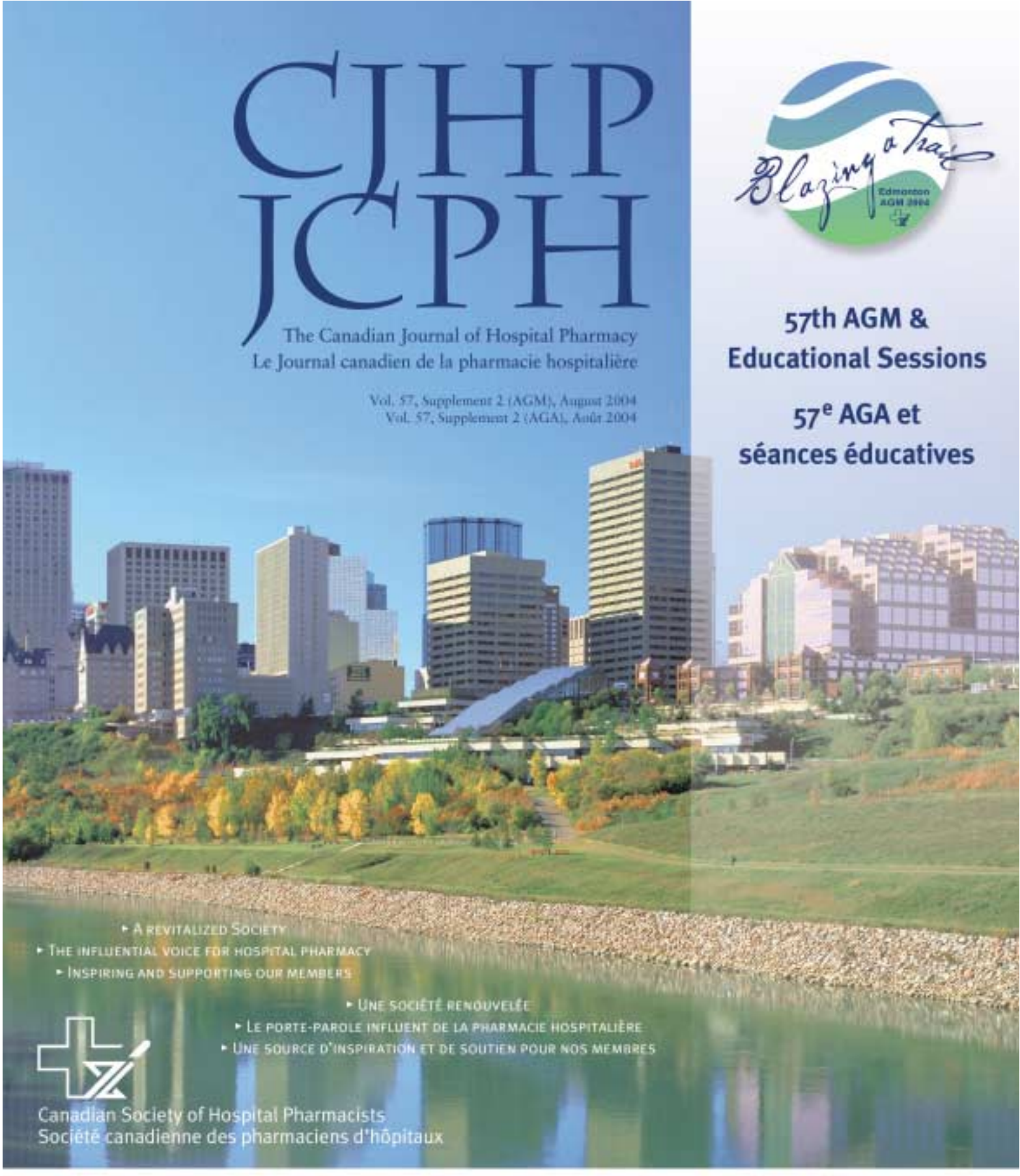

CJHP JCPH

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

Vol. 57, Supplement 2 (AGM), August 2004
Vol. 57, Supplement 2 (AGA), août 2004

Blazing a Trail
Edmonton AGM 2004

57th AGM & Educational Sessions

57e AGA et séances éducatives

- A revitalized Society
- The influential voice for hospital pharmacy
- Inspiring and supporting our members

- Une société renouvelée
- Le porte-parole influent de la pharmacie hospitalière
- Une source d'inspiration et de soutien pour nos membres

Canadian Society of Hospital Pharmacists
Société canadienne des pharmaciens d'hôpitaux

Publications Mail Agreement 40036323

Edmonton, Alberta

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LIPITOR also raises HDL-cholesterol and therefore lowers the LDL-C/HDL-C and Total-C/HDL-C ratios (Fredrickson Type IIa and IIb).

Less than 2% of patients discontinued therapy due to adverse experiences. Most common adverse effects were constipation, diarrhea, dyspepsia, flatulence, nausea, headache, pain, myalgia and asthenia.

LIPITOR is contraindicated: During pregnancy and lactation; active liver disease or unexplained persistent elevations of serum transaminases exceeding 3 times the upper limit of normal; hypersensitivity to any component of this medication.

Lipid levels should be monitored periodically and, if necessary, the dose of LIPITOR adjusted based on target lipid levels recommended by guidelines.

Caution should be exercised in severely hypercholesterolemic patients who are also renally impaired, elderly, or are concomitantly being administered digoxin or CYP 3A4 inhibitors.

Liver function tests should be performed before the initiation of treatment, and periodically thereafter. Special attention should be paid to patients who develop elevated serum transaminase levels, and in these patients, measurements should be repeated promptly and then performed more frequently.

EFFICACY ➢ † A powerful demonstrated effect across key lipid parameters[1]

EXPERIENCE ➢ More than 57 million patient-years of experience[2]

EVIDENCE ➢ Demonstrated delayed time to first ischemic event in stable CAD patients[3¥] (n=341, *p*=0.03)

¥ The Atorvastatin Versus Revascularization Treatments (AVERT) study examined the effect of intensive lipid-lowering in patients with stable coronary artery disease and LDL-C at least 3.0 mmol/L in patients referred for percutaneous transluminal coronary angioplasty (PTCA). Patients were randomized for 18 months to LIPITOR 80 mg daily or to PTCA with usual medical care which could include lipid metabolism regulators. The results of the AVERT study should be considered as exploratory since several limitations may affect its design and conduct. In the medical-treated group with LIPITOR there was a trend for a reduced incidence of ischemic events and a delayed time to first ischemic event. The results also suggest that intensive treatment to target LDL-C levels with LIPITOR is additive and complementary to angioplasty and would benefit patients referred for this procedure.[1]

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PAAB Member R&D

Dear Colleague:

It is with great pleasure that we invite you to join us in "Blazing a Trail" to the Festival City of Edmonton, Alberta on August 14th to 17th, 2004 for the Canadian Society of Hospital Pharmacists 57th Annual General Meeting and Educational Sessions.

The Educational Services Committee, chaired by Judy Chong, has assembled a fantastic educational program that will include panel discussions on Entry into Practicing Doctor of Pharmacy Degree, Pharmacy Human Resources, and Treatment Strategies for Venous Thromboembolism. This year's workshops will include a look at Heart Failure, Asthma, and Learning to be a Better Preceptor. Also this year a special Town Hall Meeting will be held by CSHP's Research Committee on Monday, August 16th.

Our vendor exhibit program this year will include a scavenger hunt for exhibitors and members to participate and win great prizes while networking and seeing the latest products and services. Please take time to visit and gain from their expertise and acknowledge the tremendous support they offer to our event.

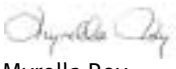
The 2004 Annual General Meeting is scheduled for Sunday, August 15th at 3:00 PM. The AGM will provide all members with the chance to hear about the many important initiatives that have helped advance hospital pharmacy in the past year. Reports from CSHP Council will include important updates on patient safety, CSHP's strategic plan, advocacy, education, and networking. The Coffee and Chat immediately following the AGM offers an informal opportunity to continue the discussion with Council and staff of CSHP. It's important to make time in your busy AGM schedule to participate in the Coffee and Chat, as Council needs to hear from you, our members.

This year's social events kick off on Saturday, August 14th, with the Ninth Annual CSHP Research and Education (R&E) Foundation Fundraising Golf Tournament to be held at Cougar Creek Golf Resort. All profits from this event will be donated to the R&E Foundation, supporting and promoting the practice-based research initiatives of CSHP's members. Register early as this event fills up fast!

The Alberta Host Committee, chaired by Deb Van Haaften, has organized social activities, including, an early morning Fun Run/Walk, Fun Night at the Glenora Club, and our annual Past-Presidents' Dinner and Dance at Fort Edmonton Park. The efforts of this year's Committee guarantee a memorable time. Everything is casual for this AGM so put away the ties and suits and come out and whoop it up in Edmonton.

AGM 2004: Blazing a Trail... Celebrating 100 Years Edmonton 2004. We look forward to seeing you and sharing the fun.

Neil Johnson
BScPhm, MBA
CSHP President



Myrella Roy
Pharm.D., FCCP
Executive Director

Chers collègues,

Nous sommes très heureux de vous inviter à être des nôtres et à «Fêter les pionniers» dans la cité des festivals, Edmonton, en Alberta, du 14 au 17 août 2004 dans le cadre de la 57e Assemblée générale annuelle et des séances éducatives de la Société canadienne des pharmaciens d'hôpitaux.

Le Comité des services éducatifs, présidé par Judy Chong, vous a préparé un programme éducatif exceptionnel, qui comprendra des tables rondes sur l'entrée dans la pratique au niveau du doctorat en pharmacie, les ressources humaines en pharmacie et les stratégies thérapeutiques dans la thromboembolie veineuse. Cette année, les ateliers porteront sur l'insuffisance cardiaque, l'asthme et les astuces pour devenir un meilleur précepteur. Il y aura également un forum de discussions spécial animé par le Comité de recherches de la SCPH, le lundi 16 août.

Le programme d'exposition des fournisseurs comporte, cette année, une chasse au trésor à laquelle exposants et membres participeront et courront la chance de remporter de superbes prix tout en ayant l'occasion d'établir des contacts et de jeter un coup d'œil aux nouveaux produits et services. Prenez donc le temps de rendre visite aux exposants, de tirer profit de leur expertise et de reconnaître ainsi le soutien inestimable qu'ils apportent à notre événement.

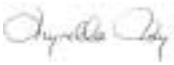
L'Assemblée générale annuelle de 2004 est prévue pour le dimanche 15 août, à 15 heures. Ce sera là l'occasion pour tous les membres d'en apprendre plus sur les nombreuses et importantes initiatives qui ont contribué à faire avancer la pharmacie hospitalière ces dernières années. Le Conseil vous livrera aussi des comptes rendus présenteront des mises à jour importantes sur la sécurité des patients, le plan stratégique de la SCPH, la représentation, l'éducation et le réseautage. Le café-rencontre qui suivra immédiatement après l'AGA vous permettra, dans une atmosphère décontractée, de poursuivre vos échanges avec le Conseil et le personnel de la SCPH. Il est important de réserver un peu de temps, malgré l'horaire chargé de l'AGA, pour participer à ce café-rencontre, car le Conseil a besoin de connaître l'opinion de ses membres.

Cette année, le coup d'envol des activités sociales a lieu le samedi 14 août, avec le 9e tournoi de golf-bénéfice annuel de la Fondation pour la recherche et l'éducation de la SCPH, qui aura lieu au Cougar Creek Golf Resort. Tous les profits iront à la Fondation pour appuyer et promouvoir les projets de recherche sur la pratique des membres de la SCPH. Inscrivez-vous sans tarder, car cette activité est très en demande!

Le Comité d'accueil de l'Alberta, présidé par Deb Van Haaften, vous a préparé toute une brochette d'activités sociales, notamment une marche-course matinale amicale, une soirée endiablée au Glenora Club, sans oublier notre dîner-dansant du président sortant, au parc Fort Edmonton. Les efforts déployés par notre Comité d'accueil cette année nous garantissent des moments mémorables. Comme l'AGA se déroulera dans une atmosphère décontractée, laissez cravates, vestons, tailleurs de côté, et venez vous éclater à Edmonton.

AGA 2004 : Fêtons les pionniers... Célébrations du 100e anniversaire d'Edmonton 2004. C'est un rendez-vous avec le plaisir.

Neil Johnson
B. Sc. Pharm., MBA
Président de la SCPH



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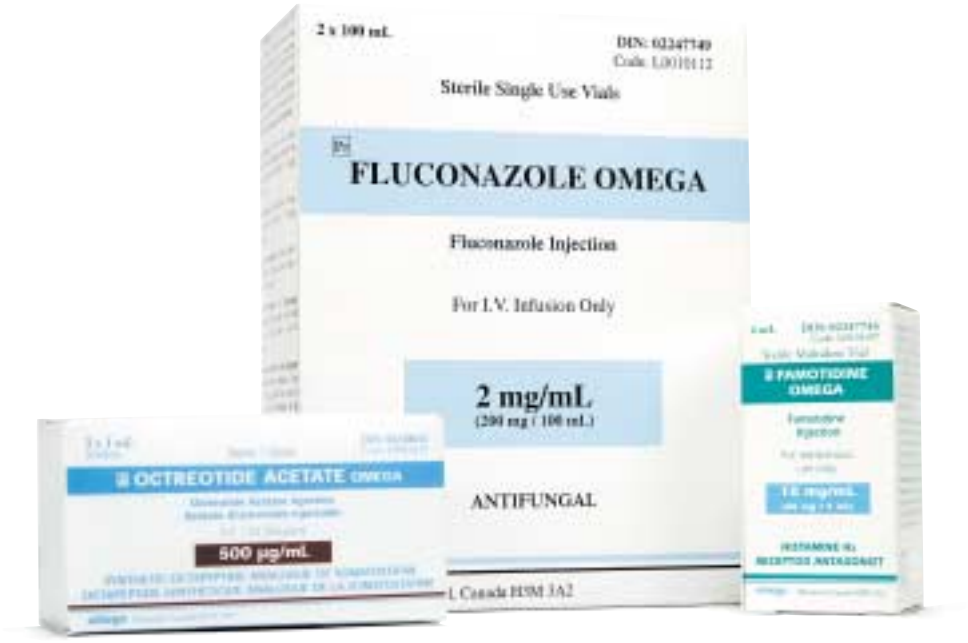

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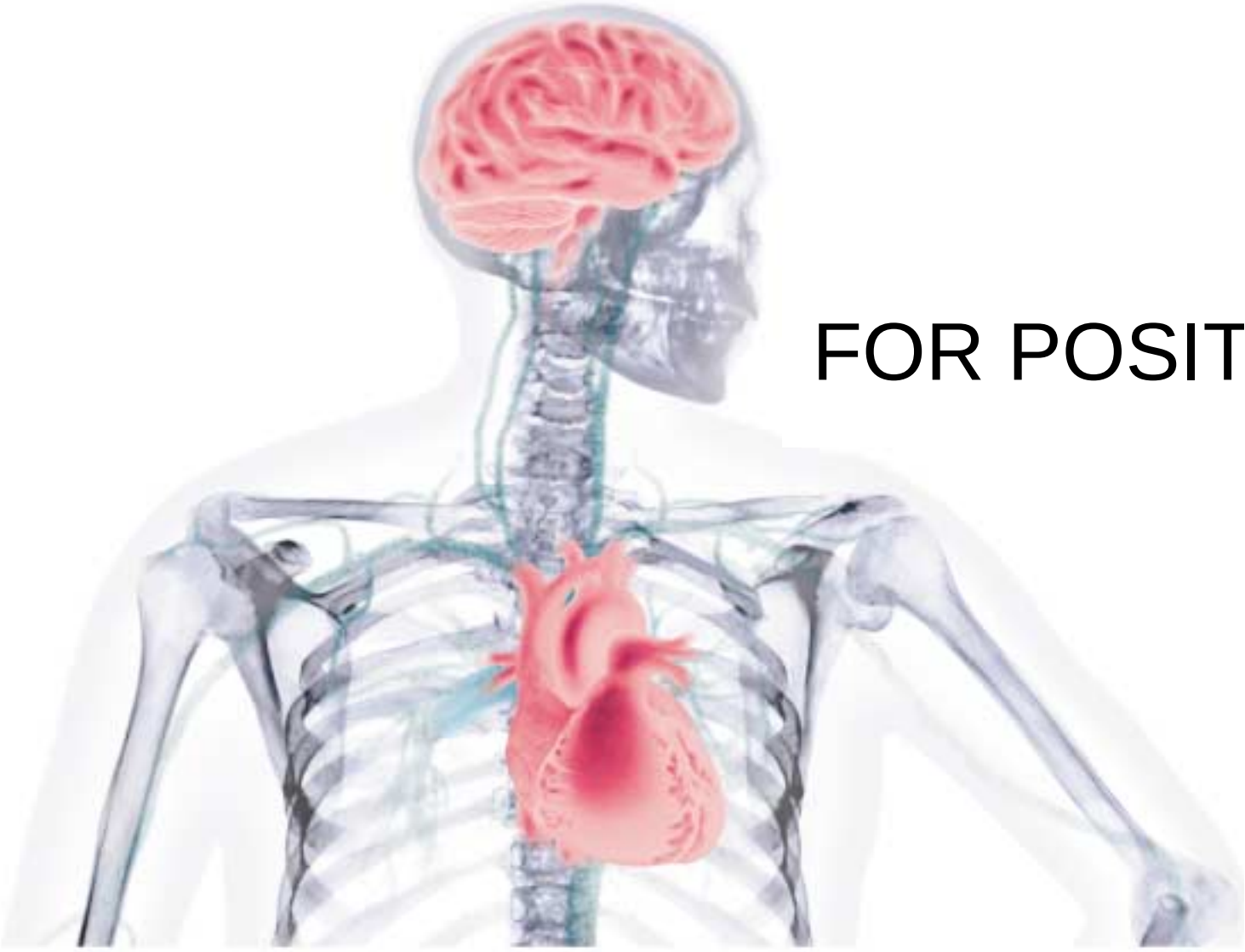

FOR POSIT

PLAVIX (clopidogrel bisulfate) is indicated for the secondary prevention of atherothrombotic events (myocardial infarction, stroke or vascular death) in patients with atherosclerosis documented by stroke, myocardial infarction or established peripheral arterial disease.[1]

PLAVIX is also indicated for the reduction of atherothrombotic events (myocardial infarction, ischemic stroke, cardiovascular death and/or refractory ischemia) in patients with acute coronary syndromes, unstable angina or non-Q-wave myocardial infarction without ST-segment elevation. These benefits of PLAVIX have been shown only when these patients were concomitantly treated with ASA in addition to other standard therapies. These benefits were also seen in patients who were managed medically and in those who were managed with percutaneous coronary intervention (with or without stent) or CABG (coronary artery bypass graft).[1]

PLAVIX is contraindicated in patients with a hypersensitivity to the drug substance or any component of the product and in patients with active bleeding such as peptic ulcers or intracranial hemorrhage. PLAVIX should not be used in patients who have lesions with a propensity to bleed. As with other antiplatelet agents, PLAVIX should be used with caution in patients who may be at risk of increased bleeding from recent trauma, surgery or other pathological conditions.[1]

PLAVIX should be used with caution in patients with severe or moderate renal impairment and in patients with moderate hepatic impairment who may have bleeding diatheses. PLAVIX is contraindicated in patients with severe liver impairment or cholestatic jaundice.[1]

The most common side effects of PLAVIX in CAPRIE included headache, flu-like symptoms and pain (7.6%, 7.5%, 6.4%).[1] In CURE: Non-life-threatening major bleeding: PLAVIX + ASA, 1.6%; placebo + ASA, 1.0% ($p = 0.005$). Minor bleeding: PLAVIX + ASA, 5.1%; placebo + ASA, 2.4% ($p < 0.001$).[1]

In patients with:

- **MI**
- **Stroke**
- **Peripheral arterial disease**
- **-wave MI**
- **ole angina**

TION ONLY

PLAVIX protects long term against further atherothrombotic events.[‡,*]

- PLAVIX + ASA* significantly reduced the combined risk of stroke, non-fatal MI and cardiovascular death by 20%† vs placebo + ASA* in patients with unstable angina or non-Q-wave MI ($p = 0.00009$)[3,5] (CURE,‡ n = 12,562)
- Long-term risk reduction continued throughout the 12-month study period[3,5]
- PLAVIX alone significantly reduced the combined risk of stroke, MI and vascular death by 8.7%§ over and above the accepted 25% reduction provided by ASA¶ in patients with stroke, MI or peripheral arterial disease ($p = 0.045$)[3,4] (CAPRIE,** n = 19,185)
- Long-term risk reduction continued throughout the 3-year study period[3,4,††]

†† The long-term comparative clinical significance of these findings beyond 3 years is unknown.

*Patients may also have received other standard cardiovascular therapies.
†From CURE. Absolute outcomes: PLAVIX + ASA (9.3%) vs placebo + ASA (11.4%).
‡Clopidogrel in Unstable Angina to Prevent Recurrent Events Trial. CURE dosing: PLAVIX 300 mg loading dose then 75 mg o.d. (n = 6,259) or placebo (n = 6,303) plus ASA 75 – 325 mg o.d.
§From CAPRIE. Absolute outcomes: PLAVIX (5.78%) vs ASA (6.64%).
¶From the Antiplatelet Trialists' Collaboration. Absolute outcomes: ASA (11.9%) vs controls (13.2%).
**Clopidogrel vs Aspirin in Patients at Risk of Ischemic Events Trial. CAPRIE dosing: PLAVIX 75 mg o.d. (n = 9,599), ASA 325 mg o.d. (n = 9,586).

Bristol-Myers Squibb Pharmaceutical Group

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Notice to Members – Changes to the CSHP Bylaws

CSHP members will be asked to vote at the 2004 AGM on the following motion to change the current CSHP Bylaws.

Motion that Article 11.1, Fiscal Year

Article 11 Finances

11.1 Fiscal Year

The fiscal year of the Society shall be July 1st to June 30th, and the Council shall submit to each Annual General Meeting a certified accounting of the funds received and expended during the financial year completed preceding such meeting.

be amended such that it now reads:

11.1 Fiscal Year

The fiscal year of the Society shall be May 1st to April 30th, and the Council shall submit to each Annual General Meeting a certified accounting of the funds received and expended during the financial year completed preceding such meeting.

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WELCOME LETTERS

THE PREMIER OF ALBERTA

Message from Honourable Ralph Klein
Premier of Alberta

On behalf of the Government of Alberta, it is my pleasure to welcome participants to The Canadian Society of Hospital Pharmacists' 57th Annual General Meeting.

It is indeed an honour for Alberta to play host to this meeting. It is also very appropriate that you have come to Edmonton because your organization can trace its historic roots to this city.

In 1939, the Alberta Hospital Pharmacists Association was established here in Edmonton. A year later the province of Nova Scotia established a sister organization, and it was from these humble beginnings that The Canadian Society of Hospital Pharmacists was born.

Your organization is to be commended for the vital work it does to support its members through advocacy, education, information sharing, the development of exemplary standards, the facilitation of research and the recognition of excellence. Your Society can be very proud of the contribution it has made to the quality of care in our hospitals across Canada.

May you also have time for personal renewal, as you take time to learn, reflect, and interact with your colleagues from across Canada.

Best wishes on a successful conference, and enjoy your visit to Alberta.

Ralph Klein

August 14-17, 2004

Legislature Building, Edmonton, Alberta, Canada T5K 2B6 Telephone (780) 427-2251 Fax (780) 427-1349

Edmonton Welcomes You

Welcome to the City of Champions! On behalf of City Council and the citizens of Edmonton, it gives me great pride to extend a very warm welcome to you from Alberta's capital city. As Edmontonians are hospitable by nature, I am confident every effort will be made to ensure you have an enjoyable and memorable stay in our city while you take part in the Canadian Society of Hospital Pharmacists Convention from August 14-17, 2004.

Edmontonians are justifiably proud of their city. Home to citizens of diverse Edmonton's multi-cultural make-up lends a cosmopolitan flair to our city – which is enjoyed by thousands of visitors throughout the year. First-class accommodation, facilities, and service second to none, have earned Edmonton its enviable reputation as a world-class venue for a multitude of events.

Take time to explore our city! As Alberta's capital and Gateway to Canada's North, Edmonton has many unique tourist attractions. The jewel of our city is the North Saskatchewan River Valley – North America's longest urban parkland – stretching through our city centre with extensive attractions, nature trails and multi-use paths. Visit the famous West Edmonton Mall – the world's largest entertainment and shopping complex. Take a trip back in time by visiting Fort Edmonton Park – Canada's largest historical park depicting life in the West in four different time eras. There is something for everyone to enjoy in Edmonton!

Enjoy Edmonton and all it has to offer!

Yours truly,

Bill Smith
Mayor

Edmonton

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C.C.C.E.P.
Canadian Council on Continuing Education in Pharmacy

The Educational Services Committee

The Educational Services Committee (ESC) of CSHP has been working in conjunction with the local host committee and the national office for approximately 10 months on the content and format of AGM 2004. The ESC is comprised of a core committee of 10 hospital pharmacists as well as 8 corresponding members from the CSHP branches.

GOAL AND OBJECTIVES FOR THE 2004 AGM 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 and poster sessions.
- To provide an opportunity to Pharmacy Specialty Networks to meet

BUT ET OBJECTIFS DU PROGRAMME DE LA AGA 2004

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 d'hôpital en présentant des conférences sur les nouveautés touchant le rôle du pharmacien, la pratique de la pharmacie et les programmes de pharmacie.
- Favoriser des aptitudes d'apprentissage permanentes par une participation active à des ateliers de formation centrés sur des problèmes.
- Donner aux participants l'occasion d'établir des réseaux et de partager grâce au salon des exposants, aux séances d'affichage.
- Donner l'occasion aux réseaux de spécialistes en pharmacie de se réunir.

AGM Social Events

In order to provide accurate dinner numbers to our host facilities, we encourage registrants to purchase tickets for both the Fun Night activities at the Glenora Club on Sunday and the Past Presidents Dinner on Monday prior to arrival at AGM 2004. Tickets can be purchased on the AGM 2004 registration form. Tickets may be available on-site. Absolutely no tickets will be sold after 5 p.m. on Saturday, August 14. Thank you for your cooperation.

Where to Stay for AGM?

The Westin Edmonton

CSHP is pleased to offer a special room rate of $135.00- single or double occupancy at The Westin Edmonton Hotel. All CSHP official conference related meetings will take place at this property. The conference rate of $135.00 will be guaranteed until July 12, 2004. Don't miss out! Make your reservation early. You make your reservation by telephoning the hotel directly at (780) 426-3636. When making reservations please remember to make reference to CSHP AGM 2004 for your conference rate.

How to Get to AGM

Air Canada has been appointed the official airline for CSHP's Annual General Meeting and Educational Sessions 2004. Please quote Reference Number **CV041909** when making your travel arrangements.

As an AGM 2004 registrant, you will be offered the best available fare on all flights booked through Air Canada Convention Sales. Be sure to tell your travel agent to refer **CV041909** in reference to your ticket and you could receive up to 50% off. Remember – YOU will continue to accumulate your travel plan points while supporting CSHP.

You can book your flight in three convenient ways:

1. Through Uniglobe Premiere Travel at (800) 267-9372 or (800) 361-9372 or
2. Directly through Air Canada Convention Sales at (800) 361-7585 or
3. Through your favorite travel agent quoting the above Reference Number.
   By ensuring **CV041909** appears on your ticket, you help support your organization – in advance we thank you.

AGM 2004 at a Glance

Educational Sessions

Sunday, August 15	8:30-15:00
Monday, August 16	8:30-15:30
Tuesday, August 17	8:45-16:00

Annual General Meeting

Sunday, August 15	15:00-17:00

Registration

Saturday, August 14	15:00-17:30
Sunday, August 15	07:30-17:00
Monday, August 16	07:30-17:00
Tuesday, August 17	08:00-16:00

Exhibits

Sunday, August 15	09:00-15:00
Monday, August 16	09:00-15:30

Lunch with Exhibitors

Sunday, August 15	12:00-14:00
Monday, August 16	12:30-14:30

Posters

Presentations:

Sunday, August 15	12:00-14:00
Monday, August 16	12:30-14:30

Viewing:

Sunday, August 15	10:00-10:30
Monday, August 16	10:00-10:30

Social Events at a Glance

Saturday, August, 14

6:00	Breakfast
07:00-17:00	Research and Education Foundation Fundraising Golf Event **The Cougar Creek Golf Resort** Limit: 80 golfers
18:00-19:30	CSHP Residency Mentorship Program Reception **The Westin Edmonton - Centennial Room**
20:00-23:00	Opening Reception **The Westin Edmonton - Devonian Room**

Sunday, August 15

06:30-08:00	Fun/Run Walk Event **The Westin Edmonton Lobby**
17:00-18:00	Coffee and Chat **The Westin Edmonton - Leduc Room**
18:00-24:00	Fun Night at the Royal Glenora Club Dress: Casual

Monday, August 16

18:00-01:00	Past Presidents Dinner and Dance **Fort Edmonton Park-Blatchford Hangar** Buses provided for arrival and departure trips

Satellite Symposia/Symposiums satellites

Monday, August 16 – breakfast
Hosted by: Novartis Pharma Canada Inc.

Strathcona Room

Tuesday, August 17 – breakfast
Hosted by: Janssen Ortho Inc.

Centennial Room

Tuesday, August 17 – luncheon
Hosted by: Eli Lilly Canada Inc.

Centennial Room

Tuesday, August 17 – luncheon
Hosted by: Amgen Canada Inc.

Devonian Room

Upcoming Events / Événments à venir

Professional Practice Conference (PPC) 2005
Feb. 5-9, 2005
The Westin Harbour Castle
Toronto, ON

Annual General Meeting (AGM) 2005
Aug. 13-16, 2005
The Westin Ottawa
Ottawa, ON

Professional Practice Conference (PPC) 2006
Jan. 28 to Feb. 1, 2006
The Westin Harbour Castle
Toronto, ON

Annual General Meeting (AGM) 2006
Aug. 12-15, 2006
Le Centre Sheraton
Montréal, QC

Professional Practice Conference (PPC) 2007
Jan. 27 to Jan. 31, 2007
The Westin Harbour Castle
Toronto, ON

Annual General Meeting (AGM) 2007
August 11-14, 2007
TBA
Regina, SK

Professional Practice Conference (PPC) 2008
Feb. 2-6, 2008
The Westin Habrour Castle
Toronto, ON

Annual General Meeting (AGM) 2008
Aug. 9-12, 2008
Saint John Hilton & Convention Centre
Saint John, NB

Professional Practice Conference (PPC) 2009
Jan. 31 to Feb. 4, 2009
The Westin Habrour Castle
Toronto, ON

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

AGM Registration Form

2004 Annual General Meeting • August 14th - 17th, 2004 • Edmonton, Alberta
Canadian Society of Hospital Pharmacists • Société canadienne des pharmaciens d'hôpitaux

350 – 1145 Hunt Club Road, Ottawa, ON K1V 0Y3 • Phone: (613) 736-9733 • Fax: (613) 736-5660 • www.cshp.ca

Please complete the following form and send to CSHP by Friday, August 6, 2004. After this date, we request that you bring your registration form and payment with you to the conference. Please note the early bird date of July 16, 2004.

Registration Information: Name badge will indicate this information. Please print clearly.

CSHP Membership Number (printed on address label):

First Name: Initial: Last Name:

Preferred Mailing Address: ❑ Business ❑ Home

City: State/Province: Postal Code:

Telephone (W): Fax: Telephone (H):

Email (to ensure membership database is up-to-date):

Workshop Information:

Monday, 10:30 am-1 2:30 pm

- ❑ Strategies for Patient Education: Trials and Tribulations in Heart Failure
- ❑ Asthma Exacerbations: The Latest and Greatest (?) in Pharmacologic Management
- ❑ Learning to be a Better Preceptor - The Art and the Evidence

Tuesday, 10:45 am-12:45 pm

- ❑ Strategies for Patient Education: Trials and Tribulations in Heart Failure
- ❑ Asthma Exacerbations: The Latest and Greatest (?) in Pharmacologic Management
- ❑ Learning to be a Better Preceptor – The Art and the Evidence

Please indicate order of preference (1-3) in the boxes above. While every effort is made to accommodate first choices, we will assign you to your next indicated preference in the event of a full session.

Shared Registration: Please indicate name of registrants & day(s) attending along with workshop preference

Name(s)/Position(s)	Day(s) attending

AGM Fees: Full Program and One-Day Programs include all educational sessions, exhibits and luncheons

	Full Program		Daily Rates	
	On/Before July 16/04	After/on site	On/Before July 16/04	After/on site
CSHP Member	$420.00	$495.00	$235.00	$271.00
Non-member	$614.00	$689.00	$300.00	$348.00
Shared Member	$481.00	$567.00	n/a	n/a
Non-member	$675.00	$761.00	n/a	n/a
Student Member	$170.00	$197.00	$57.00	$66.00
Non-member	$210.00	$237.00	$70.00	$79.00
AIT Member	$170.00	$197.00	$57.00	$66.00

AGM Registration Form

AGM Social Events (Optional)

Event	Date & Time	Place	Fees		Qty	Total
Research & Education Foundation Fundraising Golf Event Note: all golf fees/ rentals are HST exempt	Saturday, August 14 7:00 am – 5:00 pm	The Ranch Golf Club *Transportation provided * Please note event limit of 80 golfers	Green Fees: $50.00			
			Club Rentals: $30/set Please specify: ❑ Left-handed ❑ Right-handed			
Opening Reception	Saturday, August 14 8:00 pm – 11:00 pm	The Westin Hotel Devonian Room	Complimentary			
Fun Run/Walk	Sunday, August 15 6:30 am – 8:00 am	The Westin Hotel (Lobby area)	Complimentary			
Fun Night	Sunday, August 15 6:00 pm – Midnight	Royal Glenora Club	Early Bird $55.00	On Site $60.00		
Past Presidents' Dinner & Dance	Monday, August 16 6:00 pm – 1:00 am	Fort Edmonton Park	$45.00	$50.00		

Non-member full program AGM rates include a one-year CSHP membership (national fee).

Did you remember to renew your CSHP membership – June 30, 2004?

Registration Fee	$_____
R&E Foundation Golf Event	$_____
Club One	$_____
Past Presidents' Dinner	$_____
15% HST (GST # R106866940)	$_____
Total Enclosed:	**$_____**

❑ I am enclosing a cheque payable to the Canadian Society of Hospital Pharmacists (CSHP).

❑ Please charge my VISA / MASTERCARD or AMEX number (circle one): _____

_____

Expiry Date: _____ Signature of Cardholder: _____

If you have a dietary restriction, please specify: _____

Emergency Contact: _____

AGM: Registration and Fee Information

- Fees are payable to the Canadian Society of Hospital Pharmacists by cheque, VISA, MasterCard or AMEX and MUST accompany this form. All fees are subject to 7% GST.
- CSHP accepts faxed registrations for those wishing to pay by credit card (in this case, please do not mail original form). To qualify for the early bird fees, registrations must be post-marked or faxed (with payment) on or before July 13, 2004. Cheques post-dated after this date will not be eligible for the early bird fee. Confirmations will be mailed within two weeks of receipt of registration.
- AGM registration fees include lunch on Sunday and Monday.
- Students are defined as undergraduate students. Graduate student members (including PharmD) must register using the Active-In-Training fees.
- Poster presenters attending sessions other than their own will be charged the applicable daily fee. Early bird fees apply to all accepted poster applicants.
- An institution may purchase a 3-day shared registration and use it for one individual ONLY per day. There are no shared registrations for students or residents.
- To qualify for the shared registration member rate, ALL of the individuals listed must be current CSHP members.
- The name of each shared registrant must be indicated on the shared application form and must be accompanied by payment in full.
- Individual name badges, tickets for luncheons and on-site registration kits will be provided for each shared registrant.

Cancellation Policy

Registrations may be cancelled in writing without penalty up to July 31, 2004. Cancellations after August 1st will be assessed an administration fee of $50.00. No refunds will be made after August 8, 2004. Individuals who wish to designate an alternate registrant for one or more of their days must first upgrade to a Shared Registration. Please note: There will be a $10.00 administration fee to transfer registrations.

Please return registration to the Canadian Society of Hospital Pharmacists, 1145 Hunt Club Road, Suite 350, Ottawa, ON K1V 0Y3
For all registration enquires, please contact Laurie Carquez at lcarquez@cshp.ca or by phone (613) 736-9733, ext. 226 and for general enquires, please contact Desarae Davidson at ddavidson@cshp.ca or by phone (613) 736-9733, ext. 229

CSHP 57th AGM and Educational Sessions / 57e Assemblée générale annuelle et les séances éducatives de la Société

Saturday, August 14 • Samedi le 14 août

07:00 – 17:00 **Research & Education Foundation Fundraising Golf Event / Tournoi de golf de la Fondtion pour la recherche et l'éducation**

The Cougar Creek Golf Resort

(buses departing from the Westin)

Have some fun and help raise funds for the Research and Education Foundation.

Format is Texas Scramble and we encourage everyone to participate, golfers or not. Buses return at 5:00pm

15:00 – 17:30 **Registration / Inscription**

Second Floor North Foyer

18:00 – 19:30 **CSHP Residency Mentorship Program Reception / Réception du programme de mentorat de la SCPH pour les résidents**

Centennial Room

20:00 – 23:00 **Opening Reception / Réception d'ouverture**

The Westin Edmonton, Devonian Room

Dress: casual

Reconnect with old friends, and meet some new ones while you "whoop it up" with some Klondike games, listen to Klondike Kate and meet your teammates for AGM fun. The opening reception is a great opportunity to meet your fellow team members, get a start on the team competitions and experience our warm Western hospitality.

Sunday, August 15 • Dimanche le 15 août

06:30 – 08:00 **Fun Run/Walk / Course/promenade pour amateurs**

Lobby of Westin Hotel

Rise and shine, and join us for a morning walk or run through North America's longest continuous stretch of urban parkland in our river valley. Following your morning workout, runners and walkers are welcome to join us for a hot breakfast back at the Westin.

07:30 – 17:00 **Registration / Inscription**

Second Floor North Foyer

08:15 – 08:30 **Opening Remarks / Remarques préliminaires**

Manitoba Room

08:30 – 09:15 **Discussing Medication Side Effects with Patients: A Prescription for Trouble?**

Manitoba Room

Michelle Deschamps, BSP, MSc
University of Saskatchewan
Saskatoon, SK

09:15 – 10:00 **Plenary Session**

Manitoba Room

TBA

10:00 – 10:30 **Break/Posters / Pause/Affiches**

Sask/BC/AB/Yukon Rooms

10:30 – 11:15 **Concurrent Sessions / Sessions concomitantes**

1. **Effective Succession Planning: Ensuring Leadership Continuity and Building Talent from Within**

   Strathcona Room

   Susan Alderson, PharmD, MBA
   William Osler Health Centre
   Brampton, ON

2. **The New ST Elevation MI Guidelines**

   Turner Valley Room

   Rubina Sunderji, PharmD, FCSHP
   Vancouver General Hospital
   Vancouver, BC

11:15 – 12:00 **Concurrent Sessions / Session concomitantes**

1. **Management of People with Diabetes – Beyond Glycemic Control**

   Strathcona Room

   Scot H. Simpson, PharmD, MSc
   Institute of Health Economics
   Edmonton, AB

2. **Delivering Written Medication Information to Patients: How Can it be Improved?**

   Turner Valley Room

   Elaine Lau, PharmD
   St. Joseph's Healthcare
   Hamilton, ON

12:00 – 14:00 **Lunch/Exhibitors/Posters / Déjeuner/Kiosques/Affiches**

Sask/BC/AB/Yukon Rooms

14:00 – 15:00 **Entry to Practice Doctor of Pharmacy Degree**

Manitoba Room

Nesé Yuksel, PharmD – Moderator
Grey Nuns Hospital
Edmonton, AB

Wayne Hindmarsh, PhD
University of Toronto
Toronto, ON

Jeff Whissell, BScPhm
Capital Health
Edmonton, AB

Donna Woloschuk, PharmD, FCSHP
Winnipeg Regional Health Authority
Winnipeg, MB

15:00 – 17:00 **Annual General Meeting**

Manitoba Room

17:00 – 18:00 **Coffee and Chat / Café et causette**

Leduc Room

18:00 – 24:00 **Fun Night at the Royal Glenora Club / Soirée d'agrément au Club Royal Glenora**

Royal Glenora Club

Dress: casual

An important part of Edmonton's history is ranching and farming.
Here's your chance to participate in the activities of the Old West, and earn valuable points for your team at the same time. Be entertained by the comedic antics of Atomic Improv and the music of Foggy Minded Mountain Boys. There will be a cash bar and there is no ATM on-site. Bus transportation will begin departing from the Westin at 5:30 pm.

Monday, August 16 • Lundi le 16 août

06:15 – 08:00 **Satellite Symposium (breakfast included) / Symposiums satellites (petit déjeuner inclus)**

Strathcona Room

Update on the Pharmacists Role in a Multisource Clozapine Environment

Hosted by: Novartis Pharma Canada Inc.

07:30 – 17:00 **Registration / Inscription**

Second Floor North Foyer

08:15 - 08:30 **Announcements / Annonces**

Manitoba Room

08:30 – 09:15 **The Changing Face of Antibiotic Resistance**

Manitoba Room

Sandra Tailor, PharmD, FCSHP
Sunnybrook and Women's College HSC
Toronto, ON

09:15 – 10:00 **Concurrent Sessions / Sessions concomitantes**

1. **New Treatment Strategies for Venous Thromboembolism**

   Strathcona Room

   Carmine Stumpo, PharmD
   Toronto East General Hospital
   Toronto, ON

2. **Pharmacy Human Resources - Attracting Hummingbirds when Everyone Else has a Feeder Too**

   Turner Valley Room

   Kevin Hall, PharmD
   Winnipeg Regional Health Authority
   Winnipeg, MB

10:00 – 10:30 **Break/Posters / Pause/Affiches**

Sask/BC/AB/Yukon Rooms

10:30 – 12:30 **Workshops / Ateliers**

1. **"Strategies for Patient Education: Trials and Tribulations in Heart Failure"**

   Strathcona Room

   Ross Tsuyuki, PharmD, FCSHP
   University of Alberta
   Edmonton, AB

2. **Asthma Exacerbations: The Latest and Greatest (?) in Pharmacologic Management**

   Turner Valley Room

   Blair Seifert, PharmD, FCSHP
   Winnipeg Regional Health Authority
   Winnipeg, MB

3. **Learning to be a Better Preceptor – The Art and the Evidence**

   Devonian Room

   Don Hamilton, BScPhm
   Children's and Women's Health Centre of BC, Vancouver, BC

10:30 – 12:30 **PSN Session – ID / Session RSP – Infectiologie**

Centennial Room

Intravascular Catheter-Related Infections – Getting a Line on Management

Rosemary Zvonar, BScPhm
Ottawa Hospital-Civic Campus
Ottawa, ON

Antimicrobial Pharmacodynamics: Applications that make a Difference

Sheryl Zelenitsky, PharmD
University of Manitoba
Winnipeg, MB

12:30 – 14:30 **Lunch/Exhibits/Posters / Déjeuner/Kiosques/Affiches**

Sask/BC/AB/Yukon Rooms

14:30 – 15:30 **Medication Errors: Learning from Our Mistakes**

Manitoba Room

Steve Long, BScPhm, MBA
Calgary Health Region
Calgary, AB

15:30 – 16:30 **Town Hall Meeting / Assemblée publique locale**

Chancellor Room

Research Grant Criterion: Beyond the Canadian Publication Frontier

18:00 – 01:00 **Past Presidents' Dinner and Dance Dîner dansant des anciens présidents**

Offsite

Blatchford Hangar - Fort Edmonton Park/ Hangar Blatchford - Parc Fort Edmonton

Dress: Casual

This evening is planned to honour the Past Presidents of CSHP. After enjoying a dinner

of delicious Alberta beef, and the traditional roasting of our outgoing president, you'll have an opportunity to kick up your heels to the music of the Kit Kat Club. Of course this will be the night when we announce the winning team too. Please note that there will be a cash bar at this event and there is no ATM available on-site. Bus transportation will begin departing from the Westin at 5:30 pm.

Tuesday, August 17 • Mardi le 17 août

06:15 – 08:00 **Satellite Symposium (breakfast Included) / Symposiums satellites (petit déjeuner inclus)**

Centennial Room

Safety Resistance Issues and New Dosing Paradigms with Fluorquinolones

Hosted by: Janssen Ortho Inc.

08:00 – 16:00 **Registration / Inscription**

Second Floor North Foyer

08:30 – 08:45 **Announcements / Annonce s**

Manitoba Room

08:45 – 09:30 **Non-Prescription Products for Cardiovascular-Risk Patients**

Manitoba Room

David Blackburn, PharmD
University of Saskatchewan
Saskatoon, SK

09:30 – 10:15 **Concurrent Sessions / Sessions concomitantes**

1. **Role of the Pharmacists in Advanced Cardiac Life Support (ACLS)**

   British Columbia Room

   Alison McNaught, PharmD
   David Thompson Health Region
   Red Deer, AB

2. **Recent Clinical Trials: Practising What We Preach**

   Yukon Room

   Valerie Fong, BScPhm
   Mary Pederson, BScPhm
   Chinook Health Region
   Lethbridge, AB

10:15 – 10:45 **Break / Pause**

North Foyer

10:45 – 12:45 **Workshops / Ateliers**

1. **"Strategies for Patient Education: Trials and Tribulations in Heart Failure"**

   British Columbia Room

   Ross Tsuyuki, PharmD, FCSHP
   University of Alberta
   Edmonton, AB

2. **Asthma Exacerbations: The Latest and Greatest (?) in Pharmacologic Management**

   Alberta Room

   Blair Seifert, PharmD, FCSHP
   Winnipeg Regional Health Authority
   Winnipeg, MB

3. **Learning to be a Better Preceptor – The Art and the Evidence**

   Yukon Room

   Don Hamilton, BScPhm
   Children's and Women's Health Centre of BC, Vancouver, BC

10:45 – 12:45 **PSN Session – Cardiology / Session RSP – Cardiologie**

Turner Valley Room

Late Breaking Clinical Trials in Cardiology & Cardiovascular Medicine

Wendy Leong, PharmD, MBA
Burnaby Research
Burnaby, BC

Dyslipidemia: New Guidelines, New Data, New Drugs

Bill Semchuk, PharmD, FCSHP
Regina Qu'Appelle Health Region
Regina, SK

12:45 – 14:15 **Satellite Symposiums (lunch included) / Symposiums satellites (déjeuner inclus)**

Sepsis in 2004

Centennial Room

Hosted by: Eli Lilly Canada Inc.

A Novel Approach to Controlling Secondary Hyperparathyroidism Regulation of Parathyroid Functions by Calcimimetics Compounds

Devonian Room

Hosted by: Amgen Canada Inc.

14:15 – 15:00 **Short and Snappies / En un clin d'oeil**

Manitoba Room

Clinical Research in Action

Cheryl Wiens, PharmD
University of Alberta
Edmonton, AB

Christine Hughes, PharmD
University of Alberta
Edmonton, AB

Tammy Bungard, PharmD
University of Alberta
Edmonton, AB

15:00 – 16:00 **Patient Safety – A Case for Seamless Care**

Manitoba Room

Judy Schoen, BScPhm, MBA
Calgary Health Region
Calgary, AB

16:00 **Close of the CSHP Educational Sessions/ Clôture de la 57e Assemblée générale annuelle**

Sunday, August 15 • Dimanche le 15 août

Discussing Medication Side Effects With Patients: A Prescription For Trouble?

Michelle Deschamps, M.Sc. Pharmacy EduLab Program, University of Saskatchewan

As patient educators, discussing medication side effects is one of the most difficult tasks pharmacists face. Patients have a right to information regarding their medications but at the same time, we worry that detailed information regarding potential adverse effects will be a deterrent from taking them. This session will review the literature regarding what patients want to know about adverse drug effects and what can help patients interpret medication risks more accurately. A pilot study examining how community pharmacists inform their patients about the side effects of a new medication will also be presented.

Side effect information tops the list of what patients want to know about their medications. Contrary to popular opinion, providing this information does not increase the occurrence of side effects (although it may increase the frequency of reactions being reported). Patient adherence may be affected by how pharmacists communicate such benefits and risks. Strategies to consider when patient counselling include balancing the discussion of side effects with the benefits of treatment; using numeric frequencies to describe the likelihood of an adverse event occurring; and fostering self-efficacy by providing tips on recognizing, reporting, and managing any side effects that should occur.

Goals and Objectives

1. To summarize the evidence from medical literature regarding the outcomes of informing patients about potential adverse effects of medications.
2. To provide pharmacists with practical approaches to discussing medication risks with patients.

Self-Assesment Questions

1. How much detail to patients want about medication side effects?
2. What does describing a side effect as “common” versus “rare” mean to patients?
3. Trimethoprim/Sulfamethoxazole can lead to rash in approximately 3.5% and Stevens-Johnson Syndrome in less than 0.5% of patients. How can you approach informing a patient or caregiver about these risks without causing undue fear?

Effective Succession Planning: Ensuring Leadership Continuity And Building Talent From Within

Sue Alderson, PharmD, MBA, William Osler Health Centre, Brampton ON

The goal of this session is to provide the pharmacy profession with strategies to address the challenges facing it with respect to leadership development and recruitment.

A continuing trend in healthcare is to halt hiring on a cyclical basis due to restructuring and budget constraints. These gaps in hiring feed into the demographic challenge we face where by 2011 nearly one-fifth of boomers will be 61. The smaller cohorts (echo generation, generation X, bust generation) won’t be able to step into senior level jobs due to lack of experience or having chosen entrepreneurial career paths rather than a corporate ladder path. The annual survey of Canada’s best employers conducted by human resources services consultant Hewitt Associates found that 49% of respondents at the most senior levels are within a decade of retirement.

A focused, long-term strategy, which includes designing

a leadership succession plan and placing an emphasis on training and development, is required as are recruitment and mentoring programs. Other strategies include changing the retirement process – identifying key people the organization can’t afford to lose and arranging for them to stay on part-time. The valuable wisdom must be passed on to the next generation.

We need to establish a system of identifying and mentoring leaders at an earlier stage of their careers and providing development opportunities for these individuals. Lateral job changes can keep staff motivated and committed to the organization and profession.

Goals and Objectives

1. To familiarize the audience with the challenges we will face as a profession in succession planning for the key leadership roles.
2. To evaluate strategies to enable our profession to overcome the succession planning challenges ahead.

Self-Assessment Questions

1. What succession planning strategies are in place at the organization in which you work? Are they similar to those discussed?
2. What is the demographic profile of your organization? How does it compare to the demographic profile at large?
3. What career development and mentoring programs are in place at your organization and what additional programs would you now introduce at your workplace?

Management of People with Diabetes – Beyond Glycemic Control

Scot H. Simpson, BSP, PharmD, MSc, Alliance for Canadian Health Outcomes Research in Diabetes (ACHORD) and Institute of Health Economics, Edmonton, AB

In December 2003, the Canadian Diabetes Association published their new guidelines for the prevention and management of diabetes in Canada. One of the major changes from the previous guidelines is advocacy for earlier and more aggressive management of hyperglycemia. Rather than waiting 8-16 months as recommended in the "stepped-care" approach of the 1998 guidelines, the new guidelines recommend individualized therapy to reach glycemic targets as close to normal as possible and as quickly as possible.

In addition, the 2003 guidelines recognize that vascular disease is the leading cause of death for people with diabetes. Therefore, the guidelines recommend that the first priority in prevention of diabetes complications should be reduction of cardiovascular risk through "vascular protection". This is a multifaceted management strategy involving ACE inhibitors, antiplatelet therapy, blood pressure control, lipid control, lifestyle modification, and smoking cessation; in addition to glycemic control. Recent studies have, however, demonstrated that only 10% of patients were at recommended treatment targets for glycated hemoglobin, blood pressure, and cholesterol. Of those above treatment thresholds, 14%, 28%, and 87% were not receiving therapy for hyperglycemia, hypertension, and hyperlipidemia, respectively. In addition, only 22% were taking aspirin.

The substantial gap between evidence-based treatment recommendations and current clinical practice presents an opportunity for pharmacists to play a key role in optimizing cardiovascular risk management in people with diabetes.

Goals and Objectives

1. To describe the disparities between current treatment recommendations and patterns of cardiovascular risk management in people with diabetes
2. To review the "A-B-C"s of diabetes management and highlight areas where pharmacists can play an active role.

Self-Assesment Questions

1. Individuals with diabetes are:
   a. At the same level of risk for myocardial infarct as someone with a history of MI
   b. More likely to require multiple drug therapy to treat hypertension than someone without diabetes
   c. More likely to have multiple cardiovascular risk factors than someone without diabetes
   d. All of the above
   e. None of the above
2. Which oral antidiabetic agent is associated with reduced cardiovascular events
   a. Glyburide
   b. Repaglinide
   c. Pioglitazone
   d. Metformin
   e. Acarbose
   f. None of them

Delivering Written Medication Information To Patients: How Can It Be Improved?

Elaine Lau, BScPhm, PharmD, Research Fellow, St. Joseph's Healthcare, Centre for Evaluation of Medicines

Providing patients with written therapeutic information is an essential part of pharmacist practice. The critical role that medication information can play in patient care is emphasized by research which shows that its provision can improve patient knowledge and satisfaction, improve adherence to medications, empower patients to take a more active role in decision-making and most importantly (although far from consistently) improve therapeutic outcomes. Patients may receive written information about medications from a number of sources including newspapers and magazines, promotional leaflets, and reference books intended for the lay reader; however, the most common source are information sheets given to patients by their healthcare providers. Pharmacists and other healthcare providers face uncertainty about what is the right content and format of information to provide to patients. A common perception is that too much information about medication side-effects might contribute to unnecessary anxiety, confusion, and non-adherence. Research shows that healthcare professionals do not always provide patients with the information they need to know or consider important. Most of the information sheets given to patients have been written according to a prespecified format, mainly from the perspective of healthcare professionals, the pharmaceutical industry, or academic centers. Many of these written materials contain conflicting, inaccurate, or non–evidence-based information that omit relevant data and fail to give a balanced view of the effectiveness of different treatments.

This session will review the evidence for what patients generally desire or consider important to have in written medication information. The effects of providing different content or formats of medication information on patient acceptance and outcomes will also be reviewed. A number of current initiatives to improve medication information will be outlined and practical examples of written medication information will be provided.

Goals and Objectives

1. To discuss what factors should be considered when developing written medication information to patients

2. To review the evidence for what types of medication information are most likely to meet patients' needs
3. To provide practical examples for how written medication information can be improved

Self-Assessment Questions

1. What type of information do patients consider most important to have included in medication information sheets?
2. How can written medication information be improved to help improve patient knowledge, adherence and decision-making?

Entry to Practice Doctor of Pharmacy Degree

Hindmarsh W[1], Whissell J[2], Woloschuk D[3 1], Leslie Dan, Faculty of Pharamcy, Toronto, ON[2], Capital Health Authority, Edmonton AB[3], Winnipeg Health Authority, Winnipeg, MB

With one Canadian Faculty of Pharmacy in the planning stages and another in the consultative stage for adopting the Doctor of Pharmacy degree as the entry to practice degree it is no longer if this change will occur but when it will occur. With the adoption of the PharmD as the entry to practice degree, it is important to determine what change this may cause in the organized health care setting and the profession of pharmacy. Will it change practice? How will it affect the hospital's role in training of undergraduate students and advanced training in pharmacists (residencies, fellowships)? What challenges with this change bring to the workplace? Panel participants (a representative from academia, a practicing pharmacist and a pharmacist involved in the advanced training of pharmacists) will provide their insights and start the discussion on this upcoming change.

Goals and Objectives

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

1. Explain the rationale for adopting the Doctor of Pharmacy degree as the entry to practice degree in Canada.
2. List the impact this change in degree will have on your practice.
3. List the challenges that this change in degree may cause.

Self-Assessment Questions

1. In ten years, when the first graduates enter practice, how will this affect your practice of pharmacy?
2. List your concerns that you have regarding this change in entry degree.

Monday, August 16 • Lundi le 16 août

New Treatment Strategies for Venous Thromboembolism

Carmine Stumpo BSc.Phm. Pharm.D., Toronto, Ontario

The treatment of venous thromboembolism currently includes the combination of unfractionated heparin or low-molecular-weight heparin in addition to warfarin. Limitations of this treatment strategy include the need of intravenous or subcutaneous dose administration and the need for regular monitoring of INR levels.

Newer products such as the direct thrombin inhibitors (ximelagatran) or the anti-factor Xa inhibitors (fondaparinux) have been developed to provide a more consistent efficacy and safety profile. Pharmacokinetic and pharmacodynamic properties include an immediate antithrombotic effect, with a fixed-dose response and availability in an oral dosage form. These agents, and similar agents under development, have been studied in clinical trials for the treatment and prevention of venous thromboembolism.

The newer antithrombotic agents have the potential to revolutionize the current treatment of venous thromboembolism. Treatment guidelines will evolve over time as more evidence accumulates and experience is gained with these agents.

Goals and Objectives

1. To review the pharmacokinetic and pharmacodynamic properties of new antithrombotic agents
2. To evaluate the evidence supporting the use of new antithrombotic agents and the potential impact on treatment guidelines.

Self-Assessment Questions

1. Compare and contrast the pharmacokinetic and pharmacodynamic properties of the newer antithrombotic agents to the current standards.
2. What are the potential clinical uses of the newer antithrombotic agents?

Pharmacy Human Resources – "Attracting Hummingbirds, When Everyone Else has a Feeder Too"

Kevin W. Hall, BScPhm, Pharm.D., Regional Director of Pharmacy, Winnipeg Regional Health Authority

This session will:

- Provide the audience with an overview of the work being done through the Pharmacy Sector Occupational Study. This study is a collaborative effort involving the major pharmacy stakeholders in Canada and the Canadian Government's Human Resources and Skills Development Department.
- Provide the audience with an update on the pharmacy manpower situation in Canada.
- Share with the audience, strategies that one health region has used to recruit and retain pharmacists.

Goals and Objectives

1. To assist the audience in understanding the objectives of the Pharmacy Sector Occupational Study, and how the Study will be conducted in order to achieve those objectives.
2. To provide the audience with an overview and evaluation of the recruitment and retention strategies that have been used by one health region over the last 5 years.

Self-Assessment Questions

1. What are the objectives of the Pharmacy Sector Occupational Study?
2. What strategies will the Study's Steering committee be pursing to achieve those objectives?
3. What are the top 2 or 3 strategies that have assisted the Winnipeg Regional Health Authority in overcoming what was previously a critical pharmacist manpower shortage?

Strategies For Patient Education: Trials and Tribulations In Heart Failure

Ross T. Tsuyuki, BSc(Pharm), PharmD, MSc, FCSHP. Professor of Medicine, Division of Cardiology, Faculty of Medicine and Dentistry, University of Alberta.

Virtually all pharmacists are at least somewhat involved in patient education. We do this so commonly, that we really don't even think about it. Yet, the evidence is accumulating which suggests that patient knowledge and self care is actually very poor. What is wrong with those patients... or is it us?

The purpose of this workshop is to demonstrate, using the example of heart failure, some of the things we have learned about patient education. Heart failure is a good example to use for the subject of patient education. First of all, heart failure is one of the most common reasons for hospitalization in Canada. Recent studies have shown that many of the reasons for frequent hospitalization of heart failure patients is due to poor knowledge of self care – i.e., poor medication concordance (compliance), dietary indiscretions (excessive sodium and water intake), and failure to monitor symptoms.

Here are some of the steps we took.

1. Decide what needs to be taught:
   a. review studies of clinically important self care activities
   b. review the literature – has someone else done it already?
   c. talk to patients (focus groups) – what do they want to know? what are the issues?
   d. talk to experts – what do they feel should be taught
2. How should you deliver this material?
   a. simplify the message!
   b. talk to experts who deal with these patients – what works?
   c. talk to patients – how would they like to receive the educational materials
   d. consult with an educational designer
   e. talk to a graphic designer
3. Test your materials

Goals and Objectives

1. To outline a process for the systematic development of high quality patient education materials and approaches.
2. To show some examples of patient education for patients with heart failure used in the Review of Education on ACE inhibitors in Congestive heart failure Treatment (REACT) Study, and the Congestive heart failure Outreach Program of Education (COPE) Study.

Self-Assessment Questions

1. The leading cause of heart failure hospitalization is:
   a. uncontrolled hypertension
   b. coronary ischemia
   c. poor patient self care
   d. upper respiratory tract infections
2. Patient education programs should incorporate:
   a. patient opinions on educational needs
   b. expert opinions on educational needs
   c. literature review
   d. as little material as possible
   e. (a), (b), and (c)
   f. (a), (b), (c) and (d)

Answers: 1 (c); 2 (f)

Learning to be a Better Preceptor –The Art and the Evidence

Don Hamilton, BSc, Children's and Women's Health Center of B.C., Vancouver BC

The goal of this workshop is to share information on effective teaching in the clinical setting by examining theory and principles of preceptoring and sharing experiences of attendees.

Pharmacy students and residents require training in the practice setting to learn the skills and responsibilities of a pharmacy practitioner. Preceptors in clinical settings are teaching the students by example and leave an important "first impression" of the role of the pharmacist.

Preceptoring is an important responsibility of all professionals in passing along the culture of the professional to individuals preparing to assume the role. While all professionals have experienced this during their training and are expected to participate, there is very little literature comparing the effectiveness of different strategies involved in preceptoring and the application of adult learning principles.

Factors influencing the effectiveness of preceptors will be examined through an examination of components of preceptoring, identification of barriers to preceptoring, and participation of attendees in sharing valuable experiences. This session will provide a forum for beginning preceptors to prepare for the role and an opportunity for experienced preceptors to share their approaches.

Goals and Objectives

1. To provide a review of the components of preceptoring incorporating literature and experiential information.
2. To provide pharmacy preceptors with skills and strategies to increase their effectiveness when precepting.
3. To identify common challenges to preceptoring and explore solutions to these challenges.

Self Assessment Questions

1. What are important components of effective preceptoring in a clinical setting?
2. List 5 barriers to effective preceptoring and strategies to overcome these?
3. How do personality styles increase or decrease the learning during preceptoring?
4. How can preceptoring students be made more enjoyable for the preceptor?

Intravascular Catheter-Related Infections—Getting A Line On Management

Rosemary Zvonar, B.Sc.Phm. The Ottawa Hospital, Ottawa Ontario

Vascular access devices include peripheral venous catheters, central venous catheters (CVCs), peripherally inserted central catheters (PICC lines), hemodialysis catheters, and surgically implanted CVCs such as tunneled and implanted devices (e.g., Hickman catheters, Portacaths). Infectious complications, including local infections and catheter-associated bloodstream infections, are more common with CVCs. Pharmacists working in areas where these lines are commonly used may encounter these infections in their practice.

The skin and the catheter hub are the main sources of colonization of the catheter. A resultant catheter-related bloodstream infection is suspected when a patient has an organism identified in the blood, signs of infection, and no other obvious source for the bacteremia. Confirmation requires removal of the catheter and a culture of the same organism with the same antibiogram from the catheter tip. Gram-positive, gram-negative and fungal organisms are all known to cause line infections. Although coagulase-negative staphylococci are the most common pathogens in line infections, they are the most benign and easiest to treat. Line infections due to Staphylococcus aureus and fungi such as Candida species are more likely to be complicated, requiring more investigations and longer treatment courses. Removal of the involved line(s) is preferred, but not always possible. Antibiotic lock therapy and prevention, including antimicrobial-impregnated catheters, are also discussed.

Goals and Objectives

1. To provide an understanding of the pathogenesis and diagnosis of infections related to intravascular catheters.
2. To familiarize pharmacists with the most common organisms causing line infections.
3. To describe the recommended approach to the management of line infections

Self-Assessment Questions:

1. Describe a treatment plan for a catheter-related bloodstream infection due to E. coli.
2. List two clinical clues that may indicate a more complicated line infection involving Staph. aureus.
3. In which circumstances might you consider using antibiotic lock therapy?

Antimicrobial Pharmacodynamics: Applications That Make A Difference!

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

The main goal of this session is to demonstrate the use of antimicrobial pharmacodynamics (PDs) to predict patient outcomes in clinical practice.

The past decade has seen significant advances in the area of antimicrobial PDs. Today, PD investigations form the basis of drug dosing, and are essential in the research and development of antimicrobials. Traditional antimicrobial PDs focused on the therapeutic drug monitoring of aminoglycosides and vancomycin. More recent PD interests shifted to the "respiratory" quinolones. The competitive marketing of these agents was accompanied by extensive study and promotion of antimicrobial PDs detailing associations between quinolone concentration, S.pneumoniae MIC and treatment response. Although this focus contributed significantly to the understanding of antimicrobial PDs, it presented rather limited opportunity for direct application to patient care.

Goals and Objectives

1. To introduce novel applications of antimicrobial PDs
2. To demonstrate the use of antimicrobial PDs to predict patient outcomes in clinical practice using examples in:
   - pseudomonal infection
   - febrile neutropenia
   - surgical infection
   - peritoneal dialysis-related peritonitis
3. To review the research and appropriate interpretation of antimicrobial PD studies

Self-Assessment Questions

1. What are the influences of drug, pathogen, and patient factors on antimicrobial PDs?
2. How may antimicrobial PDs be used to predict patient outcome?
3. Which patient populations may benefit from interventions to optimize antimicrobial PDs?

Medication Errors: Learning from Our Mistakes

Steve Long, BSc (Pharm), MBA, Director, Pharmacy Services, Calgary Health Region, Calgary, Alberta

In April 2004, a patient of the Calgary Health Region (CHR) died as a result of hyperkalemia, while undergoing continuous dialysis. The unusual rapid rise in serum potassium, led the patient's physician to suspect the dialysis solution as a possible source. Through sampling the dialysis solution was found to contain 55 mmol/L KCl when KCl should not have been present. A review of compounding worksheets confirmed an error had been made by pharmacy staff in the preparation of the solution. Further investigation led to the conclusion that the error in preparation and use of the solution had contributed to this and one other death.

The incident will be reviewed utilizing a framework adapted from the CSHP background paper "Impact of Hospital Pharmacists on Patient Safety". Prior to this incident, Pharmacy Services in CHR had evolved with consideration of many of the principles outlined in the paper. Even with attention to these principles, this tragic event is evidence that well designed processes may fail as a result of human error. The event and subsequent reviews have led to a number of changes in culture, process and facilities that should reduce future risk of error. Many of the changes implemented are applicable to pharmacy services within other systems.

In addition, the presentation will explore the reaction of various groups that occurred as a result of the public disclosure and admission by the Region that the error had contributed to two deaths. An accountability framework that emphasizes disclosure and process improvement over blame will be presented.

Goals and Objectives

Following this presentation, you will be able to:

1. Describe the impact of pharmacy services on patient safety
2. Outline process changes that can be made to reduce the risk of medication errors
3. Describe events and reactions that can result from public disclosure of a fatal medication error

Self-Assessment Questions

1. How have I adapted my practice to support patient safety?
2. What opportunities exist to advance patient safety within my department or organization?

Tuesday, August 17 • Mardi le 17 août

Role of The Pharmacist In Advanced Cardiac Life Support (ACLS)

McNaught, A., BScPhm, ACPR, PharmD., Department of Pharmacy, David Thompson Health Region (DTHR), 3942 50A Ave., Red Deer AB T4N 4E7

Introduction: Pharmacists are the drug knowledge experts in health care, with a high level of skills in medications, dosing and calculations, drug-disease relationships. These skills can be applied to cardiac arrest activities, as literature shows that mortality of hospitalized patients is reduced in association to pharmacist participation on CPR teams.

Methodology: A survey was conducted of Canadian acute care hospital pharmacy departments of the pharmacist's participation in ACLS activities and results, along with on site experience, will be provided and discussed.

Results: This presentation shares experiences with gaining approval from administration for pharmacists to participate in "codes". Available certification programs and requirements will be discussed. Advantages, disadvantages, barriers and successes of pharmacist participation in codes will be discussed. The various pharmacist roles pertaining to hospital ACLS activities will be described.

Conclusions: Pharmacist participation in ACLS activities is an underutilized opportunity for clinical practice in Canadian hospitals. All pharmacists should maintain BCLS certification and hospital pharmacists should maintain ACLS certification to assist in CPR activities.

Goals and Objectives

1. Describe the various roles of the pharmacist in hospital ACLS activities.
2. Describe advantages and disadvantages to pharmacist participation in ACLS
3. Describe requirements to prepare a site for providing pharmacist support to the ACLS team.

Self-Assessment Questions

1. Why should pharmacists participate in ACLS activities in the hospital setting?
2. In which activities can the pharmacist become involved, to support ACLS in the hospital setting?

Recent Clinical Trials: Practicing What We Preach

Valerie Fong, BScPhm, Lethbridge Regional Hospital, Lethbridge, AB, Mary Pederson, BScPhm, Chinook Health Region, Lethbridge, AB

As pharmacists we promote best evidence to guide our practice, but effecting change may not always be possible in the day to day practice environment. This presentation is an overview of Chinook Health Region's experience in influencing change in practice trends with respect to 3 clinical trials.

- Women's Health Initiative (WHI).
- Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT).
- Clopidogrel versus Aspirin in Patients at Risk of Ischemic Events (CAPRIE).

We attempted to evaluate whether a change in practice occurred by using pre and post drug utilization data for the medications studied in the trials. For each trial we attempted to identify factors that influenced acceptance of practice change and extent of change.

Chinook Health Region is comprised of a central 276 bed acute-care community hospital with 10 smaller affiliated acute care/continuing care facilities. The Region services approximately 150,000 residents.

Goals and Objectives

- Identify barriers that prevented the successful application of clinical trial data to practice.
- Determine the influence of the pharmacists/pharmacy program in effecting practice change.
- Review the impact of clinical trials on practice in a Health Region that does not have a major tertiary-care teaching hospital.

Self-Assessment Questions

- Do we implement practice change based on clinical trial data alone, or are there other factors that influence the change?
- What barriers prevent us from applying clinical trial information to our practice?

Late Breaking Clinical Trials In Cardiology & Cardiovascular Medicine

Wendy A. Leong (BScPhm, PharmD, BCPS, MBA), Burnaby Research & UBC, Vancouver, BC (wendy@leong.com)

The goal of this presentation is to briefly highlight some of the Late Breaking Clinical Trials that were presented at the American College of Cardiology Conference in March 2004. The focus will be upon cardiac and cardiovascular drug studies.

Thumb nail sketches (mostly unpublished) will be presented (as time permits), as follows:

1. Drug-eluting stent studies: SESMART, DIRECT
2. Acute MI, ACS: EMERALD, AMIHOT, On-TIME, MCC-135, CAPITAL-AMI, SYNERGY
3. CHF: SCD-HeFT PI, WATCH
4. Cardiac prevention: STRATUS, RIO-LIPIDS, PERSUADE

Goals and Objectives

1. To highlight the key Late Breaking Clinical Trials (LBCT) that were presented at the March 2004 American College of Cardiology Conference
2. To discuss the impact of each LBCT on daily practice

Self-Assessment Questions

1. What are the advantages of sirolimus eluting stents?
2. Describe the mechanisms of action of caldaret and rimonabant
3. What is the therapeutic INR range for CHF?

Dyslipidemia: New Guidelines, New Data, New Drugs

Wm. Semchuk, M.Sc., Pharm.D., FCSHP, Manager, Clinical Pharmacy Services, Regina Qu'Appelle Health Region

The value of lowering cholesterol in at risk populations has been known for some time. With the publication of the 4S study in the early 1990s, the era of aggressive management of dyslipidemia began. Since that time, two Canadian practice guidelines for the management of dyslipidemia have been published with the most recent published in the last quarter of 2003. The recent guidelines recommend aggressive risk factor stratification and aggressive management of patients.

Over the recent past, a number of new agents have come onto the market including a new statin and a new class of agents. Ezetimibe the first of this new class has demonstrated to be a significant addition to the armamentarium of cholesterol lowering agents. As well, information on how to better use older drugs such as niacin has become available.

Since the publication of the 2003 Working Group Guidelines for the Management of Dyslipidemia, a number of new trials including REVERSAL, PROVE-IT, EASE, ALLIANCE and CARDS have demonstrated the importance of even more aggressive cholesterol management than previously suggested. As well, a priori data demonstrating efficacy of cholesterol lowering in diverse populations has emerged.

Significant treatment gap and adherence issues continue to exist in the area of dyslipidemia management. Data supporting the efficacy of pharmacist intervention has emerged as well in the recent past. This presentation will review the new guidelines, new trials and the role of the pharmacist in the management of patients with dyslipidemia.

Goals and Objectives

At the end of this session, the attendee will be able to:

1. discuss the new Canadian Lipid Guidelines including treatment goals and therapeutic options
2. differentiate new clinical trials that impact treatment regimens
3. discuss when to use the various therapeutic agents available
4. describe opportunites for pharmacists in caring for paitents with dyslipidemias

Self-Assessment Questions

1. A patient with diabetes is at what risk for vascular disease:
   a. low
   b. moderate
   c. high

Which agent is the best able to elevate HDL-C?

   a. niacin
   b. atorvastatin
   c. ezetimibe
   d. gemfibrozil

2. Effective combination therapies for patients with mainly an elevated LDL-C include:
   a. simvastatin and ezetimibe
   b. niacin and gemfibrozil
   c. cholestyramine and lovastatin
   d. gemfibrozil and ezetimibe
   e. a and c
   f. b and d

Clinical Research In Action

Tammy J Bungard, BSP, PharmD, Christine Hughes, PharmD, Cheryl Weins, PharmD. University of Alberta, Edmonton AB

Clinical Research is described as: " a pharmacy-trained specialist who independently derives new knowledge through observation, study and experimentation that is focused on drug therapy outcomes in patients and the factors and mechanism determining those outcomes. A

key distinction remains his knowledge of clinical pharmacy, and his background in pathophysiology, pharmacotherapy and direct experience with patient care" A variety of types of research falls into this broad definition; practice-based research, qualitative research, pharmacokinetic trials to name a few. The three presentations that make up this session represent a variety of different methods to obtain new information. One project, using a randomized controlled methodology, will determine the adequacy of anticoagulation and patient satisfaction between community-based, pharmacist-managed anticoagulation clinics and usual care. Another project, will use qualitative analysis to examine the patient population cared for in a geriatric rehab unit to access changes in this population over time and to identify gaps in knowledge. The final project will examine the emergence of diabetes in an HIV population. Each of the presenters will highlight how research is in an important part of practice.

Goals and Objectives

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

1. Describe how pharmacists can formulate research topics.
2. List three different methods of exploring pharmacy practice.
3. Explain why research is an important component of pharmacy practice

Self-Assessment Questions

1. Describe one method of conducting research in a topic related to pharmacy practice
2. List one idea of a research topic in your area of practice
3. Explain the benefits of conducting research in your practice

Patient Safety – A Case For Seamless Care

Judy L. Schoen, B.Sc(Pharm), MBA, Calgary Health Region, Calgary, AB

A significant focus of health care practitioners and health care organizations in recent years has been patient safety. Since the Institute of Medicine's report, To Err Is Human, and the subsequent publication, Crossing the Quality Chasm, the subject of medical errors has gained considerable attention. The recent release of the Norton and Baker study will surely generate more discussion and action in health care organizations across Canada. More organizations are moving towards a culture of safety where errors can be brought forward in a safe nonpunitive environment with the vision of preventing future events. This shift will support the creation of safe medication systems for all patients entrusted in our care.

ISMP has stated that linking seamless care practice to safe medication practice is imperative in the shift from institutional care to more ambulatory care. It is critical that the focus extends bidirectionally as patients move back and forth between different care settings.

A 19% incidence of adverse events within two weeks of discharge has been reported in the literature. A significant portion of these events was related medications and deemed to be preventable or ameliorable. Contributing factors are at a patient and a system level. The literature clearly demonstrates that a portion certain populations, most notably the elderly, tend not to follow prescribed therapies for a multitude of reasons. The health care system has not necessarily supported patients as they move between care systems. There are often gaps in care plans and goals of therapy. Not only are patients at risk of ADE's as they move from hospital into community. It has been demonstrated that patients are also at risk when coming into the hospital from community and also when moving between acute care and long-term care settings. Chronic medications may not be ordered or ordered incorrectly when patients are admitted to hospital. Medications are often inadvertently discontinued of changed as patients move between care settings.

This presentation will focus on the connection between patient safety and seamless care.

Goals and Objectives

1. To provide pharmacists with an understanding of how gaps along the continuum of care can contribute to adverse drug events and drug related morbidity.
2. To provide pharmacists with an understanding of how seamless care can enhance patient safety.
3. To provide an update of current projects and studies in the area of seamless care.

Self-Assessment Questions

1. Describe the risks and costs associated with a discontinuous health care system in terms of adverse drug events or preventable drug related morbidity.
2. What is the relationship between seamless care and preventable drug related morbidity?
3. Describe some mechanisms to enhance the provision of seamless pharmaceutical care as patients move between care settings.

Sunday, August 15
Dimanche le 15 août

12:00-14:00 – Sask/BC/AB/Yukon Rooms (Exhibit Hall)

1. Comparison of Dysglycemic Reactions in Gatifloxacin and Levofloxacin-Treated Patients, Brenadette Chevalier, Heather Lummis, Kathryn Slayter and B. Lynn Johnston, Capital District Health Authority, Halifax, NS
2. An Evaluation of the Management of Asymptomatic Catheter-Associated Bacteriuria and Candiduria at the Ottawa Hospital, Rosemary Zvonar, Dawn M. Dale and Peter G. Jessamine, The Ottawa Hospital, Ottawa, ON
3. Duration of Protease Inhibitor Therapy Associated with New-Onset Diabetes Mellitus, Christine Hughes, University of Alberta/Capital Health Region, Edmonton, AB Richard Cashin, Saskatoon Health Region, Saskatoon, SK and Dean T. Eurich, Institute of Health Economic/University of Alberta, Edmonton, AB
4. Pharmacists Survey to Identify and Address Staff Retention Issues, Michael Tierney, Celine Corman and Mario Bédard, The Ottawa Hospital, Ottawa, ON
5. Acquisition of Personal Digital Assistants for Pharmacists, L. Poloway, R. Abell, I. Creurer, G. Kretzer and A. McNaught, David Thompson Health Region, Red Deer, AB
6. Comparison of Sirolimus Levels in Renal Transplant Recipients Following a Switch from Liquid to Solid Dosage Form, Gisele Scott-Woo, Foothills Medical Centre, Calgary, AB
7. The Role of the Pharmacist in an Ambulatory Renal Health Clinic, Colette Raymond and Jennifer Dyck, Winnipeg Regional Health Authority, Winnipeg, MB
8. Gefitinib for Advanced or Metastatic Non-Small Cell Lung Cancer, Christine Perras and Beck Skidmore, Canadian Coordinating Office for Health Technology Assessment, Ottawa, ON

COMPARISON OF DYSGLYCEMIC REACTIONS IN GATIFLOXACIN AND LEVOFLOXACIN-TREATED PATIENTS

Bernadette Chevalier[1], BScPhm, Heather Lummis[1], BScPhm, Kathryn Slayter[1,2], BScPhm, Pharm D, B. Lynn Johnston[2], MD FRCPC

[1]Pharmacy Department, Capital District Health Authority, Halifax, Nova Scotia

[2]Department of Medicine, Division of Infectious Diseases, Dalhousie University, Halifax, Nova Scotia

Rationale: Gatifloxacin is approved for use in the Community Acquired Pneumonia (CAP) at this institution. Adverse drug reaction reports of hyper- and hypoglycemia have been reported with gatifloxacin, but not with levofloxacin in this institution. A case-control study comparing levofloxacin and gatifloxacin dysglycemic adverse events will provide better data upon which to base CAP management decisions.

Objectives: To determine the rates of any dysglycemic reaction, severe dysglycemic reactions (hyperglycemia ⇢ 15 mmol/L and/or hypoglycemia ⇠ 3 mmol/L), and reactions that required treatment for gatifloxacin (G) and levofloxacin (L)-treated patients.

To determine if gatifloxacin differed from levofloxacin, in the odds of patients experiencing severe dysglycemic reactions while adjusting for age, diabetes, renal function, correct dose, and steroid use.

Methods: A total of 66 charts of patients who received levofloxacin or gatifloxacin were retrospectively reviewed. Multivariable logistic regression analysis was applied to determine differences in terms of dysglycemic reactions, controlling for other risk factors.

Results: There were similar rates ($p \rightarrow 0.05$) of dysglycemic reactions (61% G, 63% L). Of these, severe reactions (67% G, 65% L) and treated reactions (63% G, 59% L) had comparable rates. The odds of experiencing any glycemic reaction were no different for gatifloxacin compared to levofloxacin. Predictors of experiencing a reaction include diabetes ($p \leftarrow 0.0001$) and steroid use ($p=0.057$).

Conclusions: The analysis does not provide evidence that gatifloxacin produces more glycemic reactions than levofloxacin in this population. A larger sample size to provide more useful data is currently being studied.

AN EVALUATION OF THE MANAGEMENT OF ASYMPTOMATIC CATHETER-ASSOCIATED BACTERIURIA AND CANDIDURIA AT THE OTTAWA HOSPITAL

Rosemary K. Zvonar, B.Sc.Phm, Dawn M. Dalen, B.S.P., Peter G. Jessamine, Hons BSc, MD, FRCPC , The Ottawa Hospital, Ottawa, Ontario

Background: Asymptomatic catheter-associated urinary tract infections (CAUTIs) are common in hospitalized patients. They are associated with a low incidence of sequelae, and in most patients resolve spontaneously upon catheter removal. Consequently, it is not recommended that asymptomatic catheter-associated bacteriuria or candiduria be treated with antimicrobials while the catheter remains in place because it may lead to the evolution of resistant flora.

Objective: The primary objective of this study was to assess the current management of patients with CAUTIs with respect to antimicrobial therapy at The Ottawa Hospital.

Methods: A prospective observational study over a period of 26 consecutive days was conducted at The Ottawa Hospital and The University of Ottawa Heart Institute. Inpatients with an indwelling catheter, a positive urine culture and the absence of urinary tract infection signs or symptoms were assessed. Patients were followed for 5 days to determine whether antimicrobials were prescribed.

Results: From March 3 to 28, 2003, 29 of 119 patients screened met inclusion criteria. Of these 29, 15 (52 percent) patients were prescribed antimicrobials, and therefore considered inappropriately managed. There were significant differences found between the appropriate and inappropriate treatment groups in terms of duration of stay to positive urine culture and whether yeast or bacteria were isolated from the culture.

Conclusion: Antimicrobials were prescribed in over 50% of CAUTIs, contrary to literature recommendations. This translates to approximately 200 patients a year receiving unnecessary antimicrobial therapy. Education is required to decrease the potential adverse effects, risk of resistance and costs associated with this practice.

DURATION OF PROTEASE INHIBITOR THERAPY ASSOCIATED WITH NEW-ONSET DIABETES MELLITUS

Christine A. Hughes, B.Sc.Pharm, PharmD[1,2], Richard Cashin B.Sc.Pharm[3], Dean T. Eurich BSP, MSc[4,5]

[1]Faculty of Pharmacy & Pharmaceutical Sciences, University of Alberta, Edmonton, AB
[2]Capital Health Region, Edmonton, AB
[3]Saskatoon Health Region, Saskatoon, SK
[4] Institute of Health Economics, Edmonton, AB
[5] Department of Public Health Sciences, University of Alberta, Edmonton, AB

Background: Metabolic complications including diabetes mellitus (DM) have been associated with protease inhibitor (PI) therapy. Risk factors for the development of DM are not well defined.

Objectives: To determine risk factors for the development of new-onset DM in subjects receiving PI therapy.

Methods: We conducted a retrospective cohort study to identify predictors of developing DM in subjects who received PI therapy between January 1997-2003. Diabetes cases were defined as a physician diagnosis, and/or subject receiving an antidiabetic agent. Logistic regression was used to examine the relationship between new-onset DM and demographic factors, specific PI agents, and total treatment days with PI therapy.

Results: A total of 496 subjects were included in the study, of which 18 (3.6%) developed DM. In the multivariate model, older subjects were more likely to develop DM (OR 1.09, 95% CI 1.03 - 1.15, p=0.002). This corresponds to a 9.6% increased risk of DM for each 1-year increase in age. Subjects that were heavier had an increased risk (OR 1.06, 95% CI 1.03 -1.09), as did those belonging to a non-Aboriginal minority group compared to Caucasians (OR 6.30, 95% CI 1.77 - 22.33, p=0.004). Longer duration of PI therapy was significantly associated with developing DM (OR 1.45, 95% CI 1.09 – 1.94, p=0.012). There was no significant difference among the individual PIs.

Conclusion: Duration of PI therapy is associated with an increased risk of developing DM. As in HIV-negative subjects, demographic characteristics such as age, weight, and race were important predictors of developing DM in our study.

PHARMACIST SURVEY TO IDENTIFY AND ADDRESS STAFF RETENTION ISSUES.

Michael Tierney BscPhm., MSc.; Celine Corman BSP, MSc.; Mario Bédard B. Pharm., PharmD. The Ottawa Hospital, Ottawa, ON.

The shortage of pharmacists has created challenges for hospital pharmacy to recruit and retain pharmacists. Between June 2002 and September 2003, we lost 20 full-time pharmacists from our staff. The reasons included education (6), personal reasons (4), move to community practice (4), combined personal/professional reasons (4) and transfer to part-time status (2). We developed and conducted a survey to assess factors important in the retention of pharmacists.

Based on a review of the literature, consultation with other hospital pharmacy departments and input from staff, a survey was developed that assessed 25 criteria felt to be important to staff retention. The survey asked pharmacists to rate the importance of each factor (1-5 scale) and their level of agreement with a statement regarding individual satisfaction with each criteria using a five point scale. The survey was e-mailed to all non-management pharmacists in the department.

Responses were received from 41 (63%) of pharmacists, representative of all areas of the department. The importance of criteria related to retention was assessed by factoring both the importance of the criteria to retention and the degree of satisfaction with each criteria. Of the 25 criteria assessed, the 5 most important in decreasing order of importance were: salary and benefits, time for projects, informal feedback from supervisors, performance appraisals and administrative support for presentations/projects. Survey results are being reviewed and evaluated by our Clinical Affairs Committee and Council of Pharmacists and recommendations will be forwarded to pharmacy management for action.

A formalized staff survey can be a valuable tool in identifying and addressing issues important to the retention of hospital pharmacists.

ACQUISITION OF PERSONAL DIGITAL ASSISTANTS FOR PHARMACISTS

Poloway L BScPhm, Abell R BScPhm, Creurer I BSP, Kretzer G BScPhm, McNaught A BScPhm, PharmD., Department of Pharmacy, David Thompson Health Region, Red Deer AB

Rationale: Pharmacists are the drug knowledge experts in health care. Provision of drug information (DI) must be precise and expedient, regardless of the location of practice.

Personal Digital Assistants (PDAs) have become an essential tool for storage and retrieval of information.

Methods: Core DI resources were determined for 14 sites in the David Thompson Health Region and a gap analysis was conducted. Costs were analyzed for PDA vs. hard copy resources. PDAs were identified as an efficient, accurate cost-effective source of DI. A survey of Canadian directors of pharmacy was conducted to determine current implementation and related issues for PDAs. A business case was developed and presented

to senior administration. Information Management and Technology was consulted for approval and to resolve computer issues.

Resolution: 10/13 survey responders used PDAs; however only 7/13 received funding. Further details will be presented.

Approval for PDAs with LexiComplete® software was granted for 50 pharmacists in the DTHR. Operating funds and external donations were used to purchase hardware and software.

Importance: PDAs contribute to pharmacists fulfilling their mandate of improving patient's quality of life. Rural pharmacists, with otherwise little support or budget for such tools, have benefitted from regionalization of DI resource provision. Expanding the use of PDAs beyond DI is the next phase for optimizing the use of these tools in pharmacy practice.

COMPARISON OF SIROLIMUS LEVELS IN RENAL TRANSPLANT RECIPIENTS FOLLOWING A SWITCH FROM LIQUID TO SOLID DOSAGE FORM

Gisele Scott-Woo B.Sc. (Pharm) MSc Ph.D., Foothills Medical Centre, Calgary, AB

Sirolimus is an immunosuppressive agent that inhibits T lymphocyte activation and proliferation and is used to prevent rejection in renal transplant recipients. It was originally formulated as an oil based liquid but a tablet formulation has been now introduced. The tablet is 27% more bioavailable than the liquid formulation. The product monograph states that this difference is not considered clinically significant at doses less than 2mg. Given the inherent difficulties in using the liquid formulation and the difference in bioequivalence, changes to patients drug exposure were monitored upon switching to tablets.

Average sirolimus trough levels were determined in 38 patients taking the oral solution prior to switching to the tablet formulation. Sirolimus trough levels were measured following the switch and doses were adjusted to keep patients trough levels stable to avoid unnecessary side effects. Of the 38 patients followed, 15 patients (39%) required a dose decrease to return to their pre-switch level. In these patients, the average trough levels increased by 60% and required an average dose decrease of 27%. Those patients requiring a dose decrease had an average dose of 5.13 mg as compared to the average dose of 3.05 mg for those not requiring a dose adjustment. The 2 groups were also analyzed for differences in biochemical, demographic and concomitant immunosuppressive agents.

Caution should be exercised when switching patients from sirolimus oral solution to tablets, especially those on higher doses.

THE ROLE OF THE PHARMACIST IN AN AMBULATORY RENAL HEALTH CLINIC.

C. Raymond, J. Dyck, Winnipeg Regional Health Authority, Winnipeg, MB

The renal health clinic at Health Sciences Centre follows approximately 1500 patients with chronic kidney disease (CKD) that see nephrologists, but are not on dialysis. Patients with CKD take many medications, and poor adherence has been documented in this population. In the ambulatory setting, many studies document a pharmacist's impact on patient outcomes; however no literature describes such a role in a CKD clinic. This quality control initiative sought to assess a pharmacist's impact at a renal health clinic.

Over an evaluation period from May 2003-4 the pharmacist screened and chose patients to interview based on published criteria and referral by clinic staff. The pharmacist performed medication histories and reviews and documented information and recommendations in the health record. For each recommendation, the pharmacist recorded perceived significance (neutral, significant, very significant, lifesaving) and expected outcome (cost avoidance, prevent adverse reaction, enhance treatment efficacy, information).

The pharmacist saw 463 patients during 627 patient interactions. Of these, 505 patients had a medication review for a follow-up visit, and 122 patients had detailed medication histories for their first clinic visit. The pharmacist documented 514 recommendations. Most common recommendations included: seamless care (26%), medication teaching (17%), dose adjustment (15%) and medication initiation (25%). Most interventions (73%) were evaluated to have clinical significance and many (50%) were expected to enhance treatment efficacy.

The pharmacist has an important role to play in the identification, resolution, and prevention of drug related problems in a CKD population.

GEFITINIB FOR ADVANCED OR METASTATIC NON-SMALL CELL LUNG CANCER

Christine Perras BScPhm, MPH, Becky Skidmore, MLIS Canadian Coordinating Office for Health Technology Assessment, Ottawa, ON

Rationale: Approximately 18,000 Canadians were diagnosed with non-small cell lung cancer (NSCLC) in 2003. Gefitinib is an oral agent indicated as third-line NSCLC treatment after failure to platinum-based doublets and docetaxel. It was approved with conditions in December 2003.

Objectives: To review the existing literature about gefitinib with a view to inform decision-makers on the evidence and issues regarding its use.

Methods: Published literature was identified by searching PubMed, Cochrane and several DIALOG databases. We searched clinical trial registries, web sites of health technology assessment, bibliographies of selected papers, and used Google™ to identify other web-based materials. Appropriate experts and the manufacturer were contacted.

Results: Four trials were identified. Two randomized, uncontrolled, double-blind phase II trials reported objective tumour response rates of 9-18% in patients with stage IV NSCLC when gefitinib was used as second or third-line monotherapy. Median overall survival ranged from 6 to 8 months. Two randomized, placebo-controlled phase III trials showed no statistically significant differences in median overall survival when gefitinib was used as add-on therapy to first line treatment. It has not been compared to best supportive care.

Conclusion: Gefitinib has been given a conditional approval for use as third-line therapy based on phase II trials despite unproven benefits compared to best supportive care. It does not improve survival when used in combination with standard chemotherapy.

Monday, August 16
Lundi le 16 août

12:30-14:30 – Sask/BC/AB/Yukon Rooms (Exhibit Hall)

1. Pre-Testing of Pictograms used in Medicines Dispensed in Missions of Humanitarian Relief, L Col Régis Vaillancourt, Canadian Armed Forces, Ottawa, ON Kath Ryan and Gordon Becket, University of Otago, NZ
2. The Effects of Medication Use on the Risk of Accident Among Members of the Canadian Forces, L Col Régis Vaillancourt, and Janice Ma, Canadian Forces Health Services, Ottawa, ON, J. Sampalis Medical Research Inc., Montréal, QC, Ineke Neutel, Sisters of Charity (Ottawa) Health Services, Ottawa, ON
3. Drug Utilization in the Canadian Armed Forces, L Col Régis Vaillancourt, Eden d'Entremont, Alan Gervais and Maj. Dave Cecillon, Canadian Forces Health Services, Ottawa, ON
4. Symptom Resolution of Common Ailments Treated Over-the-Counter Medications Provided Directly by Community Pharmacists, L Col Régis Vaillancout, Michel Trottier, Janice Ma and Alan Gervais, Canadian Forces Health Services, Ottawa, ON, Rosemin Kassam, University of British Columbia, Vancouver, BC
5. Pictographic Instructions for Medications: Do Other Cultures Interpret them Accurately?, L Col Régis Vaillancourt, Canadian Forces Health Services, Ottawa, ON, Rosemin Kassam, University of British Columbia, Vancouver, BC
6. Self Regulation of Alberta Pharmacy Technicians Under the Health Professions Act, Andy Little, University of Alberta Hospital, Edmonton, AB, Angela Matthews, Academy of Learning, High River, AB, Heidi Schultz, Cross Cancer Institute, Edmonton, AB
7. Implementation and Evaluation of a Warfarin Dosing Nomogram for Venous Thromboembolism (VTE) Prophylaxis after Elective Total Hip or Total Knee Replacement. (H&K), Ramona Sidhu and Alison McNaught, David Thompson Health Region, Red Deer, AB
8. Management of Hyperglycemia Using an Insulin Protocol in Adult Intensive Care Unit Patients, Alexander Kuo and Paula Newman, Kingston General Hospital, Kingston, ON

PRE-TESTING OF PICTOGRAMS USED IN MEDICINES DISPENSED IN MISSIONS OF HUMANITARIAN RELIEF

LCol Régis Vaillancourt, BPharm, Pharm D; Directorate of Medical Policy, Pharmacy Policies and Standards, Canadian Forces Health Services, Ottawa, ON, Kath Ryan PhD; Gordon Becket PharmD, Sulakshi de Silva, School of Pharmacy, University of Otago, New Zealand

Rationale: The Canadian Forces Disaster Assistance Response Team (DART) provides health services during humanitarian relief missions. The recipients of health care during these deployments often do not speak English, French, or Spanish; many are also illiterate. This presents serious problems for communicating medication use.

Objectives: To assess the effectiveness and comprehensibility of medication label pictograms among non-English speaking people. To determine the cultural appropriateness of the images used in such pictograms.

Study Design: For each of three different ethnic populations, a focus group was convened. Each focus group consisted of 6-8 participants with a diverse range of education, literacy, and occupations. Discussion was facilitated by and interpreter, and individual interviews were used to determine responses to each pictogram.

Results: Some pictograms were understood by all ethnic groups. Other must be redesigned either to address cultural values or allow greater comprehension.

Importance: The findings will help to create pictograms, which are suitable for general use in non-English populations. These universal pictograms will help to enhance the provision of health care during humanitarian missions.

THE EFFECTS OF MEDICATION USE ON THE RISK OF ACCIDENTS AMONG MEMBERS OF THE CANADIAN FORCES

Régis Vaillancourt, BPharm, PharmD. Janice Ma, BScPhm, PharmD. Directorate of Medical Policy, Pharmacy Policy and Standards, Canadian Forces Health Services. Ottawa, ON; J.Sampalis, MSc, PhD; JSS Medical Research Inc., Montréal, QC; C. Ineke Neutel, PhD. Sisters of Charity (Ottawa) Health Services, Ottawa, ON.

Rationale: Most epidemiological studies which evaluate the impact of medications on risk of accidents have focused on elderly patients and benzodiazepines. This study has been performed to assess accident risk and medication use among a population of younger adults.

Objectives: To determine if specific classes of medication are more likely to be consumed during the two weeks prior to an accident in a general adult population.

Methods: A database was constructed to link information about accidents and medication use among persons employed by the Canadian Forces between January 1999 and December 2001. The case period was defined as the two weeks prior to accident occurrence. In the first analysis, an accident-free historical control period was defined for each subject and medication use compared between case and control periods using incidence risk ratio. A second analysis was then performed using an accident-

free control matched for age, sex, occupation, and employment date, to yield an odds ratio for each class of medication.

Results: Significantly increased odds ratios were detected for 12 different medication classes. Clinically significant odds ratios were observed for antispasmodics and anticholinergics (OR 5.598), estrogens (OR 2.777), and digestives (OR 3.256). Odds ratios for the remaining drug categories ranged from 1.254 (for laxatives) to 1.795 (for beta-blockers).

Conclusion: This analysis identified several medications which were more likely to have been taken in the two weeks prior to an accident. Further studies should be undertaken to confirm the magnitude of risk associated with these drugs.

DRUG UTILIZATION IN THE CANADIAN ARMED FORCES

L Col Régis Vaillancourt, BPharm, PharmD, Eden d'Entremont, BSP, Alan Gervais, BSP, Maj. Dave Cecillon, BSc Chem, BSc Pharm, Pharm D, Directorate of Medical Policy, Pharmacy Policies and Standards, Canadian Forces Health Services, Ottawa, ON

Objective: To describe drug utilization by members of the Canadian Forces (CF) and compare it to the Canadian civilian population.

Method: CF procurement data for the 2002-2003 fiscal year was obtained from McKesson Canada to assess drug utilization in CF members. IMS Health Canada provided prescription data from Canadian retail pharmacies for the same period. Data from both was sorted into three reports: total cost of prescriptions according to therapeutic class, top 20 active ingredients by number, top 20 active ingredients by value. It was then analyzed to compare drug usage among the military and civilian populations.

Results: Drugs for cardiovascular disease are the most widely used agents followed by drugs for psychiatric disorders for both military personnel and civilians. The top 10 therapeutic classes are similar for both groups, although the order in which they appear does vary. OTC medications appear much more frequently among the most commonly used active ingredients by the military population. Cardiovascular medications represent 8 of the top 20 expenditures by civilians, compared to 4 of the top 20 in the CF population.

Discussion: Notable differences in drug usage exist between military personnel and the civilian population in the rate of OTC usage, expenditure on sildenafil and expenditure on psychiatric medications. These differences may be attributable to CF formulary restrictions as well as differences in population demographics and data collection.

SYMPTOM RESOLUTION OF COMMON AILMENTS TREATED WITH OVER-THE-COUNTER MEDICATIONS PROVIDED DIRECTLY BY COMMUNITY PHARMACISTS

LCol Régis Vaillancourt, BPharm, PharmD., Michel Trottier, BScPhm., Janice Ma, BScPhm, PharmD., Alan Gervais, BSP., Directorate of Medical Policy, Pharmacy Policy and Standards, Canadian Forces, Ottawa, ON., Rosemin Kassam, BScPhm, PharmD, University of British Columbia, Vancouver, BC.

Rationale: In an earlier pilot project, patients were provided with an information card which enabled them to obtain non-prescription, over-the-counter (OTC) medications directly from a community pharmacist. However, because OTC medications may be limited in their efficacy, symptom resolution may be suboptimal, or may vary according to the condition treated. A sub-analysis of the data was thus performed to determine the effectiveness of eligible OTC products in resolving symptoms for minor common ailments.

Objective: To determine if the effectiveness of symptom resolution varied among therapeutic classes of OTC medications obtained directly from a pharmacist.

Methods: Patients who obtained an eligible OTC medication were contacted within 8 weeks to participate in a telephone survey. Survey results were analyzed to determine treatment outcomes as reported by the patients. Results were grouped in 4 drug classes: analgesics; antihistamines; cough and cold; and other.

Results: Between May 1, 2002 and March 31, 2003, a total of 334 OTC medications were dispensed during 263 direct encounters with a community pharmacist. Overall, patients reported complete resolution, partial resolution and no improvement of their symptoms 84%, 15% and 1% of the time, respectively; no patients reported worsening of their symptoms with OTC treatment. Similar results were observed among the 4 different drug classes.

Conclusions: Patients experienced a high rate of symptom resolution, regardless of the type of ailment being treated. OTC medications, provided directly by a community pharmacist, are effective in relieving symptoms of common ailments in most patients.

PICTOGRAPHIC INSTRUCTIONS FOR MEDICATIONS: DO OTHER CULTURES INTERPRET THEM ACCURATELY?

LCol Régis Vaillancourt, BPharm, PharmD; Directorate of Medical Policy, Pharmacy Policies and Standards, Canadian Forces Health Services, Ottawa, ON, Rosemin Kassam, PharmD, Faculty of Pharmacy University of British Columbia, Vancouver, BC.

Background: Dispensing medication is a major service provided by Canadian Forces humanitarian relief missions around the world—often in developing countries. This study tested a set of sixteen pre-developed pictograms to determine whether they accurately communicated the written directions found on medication labels to ethnic respondents who neither speak nor read English, French or Spanish.

Objective: (1) To determine whether ethnically diverse individuals could understand the pictogram meanings without additional aids such as verbal instructions or explanations, and (2) to identify appropriate modifications to the pictograms to reduce interpretation errors.

Method: Both qualitative and quantitative methods evaluated the pictograms' interpretability among three ethnic groups; Cantonese, Somali and Punjabi. Standard ANOVAs tested for differences due to ethnicity and other demographics. Results: Only four of the 16 initial pictograms tested were interpreted correctly by 80% of participants. Relaxing the criterion from 80% to 50% included eight more. Modifications to problem icon elements further improved interpretation accuracy levels by 22% for a 'best-of-three' tally of 67.15%. Quantity errors were twice as common as timing, administration route or auxiliary instruction errors.

Conclusions: Participants could identify particular pictographic symbols they found confusing or ambiguous. Basic education and time since immigration predicted interpretation accuracy better than ethnicity or any other demographic characteristic.

SELF-REGULATION OF ALBERTA PHARMACY TECHNICIANS UNDER THE HEALTH PROFESSIONS ACT.

Andy Little, BSc, University of Alberta Hospital, Edmonton, Alberta, Angela Matthews, Academy of Learning, High River, Alberta, Heidi Schulz, Cross Cancer Institute, Edmonton, Alberta

Rationale: Since the legislation of the Health Professions Act (HPA) of Alberta, pharmacy technicians began the process of pursuing self-regulation under this Act. This led to the conception of the HPA Steering Committee comprised of members of the Canadian Association of Pharmacy Technicians, Alberta Chapter (CAPT Alberta), the Pharmacy Technician Certification Board of Alberta (PTCB Alberta) and other interested stakeholders. This poster will illustrate the process, challenges and methodology of the HPA Steering Committee.

Purpose: In partnership with other regulated health professionals, CAPT Alberta's objective is to enhance the future potential of the pharmaceutical team by maximizing the pharmacy technician's impact on protection of the public through research and education of self-regulation under the HPA of Alberta.

Methods: Through monthly facilitated meetings, the HPA Steering Committee (formed May 2003) has been developing comprehensive HPA policies, planning budgets, and engaging in strategic planning amongst many other tasks. The CAPT Alberta membership, pharmacy College and Association and other stakeholders have been consulted for their views and opinions. Regular communications have been in place with stakeholders via mail outs, TeleHealth videoconferencing and meetings.

Results: The HPA Steering Committee's submission of a formal application to the Alberta Minister of Health and Wellness. A tentative meeting scheduled with the Health Professions Advisory Board has been proposed for the latter part of 2004.

Conclusion: Self-regulation of pharmacy technicians under the HPA would be in the "public interest".

IMPLEMENTATION AND EVALUATION OF A WARFARIN DOSING NOMOGRAM FOR VENOUS THROMBO-EMBOLISM (VTE) PROPHYLAXIS AFTER ELECTIVE TOTAL HIP OR TOTAL KNEE REPLACEMENT. (H&K)

Ramona Sidhu, BscPharm, Alison McNaught, BScPhm, PharmD. David Thompson Health Region, Red Deer, AB.

Introduction: VTE is a common complication following H&K. Anticoagulant prophylaxis with warfarin, dosed to achieve an international normalized ratio (INR) of 2 – 3, significantly decreases VTE prevalence after major orthopedic surgery. However due to intra-/ interpatient variability, careful monitoring and adjustment is warranted. Warfarin dosing nomograms provide safe and effective anticoagulation and offer a systematic approach to anticoagulation management. This study describes the implementation of a pharmacist-managed warfarin dosing nomogram for VTE prophylaxis in patients post H&K, and evaluates its efficacy in comparison with traditional physician-adjusted dosing. Evaluation of the safety, utilization, effect on administration time, and pharmacist satisfaction with the nomogram were also examined.

Methods: Patients undergoing H&K received warfarin (INR 2 – 3), via the pharmacist-managed dosing nomogram. This was compared against a recent control group who received physician-adjusted warfarin. The efficacy and safety of the nomogram were evaluated.

Results: Outcomes were compared between the control group (n=64) and the intervention group (n=47). Preliminary findings revealed several protocol violations due to a perceived fear of increased bleeding at INR $\geq$3.0. The nomogram was therefore altered at study midpoint. Thrombosis occurred in one patient and one episode of minor bleeding was noted.

Conclusions: Further collaboration among pharmacy and surgical staff is required to improve patient outcomes and knowledge regarding warfarin therapy for VTE prophylaxis.

MANAGEMENT OF HYPERGLYCEMIA USING AN INSULIN PROTOCOL IN ADULT INTENSIVE CARE UNIT PATIENTS

Alexander Kuo, HonsBSc, BScPhm, Paula Newman, BScPhm, Kingston General Hospital, Kingston, ON

Rationale: Hyperglycemia due to the stress response of injury commonly occurs in critically ill patients and is associated with increased morbidity and mortality. Maintaining a target glucose range with insulin therapy has been shown to be beneficial in certain critical care populations.

Objective: To develop and implement a standardized insulin therapy protocol and measure its feasibility, effectiveness, and safety in maintaining blood glucose in a target range in our adult critical care patients.

Study Design: This prospective study was conducted in the ICU at Kingston General Hospital, a 21 bed medical/surgical unit, from Nov 2003 to Jan 2004. Adult patients admitted to the ICU were eligible to receive the insulin therapy protocol with a target glucose range of 9-11 mmol/L. Feasibility, safety, and effectiveness were assessed through nursing adherence, occurrence of hypoglycemia, and the percentage of patients that attained blood glucose readings within the target range over time, respectively. These results were compared to historical data obtained from a recent prospective study in our ICU.

Results: Thirty-one of 90 patients prescribed the protocol were treated with insulin therapy. Over 90% of patients on the protocol were within the target range after 8 hours of initiating therapy, compared to an average of 27 hours with conventional treatment ($p \leq 0.001$). A total of 214 treatment-days resulted in 6 hypoglycemic episodes without clinical sequelae. Nursing adherence was achieved 86% of the time.

Conclusion: Implementation of the insulin therapy protocol in the ICU at KGH was shown to be feasible, effective, and safe in the management of hyperglycemia.

CSHP would like to reognize the generous contributions of the following speakers:
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All abstract submissions must be submitted no later than 18:00 (Eastern Daylight Time) on October 8, 2004.

Abstracts MUST be submitted electronically, either online at CSHP's Web site (http://www.cshp.ca) or 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). The blinded copy should be double-spaced. Please indicate in the filename which copy is blinded. Please submit your file in MS Word Format.

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Authors of accepted abstracts will be notified within 4 to 5 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.

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

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 (presenter first), institutional affiliation, city, and province. Omit degrees, titles, and appointments.

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

Clinical Research, Pharmaceutical/Basic Research, Pharmacoeconomic Analysis:

a. rationale,

b. objectives,

c. study design and methods,

d. results of study including statistical analysis used,

e. conclusion of study (which should be supported by results presented).

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b. description of case and problem,

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d. importance of case to pharmacy practitioners.

Pharmacy Practice and Administration:

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d. end result and evaluation (if any);

e. the concept's importance and usefulness to current and/or future practice.

Drug Use Evaluations:

a. purpose of report,

b. objectives,

c. design and methods used,

d. results and cost analysis (if done),

e. conclusions and implication of results for institution and/or future pharmacy practice.

Systematic Review including Meta-analysis:

a. rationale for review of topic,

b. objectives of review,

c. methods used (specify search sources, study selection, study appraisal, study synthesis),

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Health Professional Education:

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b. objectives,

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e. the importance and usefulness of the program or activity for pharmacists.

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Abstract Text

- Recommended font: Times 12.
- Capitalize only the first letter of each word of the title.
- List presenting author first.
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- Abstract body (not including title and authors) is limited to 250 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.

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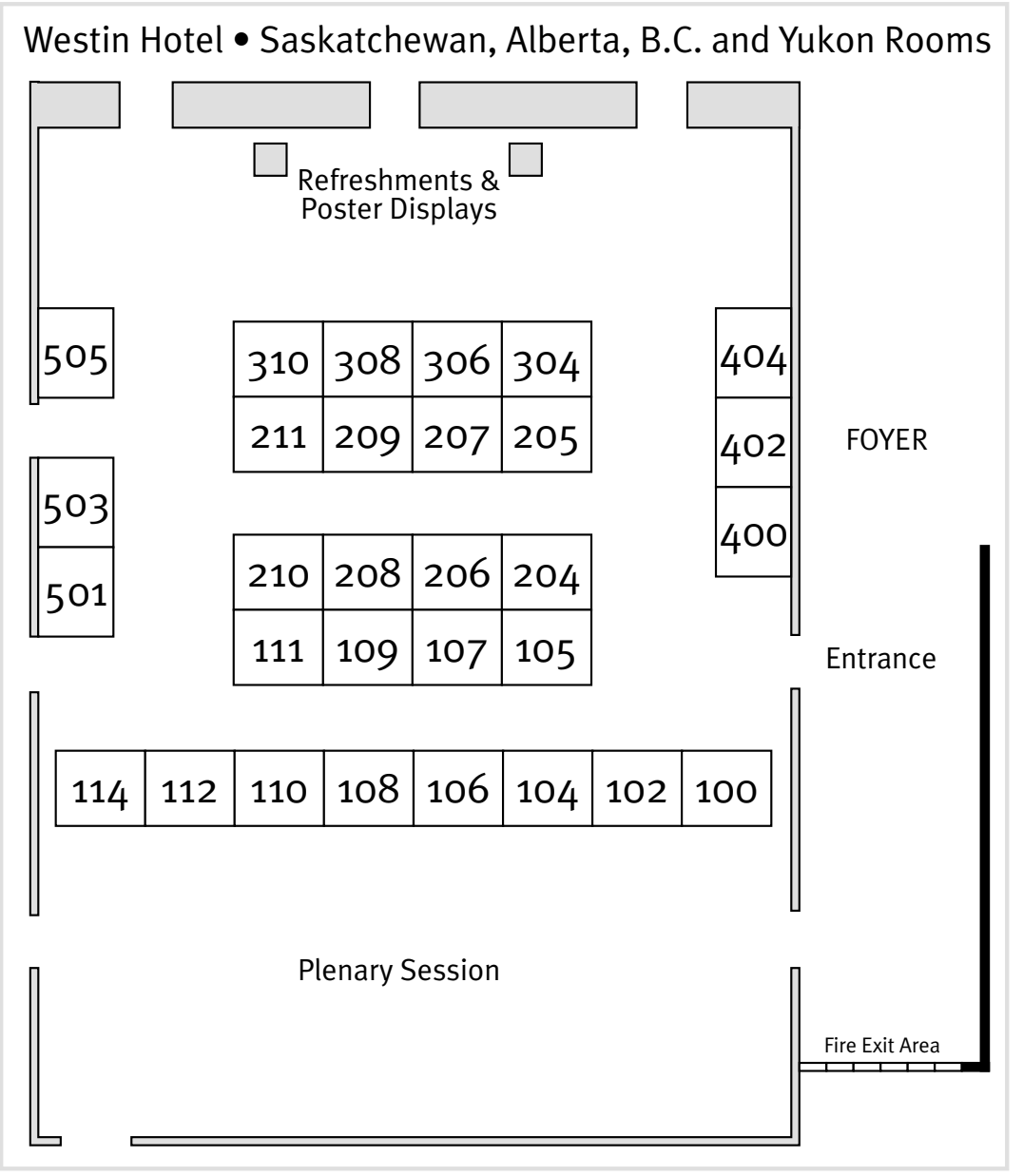

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LIPITOR
atorvastatin calcium
tablets

power you can **trust**™

"LIPITOR"
(atorvastatin calcium)
10 mg, 20 mg, 40 mg and 80 mg tablets

THERAPEUTIC CLASSIFICATION: Lipid Metabolism Regulator

ACTIONS AND CLINICAL PHARMACOLOGY

LIPITOR (atorvastatin calcium) is a synthetic lipid-lowering agent. It is a selective, competitive inhibitor of 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase. This enzyme catalyzes the conversion of HMG-CoA to mevalonate, which is an early and rate-limiting step in the biosynthesis of cholesterol.

LIPITOR lowers plasma cholesterol and lipoprotein levels by inhibiting HMG-CoA reductase and cholesterol synthesis in the liver and by increasing the number of hepatic Low Density Lipoprotein (LDL) receptors on the cell-surface for enhanced uptake and catabolism of Low Density Lipoprotein (LDL).

LIPITOR reduces LDL-Cholesterol (LDL-C) and the number of LDL particles. LIPITOR also reduces Very Low Density Lipoprotein-Cholesterol (VLDL-C), serum triglycerides (TG) and Intermediate-Density Lipoproteins (IDL), as well as the number of apolipoprotein B (apo B) containing particles, but increases High Density Lipoprotein-Cholesterol (HDL-C). Elevated serum cholesterol due to elevated LDL-C is a major risk factor for the development of cardiovascular disease. Low serum concentration of HDL-C is also an independent risk factor. Elevated plasma TG is also a risk factor for cardiovascular disease, particularly if due to increased IDL, or associated with decreased HDL-C or increased LDL-C.

Epidemiologic, clinical and experimental studies have established that high LDL-C, low HDL-C and high plasma TG promote human atherosclerosis and are risk factors for developing cardiovascular disease. Some studies have also shown that the ratio of total cholesterol (total-C) to HDL-C (total-C/HDL-C) is the best predictor of coronary artery disease. In contrast, increased levels of HDL-C are associated with decreased cardiovascular risk. Drug therapies that reduce levels of LDL-C or decrease TG, while simultaneously increasing HDL-C have demonstrated reductions in rates of cardiovascular mortality and morbidity.

Pharmacokinetics

Atorvastatin is rapidly absorbed after oral administration; maximum plasma concentrations occur within 1 to 2 hours. Atorvastatin tablets are 95% to 98% bioavailable compared to solutions.

Mean distribution of atorvastatin is approximately 381 liters. Atorvastatin is ≥98% bound to plasma proteins. Atorvastatin is extensively metabolized by cytochrome P-450 3A4 to ortho- and para-hydroxylated derivatives and to various beta-oxidation products. Approximately 70% of circulating inhibitory activity for HMG-CoA reductase is attributed to active metabolites.

Atorvastatin and its metabolites are eliminated by biliary excretion. Less than 2% of a dose of atorvastatin is recovered in urine following oral administration. Mean plasma elimination half-life of atorvastatin in humans is approximately 14 hours, but the half-life of inhibitory activity for HMG-CoA reductase is 20 to 30 hours due to the contribution of longer-lived active metabolites.

INDICATIONS AND CLINICAL USE

LIPITOR (atorvastatin calcium) is indicated as an adjunct to lifestyle changes, including diet, (at least equivalent to the Adult Treatment Panel III (ATP III) TLC diet), for the reduction of elevated total cholesterol, (total-C), LDL-C, TG and apolipoprotein B (apo B) in hypercholesterolemic and dyslipidemic conditions, when response to diet and other nonpharmacological measures alone has been inadequate, including:

- Primary hypercholesterolemia (Type IIa);
- Combined (mixed) hyperlipidemia (Type IIb), including familial combined hyperlipidemia, regardless of whether cholesterol or triglycerides are the lipid abnormality of concern;
- Dysbetalipoproteinemia (Type III);
- Hypertriglyceridemia (Type IV);
- Familial hypercholesterolemia (homozygous and heterozygous). For homozygous familial hypercholesterolemia, LIPITOR should be used as an adjunct to treatments such as LDL apheresis, or as monotherapy if such treatments are not available.

LIPITOR also raises HDL-cholesterol and therefore lowers the LDL-C/HDL-C and total-C/HDL-C ratios in patients with primary hypercholesterolemia and combined (mixed) hyperlipidemia (Fredrickson Type IIa and IIb) dyslipidemia. In pooled data from 24 controlled clinical trials, LIPITOR raised HDL-C levels 5%-7% in primary hypercholesterolemic (type IIa) patients and 10%-15% in mixed (type IIb) dyslipidemic patients.

In clinical trials, LIPITOR (10 to 80 mg/day) significantly improved lipid profiles in patients with a wide variety of hyperlipidemic and dyslipidemic conditions. In 2 dose-response studies in mildly to moderately hyperlipidemic patients (Fredrickson Types IIa and IIb), LIPITOR reduced the levels of total cholesterol (29-45%), LDL-C (39-60%), apo B (32-50%), TG (19-37%), and increased high-density lipoprotein cholesterol (HDL-C) levels (5-9%). Comparable responses were achieved in patients with heterozygous familial hypercholesterolemia, non-familial forms of hypercholesterolemia, combined hyperlipidemia, including familial combined hyperlipidemia and patients with non-insulin dependent diabetes mellitus. In patients with hypertriglyceridemia (Type IV), LIPITOR (10 to 80 mg daily) reduced TG (25 - 56%) and LDL-C levels (23 - 40%). LIPITOR has not been studied in conditions where the major abnormality is elevation of chylomicrons (TG levels > 11 mmol/L), i.e. types I and V.

In an open-label study in patients with dysbetalipoproteinemia (Type III), LIPITOR (10 to 80 mg daily) reduced total-C (40-57%), TG (40-56%) and IDL-C + VLDL-C levels (34-58%).

In an open label study in patients with homozygous familial hypercholesterolemia (FH) LIPITOR (10 to 80 mg daily) reduced mean LDL-C levels (27%). In a pilot study, LIPITOR (80 mg/day) showed a mean LDL-C lowering of 30% for patients not on plasmapheresis and of 31% for patients who continued plasmapheresis. A mean LDL-C lowering of 39% was observed in receptor defective patients and of 18% in receptor negative patients (see PHARMACOLOGY, Clinical Studies).

For more details on efficacy results by pre-defined classification and pooled data by Fredrickson types, see PHARMACOLOGY, Clinical Studies.

Prior to initiating therapy with LIPITOR, secondary causes should be excluded for elevations in plasma lipid levels (e.g. poorly controlled diabetes mellitus, hypothyroidism, nephrotic syndrome, dysproteinemias, obstructive liver disease, and alcoholism), and a lipid profile performed to measure total cholesterol, LDL-C, HDL-C, and TG. For patients with TG <4.52 mmol/L (<400 mg/dL), LDL-C can be estimated using the following equation:

LDL-C (mmol/L) = total-C - [0.37 x (TG) + HDL-C]

LDL-C (mg/dL) = total-C - [0.2 x (TG) + HDL-C]

For patients with TG levels >4.52 mmol/L (>400 mg/dL), this equation is less accurate and LDL-C concentrations should be measured directly or by ultracentrifugation.

Patients with high or very high triglyceride levels, i.e. > 2.2 mmol/L (200 mg/dL) or > 5.6 mmol/L (500 mg/dL), respectively, may require triglyceride-lowering therapy (fenofibrate, bezafibrate or nicotinic acid) alone or in combination with LIPITOR.

In general, combination therapy with fibrates must be undertaken cautiously and only after risk-benefit analysis (see WARNINGS, Muscle Effects, PRECAUTIONS, Pharmacokinetic Interaction Studies and Potential Drug Interactions).

Elevated serum triglycerides are most often observed in patients with the metabolic syndrome (abdominal obesity, atherogenic dyslipidemia [elevated triglycerides, small dense LDL particles and low HDL-cholesterol], insulin resistance with or without glucose intolerance, raised blood pressure and prothrombotic and proinflammatory states).

For the treatment of specific dyslipidemias refer to the Report of the Canadian Working Group on Hypercholesterolemia and Other Dyslipidemias or to the US NCEP Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), under SELECTED BIBLIOGRAPHY.

When drugs are prescribed attention to therapeutic lifestyle changes (reduced intake of saturated fats and cholesterol, weight reduction, increased physical activity, ingestion of soluble fibers) should always be maintained and reinforced.

The Atorvastatin Versus Revascularization Treatments (AVERT) study examined the effect of intensive lipid-lowering in patients with stable coronary artery disease and LDL-C at least 3.0 mmol/L in patients referred for percutaneous transluminal coronary angioplasty (PTCA). Patients were randomized for 18 months to LIPITOR (80 mg daily) or to PTCA with usual medical care which could include lipid metabolism regulators. The results of the AVERT study should be considered as exploratory since several limitations may affect its design and conduct. In the medical treated group with LIPITOR there was a trend for a reduced incidence of ischemic events and a delayed time to first ischemic event. The results also suggest that intensive treatment to target LDL-C levels with LIPITOR is **additive and complementary** to angioplasty and would benefit patients referred for this procedure (see SELECTED BIBLIOGRAPHY).

CONTRAINDICATIONS

Hypersensitivity to any component of this medication.

Active liver disease or unexplained persistent elevations of serum transaminases exceeding 3 times the upper limit of normal (see WARNINGS).

Pregnancy and lactation (see PRECAUTIONS).

WARNINGS

Pharmacokinetic Interactions

The use of HMG-CoA reductase inhibitors has been associated with severe myopathy, including rhabdomyolysis, which may be more frequent when they are co-administered with drugs that inhibit the cytochrome P-450 enzyme system. Atorvastatin is metabolized by cytochrome P-450 isoform 3A4 and as such may interact with agents that inhibit this enzyme. (See WARNINGS, Muscle effects and PRECAUTIONS, Drug Interactions and Cytochrome P-450-mediated interactions).

Hepatic Effects

In clinical trials, persistent increases in serum transaminases greater than three times the upper limit of normal occurred in <1% of patients who received LIPITOR. When the dosage of LIPITOR was reduced, or when drug treatment was interrupted or discontinued, serum transaminase levels returned to pretreatment levels. The increases were generally not associated with jaundice or other clinical signs or symptoms. Most patients continued treatment with a reduced dose of LIPITOR without clinical sequelae.

Liver function tests should be performed before the initiation of treatment, and periodically thereafter. Special attention should be paid to patients who develop elevated serum transaminase levels, and in these patients measurements should be repeated promptly and then performed more frequently.

If increases in alanine aminotransferase (ALT) or aspartate aminotransferase (AST) show evidence of progression, particularly if they rise to greater than 3 times the upper limit of normal and are persistent, the dosage should be reduced or the drug discontinued.

LIPITOR should be used with caution in patients who consume substantial quantities of alcohol and/or have a past history of liver disease. Active liver disease or unexplained transaminase elevations are contraindications to the use of LIPITOR; if such a condition should develop during therapy, the drug should be discontinued.

Muscle Effects

Myopathy, defined as muscle aching or muscle weakness in conjunction with increases in creatinine phosphokinase (CPK) values to greater than ten times the upper limit of normal, should be considered in any patient with diffuse myalgia, muscle tenderness or weakness, and/or marked elevation of CPK. Patients should be advised to report promptly unexplained muscle pain, tenderness or weakness, particularly if accompanied by malaise or fever. LIPITOR therapy should be discontinued if markedly elevated CPK levels occur or myopathy is diagnosed or suspected.

The risk of myopathy and rhabdomyolysis during treatment with HMG-CoA reductase inhibitors is increased with concurrent administration of cyclosporine, fibric acid derivatives, erythromycin, clarithromycin, niacin (nicotinic acid), azole antifungals or nefazodone. As there is no experience to date with the use of LIPITOR given concurrently with these drugs, with the exception of pharmacokinetic studies conducted in healthy subjects with erythromycin and clarithromycin, the benefits and risks of such combined therapy should be carefully considered (see PRECAUTIONS, Pharmacokinetic Interaction Studies and Potential Drug Interactions).

Rhabdomyolysis has been reported in very rare cases with LIPITOR (see PRECAUTIONS, Drug Interactions).

Rhabdomyolysis with renal dysfunction secondary to myoglobinuria has also been reported with HMG-CoA reductase inhibitors. LIPITOR therapy should be temporarily withheld or discontinued in any patient with an acute serious condition suggestive of a myopathy or having a risk factor predisposing to the development of renal failure secondary to rhabdomyolysis (such as severe acute infection, hypotension, major surgery, trauma, severe metabolic, endocrine and electrolyte disorders, and uncontrolled seizures).

PRECAUTIONS

General

Before instituting therapy with LIPITOR (atorvastatin calcium), an attempt should be made to control elevated serum lipoprotein levels with appropriate diet, exercise, and weight reduction in overweight patients, and to treat other underlying medical problems (see INDICATIONS AND CLINICAL USE). Patients should be advised to inform subsequent physicians of the prior use of LIPITOR or any other lipid-lowering agents.

Effect on the Lens

Current long-term data from clinical trials do not indicate an adverse effect of atorvastatin on the human lens.

Effect on Ubiquinone (CoQ_{10}) Levels

Significant decreases in circulating ubiquinone levels in patients treated with atorvastatin and other statins have been observed. The clinical significance of a potential long-term statin-induced deficiency of ubiquinone has not been established. It has been reported that a decrease in myocardial ubiquinone levels could lead to impaired cardiac function in patients with borderline congestive heart failure (see SELECTED BIBLIOGRAPHY).

Effect on Lipoprotein (a)

In some patients, the beneficial effect of lowered total cholesterol and LDL-C levels may be partly blunted by a concomitant increase in Lp(a) lipoprotein concentrations. Present knowledge suggests the importance of high Lp(a) levels as an emerging risk factor for coronary heart disease. It is thus desirable to maintain and reinforce lifestyle changes in high-risk patients placed on atorvastatin therapy (see SELECTED BIBLIOGRAPHY).

Hypersensitivity

An apparent hypersensitivity syndrome has been reported with other HMG-CoA reductase inhibitors which has included 1 or more of the following features: anaphylaxis, angioedema, lupus erythematosus-like syndrome, polymyalgia rheumatica, vasculitis, purpura, thrombocytopenia, leukopenia, hemolytic anemia, positive ANA, ESR increase, eosinophilia, arthritis, arthralgia, urticaria, asthenia, photosensitivity, fever, chills, flushing, malaise, dyspnea, toxic epidermal necrolysis, erythema multiforme, including Stevens-Johnson syndrome. Although to date hypersensitivity syndrome has not been described as such, LIPITOR should be discontinued if hypersensitivity is suspected.

Use in Pregnancy

LIPITOR is contraindicated during pregnancy (see CONTRAINDICATIONS).

Atherosclerosis is a chronic process and discontinuation of lipid-lowering drugs during pregnancy should have little impact on the outcome of long-term therapy of primary hypercholesterolemia. Cholesterol and other products of cholesterol biosynthesis are essential components for fetal development (including synthesis of steroids and cell membranes). Since HMG-CoA reductase inhibitors decrease cholesterol synthesis and possibly the synthesis of other biologically active substances derived from cholesterol, they may cause harm to the fetus when administered to pregnant women.

There are no data on the use of LIPITOR during pregnancy. LIPITOR should be administered to women of childbearing age only when such patients are highly unlikely to conceive and have been informed of the potential hazards. If the patient becomes pregnant while taking LIPITOR, the drug should be discontinued and the patient apprised of the potential risk to the fetus.

Nursing Mothers

In rats, milk concentrations of atorvastatin are similar to those in plasma. It is not known whether this drug is excreted in human milk. Because of the potential for adverse reactions in nursing infants, women taking LIPITOR should not breast-feed (see CONTRAINDICATIONS).

Pediatric Use

Treatment experience in a pediatric population is limited to doses of LIPITOR up to 80 mg/day for 1 year in 8 patients with homozygous familial hypercholesterolemia. No clinical or biochemical abnormalities were reported in these patients.

Geriatric Use

Treatment experience in adults 70 years or older (N=221) with doses of LIPITOR up to 80 mg/day has demonstrated that the safety and effectiveness of atorvastatin in this population was similar to that of patients <70 years of age. Pharmacokinetic evaluation of atorvastatin in subjects over the age of 65 years indicates an increased AUC. As a precautionary measure, the lowest dose should be administered initially (see PHARMACOLOGY, Human Pharmacokinetics; SELECTED BIBLIOGRAPHY).

Renal Insufficiency

Plasma concentrations and LDL-C lowering efficacy of LIPITOR was shown to be similar in patients with moderate renal insufficiency compared with patients with normal renal function. However, since several cases of rhabdomyolysis have been reported in patients with a history of renal insufficiency of unknown severity, as a precautionary measure and pending further experience in renal disease, the lowest dose (10 mg/day) of LIPITOR should be used in these patients. Similar precautions apply in patients with severe renal insufficiency (creatinine clearance <30 mL/min (<0.5 mL/sec)), the lowest dosage should be used and implemented cautiously (see WARNINGS, Muscle Effects; PRECAUTIONS, Drug Interactions).

Refer also to DOSAGE AND ADMINISTRATION.

Endocrine Function

HMG-CoA reductase inhibitors interfere with cholesterol synthesis and as such might theoretically blunt adrenal and/or gonadal steroid production. Clinical studies with atorvastatin and other HMG-CoA reductase inhibitors have suggested that these agents do not reduce plasma cortisol concentration or impair adrenal reserve and do not reduce basal plasma testosterone concentration. However, the effects of HMG-CoA reductase inhibitors on male fertility have not been studied in adequate numbers of patients. The effects, if any, on the pituitary-gonadal axis in premenopausal women are unknown.

Patients treated with atorvastatin who develop clinical evidence of endocrine dysfunction should be evaluated appropriately. Caution should be exercised if an HMG-CoA reductase inhibitor or other agent used to lower cholesterol levels is administered to patients receiving other drugs (e.g. ketoconazole, spironolactone or cimetidine) that may decrease the levels of endogenous steroid hormones.

1. Friedewald WT, *et al. Clin Chem* 1972;18(6):499-502.

Pharmacokinetic Interaction Studies and Potential Drug Interactions

Pharmacokinetic interaction studies conducted with drugs in healthy subjects may not detect the possibility of a potential drug interaction in some patients due to differences in underlying diseases and use of concomitant medications (see also Geriatric Use; Renal Insufficiency; Patients with Severe Hypercholesterolemia).

Concomitant Therapy with Other Lipid Metabolism Regulators: Combined drug therapy should be approached with caution as information from controlled studies is limited.

Bile Acid Sequestrants:

Patients with mild to moderate hypercholesterolemia: LDL-C reduction was greater when LIPITOR 10 mg and colestipol 20 g were coadministered (-45%) than when either drug was administered alone (-35% for LIPITOR and -22% for colestipol).

Patients with severe hypercholesterolemia: LDL-C reduction was similar (-53%) when LIPITOR 40 mg and colestipol 20 g were coadministered when compared to that with LIPITOR 80 mg alone. Plasma concentration of atorvastatin was lower approximately 26% when LIPITOR 40 mg plus colestipol 20 g were coadministered compared with LIPITOR 40 mg alone.

However, the combination drug therapy was less effective in lowering the triglycerides than LIPITOR monotherapy in both types of hypercholesterolemic patients (see PHARMACOLOGY, Clinical Studies).

When LIPITOR is used concurrently with colestipol or any other resin, an interval of at least 2 hours should be maintained between the two drugs, since the absorption of LIPITOR may be impaired by the resin.

Fibric Acid Derivatives (Gemfibrozil, Fenofibrate, Bezafibrate) and Niacin (Nicotinic Acid): Although there is limited experience with the use of LIPITOR given concurrently with fibric acid derivatives and niacin, the benefits and risks of such combined therapy should be carefully considered. The risk of myopathy during treatment with other drugs in this class, including atorvastatin, is increased with concurrent administration (see WARNINGS, Muscle Effects and SELECTED BIBLIOGRAPHY).

Coumarin Anticoagulants: LIPITOR had no clinically significant effect on prothrombin time when administered to patients receiving chronic warfarin therapy (see SELECTED BIBLIOGRAPHY).

Digoxin: In healthy subjects, digoxin pharmacokinetics at steady-state were not significantly altered by coadministration of digoxin 0.25 mg and LIPITOR 10 mg daily. However, digoxin steady-state concentrations increased approximately 20% following coadministration of digoxin 0.25 mg and LIPITOR 80 mg daily (see Human Pharmacokinetics). Patients taking digoxin should be monitored appropriately.

Antihypertensive agents (amlodipine): In clinical studies, LIPITOR was used concomitantly with antihypertensive agents without evidence to date of clinically significant adverse interactions. In healthy subjects, atorvastatin pharmacokinetics were not altered by the coadministration of LIPITOR 80 mg and amlodipine 10 mg at steady state (see Human Pharmacokinetics).

Cyclosporin: In a randomized, open-label study in healthy subjects, steady-state cyclosporin dosing (80 mg QD) did not significantly affect the pharmacokinetic profile of atorvastatin tablets (10 mg QD) (see Human Pharmacokinetics).

Oral Contraceptives and Hormone Replacement Therapy: Coadministration of LIPITOR with an oral contraceptive, containing 1 mg norethindrone and 35 µg ethinyl estradiol, increased plasma concentrations (AUC levels) of norethindrone and ethinyl estradiol by approximately 30% and 20%, respectively. These increases should be considered when selecting an oral contraceptive. In clinical studies, LIPITOR was used concomitantly with estrogen replacement therapy without evidence to date of clinically significant adverse interactions.

Antacids: Administration of aluminum and magnesium based antacids, such as Maalox TC Suspension, with LIPITOR decreased plasma concentrations of LIPITOR by approximately 35%. LDL-C reduction was not altered but the triglyceride-lowering effect of LIPITOR may be affected.

Cimetidine: Administration of cimetidine with LIPITOR did not alter plasma concentrations or LDL-C lowering efficacy of LIPITOR, however, the triglyceride-lowering effect of LIPITOR was reduced from 34% to 26%.

Cytochrome P-450-mediated Interactions: Atorvastatin is metabolized by the cytochrome P-450 isoenzyme, CYP 3A4. Erythromycin, a CYP 3A4 inhibitor, increased atorvastatin plasma levels by 40%. Coadministration of CYP 3A4 inhibitors, such as grapefruit juice, some macrolide antibiotics (i.e. erythromycin, clarithromycin), immunosuppressants (cyclosporine), azole antifungal agents (i.e. itraconazole, ketoconazole), protease inhibitors, or the antidepressant, nefazodone, may have the potential to increase plasma concentrations of HMG-CoA reductase inhibitors, including LIPITOR (see SELECTED BIBLIOGRAPHY). Caution should thus be exercised with concomitant use of these agents (see WARNINGS, Pharmacokinetic Interactions, Muscle Effects; PRECAUTIONS, Renal Insufficiency and Endocrine Function; DOSAGE AND ADMINISTRATION; SELECTED BIBLIOGRAPHY).

In healthy subjects, coadministration of maximum doses of both atorvastatin (80 mg) and terfenadine (120 mg), a CYP 3A4 substrate, was shown to produce a modest increase in terfenadine AUC. The QTc interval remained unchanged. However, since an interaction between these two drugs cannot be excluded in patients with predisposing factors for arrhythmia, (e.g. preexisting prolonged QT interval, severe coronary artery disease, hypokalemia), caution should be exercised when these agents are coadministered (see WARNINGS, Pharmacokinetic Interactions; DOSAGE AND ADMINISTRATION).

Antipyrine: Antipyrine was used as a non-specific model for drugs metabolized by the microsomal hepatic enzyme system (cytochrome P-450) system). LIPITOR had no effect on the pharmacokinetics of antipyrine, thus interactions with other drugs metabolized via the same cytochrome isozymes are not expected.

Macrolide Antibiotics (azithromycin, clarithromycin, erythromycin): In healthy adults, coadministration of LIPITOR (10 mg QD) and azithromycin (500 mg QD) did not significantly alter the plasma concentrations of atorvastatin. However, coadministration of atorvastatin (10 mg QD) with erythromycin (500 mg QID) or clarithromycin (500 mg BID), which are both CYP 3A4 inhibitors, increased plasma concentrations of atorvastatin approximately 40% and 80%, respectively (see WARNINGS, Muscle Effects; Human Pharmacokinetics).

Protease Inhibitors (nelfinavir mesylate): In healthy adults, coadministration of nelfinavir mesylate (1250 mg BID), a known CYP 3A4 inhibitor, and atorvastatin (10 mg QD) resulted in increased plasma concentrations of atorvastatin. AUC and Cmax of atorvastatin were increased by 74% and 122% respectively.

Patients with Severe Hypercholesterolemia: Higher drug dosages (80 mg/day) required for some patients with severe hypercholesterolemia (including familial hypercholesterolemia) are associated with increased plasma levels of atorvastatin. **Caution should be exercised in such patients who are also severely renally impaired, elderly, or are concomitantly being administered digoxin or CYP 3A4 inhibitors (see WARNINGS, Pharmacokinetic Interactions, Muscle Effects; PRECAUTIONS, Drug Interactions; DOSAGE AND ADMINISTRATION).**

Drug/Laboratory Test Interactions

LIPITOR may elevate serum transaminase and creatinine phosphokinase levels (from skeletal muscle). In the differential diagnosis of chest pain in a patient on therapy with LIPITOR, cardiac and noncardiac fractions of these enzymes should be determined.

ADVERSE REACTIONS

LIPITOR is generally well tolerated. Adverse reactions have usually been mild and transient. In controlled clinical studies (placebo-controlled and active-controlled comparative studies with other lipid-lowering agents) involving 2502 patients, <2% of patients were discontinued due to adverse experiences attributable to LIPITOR. Of these 2502 patients, 1721 were treated for at least 6 months and 1253 for 1 year or more.

Adverse experiences occurring at an incidence ≥1% in patients participating in placebo-controlled clinical studies of LIPITOR and reported to be possibly, probably or definitely drug related are shown in Table 1 below:

TABLE 1. Associated Adverse Events Reported in ≥1% of Patients in Placebo-Controlled Clinical Trials

	Placebo % (n=270)	LIPITOR % (n=1122)
GASTROINTESTINAL		
Constipation	1	1
Diarrhea	1	1
Dyspepsia	2	1
Flatulence	2	1
Nausea	0	1
NERVOUS SYSTEM		
Headache	2	1
MISCELLANEOUS		
Pain	<1	1
Myalgia	1	1
Asthenia	<1	1

The following additional adverse events were reported in clinical trials; not all events listed below have been associated with a causal relationship to LIPITOR therapy: Muscle cramps, myositis, myopathy, paresthesia, peripheral neuropathy, pancreatitis, hepatitis, cholestatic jaundice, anorexia, vomiting, alopecia, pruritus, rash, impotence, hyperglycemia, and hypoglycemia.

Post-marketing experience: Very rare reports: severe myopathy with or without rhabdomyolysis (see WARNINGS, Muscle Effects; PRECAUTIONS, Renal Insufficiency and Drug Interactions); isolated reports: thrombocytopenia, arthralgia and allergic reactions including urticaria, angioneurotic edema, anaphylaxis and bullous rashes (including erythema multiforme, Stevens-Johnson syndrome and toxic epidermal necrolysis). These may have no causal relationship to atorvastatin.

Ophthalmologic observations: see PRECAUTIONS.

Laboratory Tests: Increases in serum transaminase levels have been noted in clinical trials (see WARNINGS).

SYMPTOMS AND TREATMENT OF OVERDOSAGE

There is no specific treatment for atorvastatin overdosage. Should an overdose occur, the patient should be treated symptomatically and supportive measures instituted as required. Due to extensive drug binding to plasma proteins, hemodialysis is not expected to significantly enhance atorvastatin clearance.

DOSAGE AND ADMINISTRATION

Patients should be placed on a standard cholesterol-lowering diet (at least equivalent to the Adult Treatment Panel III (ATP III) TLC diet) before receiving LIPITOR, and should continue on this diet during treatment with LIPITOR. If appropriate, a program of weight control and physical exercise should be implemented.

Primary Hypercholesterolemia and Combined (Mixed) Dyslipidemia, Including Familial Combined Hyperlipidemia

The recommended starting dose of LIPITOR is 10 or 20 mg once daily. Patients who require a large reduction in LDL-C (more than 45%) may be started at 40 mg once daily. This dosage range of LIPITOR is 10 to 80 mg once daily. Doses can be given at any time of the day, with or without food, and should preferably be given in the evening. Doses should be individualized according to the level of risk, the baseline LDL-C and/or TG and/or total-C/HDL-C targets (see the Detection and Management of Hypercholesterolemia, Working Group on Hypercholesterolemia and other Dyslipidemias [Canada] and/or the US National Cholesterol Education Program [NCEP Adult Treatment Panel III]), the goal of therapy, and the patient's response. A significant therapeutic response is evident within two weeks, and the maximum response is usually achieved within two to four weeks. The response is maintained during chronic therapy. Adjustments of dosage, if necessary, should be made at intervals of two to four weeks. The maximum dose is 80 mg/day.

Lipid levels should be monitored periodically and, if necessary, the dose of LIPITOR adjusted based on target lipid levels recommended by guidelines.

The following reductions in total cholesterol and LDL-C levels have been observed in 2 dose-response studies, and may serve as a guide to treatment of patients with mild to moderate hypercholesterolemia.

TABLE 2. Dose-Response in Patients With Mild to Moderate Hypercholesterolemia
(Mean Percent Change from Baseline)*

Lipid Parameter	LIPITOR Dose (mg/day)			
	10 (N=23)	20 (N=30)	40 (N=21)	80 (N=23)
Total-C 7.1 mmol/L† (273 mg/dL)†	-29	-33	-37	-45
LDL-C 4.9 mmol/L† (190 mg/dL)†	-39	-43	-50	-60

a. Results are pooled from 2 dose response studies.
b. Mean baseline values.

Severe Dyslipidemias

In patients with severe dyslipidemias, including homozygous and heterozygous familial hypercholesterolemia and dysbetalipoproteinemia (Type III), higher dosages (up to 80 mg/day) may be required (see WARNINGS, Pharmacokinetic Interactions, Muscle Effects; PRECAUTIONS, Drug Interactions).

Concomitant Therapy

See PRECAUTIONS, Drug Interactions.

Dosage in Patients With Renal Insufficiency

See PRECAUTIONS.

PHARMACEUTICAL INFORMATION

Drug Substance

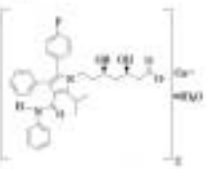
Proper Name: Atorvastatin calcium

Chemical Name: [R-(R*,R*)]-2-(4-fluorophenyl)-ß,ä-dihydroxy-5-(1-methylethyl)-3-phenyl-4-[(phenylamino)-carbonyl]-1H-pyrrole-1-heptanoic acid, calcium salt (2:1) trihydrate

Empirical Formula: $(C_{33}H_{34}FN_2O_5)_2Ca•3H_2O$

Molecular Weight: 1209.42

Structural Formula:



Description: Atorvastatin calcium is a white to off-white crystalline powder that is practically insoluble in aqueous solutions of pH 4 and below. Atorvastatin calcium is very slightly soluble in distilled water, pH 7.4 phosphate buffer and acetonitrile, slightly soluble in ethanol, and freely soluble in methanol.

Tablet Composition:

Each tablet contains either 10 mg, 20 mg, 40 mg or 80 mg atorvastatin as the active ingredient. Each tablet also contains the following non-medicinal ingredients: calcium carbonate, candelilla wax, croscarmellose sodium, hydroxypropyl cellulose, lactose monohydrate, magnesium stearate, microcrystalline cellulose, hydroxypropyl methylcellulose, polyethylene glycol, talc, titanium dioxide, polysorbate 80 and simethicone emulsion.

Stability and Storage Recommendations:

Store at controlled room temperature 15 to 30°C.

AVAILABILITY OF DOSAGE FORMS

LIPITOR (atorvastatin calcium) is available in dosage strengths of 10 mg, 20 mg, 40 mg, and 80 mg atorvastatin per tablet.

10 mg: White, elliptical, film-coated tablet, coded "10" on one side and "PD 155" on the other. Available in bottles of 90 tablets.

20 mg: White, elliptical, film-coated tablet, coded "20" on one side and "PD 156" on the other. Available in bottles of 90 tablets.

40 mg: White, elliptical, film-coated tablet, coded "40" on one side and "PD 157" on the other. Available in bottles of 90 tablets.

80 mg: White, elliptical, film-coated tablet, coded "80" on one side and "PD 158" on the other. Available in blisters of 30 tablets. (3 strips X 10).

References:

1. LIPITOR (atorvastatin calcium) Product Monograph, Pfizer Canada Inc., August 2003. **2.** IMS Health MIDAS, March 1997-March 2003. **3.** Pitt B, Waters D, Brown WV *et al.* Aggressive lipid-lowering therapy compared with angioplasty in stable coronary artery disease. *N Engl J Med* 1999;341:70-76. **4.** Data on File, Pfizer Canada Inc. **5.** Simon Day. Dictionary for Clinical Trials. 1999. John Wiley & Sons Ltd. Pages 137-38.

For a copy of the Product Monograph or full Prescribing Information, please contact:

Pfizer

Life is our life's work.

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75 mg ONCE DAILY

Pr **Plavix***

75 mg clopidogrel tablets

PRESCRIBING INFORMATION

PrPLAVIX*

clopidogrel bisulfate tablets

(equivalent to clopidogrel 75 mg)

THERAPEUTIC CLASSIFICATION

Platelet Aggregation Inhibitor

CLINICAL PHARMACOLOGY

CURE:

The CURE study included 12,562 patients with an acute coronary syndrome, defined as unstable angina or non Q-wave myocardial infarction without significant ST segment elevation, and presenting within 24 hours of onset of the most recent episode of chest pain or symptoms consistent with ischemia.

Patients were required to have either ECG changes compatible with new ischemia (without significant ST segment elevation) or elevated cardiac enzymes or Troponin I or T to at least twice the upper limit of normal. Patients with contraindication to antithrombotic or antiplatelet therapy, at high risk for bleeding, severe heart failure, on oral anticoagulants, and those with recent revascularization or those having received IV glycoprotein IIb/IIIa inhibitors in the previous 3 days were excluded. During the trial, patients were allowed to receive other standard cardiovascular therapies such as heparin, glycoprotein IIb/IIIa antagonists, lipid-lowering drugs, calcium channel blockers, nitrates, beta blockers, ACE-inhibitors, percutaneous coronary intervention (with or without stent) or CABG (coronary artery bypass graft), as needed.

Patients were randomized to PLAVIX (300 mg loading dose followed by 75 mg/day) or placebo, in addition to ASA (75–325 mg once daily; median 150 mg, mean 160 mg). Patients were treated for 3 to 12 months (median 10.8 months; mean 9 months). The baseline characteristics, medical history, electrocardiographic changes, and drug therapy were similar for both treatment groups.

The number of patients experiencing the primary outcome, a composite of cardiovascular (CV) death, non-fatal myocardial infarction (MI) and stroke was 582 (9.30%) in the PLAVIX-treated group and 719 (11.41%) in the placebo-treated group; an absolute risk reduction of 2.11%, and a 20% relative risk reduction (95% CI of 10%, 28%; p = 0.00009) for the PLAVIX-treated group (see Table 1).

The number of patients experiencing the co-primary outcome (CV death, non-fatal MI, stroke or refractory ischemia) was 1035 (16.54%) in the PLAVIX-treated group and 1187 (18.83%) in the placebo-treated group; an absolute risk reduction of 2.29% and a 14% relative risk reduction (95% CI of 6%, 21%, p = 0.0005) for the PLAVIX-treated group.

Events for each component of the composite outcome (CV death, non-fatal myocardial infarction, stroke, refractory ischemia) occurred less frequently than in the placebo group but the differences did not reach statistical significance except for non-fatal MI. The results are summarized in Table 1.

Table 1: Incidence of the Main Study Outcomes.

Outcome	PLAVIX* (n = 6259)	Placebo* (n = 6303)	Absolute Risk Reduction %	Relative Risk (95% CI)
Primary outcome (Cardiovascular death, non-fatal MI, Stroke)	582 (9.30%)	719 (11.41%)	2.11%	0.80 (0.72, 0.90) p = 0.00009
Co-primary outcome (Cardiovascular death, non-fatal MI, Stroke, Refractory Ischemia)	1035 (16.54%)	1187 (18.83%)	2.29%	0.86 (0.79, 0.94) p = 0.00052
All Individual Outcome Events:†				
CV death	318 (5.08%)	345 (5.47%)	0.39%	0.93 (0.79, 1.08)
non-fatal MI**	324 (5.18%)	419 (6.65%)	1.47%	0.77 (0.67, 0.89)
Q-wave	116 (1.9%)	193 (3.1%)	1.20%	0.60 (0.48, 0.76)
Non-Q-wave	216 (3.5%)	242 (3.8%)	0.30%	0.89 (0.74, 1.07)
Stroke	75 (1.20%)	87 (1.38%)	0.18%	0.86 (0.63, 1.18)
Refractory ischemia‡	544 (8.69%)	587 (9.31%)	0.62%	0.93 (0.82, 1.04)
During initial hospitalization	85 (1.4%)	126 (2.0%)	0.60%	0.68 (0.52, 0.90)
After discharge	459 (7.6%)	461 (7.6%)	0%	0.99 (0.87, 1.13)

*Other standard therapies were used as appropriate. All patients received ASA 75–325 mg daily (mean = 160 mg).

**Some patients had both a Q-wave and a non-Q-wave MI.

†The individual components do not represent a breakdown of the primary and co-primary outcomes, but rather the total number of subjects experiencing an event during the course of the study.

‡Only the first ischemic event was counted for each patient.

CV death: excludes clear non-CV deaths;

MI: two of three usual criteria (chest pain, ECG or enzyme/cardiac marker changes);

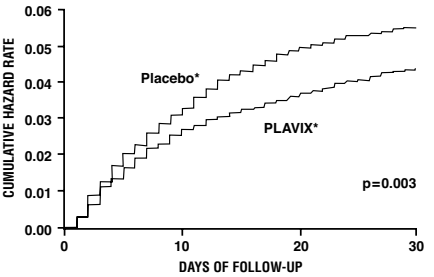
Stroke: neurological deficit ≥24 hours (CT/MRI encouraged).

Refractory ischemia (in-hospital): recurrent chest pain lasting more than 5 minutes with new ischemic ECG changes while patient on optimal medical therapy and leading to additional interventions ranging from thrombolytic therapy to coronary revascularization.

Refractory ischemia (after discharge): rehospitalization lasting at least 24 hours for unstable angina with ischemic ECG changes.

The event curves for CV death, non-fatal MI and stroke separated within the first 24 hours after initiation of therapy (Fig. 1) and continued to diverge (Fig. 2). The benefits of PLAVIX were maintained throughout the course of the trial (up to 12 months).

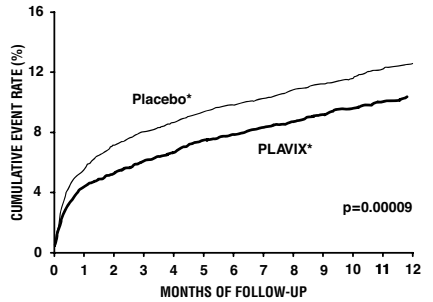
Figure 1: Cumulative Hazard Rates for First Primary Outcome (death from cardiovascular causes, non-fatal myocardial infarction or stroke) During the First 30 days after Randomization.



*Other standard therapies were used as appropriate. All patients received ASA 75–325 mg daily (mean 160 mg; median 150 mg).

The results demonstrate the early effects of clopidogrel.

Figure 2: Cardiovascular Death, Myocardial Infarction or Stroke in the CURE Study.



*Other standard therapies were used as appropriate. All patients received ASA 75–325 mg daily (mean 160 mg; median 150 mg).

The risk reduction of the secondary prospectively chosen outcomes (in-hospital severe ischemia without urgent intervention, need for revascularization and heart failure) were lower in the PLAVIX group than in the placebo group and the differences observed were statistically significant.

Table 2: Secondary In-Hospital Outcomes

	PLAVIX* (n=6259)	Placebo* (n=6303)	Absolute Risk Reduction %	Relative Risk (95% CI)
Severe ischemia	176 (2.81%)	237 (3.76%)	1.0%	0.74 (0.61, 0.90)
Revascularization procedure	1302 (20.8%)	1431 (22.7%)	1.9%	0.92 (0.69, 0.98)
Heart failure	229 (3.7%)	280 (4.4%)	0.7%	0.82 (0.69, 0.98)

Severe ischemia: chest pain lasting more than 5 minutes with new ischemic ECG changes while patient on optimal medical therapy and leading to additional interventions ranging from thrombolytic therapy to coronary revascularization but no urgent intervention performed.

* Other standard therapies were used as appropriate. All patients received ASA 75–325 mg daily (mean 160 mg; median 150 mg).

In general, the results obtained in populations with different characteristics, including patients with low to high risk and on other acute and long-term cardiovascular therapies were consistent with the results of the primary analyses.

INDICATIONS AND CLINICAL USE

PLAVIX (clopidogrel bisulfate) is indicated for the secondary prevention of atherothrombotic events (myocardial infarction, stroke and vascular death) in patients with atherosclerosis documented by stroke, myocardial infarction, or established peripheral arterial disease.

PLAVIX is also indicated for the reduction of atherothrombotic events (myocardial infarction, ischemic stroke, cardiovascular death and/or refractory ischemia) in patients with acute coronary syndromes, unstable angina or non-Q-wave myocardial infarction, without ST segment elevation. These benefits of PLAVIX have been shown only when these patients were concomitantly treated with ASA in addition to other standard therapies. These benefits were also seen in patients who were managed medically and those who were managed with percutaneous coronary intervention (with or without stent) or CABG (coronary artery bypass graft).

CONTRAINDICATIONS

- Hypersensitivity to the drug substance or any component of the product.
- Active bleeding such as peptic ulcer and intracranial hemorrhage.
- Significant liver impairment or cholestatic jaundice.

WARNINGS

Active GI Lesions

PLAVIX (clopidogrel bisulfate) prolongs bleeding time. Although PLAVIX has shown a lower incidence of gastrointestinal bleeding compared to ASA in a large controlled clinical trial (CAPRIE), PLAVIX should not be used in patients who have lesions with a propensity to bleed. In CURE, the incidence of major GI bleeding was 1.3% versus 0.7% (PLAVIX + ASA versus placebo + ASA, respectively). In patients taking PLAVIX, drugs that might induce GI lesions should be used with caution.

Anticoagulant Drugs

In view of the possible increased risk of bleeding, anticoagulant drugs should be used with caution as tolerance and safety of simultaneous administration with clopidogrel has not been established (See **PRECAUTIONS** – Drug interactions). Risk factors should be assessed for individual patients before using clopidogrel.

The safety of the coadministration of PLAVIX with warfarin has not been established. Consequently, concomitant administration of these two agents should be undertaken with caution.

Thrombotic Thrombocytopenic Purpura (TTP)

Thrombotic thrombocytopenic purpura (TTP) has been reported rarely following the use of PLAVIX, sometimes after a short exposure (< 2 weeks). TTP is a serious condition requiring prompt treatment with plasmapheresis. It is characterized by thrombocytopenia, microangiopathic hemolytic anemia (schistocytes [fragmented RBCs] seen on peripheral smear), neurological findings, renal dysfunction, and fever. TTP was not seen during clinical trials which included over 17,500 clopidogrel-treated patients. The incidence of reported TTP in worldwide postmarketing experience has been about four reported cases per million patients exposed, which is about 11 cases per million patient-years. The background rate of TTP in the general population is thought to be about four cases per million person-years.

Pregnancy

There are no adequate and well-controlled studies in pregnant women.

Reproduction studies have been performed in rats at doses up to 500 mg/kg per day and in rabbits at doses up to 300 mg/kg per day and have revealed no evidence of impaired fertility or harm to the fetus due to clopidogrel. Because animal reproduction studies are not always predictive of a human response, PLAVIX should be used during pregnancy only if the potential benefits outweigh the potential risks to the fetus.

Nursing Mothers

Studies in rats have shown that clopidogrel and/or its metabolites are excreted in milk. Therefore, clopidogrel should not be used by lactating women.

Pediatric Use

Safety and effectiveness in subjects below the age of 18 have not been established.

PRECAUTIONS

General

As with other antiplatelet agents, when considering prescribing PLAVIX (clopidogrel bisulfate), physicians should inquire whether the patient has a history of bleeding. Clopidogrel should be used with caution in patients who may be at risk of increased bleeding from recent trauma, surgery or other pathological condition(s). If a patient is to undergo elective surgery, consideration should be given to discontinue PLAVIX 7 days prior to surgery to allow for the reversal of the effect.

Platelet transfusion may be used to reverse the pharmacological effects of PLAVIX when quick reversal is required.

Use in Patients with Renal Impairment

Therapeutic experience with clopidogrel is limited in patients with severe and moderate renal impairment. Therefore PLAVIX should be used with caution in these patients.

Use in Patients with Hepatic Impairment

Experience is limited in patients with moderate hepatic impairment who may have bleeding diatheses. As with any patient exhibiting hepatic impairment, liver function should be carefully monitored and PLAVIX should be used with caution.

In the CAPRIE study, there were 344 hepatically impaired patients (Alkaline phosphatase >300 U/L, or ALT>120 U/L, or AST>75 U/L) and 168 received clopidogrel for a mean duration of 18 months. The adverse events were more common in this population, compared to the rest of the CAPRIE population, and more common in the clopidogrel (n=168) than in the ASA (n=176) group (any bleeding disorders, n=17 vs n=14; any rash, n=11 vs n=6; diarrhea, n=8 vs n=3, respectively).

Table 3: Drug Interactions

Agents	Observed Interactions
ASA	ASA (2 X 500 mg once) did not modify the clopidogrel-mediated inhibition of ADP-induced platelet aggregation, but clopidogrel potentiated the effect of ASA on collagen-induced platelet aggregation. PLAVIX 75 mg and ASA (75–325 mg) have been administered together for up to one year.

Table 3: Drug Interactions (cont'd)

Agents	Observed Interactions
NSAIDS	The short-term concomitant administration of PLAVIX and naproxen increased occult gastrointestinal blood loss, in a clinical study conducted in healthy volunteers. Consequently, there is a potential increased risk of gastrointestinal bleeding (See **WARNINGS**).
Heparin	Clopidogrel at steady state did not modify the effect of heparin on coagulation in a clinical study conducted in healthy volunteers. Coadministration of heparin had no effect on platelet aggregation inhibition induced by PLAVIX.
Warfarin	The safety of the coadministration of PLAVIX with warfarin has not been established. Consequently, concomitant administration of these two agents should be undertaken with caution (See **WARNINGS**).
Digoxin, Theophylline, Antacids	There was no modification of the pharmacokinetics of digoxin or theophylline with the coadministration of PLAVIX at steady state. Antacids did not modify the extent of PLAVIX absorption.
Other	No clinically significant pharmacodynamic interactions were observed when clopidogrel was coadministered in clinical studies to investigate drug interaction with atenolol, nifedipine, or both atenolol and nifedipine. The pharmacodynamic activity of PLAVIX was slightly enhanced by the coadministration of phenobarbital; however, this was not considered to be clinically significant. Pharmacodynamic activity of PLAVIX was not changed with the coadministration of cimetidine. Pharmacodynamic activity of PLAVIX was not significantly influenced by the coadministration of estrogen.

Clinically significant adverse interactions were not detected in the CAPRIE and/or CURE studies where patients received a variety of concomitant medications including ASA, diuretics, beta-blocking agents, angiotensin converting enzyme inhibitors, calcium antagonists, lipid-lowering agents, coronary vasodilators, antidiabetic agents (including insulin), antiepileptic agents, hormone replacement therapy, unfractionated and/or LMW heparin, and glycoprotein IIb/IIIa antagonists. Patients on HMG CoA reductase inhibitors and clopidogrel experienced a higher incidence of bleeding events (primarily epistaxis). There is no known pathophysiological or pharmacological explanation for this observation. Patients on HMG CoA reductase inhibitors and ASA experienced a higher incidence of intracranial hemorrhage.

At high concentrations *in vitro,* clopidogrel inhibits isoenzyme CYP 2C9 of the cytochrome system P450 (2C9). Accordingly, PLAVIX may interfere with the metabolism of drugs such as phenytoin, tamoxifen, tolbutamide, warfarin, torsemide, fluvastatin, and many non-steroidal anti-inflammatory agents. There are no data with which to predict the magnitude of these interactions. Caution should be used when any of these drugs is coadministered with PLAVIX.

Laboratory Test Interactions: None known.

ADVERSE REACTIONS

PLAVIX (clopidogrel bisulfate) has been evaluated for safety in more than 17,500 patients, including over 9000 patients treated for 1 year or more.

CAPRIE:

PLAVIX was well tolerated compared to ASA in a large controlled clinical trial (CAPRIE). The overall tolerability of PLAVIX was similar regardless of age, gender and race. However, in women there was a slightly higher incidence of bleeding disorders in the clopidogrel group (11.36 % vs 9.88%).

Clinically Important Adverse Events The clinically important adverse events observed in CAPRIE were the following:

Neutropenia and thrombocytopenia: Although these events were observed, PLAVIX was not associated with an increase in the incidence of neutropenia or thrombocytopenia.

Granulocytopenia: Granulocytopenia (<12000/mm^3) occurred in 8 patients taking PLAVIX and 14 patients taking ASA. Among those, severe granulocytopenia (<450/mm^3) was observed in 4 patients (0.04%) that received PLAVIX and 2 patients (0.02%) that received ASA. Two of the 9599 patients who received PLAVIX had neutrophil counts of zero. None of the 9586 patients who received ASA had neutrophil counts of zero. Although the risk of myelotoxicity with clopidogrel appears to be quite low, this possibility should be considered when a patient receiving clopidogrel demonstrates fever or other signs of infection.

One case of aplastic anemia occurred on clopidogrel treatment.

Bleeding and clotting disorders: One case of Henoch-Schonlein purpura (acute visceral symptoms: vomiting, diarrhea, abdominal distension, hematuria, renal colic) was reported in a patient taking PLAVIX. The patient recovered without sequelae within one month. Rare cases of platelet count A30,000/mm^3 have been reported.

Skin disorders: There was no notable difference between treatment groups in the incidence of bullous eruptions (0.23% PLAVIX vs 0.16% ASA). One case of a severe bullous eruption was reported in a patient taking PLAVIX.

Hepatic and biliary disorders: The overall incidence of hepatic and biliary disorders was similar in patients treated with clopidogrel (3.5%) compared to ASA (3.4%). The most frequent events were increased liver enzymes and bilirubinemia.

Table 4: Patients Discontinued because of Adverse Experiences in CAPRIE (number and percentage of patients)

	Study drug permanently discontinued	
Adverse Experience	PLAVIX	ASA
Rash	86 (0.90%)	39 (0.41%)*
Diarrhea	40 (0.42%)	26 (0.27%)
Indigestion/nausea/vomiting	182 (1.90%)	231 (2.41%)*
Any bleeding disorder	115 (1.20%)	131 (1.37%)
Intracranial hemorrhage	20 (0.21%)	32 (0.33%)
Gastrointestinal hemorrhage	50 (0.52%)	89 (0.93%)*
Abnormal liver function	22 (0.23%)	28 (0.29%)

* Statistically significant, p<0.05

A summary of the clinically relevant adverse effects observed in CAPRIE are presented in the table below. In CAPRIE, patients with a known intolerance to ASA were excluded from the study.

Table 5: Summary of Adverse Events – CAPRIE Trial

Adverse Event	PLAVIX % Incidence (n=9599)	ASA % Incidence (n=9586)
Hemorrhages or bleeding disorders:		
– intracranial hemorrhage	0.4	0.5
– gastrointestinal bleeding	2.0	2.7*
– requiring hospitalization	0.7	1.1
– purpura (primarily bruising and ecchymosis)	5.3*	3.7
– epistaxis	2.9	2.5
– eye bleeding	0.8	0.5
– conjunctival[(1)]	0.3	0.2
– with sequelae[(1)]	0.1	0.1
Platelet disorders:		
– severe thrombocytopenia (0 Ax < 80,000/mm^3)	0.2	0.1
– thrombocytopenia (0 Ax < 100,000/mm^3)	0.1	0.2
Skin disorders:		
– rash	4.2*	3.5
– severe[(1)]	0.1	0.1
– leading to discontinuation[(1)]	0.5	0.2
– pruritus	3.3*	1.6
Gastrointestinal disorders:		
– peptic, gastric, duodenal ulcer	0.7	1.2
– diarrhea	4.5*	3.4
– severe[(1)]	0.2	0.1
– leading to discontinuation[(1)]	0.4	0.3
– dyspepsia	5.2	6.1*
– constipation	2.4	3.3*
– stomatitis	0.2	0.1
– nausea	3.4	3.8
– abdominal pain	5.6	7.1*
– gastritis	0.8	1.3*
Cardiovascular and rhythm disorders:		
– heart and rhythm disorder	4.3	5.0*
– pulmonary embolism	0.4	0.2
Other:		
– allergic reaction	0.9	1.0
– influenza-like symptoms	7.0	7.5
– fatigue	3.3	3.4
– pain	6.4	6.3
– headache	7.6	7.2
– coughing	3.1	2.7

*: Statistically significant difference between treatments (p A0.05)
[(1)]: Patients may be included in more than one category

CURE:

The clinically important adverse events observed in CURE are discussed below:

In CURE, PLAVIX when given with ASA, was not associated with a significant increase in life-threatening or fatal bleeds compared to placebo given with ASA; the incidences of non-life threatening major bleeding and minor bleeding were significantly larger in the PLAVIX + ASA group. The incidence of intracranial hemorrhage was 0.1% in both groups. There was an excess in major bleeds, primarily gastrointestinal and at puncture sites. In patients receiving both PLAVIX and ASA in CURE, the incidence of bleeding is described in Table 6 below:

Table 6: CURE Incidence of Bleeding Complications (% patients)

Event	PLAVIX* (n=6259)	Placebo* (n=6303)	p-value
Life-threatening bleeding	2.2	1.8	0.13
Fatal	0.2	0.2	
5 g/dL hemoglobin drop	0.9	0.9	
Requiring surgical intervention	0.7	0.7	
Hemorrhagic strokes	0.1	0.1	
Requiring inotropes	0.5	0.5	
Requiring transfusion (>4 units)	1.2	1.0	
Other major bleeding	1.6	1.0	0.005
Significantly disabling	0.4	0.3	
Intraocular bleeding with significant loss of vision	0.05	0.03	
Requiring 2 – 3 units of blood	1.3	0.9	
Major bleeding[†]	3.7[‡]	2.7[§]	0.001
Minor bleeding[¶]	5.1	2.4	< 0.001
Total with bleeding complications	8.5	5.0	< 0.001

*Other standard therapies were used as appropriate. All patients received ASA 75–325 mg daily (mean=160 mg)

[†] Life threatening and other major bleeding necessitating transfusion of B 2 units of blood.

[‡] Major bleeding event rate for PLAVIX + ASA was dose-dependent on ASA: <100 mg=2.6%; 100–200 mg=3.5%; >200 mg=4.9%

[§] Major bleeding event rate for placebo + ASA was dose-dependent on ASA: <100 mg=2.0%; 100–200 mg=2.3%; >200 mg=4.0%

[¶] Led to interruption of study medication.

The number of patients with bleeding that met the criteria for major bleeding established by the Thrombolysis in Myocardial Infarction trial was 68 in the clopidogrel group and 73 in the placebo group (relative risk, 0.94; 95 percent confidence interval, 0.68 and 1.30; p=0.70). The number with bleeding that met the criteria for life-threatening or severe bleeding established by the Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries trial was 78 in the clopidogrel group and 70 in the placebo group (relative risk, 1.12; 95 percent confidence interval, 0.81 and 1.55; p=0.48). Some patients had more than one bleeding episode.

Ninety-two percent (92%) of the patients in the CURE study received unfractionated or Low Molecular Weight (LMW) heparin, and the rate of bleeding in these patients was similar to the overall results.

There was no excess in major bleeds within seven days after coronary bypass graft surgery in patients who stopped therapy more than five days prior to surgery (event rate 4.6% PLAVIX + ASA; 5.5% placebo + ASA). In patients who remained on therapy within five days of bypass graft surgery, the event rate was 8.9% for PLAVIX + ASA, and 6.2% for placebo + ASA, which was not significantly different.

Thrombocytopenia: In CURE, the number of patents with thrombocytopenia (19 PLAVIX + ASA versus 24 placebo + ASA) or neutropenia (3 versus 3) was similar.

Gastrointestinal: In the CURE trial, the incidence of gastrointestinal events(e.g., abdominal pain, dyspepsia, gastritis and constipation) for patients receiving PLAVIX + ASA was 11.7% compared to 12.5% for those receiving placebo + ASA. The incidence of peptic, gastric or duodenal ulcers was 0.4% for PLAVIX + ASA and 0.3% for placebo + ASA. The incidence of diarrhea for patients receiving PLAVIX + ASA was 2.1% compared to 2.2% for those receiving placebo + ASA. The incidence of patients withdrawing from treatment because of gastrointestinal adverse reactions was 0.9% for PLAVIX + ASA compared with 0.8% for placebo + ASA.

Rash and Other Skin Disorders: In the CURE trial, the incidence of rash or other skin disorders in patients receiving PLAVIX + ASA was 4.0% compared to 3.5% for those receiving placebo + ASA. In the CURE trial, the incidence of patients withdrawing because of skin and appendage disorder adverse reactions was 0.7% for PLAVIX + ASA compared with 0.3% for placebo + ASA.

Post Marketing Experience: The following additional adverse reactions were reported in marketed use, however a causal relationship with clopidogrel has not been clearly established.

Allergic Disorders: Hypersensitivity reactions have been reported: these mainly include skin reactions (maculopapular or erythematous rash, urticaria) and/or pruritus. Very rare cases of bronchospasm, angioedema or anaphylactoid reactions have been observed.

Platelet, Bleeding and Clotting Disorders: Very rare cases of thrombotic thrombocytopenic purpura (TTP) have been reported (see **WARNINGS**).

DOSAGE AND ADMINISTRATION

The recommended dose of PLAVIX is 75 mg once daily long term with or without food.

For patients with an acute coronary syndrome, PLAVIX should be initiated with a 300 mg loading dose and continued long term at 75 mg once a day with ASA (75 mg–325 mg daily).

No dosage adjustment is necessary for elderly patients or patients with renal impairment.

AVAILABILITY OF DOSAGE FORMS

PLAVIX (clopidogrel bisulfate) is available as pink, round, slightly biconvex, film-coated tablets engraved with "75" on one side and "1171" on the other side, available in cartons containing a blister of 28 tablets.

Product Monograph available upon request.

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Bone Metabolism Regulator

ACTIONS AND CLINICAL PHARMACOLOGY

Pamidronate disodium belongs to a class of bisphosphonates (previously termed diphosphonate), which inhibit bone resorption. The therapeutic activity of Pamidronate Disodium for Injection is attributable to its potent anti-osteoclastic activity on bone. In animal studies, at therapeutic doses, pamidronate disodium inhibits bone resorption apparently without inhibiting bone formation and mineralization.

The predominant means by which Pamidronate disodium reduces bone turnover both *in vitro* and *in vivo* appears to be through the local, direct antiresorptive effect of bone-bound bisphosphonate. Pamidronate disodium binds to calcium phosphate (hydroxyapatite) crystals and directly inhibits the formation and dissolution of this bone mineral component *in vitro. In vitro* studies indicate that pamidronate disodium is a potent inhibitor of osteoclastic bone resorption. Pamidronate disodium also suppresses the migration of osteoclast precursors onto the bone and their subsequent transformation into the mature resorbing osteoclast.

Tumour-induced hypercalcemia

In tumour-induced hypercalcemia, Pamidronate disodium normalizes plasma calcium between 3 and 7 days following the initiation of treatment irrespective of the type of malignancy or presence of detectable metastases. This effect is dependent on initial calcium levels.

Pamidronate disodium improves symptoms associated with hypercalcemia, e.g. anorexia, nausea, vomiting and diminished mental status.

The kidneys play a prominent role in calcium homeostasis. In addition to skeletal osteolysis, renal dysfunction contributes to the pathogenesis of tumour-induced hypercalcemia. When diagnosed, most hypercalcemic patients are significantly dehydrated. Elevated plasma calcium antagonizes antidiuretic hormone-induced renal concentration, and thus results in polyuria and excessive fluid loss. Hydration status is further compromised by reduced fluid intake due to nausea, vomiting and diminished mental status. Furthermore, dehydration often leads to a fall in glomerular filtration rate (GFR).

Before Pamidronate Disodium for Injection therapy is initiated, patients should be adequately rehydrated with isotonic saline (0.9%) ***(see Precautions)***. Normalization of plasma calcium levels by Pamidronate Disodium for Injection in adequately hydrated patients may also normalize plasma parathyroid hormone (PTH) which is suppressed by hypercalcemia.

The duration of normocalcemia following Pamidronate Disodium for Injection treatment varies in patients with tumour-induced hypercalcemia because of early mortality, and the heterogeneity of diseases and cancer therapies. In general, recurrences tend to occur preferentially after treatment with lower doses: at doses of 30 mg or less, plasma calcium levels tend to increase after approximately 1 week, while at high doses (total treatment doses of 45-90 mg) plasma calcium levels remained normal for at least 2 weeks and up to several months. One study has shown a clear relationship between recurrence rates and Pamidronate disodium dose: in patients treated with single I.V. infusions of 30, 45, 60 and 90 mg Pamidronate disodium, recurrence rates were lower for the higher dose group 9 months after initial treatment. In patients in whom the underlying disease is well controlled by cancer therapy, the duration of response tends to be more prolonged.

Clinical experience with Pamidronate disodium in relapsed tumour-induced hypercalcemia is limited. In general, with retreatment, the response is similar to that with the first Pamidronate disodium treatment, unless the cancer has progressed significantly. Therefore, Pamidronate disodium treatment appears effective for recurrent hypercalcemia at doses established for the initial treatment course ***(see Dosage and Administration)***. The mechanisms underlying possible decreased effects of repeat treatment with Pamidronate disodium in advanced cancer are unknown.

In severe forms of hypercalcemia the dose of Pamidronate Disodium for Injection may be increased, or eventually, a combination drug therapy should be considered ***(see Warnings)***.

Bone metastases and multiple myeloma

Lytic bone metastases in cancer patients are caused by increased osteoclast activity. Metastatic tumour cells secrete paracrine factors which stimulate neighboring osteoclasts to resorb bone. By inhibiting osteoclast function, bisphosphonates interrupt the cascade of events which lead to tumour-induced osteolysis. Lytic bone destruction causes significant complications and associated morbidity.

Clinical trials in patients with predominantly lytic bone metastases or multiple myeloma showed that Pamidronate disodium prevented or delayed skeletal-related events, (SREs: hypercalcemia, pathologic fractures, radiation therapy to bone, orthopedic surgery, spinal cord compression) and decreased bone pain. When used in combination with standard anticancer treatment, Pamidronate disodium led to a delay in progression of bone metastases. In addition, osteolytic bone metastases which have proved refractory to cytotoxic and hormonal therapy may show radiological evidence of disease stabilization or sclerosis.

A significant reduction in bone pain was also demonstrated, which in some patients led to decreased analgesic intake and increased mobility. Greater deteriorations in ECOG performance status and Spitzer quality of life scores were seen in the placebo patients compared to Pamidronate disodium-treated patients.

Paget's disease

Paget's disease of bone, which is characterized by local areas of increased bone resorption and formation with qualitative changes in remodeling, responds well to treatment with Pamidronate Disodium for Injection. Repeated infusions of pamidronate disodium do not lead to reduced efficacy. In addition, patients resistant to etidronate and calcitonin respond well to Pamidronate Disodium for Injection infusions. In long-term follow-up to clinical trials, bone fracture rate does not appear to be increased following treatment with pamidronate disodium relative to the normally occurring rate in patients with Paget's disease.

Clinical and biochemical remission of Paget's disease has been demonstrated by bone scintigraphy, by decreases in urinary hydroxyproline and serum alkaline phosphatase, and by symptomatic improvement. Bone scans show that Pamidronate disodium reduces the number of bones and the percent of the skeleton affected and that bone scintigraphy significantly improves. Bone biopsies consistently show histological and histomorphometric improvement indicating the reversal of the disease process. Symptoms improve even in those with severe disease.

Pharmacokinetics

Plasma concentrations of pamidronate rise rapidly after infusion is started and fall rapidly when the infusion is stopped. The apparent plasma half-life is about 0.8 hours. Apparent steady state is therefore achieved with infusions of > 2-3 hours' duration. When infused I.V. at 60 mg over 1 hour, the peak plasma concentration is about 10 nmol/mL and the apparent total plasma clearance is about 180 mL/min.

As pamidronate has a strong affinity for calcified tissues, total elimination is not observed within the time frame of experimental studies.

After an I.V. infusion, about 20 - 55% of the dose is recovered in the urine within 72 hours as unchanged pamidronate the majority being excreted within the first 24 hours. Pamidronate does not appear to be metabolized, and the remaining fraction of the dose is retained in the body (within the time frame of the studies). The percentage of the dose retained is independent of both the dose (range 15-180 mg) and the infusion rate (range 1.25-60 mg/h).

Retention is similar after each dose of pamidronate disodium. Thus, accumulation in bone is not capacity limited and is dependent solely on the cumulative dose.

Urinary elimination is biphasic ($t_{1/2\alpha}$ = 1.6 h; $t_{1/2\beta}$ = 27.2 h). The apparent renal clearance is about 54 mL/min, and there is a tendency for renal clearance to correlate with creatinine clearance.

Pamidronate disodium binding to human serum proteins is relatively low (about 54%) but increases to approximately 5 mmol when exogenous 95% calcium is added to human plasma.

Hepatic Impairment

The pharmacokinetics of pamidronate were studied in male cancer patients at risk for bone metastases with normal hepatic function (n=6) and mild to moderate hepatic dysfunction (n=9). Each patient received a single 90 mg dose of pamidronate infused over 4 hours. Although there was a statistically significant difference in the pharmacokinetics between patients with normal and impaired hepatic function, the difference was not considered clinically relevant. Patients with hepatic impairment exhibited higher mean AUC (39.7%) and C_{max} (28.6%) values. Nevertheless, pamidronate was still rapidly cleared from the plasma. Drug levels were not detectable in patients by 12-36 hours after drug infusion. Because pamidronate is administered on a monthly basis, drug accumulation is not expected. No changes in pamidronate dosing regimen are recommended for patients with mild to moderate abnormal hepatic function ***(see Dosage and Administration)***.

Hepatic and metabolic clearance of pamidronate are insignificant. Pamidronate thus displays little potential for drug interactions at either the metabolic or protein binding level.

Renal Impairment

The mean plasma AUC is approximately doubled in cancer patients (n=19) with severe renal impairment (creatinine clearance < 30 mL/min). Urinary excretion rate decreases with decreasing creatinine clearance, although the total amount excreted in the urine is not greatly influenced by renal function. Body retention of pamidronate is therefore similar in patients with and without impaired renal function. Adverse experiences were not found to be related to changes in renal clearance of pamidronate. Dose adjustment does not appear to be necessary in these patients when using the recommended dose schedule ***(see Dosage and Administration)***.

INDICATIONS AND CLINICAL USE

- **Tumor-induced hypercalcemia following adequate saline rehydration.** Prior to treatment with Pamidronate Disodium for Injection, renal excretion of excess calcium should be promoted by restoring and maintaining adequate fluid balance and urine output.
- **Conditions associated with increased osteoclast activity:** predominantly lytic bone metastases and multiple myeloma.
- **Symptomatic Paget's disease of bone.**

CONTRAINDICATIONS

Known or suspected hypersensitivity to Pamidronate Disodium for Injection (pamidronate disodium), to any of its components ***(see Composition in Pharmaceutical Information section)***, or to other bisphosphonates.

WARNINGS

PAMIDRONATE DISODIUM FOR INJECTION MUST NEVER BE GIVEN AS A BOLUS INJECTION SINCE SEVERE LOCAL REACTIONS AND THROMBOPHLEBITIS MAY RESULT FROM HIGH LOCAL CONCENTRATIONS.

PAMIDRONATE DISODIUM FOR INJECTION SHOULD ALWAYS BE DILUTED AND ADMINISTERED AS A SLOW INTRAVENOUS INFUSION *(see Dosage and Administration).* REGARDLESS OF THE VOLUME OF SOLUTION IN WHICH PAMIDRONATE DISODIUM FOR INJECTION IS DILUTED, SLOW INTRAVENOUS INFUSION IS ABSOLUTELY NECESSARY FOR SAFETY.

Pamidronate Disodium for Injection should not be given together with other bisphosphonates to treat hypercalcemia since the combined effects of these agents are unknown.

Pamidronate Disodium for Injection should not be mixed with calcium-containing intravenous infusions.

PRECAUTIONS

It is essential in the initial treatment of tumour-induced hypercalcemia that intravenous rehydration be instituted to restore urine output. Patients should be hydrated adequately throughout treatment but overhydration must be avoided.

In patients with cardiac disease, especially in the elderly, additional saline overload may precipitate cardiac failure (left ventricular failure or congestive heart failure). Fever (influenza-like symptoms) may also contribute to this deterioration.

Although Pamidronate disodium is excreted unchanged by the kidney ***(see Actions and Clinical Pharmacology)***, the drug has been used without apparent increase in adverse effects in patients with significantly elevated plasma creatinine levels (including patients undergoing renal replacement therapy with both hemodialysis and peritoneal dialysis). However, experience with Pamidronate disodium in patients with severe renal impairment (serum creatinine > 440 µmol/L or 5 mg/dL in TIH patients; > 180 µmol/L or 2 mg/dL in multiple myeloma patients) is limited. If clinical judgment determines that the potential benefits outweigh the risk in such cases, Pamidronate Disodium for Injection should be used cautiously and renal function carefully monitored.

As there are no clinical data available in patients with severe hepatic insufficiency, no specific recommendations can be given for this patient population.

Patients with Paget's disease of the bone, who are at risk of calcium or vitamin D deficiency, should be given oral calcium supplements and vitamin D to minimize the risk of hypocalcemia.

PATIENT MONITORING

Patients should have standard laboratory (serum creatinine and BUN) and clinical renal function parameters periodically evaluated, especially those receiving frequent Pamidronate Disodium for Injection infusions over a prolonged period of time, and those with pre-existing renal disease or a predisposition to renal impairment (e.g., patients with multiple myeloma and/or tumour-induced hypercalcemia). Fluid balance (urine output, daily weights) should also be followed carefully. If there is deterioration of renal function during Pamidronate Disodium for Injection therapy, the infusion must be stopped.

Serum electrolytes, calcium and phosphate should be monitored following initiation of therapy with Pamidronate Disodium for Injection: Patients with anemia, leukopenia or thrombocytopenia should have regular hematology assessments. Occasional cases of mild, transient hypocalcemia, usually asymptomatic, have been reported. Symptomatic hypocalcemia occurs rarely and can be reversed with calcium gluconate. Patients who have undergone thyroid surgery may be particularly susceptible to develop hypocalcemia due to relative hypoparathyroidism.

In tumour-induced hypercalcemia, either ionized calcium or total serum calcium corrected (adjusted) for albumin should be monitored during treatment with Pamidronate Disodium for Injection. Serum calcium levels in patients who have hypercalcemia of malignancy may not reflect the severity of hypercalcemia, since hypoalbuminemia is commonly present. Corrected serum calcium values should be calculated using established algorithms, such as:

$$cCa = tCa + (0.02 \times [40 - ALB])$$

where:

cCa = adjusted calcium concentration (mmol/L)

tCa = measured total calcium concentration (mmol/L)

ALB = measured albumin concentration (g/L)

Drug Interactions

Pamidronate disodium has been used concomitantly with the following medications without evidence of significant adverse interactions ***(see Actions and Clinical Pharmacology)***: aminoglutethimide, cisplatin, corticosteroids, cyclophosphamide, cytarabine, doxorubicin, etoposide, fluouracil, loop diuretics, megestrol, melphalan, methotrexate, mitoxantrone, paclitaxel, tamoxifen, vinblastine, vincristine, and, in patients with severe hypercalcemia, calcitonin or mithramycin.

Use in Pregnancy

There is no clinical evidence to support the use of Pamidronate Disodium for Injection in pregnant women. Therefore, Pamidronate Disodium for Injection should not be administered during pregnancy except for life threatening hypercalcemia.

In animal experiments, pamidronate was not teratogenic and did not affect general reproductive performance or fertility. In rats, prolonged parturition and reduced pup survival were probably caused by a decrease in

maternal serum calcium levels. The fertility, of the pups was also reduced. Pamidronate crosses the placental barrier and accumulates in fetal bone.

Lactation

There is no clinical experience with Pamidronate Disodium for Injection in lactating women and it is not known whether Pamidronate disodium passes into breast milk. A study in lactating rats has shown that pamidronate passes into the milk. Mothers treated with Pamidronate Disodium for Injection should therefore not breast feed their infants.

Pediatric Use

The safety and efficacy of Pamidronate Disodium for Injection in children has not been established. Until further experience is gained, Pamidronate Disodium for Injection is only recommended for use in adult patients.

Effects on ability to drive or use machines

In rare cases, somnolence and/or dizziness may occur, in which case the patient should not drive, operate potentially dangerous machinery or engage in other activities that may be hazardous.

ADVERSE REACTIONS

Adverse reactions with Pamidronate Disodium for Injection are usually mild and transient. The most common adverse reactions are influenza-like symptoms and mild fever (an increase in body temperature of > 1 °C, which may last up to 48 hours). Fever usually resolves spontaneously and does not require treatment. Acute "influenza-like" reactions usually occur only with the first Pamidronate disodium infusion. The tables below shows the incidence of the more commonly observed adverse effects overall and by indication.

Adverse experiences by body system

Frequency estimate: frequent > 10% , occasional > 1-10% , rare > 0.001-1%, isolated cases < 0.001%

Body as a whole

Frequent: fever and influenza-like symptoms sometimes accompanied by malaise, rigor, fatigue, and flushes
Isolated cases: allergic reaction (swollen and itchy eyes, runny nose and scratchy throat)

Local reactions

Occasional: reactions at the infusion site: pain, redness, swelling, induration, phlebitis, thrombophlebitis

Musculoskeletal system

Occasional: transient bone pain, arthralgia, myalgia, generalized pain, skeletal pain
Rare: muscle cramps

Gastrointestinal tract

Occasional: nausea, vomiting
Rare: anorexia, abdominal pain, diarrhea, constipation, dyspepsia
Isolated cases: gastritis

Central nervous system

Occasional: headache
Rare: symptomatic hypocalcemia (paresthesia, tetany), agitation, confusion, dizziness, insomnia, somnolence, lethargy
Isolated cases: seizures, visual hallucinations in one case

Blood

Occasional: lymphocytopenia
Rare: anemia, leukopenia
Isolated cases: thrombocytopenia. One case of acute lymphoblastic leukemia has been reported in a patient with Paget's disease. The causal relationship to the treatment or the underlying disease is unknown.

Cardiovascular system

Rare: hypotension, hypertension
Isolated cases: left ventricular failure (dyspnea, pulmonary edema), congestive heart failure(edema) due to fluid overload

Respiratory system

Isolated cases: adult respiratory distress syndrome, interstitial pneumonitis

Renal system

Isolated cases: hematuria, acute renal failure, deterioration of pre-existing renal disease

Skin

Rare: rash, pruritus

Special senses

Isolated cases: conjunctivitis, uveitis (iritis, iridocyclitis), scleritis, episcleritis, xanthopsia

Others

Isolated cases: reactivation of herpes simplex and herpes zoster

Biochemical changes

Frequent: hypocalcemia, hypophosphatasemia
Occasional: hypomagnesemia
Rare: hyperkalemia, hypokalemia, hypernatremia, symptomatic hypocalcemia
Isolated cases: abnormal liver function tests, increase in serum creatinine and urea.
Many of these adverse events may have been related to the underlying disease.
Other adverse reactions reported rarely in post-marketing use include: allergic reaction, anaphylactic shock (very rare), anaphylactic reactions, bronchospasm (dyspnea) and Quincke's edema.

Tumour-induced hypercalcemia and Paget's Disease

Adverse experiences considered to be related to Pamidronate disodium occurring in B1% patients in the specified indication:

Adverse experiences	***Tumour-induced hypercalcemia***	***Paget's Disease***
no. of patients	**n=910**	**n=395**
	(%)	(%)
Fever	6.9	8.9
Headache	0.0	4.8
Hypocalcemia	3.2	0.8
Influenza-like symptoms	0.0	11.9
Infusion site reaction	1.7	1.8
Malaise	0.0	5.8
Myalgia	0.0	2.0
Nausea	0.9	2.0
Pain (bone)	0.0	8.9
Pain (unspecified)	0.0	7.9
Rigors	0.0	2.8

Deterioration of renal function has been noted in patients treated with bisphosphonates. Since many patients with tumour-induced hypercalcemia have compromised renal function prior to receiving antihypercalcemia therapy ***(see Precautions)***, it is difficult to estimate the role of individual bisphosphonates in subsequent changes in renal function. Deterioration of renal function (elevation of serum creatinine of > 20 % above baseline) which could not be readily explained in terms of pre-existing renal disease, prior nephrotoxic chemotherapies or compromised intravascular volume status has been noted in 7 cases of 404 patients treated with Pamidronate disodium where these data have been reported. The role of pamidronate disodium in these changes in renal function is unclear, but merits cautious observation.

Bone Metastases and Multiple Myeloma

The most commonly reported adverse experiences regardless of relationship to therapy are shown in the table below.

Deterioration of renal function (including renal failure) has been reported following long term treatment with Pamidronate disodium in patients with multiple myeloma. However, underlying disease progression and/or concomitant complications were also present and therefore a causal relationship with Pamidronate disodium is unproven.

Commonly Reported Adverse Experiences in Three Controlled Trials
(regardless of causality)

Bone metastases and multiple myeloma patients		
Adverse Event	**Pamidronate disodium 90 mg**	**Placebo**
	n = 572	**n = 573**
General		
Asthenia	16.4	15.4
Fatigue	30.4	35.5
Fever	35.5	30.5
Metastases	14	13.6
Digestive System		
Anorexia	20.8	18
Constipation	27.6	30.9
Diarrhea	24.3	26.2
Dyspepsia	13.6	12.4
Nausea	48.4	46.4
Pain Abdominal	17.3	14.0
Vomiting	30.9	28.1
Hemic and Lymphatic System		
Anemia	35.1	32.6
Granulocytopenia	16.8	17.3
Thrombocytopenia	11.0	13.1
Musculoskeletal System		
Myalgias	22.6	16.9
Skeletal Pain	59.4	69.1
CNS		
Headache	24.0	19.7
Insomnia	18.2	17.3
Respiratory System		
Coughing	21.2	18.8
Dyspnea	23.3	18.7
Upper Respiratory Infection	19.8	20.9
Urogenital System		
Urinary Tract Infection	14.5	10.8

SYMPTOMS AND TREATMENT OF OVERDOSAGE

Patients who have received doses higher than those recommended should be carefully monitored. Clinically significant hypocalcemia with paresthesia, tetany and hypotension, may be reversed by an infusion of calcium gluconate. Acute hypocalcemia is not expected to occur with Pamidronate Disodium for Injection since plasma calcium levels fall progressively for several days after treatment.

DOSAGE AND ADMINISTRATION

Dosing recommendations differ for tumour-induced hypercalcemia, lytic bone metastases and multiple myeloma, and Paget's disease. For patients suffering from TIH and multiple myeloma, see the TIH dosage guidelines.

Pamidronate Disodium for Injection must never be given as a bolus injection *(see Warnings)*. Pamidronate Disodium for Injection should be administered in a compatible calcium-free intravenous solution (e.g., sterile normal saline or dextrose 5% in water). Pamidronate Disodium for Injection should be infused slowly.

To minimize local reactions the cannula should be carefully inserted in a relatively large vein.

The infusion rate should never exceed 60 mg/h (1 mg/min), and the concentration of Pamidronate Disodium for Injection in the infusion solution should not exceed 90 mg/250 mL. A dose of 90 mg should normally be administered as a 2-hour infusion in 250 mL infusion solution. ***However, in patients with multiple myeloma and in patients with tumour-induced hypercalcemia it is recommended not to exceed 90 mg in 500 mL over 4 hours (i.e., an infusion rate of 22.5 mg/h).***

Renal Impairment

Pharmacokinetic studies indicate that no dose adjustment is necessary in patients with any degree of renal impairment when Pamidronate Disodium for Injection is administered as recommended. However, until further experience is gained a maximum infusion rate of 22.5 mg/h is recommended in renally impaired patients ***(see Actions and Clinical Pharmacology and Precautions).***

Hepatic Impairment

A pharmacokinetic study indicates that no dose adjustment is necessary in patients with mild to moderate abnormal hepatic function ***(see Pharmacokinetic - Hepatic impairment)***.

Dosing Guidelines For Tumour-Induced Hypercalcemia

The recommended total dose of Pamidronate Disodium for Injection for a treatment course depends upon initial plasma calcium levels. Doses should be adapted to the degree of severity of hypercalcemia to ensure normalization of plasma calcium and to optimize the duration of response. Rehydration with normal saline before treatment is recommended ***(see Precautions)***. ***A dose of 90 mg should be administered in 500 mL of infusion solution. The infusion rate should not exceed 22.5 mg/hour.***

The total dose for a treatment course may be given as a single infusion, or in multiple infusions spread over 2-4 consecutive days. ***The maximum dose*** of Pamidronate Disodium for Injection per treatment course is 90 mg whether for initial or repeat treatment courses. Higher doses have not been associated with increased clinical effect.

The following table presents dosing guidelines for Pamidronate Disodium for Injection derived from clinical data on uncorrected calcium values. These dose ranges also apply for calcium corrected for serum protein.

Tumour-induced hypercalcemia

Initial Serum Calcium		**Total Dose**	**Concentration of infusate**	**Maximum Infusion Rate**
(mmol/L)	**(mg %)**	**(mg)**	**(mg/mL)**	**(mg/h)**
Up to 3.0	Up to 12.0	30	30 mg/ 125 mL	22.5 mg /h
3.0 - 3.5	12.0 - 14.0	30 or 60	30 mg/ 125 mL 60 mg/ 250 mL	22.5 mg /h 22.5 mg /h
3.5- 4.0	14.0 - 16.0	60 or 90	60 mg/ 250 mL 90 mg/ 500 mL	22.5 mg /h 22.5 mg /h
> 4.0	> 16.0	90	90 mg/ 500 mL	22.5 mg /h

Decreases in serum calcium levels are generally observed within 24-48 hours after drug administration, with maximum lowering occurring by 3-7 days. If hypercalcemia recurs, or if plasma calcium does not decrease within 2 days, repeat infusions of Pamidronate Disodium for Injection may be given, according to the dosing guidelines. The limited clinical experience available to date has suggested the possibility that Pamidronate Disodium for Injection may produce a weaker therapeutic response with repeat treatment in patients with advanced cancer.

Dosing Guidelines For Bone Metastases And Multiple Myeloma

The recommended dose of Pamidronate Disodium for Injection for the treatment of predominantly lytic bone metastases and multiple myeloma is 90 mg administered as a single infusion every 4 weeks. In patients with bone metastases who receive chemotherapy at 3-weekly intervals, Pamidronate Disodium for Injection 90 mg may also be given every 3 weeks. A dose of 90 mg should normally be administered as a 2-hour infusion in 250 mL of infusion solution. However, in patients with multiple myeloma it is recommended not to exceed 90 mg in 500 mL over 4 hours.

Radiotherapy is the treatment of choice for patients with solitary lesions in weight bearing bones.

Bone Metastases

Disease State	Dosing Schedule	Concentration of infusate (mg /mL)
bone metastases	90 mg/2 hours every 3*- 4 weeks	90 mg/250 mL
multiple myeloma	90 mg/4 hours every 4 weeks	90 mg/500 mL

** for patients receiving chemotherapy every 3 weeks*

Dosing Guidelines For Paget's Disease Of Bone

The recommended total dose of Pamidronate Disodium for Injection for a treatment course is 180-210 mg. This may be administered either as 6 doses of 30 mg once a week (total dose 180 mg). Alternatively, 3 doses of 60 mg may be administered every second week, but treatment should be initiated with a 30 mg dose (total dose 210 mg) as influenza-like reactions are common only with the first infusion. Each dose of 30 mg or 60 mg should be diluted in at least 250 mL or 500 mL, respectively, of normal saline or D5W. An infusion rate of 15 mg per hour is recommended. This regimen, omitting the initial dose, can be repeated after 6 months until remission of disease is achieved, and when relapse occurs *(see table below).*

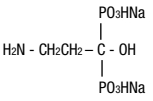
Paget's disease

Recommended total dose / treatment course : 180 - 210 mg

Regimen	Dosing Schedule	Concentration of Infusate (mg/mL)	Infusion Rate (mg/h)
Regimen 1 Total dose 180 mg	30 mg once weekly for 6 weeks	30 mg in B 250 - 500 mL	15 mg/h
Regimen 2 Total dose 210 mg	Infusions administered every 2 weeks. Initial dose (week 1) = 30 mg; Subsequent doses (weeks 3,5 &7) = 60 mg	30 / 60 mg in B250 - 500 mL	15 mg/h
Re-treatment Regimen Total dose 180 mg	60 mg every 2 weeks for a total of 3 infusions.	60 mg in 500 mL	15 mg/h

PHARMACEUTICAL INFORMATION

Drug Substance:



Pamidronate disodium (prepared *in-situ* from pamidronic acid)

Chemical Name:	Disodium-3-amino-l-hydroxypropylidene-1,1-bisphosphonate
Empirical Formula:	$C_3H_9NO_7P_2Na_2$
Molecular Weight:	279.04
Description:	Colourless, crystalline powder
Solubility:	Soluble in water or 2N sodium hydroxide, poorly soluble in 0.1 N hydrochloric acid and 0.1N acetic acid and insoluble in organic solvents
pH:	The pH of a 1% solution in water is approximately 8.2.

Composition

Pamidronate Disodium for Injection 3 mg/mL:

Each vial contains 3 mg/mL Pamidronate disodium (formed from 2.53 mg pamidronic acid and 0.86 mg sodium hydroxide), Mannitol, USP, 47 mg/mL, Water for Injection, USP, and for pH adjustment Phosphoric Acid, NF.

Pamidronate Disodium for Injection 6 mg/mL:

Each vial contains 6 mg/mL Pamidronate disodium (formed from 5.05 mg pamidronic acid and 1.72 mg sodium hydroxide), Mannitol, USP, 40 mg/mL, Water for Injection, USP, and for pH adjustment Phosphoric Acid, NF.

Pamidronate Disodium for Injection 9 mg/mL:

Each vial contains 9 mg/mL Pamidronate disodium (formed from 7.58 mg pamidronic acid and 2.58 mg sodium hydroxide), Mannitol, USP, 37.50 mg/mL, Water for Injection, USP, and for pH adjustment Phosphoric Acid, NF.

Stability And Storage Recommendations

Protect vials from heat. Store at room temperature (15-30 °C)

Dilution Of Pamidronate Disodium for Injection For I.V. Infusion:

Pamidronate Disodium for Injection should be further diluted with either 0.9% sodium chloride or 5% dextrose injection prior to intravenous infusion administration. Diluted solutions prepared in this manner should be used within 24 hours from dilution when stored at room temperature (15-30 °C) due to the possibility of microbial contamination during preparation. Discard the unused portion.

As with all parenteral drug products, intravenous admixtures should be inspected visually for clarity, particulate matter, precipitate, discolouration and leakage prior to administration, whenever solution and container permit. Solutions showing haziness, particulate matter, precipitate, discolouration or leakage should not be used. Discard unused portions.

Incompatibilities

Pamidronate Disodium for Injection must not be mixed with calcium-containing infusion solutions, such as Ringer's solution.

AVAILABILITY OF DOSAGE FORMS

Pamidronate Disodium for Injection 3 mg/mL:

452000 10 mL plastic single dose vials packaged individually

Pamidronate Disodium for Injection 6 mg/mL:

452005 10 mL plastic single dose vials packaged individually

Pamidronate Disodium for Injection 9 mg/mL:

452010 10 mL plastic single dose vials packaged individually

Discard the unused portion.

INFORMATION FOR THE CONSUMER

Please read this information carefully before starting treatment with PrPamidronate Disodium for Injection. If you have further questions, ask your doctor, pharmacist or nurse.

What Is Pamidronate Disodium for Injection?

Pamidronate Disodium for Injection contains an active ingredient called Pamidronate disodium. It is available as a sterile solution in vials. One vial contains 30 mg, 60 mg, or 90 mg of Pamidronate disodium. Pamidronate Disodium for Injection is given as an infusion into a vein after appropriate dilution.

Pamidronate Disodium for Injection belongs to a group of medicines called bisphosphonates which strongly bind to the bone and, slow down the rate of bone change. They are used to reduce the amount of calcium in the blood of some patients who have too much calcium in their blood circulation. Pamidronate Disodium for Injection can also be used in other conditions with increased bone change or pain.

What Does Pamidronate Disodium for Injection Do?

Pamidronate Disodium for Injection is used to treat:

- the increased amount of calcium in the blood (hypercalcemia) in certain conditions
- bone tumours resulting from the spread of tumours at other sites and multiple myeloma
- Paget's disease of bone in patients with symptoms.

Before Starting Treatment With Pamidronate Disodium for Injection

Be sure that you have discussed Pamidronate Disodium for Injection treatment with your doctor. You may only be given Pamidronate Disodium for Injection after a full medical examination.

You should not be given Pamidronate Disodium for Injection if you have previously had an allergic reaction to Pamidronate Disodium for Injection or other bisphosphonates.

Before starting treatment with Pamidronate Disodium for Injection tell your doctor

- if you have a heart, liver or kidney problem
- if you suffer from calcium or vitamin D deficiency (for example owing to your diet or as a result of digestive problems).

FURTHER SAFETY MEASURES

It is important that your doctor checks your progress at regular intervals. He or she may want to take repeated blood tests, especially after starting your treatment with Pamidronate Disodium for Injection.

Other Medicines Or Substances That May Interfere With The Action Of Pamidronate Disodium for Injection.

Before starting Pamidronate Disodium for Injection treatment, talk to your doctor about any other medicines that you are using or intend to use. It is especially important that your doctor knows if you are being treated with another bisphosphonate, calcitonin, calcium tablets, or vitamin supplements.

Pregnancy Or Breast-Feeding

You should tell your doctor if you are pregnant, breast-feeding, or planning to become pregnant. Pamidronate Disodium for Injection should not be given during pregnancy except in special situations and only after a careful discussion with the doctor. Mothers treated with Pamidronate Disodium for Injection should not breast-feed their babies.

Use In Children And Elderly Patients

So far children have not been treated with Pamidronate Disodium for Injection. Until further experience is gained, Pamidronate Disodium for Injection is only recommended for use in adult patients.

Elderly patients may be treated with Pamidronate Disodium for Injection, provided that they do not have a serious heart, liver or kidney problem.

If You Drive A Vehicle Or Use Machinery

Pamidronate Disodium for Injection may cause some patients to become sleepy or dizzy, especially immediately after the infusion. If this happens you should not drive or use machinery or perform other tasks that need full attention.

How To Use Pamidronate Disodium for Injection

Pamidronate Disodium for Injection can be given only by slow infusion into a vein. The dose will be decided by your doctor. This is usually 30-90 mg for patients with increased blood calcium and 90 mg every 3-4 weeks for patients with tumours which have spread to the bone or multiple myeloma. Patients with Paget's disease of bone usually receive between 30-60 mg in one infusion. An infusion may last one or more hours, depending on the dose given. Your doctor will decide how many infusions you need and how often you should receive them.

What Side Effects Can Pamidronate Disodium for Injection Have?

Like all medicines, Pamidronate Disodium for Injection may have, in addition to its beneficial effects, some unwanted effects. The most common side effects are: short-lasting fever and flu-like condition with chills, sometimes together with a feeling of tiredness and general discomfort.

Less common side effects include: short-lasting muscle or joint pain, muscle cramps, pain, redness and swelling at the site of infusion, indigestion, nausea, vomiting, abdominal pain, constipation, diarrhea, loss of appetite, headache, dizziness, sleepiness, tiredness, confusion, agitation, skin rash, itching, eye irritation.

Other side effects not listed above may also occur in some patients. If you notice any other effects, tell your doctor immediately.

FURTHER INFORMATION

Expiry Date

Pamidronate Disodium for Injection should not be used after the expiry date shown on the package label. Remember to take back any unused medicine to your pharmacist.

Storage Conditions

Protect vials from heat. Store at room temperature (15 - 30 °C).

Keep this medicine out of the reach of children.

Other Important Information

This medicine has been prescribed for your current medical problem only. Do not give it to other people.

PRODUCT MONOGRAPH AVAILABLE UPON REQUEST.

PPC PHARMACEUTICAL PARTNERS OF CANADA INC.
PARTENAIRES PHARMACEUTIQUES DU CANADA INC.

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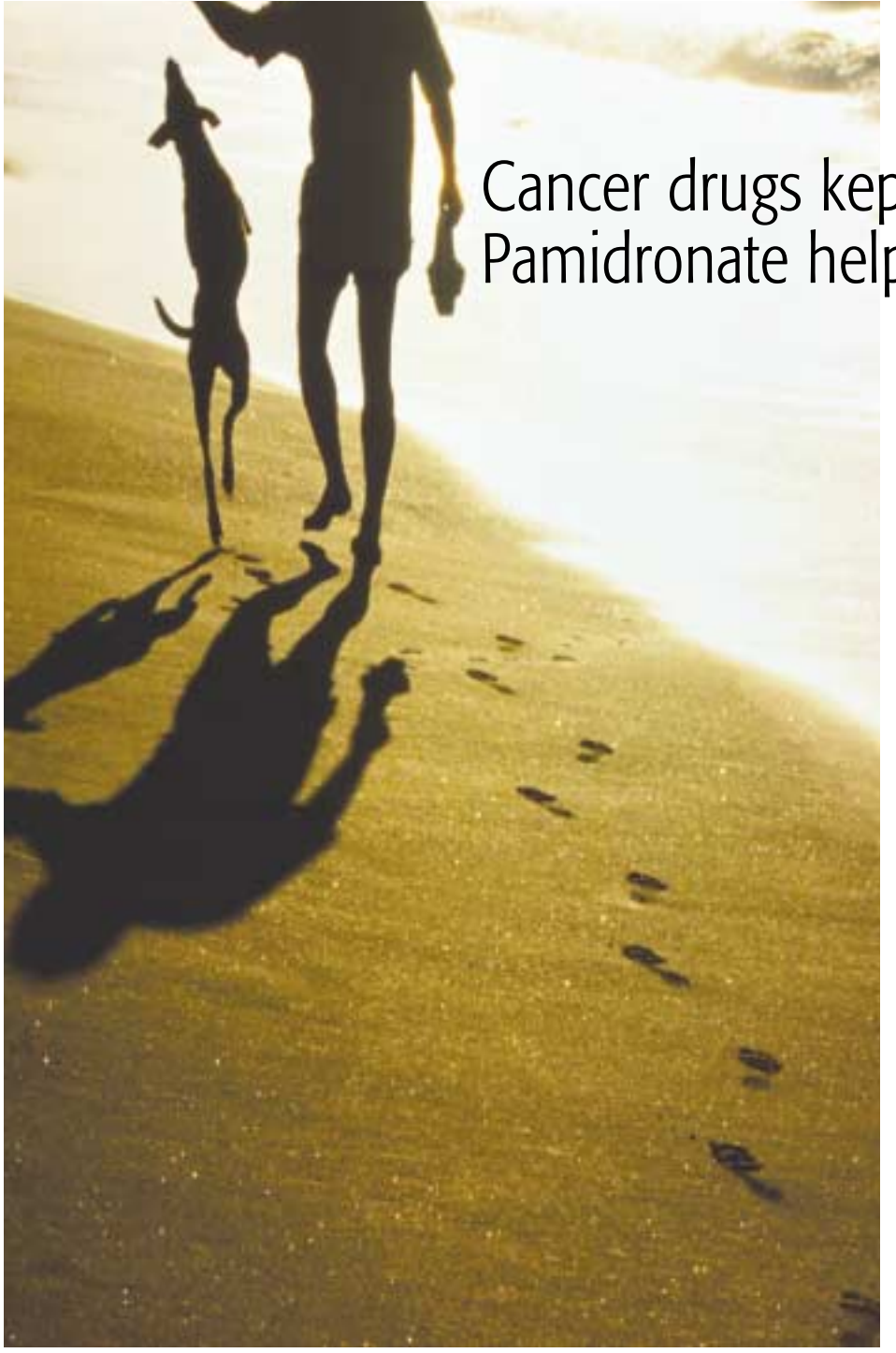
Telephone: 905-770-3711 Toll Free: 1-877-821-7724 Fax: 905-770-4811

PAAB

Genpharm P.I.
B&W film supplied

GENPHARM – VENOFER
4C film supplied



Cancer drugs kept John alive. Pamidronate helped him have a life.

Healthy calcium levels and strong bones?[1] Pamidronate from PPC can help.

Cancer may steal away essential calcium from bones, forcing patients to limit their activities. That's why Pharmaceutical Partners of Canada Inc. (PPC) is proud to introduce our latest product in the fight against the repercussions of lytic bone metastases and multiple myeloma associated with cancer.

Why Pamidronate from PPC?

Pharmaceutical Partners of Canada Inc. is pleased to offer Pharmacists a quality alternative to currently available Pamidronate products. Pamidronate from PPC is clearly and precisely labelled and available in three strengths for dosing flexibility. It comes as an aqueous format in plastic vials for greater convenience versus a lyophilized format.

To learn more about how Pamidronate from Pharmaceutical Partners of Canada Inc. can help cancer patients maintain their quality of life, please contact your PPC representative today.

Product Features:

- Aqueous format
- Three strengths, for dosing flexibility
- Plastic vial
- Competitively priced

[1]Bone metastases and multiple myeloma

Clinical trials in patients with predominantly lytic bone metastases or multiple myeloma showed that Pamidronate disodium prevented or delayed skeletal-related events, (SREs: hypercalcemia, pathologic fractures, radiation therapy to bone, orthopedic surgery, spinal cord compression) and decreased bone pain which led to increased mobility. Greater deterioration in ECOG performance status and Spitzer QoL scores were seen in placebo patients compared to Pamidronate patients.

Pamidronate is indicated in conditions with increased osteoclast activity: predominantly lytic bone metastases and multiple myeloma

Warnings: Pamidronate Disodium for Injection must never be given as a bolus injection since severe local reactions and thrombophlebitis may result from high local concentrations. Pamidronate Disodium for Injection should always be diluted and administered as a slow intravenous infusion (see Dosage and Administration). Regadless of the volume of solution in which Pamidronate Disodium for Injection is diluted, slow intravenous infusion is absolutely necessary for safety. **Severe Renal impairment Warning:** Experience with Pamidronate disodium in patients with severe renal impairment (serum creatinine > 440 :mol/L or 5 mg/dL in TIH patients; > 180 :mol/L or 2 mg/dL in multiple myeloma patients) is limited. If clinical judgment determines that the potential benefits outweigh the risk in such cases, Pamidronate Disodium for Injection should be used cautiously and renal function carefully monitored. **Adverse Events:** The most common adverse events are influenza-like symptoms and mild fever (>10%). Other adverse events include skeletal pain (59.4% vs 69.1% for placebo), nausea (48.4% vs 46.4%), anemia (35.4% vs 32.6%) and vomiting (30.9% vs 28.1%).

INTRODUCING AQUEOUS

Pr Pamidronate

From

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