LHSC and chairs a provincial demonstration project for patient access and flow in Emergency Department and internal medicine at LHSC. He has also served on provincial task forces such as the report on Physician Hospital Care Committee Report on Emergency Department Overcrowding and the EDIS Expert Advisory Panel.

Outside of work and the professional volunteer service, Neil can usually be found camping with his wife and two teenage children. His community volunteer service includes leading the Pharmacy Team at the 2001 Canada Summer Games and serving at Byron Community Church.

David Knoppert, MScPhm, FCCP, MSc, FCSHP

David Knoppert is a Neonatal Pharmacist at St Joseph's Hospital in London, Ontario. David is also an Adjunct Professor in the Department of Paediatrics, The University of Western Ontario and a Scientist in the Children's Optimal Therapeutics Program, Children's Health Research Institute, London, ON. He received his Bachelor of Pharmacy degree from the University of Toronto in 1980, completed a Residency in Hospital Pharmacy at University Hospital in London in 1981 and began as a staff pharmacist at The Hospital for Sick Children in Toronto in 1983. In 1986, he completed a MScPhm from the University of Toronto (theophylline metabolism in cystic fibrosis) with Drs. Michael Spino and Stuart MacLeod. In 1986 he joined St. Joseph's Hospital in London. In 2004 he completed a MSc (Clinical Epidemiology) from The University of Western Ontario. David's research interests are in the areas of neonatal therapeutics (pharmacokinetics, pharmacodynamics) and the effects of drugs in pregnancy on the newborn and in breastfeeding. Past research in newborns has included subcutaneous administration of Vitamin A, prophylactic use of metoclopramide and retrospective studies of enoxaparin and indomethacin. Ongoing and future research includes the dose response study of domperidone use to enhance breast milk production, the effects of in utero SSRI exposure on the newborn, and the recognition, assessment and treatment of pain in the newborn.

Debora Kwan, BScPhm, MSc, ACPR, FCSHP

Debora completed her undergraduate degree in pharmacy at the Faculty of Pharmacy, University of Toronto. Following this she obtained a combined hospital residency and Master of Science at Sunnybrook Health Sciences Centre. She recently completed the Education Scholars Program at the University of Toronto

She is currently a Pharmacotherapy Specialist in the Family Health Centre and Seniors Wellness Clinic at the Toronto Western Hospital, University Health Network. Previously Debora was Coordinator, Drug Use Management at the Toronto Rehabilitation Institute.

She is cross-appointed to the Faculties of Pharmacy and Medicine at the University of Toronto as Assistant Professor. Debora teaches and precepts students in the undergraduate and Doctor of Pharmacy programs. She is coordinator for a web-based course in therapeutics for the University of Toronto, Doctor of Pharmacy, distance program.

Debora was a member of the CSHP Ontario Branch Education Committee and National Standards and Publications Advisory Committee. She currently serves on the Panel of Examiners for the Pharmacy Examining Board of Canada.

Her research interests are in the areas of ambulatory care, geriatrics, medication management and interprofessional education. Debora is a co-investigator on several funded research studies on interprofessional education including grants from the Associated Medical Services and Royal College of Physicians and Surgeons. Most recently, she received a University of Toronto Dean's Excellence Fund grant as a co-principal investigator, to study the effectiveness of a faculty development program on interprofessional education.

Tim T.Y. Lau, BScPhm, PharmD, ACPR, FCSHP

Tim Lau received his Bachelor of Science in Pharmacy degree from the University of British Columbia (UBC) in 1996, completed a hospital pharmacy residency at Surrey Memorial Hospital in 1997, and graduated with a Doctor of Pharmacy (PharmD) degree from UBC in 2001.

Tim began his hospital pharmacy career as a clinical pharmacist in Surgery, Medicine, and Critical Care at UBC Hospital in 1997. After completing his PharmD degree, Tim accepted a position as a Pharmacotherapeutic Specialist in Infectious Diseases and Clinical Drug Research Pharmacist at the Vancouver General Hospital (VGH) in 2001. He works on the Infectious Diseases Consultation Service, optimizing antimicrobial therapy through a multi-disciplinary approach. He is also involved in numerous initiatives to promote rational antimicrobial use, including the implementation of a pharmacist-managed intravenous-to-oral dosage form conversion service.

In 2001, Tim was appointed as a Clinical Assistant Professor in the Faculty of Pharmaceutical Sciences at UBC, and in 2006 was promoted to Clinical Associate Professor. He has precepted over 50 pharmacy residents and PharmD students in their infectious diseases internships at VGH. At UBC, he teaches in the undergraduate pharmacy and PharmD curriculums, and lectures in the Bachelor of Medical Laboratory Sciences Program and in the Canadian Pharmacy Practice Programme.

His main research interests have been focussed on infectious diseases, including antimicrobial and vaccine utilization. He has been involved in numerous multi-disciplinary research projects and received the CSHP BC Branch Pharmacy Practice Award in 1996. His most recent research initiative is a collaborative effort with the infectious diseases, emergency medicine, and medical microbiology groups, evaluating the treatment of community-acquired methicillin-resistant Staphylococcus aureus. In addition, he has supervised and participated in pharmacy residency research projects. He has published papers, and has presented at local, provincial, and national conferences.

Tim has been involved in several institutional, provincial, and national committees. At VGH, he is the Secretary for the Antibiotic Use Subcommittee and is a member of the Infection Control Committee, Vaccine Subcommittee, and Pandemic Planning Committee. As an active member of CSHP BC Branch, he has served as Chairperson of the Programs Committee and been a member of the Executive Council. He has also been a member of the Educational Services and Banff Planning Committees. He is currently a reviewer for the Awards Program and CJHP.

In his other life, Tim plays various roles in community theatre productions and performs as a vocalist. He would like to thank his family, friends, and colleagues for their continued support in his various professional and artistic pursuits.

Daniel J.G. Thirion, BPharm, MSc, PharmD, BCPS, FCSHP

Dr. Thirion is currently Clinical Associate Professor of Pharmacy at the Université de Montréal where his teaching responsibilities include infectious diseases and evidence based practice. He is also a pharmacist at l'Hôpital Sacré-Coeur de Montréal.

Dr. Thirion earned his Doctor of Pharmacy degree from the College of Pharmacy at Wayne State University, Detroit, Michigan (1999), his Bachelor of Pharmacy (1996), and Masters of Science (1997) from Université de Montréal, Montréal, Quebec. He completed post-doctoral training in infectious diseases at University of California, San Francisco. He is board certified as a pharmacotherapy specialist by the Board of Pharmaceutical Specialists. Prior to coming to Montreal in 2001, Dr. Thirion was adjunct faculty at the School of Pharmacy, Auburn University in Alabama and clinical pharmacist at Columbus Regional Healthcare System in Georgia.

His research focuses on the impact of antimicrobial use on emerging diseases and development of resistance, and appropriate use of antimicrobials in clinical practice. During the short period of time in Montreal, he has published over 25 articles and book chapters, served as invited speaker for over 100 conferences, and trained numerous pharmacy graduate students. He is also editor, publisher, and author of the "Snippets for Snappy Antimicrobial Therapy" an award wining reference for ID pharmacotherapy.

Dr. Thirion's clinical practice is focused on providing pharmaceutical care on two internal medicine teaching units. His responsibilities include direct patient care for both units (approximately 35 beds), teaching and supervision of care for up to 20 medical and pharmacy students and residents at one time, and coordinating pharmaceutical care in internal medicine.

His teaching responsibilities include ID pharmacotherapy for the undergraduate and graduate programs and development of the PharmD program. He has also developed an award wining training of evidence based learning within the undergraduate curriculum. As a recognized expert, Dr. Thirion devotes time and effort in his field of interest for committees, juries, and advisory boards up to the international level.

CSHP would like to recognize the generous contributions of the following speakers:
La SCPH désire souligner les généreuses contributions des conférenciers suivants :

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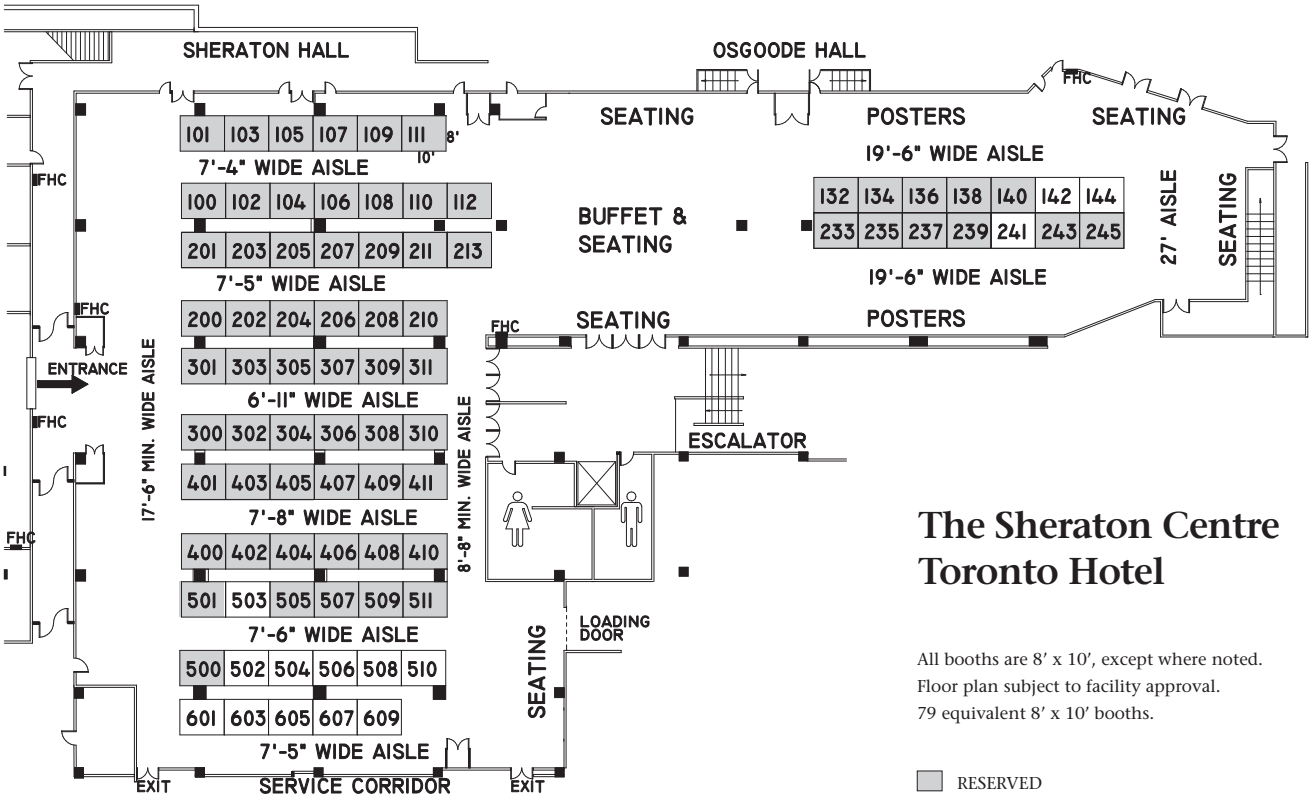

The Sheraton Centre Toronto Hotel

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Floor plan subject to facility approval.
79 equivalent 8' x 10' booths.

RESERVED

Exhibitor List (at time of printing)
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HEPARIN SODIUM Injection, USP

Anticoagulant

DESCRIPTION

Heparin Sodium Injection, USP is a sterile, non-pyrogenic solution of a highly purified sodium salt of heparin, a high molecular weight polysaccharide derived from porcine intestinal mucosa or beef lung. It is standardized in *vitro* according to the method of USP and is labeled in terms of USP units for use as an anticoagulant. It acts very rapidly and, even in large doses, is metabolized in the body and eliminated within 24 hours. It will not lyse existing thrombi or emboli.

ACTIONS

Heparin inhibits the clotting of blood and the formation of fibrin clots both in *vitro* and *in vivo*. In combination with a cofactor, it inactivates thrombin thus preventing the conversion of fibrinogen to fibrin. Heparin also prevents the formation of a stable fibrin clot by inhibiting the activation of the fibrin stabilizing factor.

Heparin Sodium inhibits reactions which lead to clotting but does not alter the normal components of the blood. Although clotting time is prolonged by therapeutic doses, bleeding time is usually unaffected. Heparin Sodium does not have fibrinolytic activity; therefore, it will not lyse existing clots.

INDICATIONS

Used in the treatment of thrombophlebitis, phlebothrombosis, and cerebral, coronary, and retinal vessel thrombosis to prevent extension of clots and thromboembolic phenomena. Also used prophylactically to prevent the occurrence of thromboembolism, and to prevent clotting during dialysis and surgical procedures, particularly vascular surgery.

When using Heparin Sodium Injection, USP in conjunction with dialysis machines or where the Heparin Sodium Injection, USP is added to glucose or saline, it is most important that the pH is not less than 5 for Heparin Sodium Injection, USP to act as an effective anticoagulant. Under pH 5 degradation sets in and with a pH around 4 or less there is very little Heparin Sodium Injection, USP activity. Likewise with pH over 8.5 there will be some degradation. Recent work has indicated that early hemodialysis is of value in cases of multiple trauma.

Heparin Sodium Injection, USP has also been used as an anticoagulant in blood transfusion samples, particularly when the presence of citrates, oxalates or fluorides might interfere with laboratory tests, such as electrolyte determination. Anti-inflammatory and diuretic activity has been obtained with Heparin Sodium Injection, USP, however, these properties have not yet been put to any widespread clinical use.

LOW-DOSE SUBCUTANEOUS HEPARIN

For the prevention of serious venous thromboembolic complications in high risk surgical patients.

CONTRAINDICATIONS

Patients with a generalized clotting disorder such as hemophilia, Christmas disease, idiopathic thrombocytopenic purpura and patients with active bleeding from a local lesion such as an acute ulcer or ulcerating carcinoma; patients who have had recent cranial, spinal, eye or ear surgery or trauma; hypersensitivity to heparin, including thrombocytopenia; severe liver damage; shock.

WARNINGS

1. Administration of large doses of Heparin Sodium Injection, USP should be delayed four hours postoperatively.
2. When any of the conditions mentioned under precautions are present, the advantages of Heparin Sodium Injection, USP therapy must be carefully weighed against the possibility of deleterious results.

PRECAUTIONS

The use of i.v. heparin in the treatment of ischemic stroke is controversial. Clinical trials investigating the benefits of heparin in ischemic stroke have been inconclusive. Heparin may increase the risk of clinically significant cerebral bleeding. Administration of an i.v. bolus of heparin is not recommended in the treatment of stroke. If heparin is used, brain imaging should be performed prior to initiation of therapy to exclude hemorrhage and estimate infarct size.

When considered for use in any of the following conditions, the advantages of heparin therapy must be carefully weighed against the risks: subacute bacterial endocarditis; increased capillary permeability; dissecting aneurysm; severe hypertension; during and immediately following major surgery, especially of the brain, spinal cord, eye or ear; conditions associated with increased bleeding tendencies such as hemophilia, thrombocytopenia and some purpuras; inaccessible gastrointestinal ulcers; ulcerative colitis; continuous tube drainage of stomach or small intestine; threatened abortion; menstruation; malignant hypertension.

Heparin Sodium Injection, USP should be used with caution in the immediate postoperative period. Bleeding may be concealed, as in the case of hemothorax.

In patients with a history of heparin-induced thrombocytopenia (HIT), heparinoids (e.g., danaparoid), lepirudin and ancrod are considered appropriate alternatives to heparin.

When used in therapeutic doses, heparin should be regulated by frequent blood coagulation indicators particularly the APTT. If the indicator is unduly prolonged or if hemorrhage occurs, heparin should be at least temporarily discontinued (see **OVERDOSAGE)**.

Heparin can prolong the prothrombin time.

Apparent resistance to heparin may be encountered in patients with acquired or familial AT III deficiency, because adequate levels of AT III are required for heparin's anticoagulant effect. Larger doses of heparin may be required initially in patients with various disease states due to alterations in their physiology, the pharmacokinetics of the drug, or elevations in levels of acute phase heparin binding proteins. Among these are febrile illness, infections associated with thrombosing tendencies, pulmonary embolism, myocardial infarction, extensive thrombotic disorders especially those associated with neoplastic disease and following surgery.

Heparin should be used with caution in the presence of severe hepatic or renal disease, or in patients with indwelling catheters. A higher incidence of bleeding may be seen in women over 60 years of age.

IM injections of other drugs should be avoided during heparin therapy to reduce the risk of hematoma formation and bleeding from the site. Most drugs can be given by another route (i.v. or s.c.).

For these reasons strict laboratory control of dosage is necessary. Heparin Sodium Injection, USP should be used with caution in patients with allergy. Patients on long term daily administration of Heparin Sodium Injection, USP should be observed for the possible development of osteoporosis and spontaneous fractures of ribs and/or vertebrae.

Drug Interactions:

Oral anticoagulants (i.e., warfarin) can contribute to a small extent to an increase in APTT. Heparin can contribute to an increase in PT. While these two drugs are given together, the fact that each may contribute to an increase in PT and APTT should be taken into account (see **PRECAUTIONS**).

Heparin is often started with or several hours after thrombolytic therapy. Close patient monitoring for clinical signs of bleeding is indicated. The APTT should also be monitored closely (see **DOSAGE)**.

Salicylates, other nonsteroidal anti-inflammatory agents, dextran, dipyridamole, clopidogrel, ticlopidine and GPIIb-IIIa antagonists (e.g., abciximab) interfere with platelet aggregation which increases the risk of bleeding. They should be used cautiously with monitoring for signs of hemorrhage. In addition, in some situations, when heparin is used in conjunction with GPIIb-IIIa antagonists the dose of heparin may need to be modified (see **DOSAGE: Coronary Surgery**).

Cefamandole, cefotetan, methimazole, propylthiouracil and valproic acid may cause hypoprothrombinemia and increase the risk of bleeding; monitoring for signs of bleeding is indicated. This may occur to a lesser extent with cefazolin, cefoxitin and ceftriaxone.

IV nitroglycerin may reduce heparin's anticoagulant effect and necessitate higher doses. This interaction has been reported to occur regardless of whether or not propylene glycol is used as a solvent for the nitroglycerin. The mechanism has not been conclusively documented. When i.v. nitroglycerin therapy is initiated, patients should be closely monitored to ensure anticoagulation remains adequate. Likewise, when nitroglycerin therapy is stopped, a decrease in heparin dosage may be necessary and patients should be monitored for signs of excessive anticoagulation.

Digitalis, quinine, ACTH, insulin, corticosteroids, antihistamines and nicotine have been reported to interfere with the anticoagulant effect of heparin; however, there is no substantial literature support to document these interactions.

Care must be taken where large doses of antibiotics and/or drugs containing amino groups are administered along with or prior to Heparin Sodium Injection, USP administration.

Drugs such as: Codeine Phosphate, Pethidine hydrochloride, Streptomycin, Erythromycin, Kanamycin, Neomycin, Novobiocin, Tetracyclines, Ampicillin, Penicillin G, Polymyxin B, Vancomycin, Hydrocortisone Sodium Succinate (S-Cortilean), Pentobarbitone, Promazine hydrochloride, Vitamin B complex, Vitamin C.

Heparin Sodium Injection, USP may complex with these drugs -- this complex may be reversible (Heparin rebound) and may result in excess bleeding at the surgical site. Extra protamine sulfate may then be indicated.

Although digitalis, quinine, tetracycline, antihistamines, and nicotine have been stated to interfere with the anticoagulant activity of heparin, there is no substantial literature support for such "interactions". The chemical interaction occurring between heparin and protamine is well known. This interaction is used clinically to antagonize the anti-coagulant effect of heparin.

Ethacrynic Acid: Intravenously administered ethacrynic acid can cause GI bleeding. However, a significantly higher incidence of GI bleeding has been attributed to the concurrent use of intravenous ethacrynic acid and heparin. Furosemide may be a safer alternative when diuretic therapy is indicated in the patient receiving heparin.

Acetylsalicylic Acid: In a review article of heparin therapy, it was advocated that concurrent acetylsalicylic acid administration be "scrupulously avoided". While documentation to support this interaction is incomplete, it would be prudent to avoid concurrent therapy. Acetylsalicylic Acid impairs the platelet release reaction and this platelet function defect combined with the anticoagulant effect of heparin may produce a hemorrhagic tendency.

Dextran: Limited data suggest that dextran and heparin may act synergistically when administered concurrently. Although the data are inadequate to document the clinical significance of this interaction, baseline laboratory measurements of anticoagulant activity should be obtained upon initiation of concurrent therapy as well as at frequent intervals during such therapy.

Pregnancy:
Heparin does not cross the placenta and has not been related to congenital defects. However, its use during pregnancy has been associated with a 13 to 22% risk of fetal mortality or prematurity. It is not clear whether severity of maternal disease or an indirect effect of heparin is responsible. Coumarin anticoagulants have been associated with a 31% incidence of unfavorable outcome and a definite drug-induced pattern of malformations has been demonstrated (fetal warfarin syndrome). However, the incidence of warfarin-induced fetopathic effects in the second and third trimesters is very low. In general, heparin is considered to be the anticoagulant of choice in pregnancy. Long-term usage (>3 to 5 months) of therapeutic doses of heparin during pregnancy increases the risk of osteoporosis and warrants careful monitoring of patients. Heparin therapy during the last trimester and immediate postpartum period is associated with a risk of maternal hemorrhage. Changes in pharmacokinetics during pregnancy require caution and close patient monitoring if heparin is used.

Reports of therapeutic failure with adjusted-dose heparin therapy in pregnant patients with prosthetic heart valves may have been due to inadequate dosing and/or monitoring or to an inherent lack of efficacy in these patients. The American College of Chest Physicians recommends that if subcutaneous heparin is used in pregnant patients with mechanical heart valves, it be administered every 12 hours and the dose adjusted to keep the mid-interval APTT at least twice the control, or an anti-Xa heparin level of 0.35 to 0.7 U/mL. In addition, some clinicians suggest an initial dose of 17,500 to 20,000 units s.c. every 12 hours.

Lactation:
Heparin is not excreted in breast milk because of its high molecular weight.

Please also refer to the pH requirements in hemodialysis under "INDICATIONS".

ADVERSE EFFECTS

Bone and Joint: Therapeutic doses of heparin administered for longer than 3 months have been associated with osteoporosis and spontaneous vertebral fractures. Recent reports indicate that osteoporosis may be reversible after discontinuation of heparin.

Hematologic: Bleeding is the most common side effect of heparin and is an extension of its pharmacological effect. The rate of occurrence is approximately 10% overall but may increase up to 20% in patients treated with high dose therapy. Risk of bleeding likely increases with APTT ratios above the recommended target range. Other risk factors associated with bleeding are: a serious concurrent illness, chronic heavy consumption of alcohol, use of platelet-inhibiting drugs, renal failure, age and female sex. Bleeding may range from minor local ecchymoses to major hemorrhagic events. Often the first sign of bleeding may be epistaxis, hematuria or melena. Bleeding may be from any site and can be difficult to detect, e.g., retroperitoneal bleeds. Bleeding may also occur from surgical sites. Petechiae or easy bruising may precede frank hemorrhage. A supratherapeutic APTT or minor bleeding during therapy can usually be controlled by adjusting the dosage or withdrawing the drug (see **OVERDOSAGE**).

Thrombocytopenia has also been described with heparin treatment. Heparin Induced Thrombocytopenia (HIT) is an allergic reaction. It has been reported to occur in 1 to 30% of patients treated with standard heparin. It has also occurred with the use of LMWHs, both in patients with a history of HIT and patients with no previous exposure to heparin. The risk of developing HIT may be lower with LMWHs, but cannot be reliably estimated until more patients have been exposed. It is thought to be more common with heparin derived from bovine lung (5-10%) than from porcine gut (2-5%). Two types of acute, reversible thrombocytopenia have been described. Mild thrombocytopenia most commonly occurs between 5 and 12 days after initiation of full dose therapy. Platelet count usually remains above 100 x 10^9/L, and heparin therapy does not necessarily have to be withdrawn. Platelet count may remain stable or even increase despite continued therapy; however, it should still be monitored. The more severe, delayed form of thrombocytopenia (platelets <100 x 10^9/L, is much less frequent, usually appearing 5 to 12 days after starting heparin therapy and recurs rapidly on rechallenge. It has occurred with low dosages and is not dose related. It is generally reversible; platelet counts usually begin to return to normal within 4 days of stopping heparin. Paradoxically, patients may develop thrombotic complications including arterial thrombosis, gangrene, stroke, myocardial infarction and disseminated intravascular coagulation. Thrombosis is due to "white clots" composed of platelets and fibrin that result from marked *in vivo* platelet aggregation. Patients receiving heparin acutely should have platelet counts monitored at least every 2 or 3 days.

Hepatic: Heparin has been reported to cause elevations of AST and ALT in approximately 27 and 59% of patients, respectively. Transient increases in serum LDH levels have also occurred. No clinical signs of liver dysfunction have been reported and the significance is not known, except that interpretation of liver enzymes for other purposes (i.e., liver disease) must take into consideration the possible contribution of heparin.

Hypersensitivity: Heparin-induced thrombocytopenia (see **ADVERSE EFFECTS**, Hematologic). Other allergic reactions to heparin are rare. The most common manifestations of hypersensitivity are chills, fever and urticaria. Asthma, rhinitis, tearing, headache, nausea, vomiting, shock and anaphylactoid reactions have also occurred. Vasospasm has been reported 6 to 10 days after starting heparin; the etiology is thought to be allergic. Vasospasm often appears in a limb where an artery has recently been catheterized. The affected limb is usually painful, ischemic and cyanotic. Protamine sulfate is of no use in hypersensitivity reactions.

Miscellaneous: Alopecia, affecting the entire scalp or confined to the temple, may occur. Itching and burning of the plantar surfaces of the feet. Suppression of aldosterone product, hyperkalemia (due to aldosterone suppression), priapism and rebound hyperlipidemia have also been reported.

Heparin Neutralization with Protamine
Bleeding which may occur during therapy with heparin can usually be corrected by withdrawal. Clotting time should then return to normal in 30 to 60 minutes provided venous clotting time is not longer than 15 minutes when the infusion is interrupted. Should withdrawal of Heparin Sodium fail to control bleeding, fresh, matched blood (not more than three days old) may be administered in quantities of 250 to 500 mL.

The most rapid means of counteracting the effects of heparin is intravenous administration of protamine sulfate injection. However, protamine is by itself an anticoagulant and therefore excess must be avoided. A dosing ratio of 1 milligram protamine for every 100 units of heparin remaining in the patient is the usual rule. It is recommended that protamine doses be guided by blood coagulation studies to determine if additional doses are required. The activated partial thromboplastin time (APTT) or activated clotting time (ACT) are adequate for this purpose.

Allowance should be made for the rapid removal of heparin from circulation. The rate of heparin removal from plasma is dose-dependent. However, it may be assumed that about 30 minutes after an intravenous injection, about 50% of the heparin is removed from circulation.

So the amount of protamine sulfate required to neutralize the heparin will be that of approximately half of that required for the original dose. For example, if 1,000 units required 10 mg of protamine sulfate for neutralization, half an hour after intravenous administration of a 5,000 unit dose, the amount of protamine sulfate required will only be approximately:

5 / 2 x 10 = 25 mg

Too rapid administration of protamine can cause severe hypotensive and anaphylactoid reactions. Facilities to treat shock should be readily available when administering protamine. The rate of protamine administration should not exceed 20 mg/min and no more than 50 mg should be given in any 10 minute period. Doses exceeding 100 mg in a short period of time should be avoided, unless there is certain knowledge of larger protamine requirements. Any excess protamine sulfate, not complexed to heparin, has its own intrinsic anticoagulant effect. However, one study found overdose of protamine up to 600 to 800 mg i.v. to have only minor, transient effects on blood coagulation.

OVERDOSAGE

Symptoms: Overdose may be manifested by excessive prolongation of the APTT or by bleeding. Bleeding may be internal or external, major or minor.

Treatment: See **Heparin Neutralization with Protamine.**

DOSAGE AND ADMINISTRATION

Please note:

1. Intramuscular injection (especially in the arm or thigh) and shallow subcutaneous injection is not recommended. The duration of effect is shortened and it is more likely to produce pain and hematoma.
2. Heparin Sodium activity is expressed in USP units and should be prescribed in units only.

The route of administration may be i.v. or s.c., depending upon the situation and the choice of the prescriber. Adequate heparin-induced anticoagulant therapy is present when the clotting time is elevated from 2 to 3 times normal as measured by the Lee-White method. Two types of dosage schedule are suggested: Heparin Sodium Injection, USP may be administered intravenously in a dose of 5,000 USP units every 4 hours or in a dose of 10,000 USP units every 6 hours, depending upon the results of a whole blood clotting time test performed at the bedside just prior to each additional dose. If the clotting time is less than twice normal, the next dose is increased by one-third to one-half. If the clotting time is more than $2^1/_2$ times normal, the next dose is decreased by one-third to one-half. If the clotting time is between 2 and $2^1/_2$ times normal, the regular dose is repeated.

SUBCUTANEOUS INJECTION TECHNIQUE

Use of a 1 mL tuberculin syringe with a No. 25 or No. 26 -$^1/_2$ inch needle is recommended.

STEP 1 Disinfect area with alcohol then apply pressure between finger and thumb to the dermal fold until the injection site is blanched.

STEP 2. Insert the needle into the raised, blanched area. Reduce the pressure on the skin and inject the Heparin Sodium Injection, USP slowly.

STEP 3. Withdraw the needle quickly and apply alcohol swab pressure to the site of injection for 5 - 10 seconds to prevent loss of the heparin.

DOSAGE

ADMINISTRATION		RECOMMENDED DOSAGE*
METHOD	**FREQUENCY**	
Low-dose Subcutaneous†	Every 8 to 12 hours	5,000 units
Subcutaneous	Every 8 hours	10,000 to 20,000 units initially** then 8,000 to 10,000 units three times a day.
Intermittent Intravenous	Every 4 to 6 hours	10,000 units initially, then 5,000 to 10,000 units four to six times a day.
Intravenous Infusion	Continuous or Intermittent	20,000 to 40,000 units per litre at a rate of 15 to 30 units per minute.
Dialysis	See below	See below
Usual Pediatric Dose	Every 4 hours	By intravenous infusion, 50 units per kg of body weight initially, followed by 100 units per kg or 3,333 units per square meter of body surface, six times a day.

* Based on 68 kg of body weight (approx. 150 lbs)

† It is not necessary to monitor low-dose prophylactic Heparin Sodium Injection, USP

** Following immediately after an initial dose of 5,000 units i.v.

Dilution Instruction for IV Infusion:

Heparin Sodium Injection, USP may be diluted to 20,000 to 40,000 units per liter (or 20 units to 40 units/mL) with 5% Dextrose Injection; 0.9% Sodium Chloride Injection; 0.45% Sodium Chloride Injection; 5% Dextrose and 0.45% Sodium Chloride Injection; or 5% Dextrose and 0.9% Sodium Chloride Injection in PVC bag. Diluted solution may be stored up to 24 hours at controlled room temperature.

As with all parenteral drug products, intravenous admixtures should be inspected visually for clarity, particulate matter, precipitate, discoloration and leakage prior to administration, whenever solution and container permit. Solutions showing haziness, particulate matter, precipitate, discoloration or leakage should not be used. Discard unused portion.

THERAPY REQUIRED

1. Low Dose Subcutaneous Heparin Sodium

There is now good evidence that low dose heparin is effective in preventing serious venous thromboembolic complications in high risk surgical patients. The usually recommended dose is 5,000 units subcutaneously 2 hours before surgery and then 5,000 units given every 12 or 8 hours after surgery with the first dose given at approximately 12 hours after surgery. It is not necessary to monitor low dose prophylactic heparin.

2. Therapeutic Anticoagulant Action (immediate and short term)

The dose should be adjusted in keeping with the patient's clotting time which should be determined just prior to the injection during the first day of treatment. It is also recommended that, in order to help regulate dosage, the clotting time be determined on the second and third day of treatment. (The recommended method is the Lee-White whole blood method.)

Anticoagulation is adequate when the clotting time is 2 to 3 times the normal value.

Subcutaneous administration is usually employed for maintenance therapy after initial regulation.

3. Long Term Protective Anticoagulant Action

Subcutaneous administration of 15,000 units every 12 hours is usually employed. Daily injections of 20,000 to 30,000 units have also been employed with success. After initial regulation the dosage should be adjusted according to weekly to monthly clotting time determinations. Anticoagulant therapy should not be terminated abruptly but should be gradually reduced over 3 - 4 days.

4. Deep Venous Thrombosis and Pulmonary Embolism

Dosage of 20,000 units daily for 6 - 10 days has been of value.

5. Hemodialysis

(a) Multiple Trauma

Recent literature has suggested the use of early hemodialysis in multiple trauma.

(b) Chronic Renal Failure

The use of hemodialysis in this area has increased dramatically in recent years and may be in-hospital or home dialysis. It is most important to stress that the instructions for each equipment manufacturer's unit must be followed scrupulously.

The following is merely intended as an overall summary of possible general procedures:

- 3,000 units of Heparin Sodium Injection, USP is added to 1,000 mL of sterile saline as a dialyser flush prior to connection.
- Initial dosage: 5,000 units of Heparin Sodium Injection, USP into the venous shunt or 2,500 units into the arterial fistula needle.
- With the shunt type, the usual continuing dosage is 2,000 units per hour; with the fistula type, 1,500 units per hour by means of a suitable syringe and a pump to allow continuing infusion. Heparin Sodium Injection, USP reversal with Protamine Sulfate will be decided by the individual physician. Usually this is not done unless dialysis is being performed soon after surgery.

6. Coronary and Vascular Surgery

Patients undergoing total body perfusion for open heart surgery should receive an initial dose of not less than 150 units of Heparin Sodium Injection, USP per kilogram of body weight. Frequently a dose of 300 units of Heparin Sodium Injection, USP per kilogram of body weight is used for procedures estimated to last less than 60 minutes; or 400 units/kg for those estimated to last longer than 60 minutes.

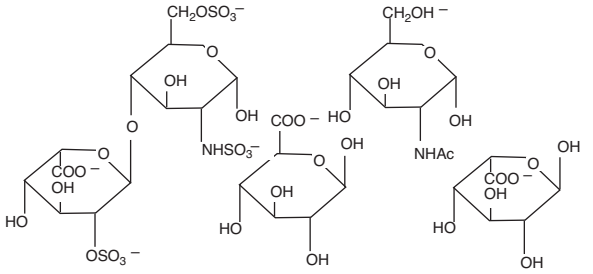
PHARMACEUTICAL INFORMATION

Drug Substance:

Proper Name: Heparin Sodium

CAS No.: 9041-08-1

Structural Formula:



(1) (2) (3) (4) (5)

Description: Heparin is a heterogeneous group of straight-chain anionic mucopolysaccarides, called glycosaminiglycans, having anticoagulant properties. Although others may be present, the main sugars occurring in heparin are: (1) α-L-iduronic acid 2-sulfate, (2) 2-deoxy-2-sulfamino-α-D-glucose 6-sulfate, (3) β-D-glucuronic acid, (4) 2-acetamido-2-deoxy-α-D-glucose, (5) α-L-iduronic acid. These sugars are present in decreasing amounts, usually in the order (2) > (1) > (4) > (3) > (5), and are joined by glycosidic linkages, forming polymers of varying sizes. Heparin is strongly acidic because of its content of covalently linked sulfate and carboxylic acid groups. In heparin sodium, the acidic protons of the sulfate units are partially replaced by sodium ions. Heparin sodium is derived from porcine intestinal mucosa, standardized for anticoagulant activity.

Stability and Storage Recommendations:

Store Heparin Sodium Injection, USP multidose vial at 15°- 30°C. Protect from freezing. Discard unused portion 28 days after initial puncture.

AVAILABILITY

Heparin Sodium Injection, USP is supplied in the following concentrations and package sizes. Vial stoppers do not contain natural rubber latex.

C504701 1,000 USP Units/mL in 1 mL multidose vial in package of 25 vials. Also contains methylparaben 1.5 mg/mL, propylparaben 0.15 mg/mL. Sodium Chloride 9 mg/mL for isotonicity, and q.s. to 1 mL with Water for Injection. Porcine intestinal mucosa origin.

C504710 1,000 USP Units/mL in 10 mL multidose vial in package of 25 vials. Also contains methylparaben 1.5 mg/mL, propylparaben 0.15 mg/mL. Sodium Chloride 9 mg/mL for isotonicity, and q.s. to 10 mL with Water for Injection. Porcine intestinal mucosa origin.

C504730 1,000 USP Units/mL in 30 mL multidose vial in package of 25 vials. Also contains methylparaben 1.5 mg/mL, propylparaben 0.15 mg/mL. Sodium Chloride 9 mg/mL for isotonicity, and q.s. to 30 mL with Water for Injection. Porcine intestinal mucosa origin.

C504801 10,000 USP Units/mL in 1 mL multidose vial in package of 25 vials. Also contains methylparaben 1.5 mg/mL, propylparaben 0.15 mg/mL, and q.s. to 1 mL with Water for Injection. Porcine intestinal mucosa origin.

C504805 10,000 USP Units/mL in 5 mL multidose vial in package of 25 vials. Also contains methylparaben 1.5 mg/mL, propylparaben 0.15 mg/mL, and q.s. to 5 mL with Water for Injection. Porcine intestinal mucosa origin.

Hydrochloric acid and/or sodium hydroxide may have been added for pH adjustment.

Parenteral drug products should be inspected visually for particulate matter and discolouration prior to use.

April 2006

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