The Canadian Association of Pharmacy in Oncology presents the

National Oncology Pharmacy Symposium 2008
New Frontiers in Oncology Pharmacy
Onsite Program

L'Association canadienne de pharmacie en oncologie présente le

Symposium national sur la pharmaco-oncologie 2008
Nouvelles frontières en pharmaco-oncologie
Programme

OCTOBER 17-19, 2008 | CALGARY HYATT REGENCY | CALGARY, ALBERTA
DU 17 AU 19 OCTOBRE 2008 | HÔTEL HYATT REGENCY | CALGARY (ALBERTA)

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2008 | Message from the Co-Chairs

Howdy Partners,

As National Oncology Pharmacy Symposium co-chairs it is with great pleasure that we welcome you of behalf of the organizing committee to NOPS 2008: New Frontiers in Oncology Pharmacy.

In the not too distant past hardy pioneers of various nationalities turned their hands and hearts to the wild western frontiers of this great nation hoping to build a better future for themselves and their families. These hopes were soon tempered by the reality of concrete-like soil, prairie wild fires, dust storms and sod huts in which it stopped raining inside one hour after it stopped raining outside. Still with fortitude and vision a small beginning was forged and now we as a nation are heirs to their personal sacrifice and individual accomplishments.

Today the west is still a place where vision, opportunity and energy collide in the promise of an even better future. In many ways this is symbolic of what is currently happening on the frontiers of oncology pharmacy practice. Our partners in research and industry are continually developing medications that just a few years ago were unknown and whose mechanisms were only dimly perceived. The practice of pharmacy itself has evolved and matured and having come full circle again stands on the brink of new frontiers for both pharmacists and technicians.

Thanks to the united efforts of a dedicated organizing committee you will find ample opportunity to explore personal and professional frontiers during our meeting. Leaders in research, treatment and pharmacy practice have been selected to present their experiences at these frontiers. This year we have divided the workshops into clinical, technical and administrative streams, allowing you to expand individual horizons where the challenge is not to plant grain but to plant the seeds of hope for a cancer free future. We will also be recording presentations for future posting on the CAPhO web-site.

It is our hope that we will all leave NOPS 2008 with greater vision and fortitude; vision of our professional and individual roles in ultimately easing the suffering of this affliction and fortitude to make the most of the opportunities before us.

It's time to cowpoke up!

Sincerely

Lee Gordon **Roxanne Dobish** **Hélène Bourget-Letarte** **Larry Broadfield**

NOPS 2008 Co-Chairs

2008 | **Message des coprésidents**

Chers partenaires,

Au nom du comité organisateur du Symposium national de pharmaco-oncologie 2008 ayant pour thème « Nouvelles frontières en pharmaco-oncologie », nous sommes heureux, à titre de coprésidents, de vous souhaiter la bienvenue à cet événement.

Il n'y a pas si longtemps, des pionniers courageux de différentes nationalités ont franchi les frontières sauvages de notre grand pays occidental dans l'espoir de bâtir un meilleur avenir pour eux et leurs familles. Or la réalité les a bien vite rattrapés : sols bétonnés, feux de prairies, tempêtes de poussière et huttes de terre à l'intérieur desquelles il cessait de pleuvoir une heure après que la pluie ait cessé de tomber à l'extérieur. Grâce au courage et à la vision de ces hommes et femmes, notre pays a pu voir le jour, fruit de sacrifices personnels et de réalisations individuelles.

Aujourd'hui, l'Occident demeure un lieu où la vision, les possibilités et le dynamisme laissent entrevoir un avenir encore meilleur. À bien des égards, cette réalité symbolise ce qui se passe actuellement aux frontières de la pratique de la pharmaco-oncologie. En effet, nos partenaires de recherche dans le secteur mettent continuellement au point des médicaments qui étaient inconnus et dont on pouvait à peine distinguer les mécanismes quelques années auparavant. La pratique de la pharmacie elle-même a évolué; ayant bouclé la boucle, elle est sur le point de franchir de nouvelles frontières, tant pour les pharmaciens que pour les techniciens.

Grâce aux efforts unis des membres de notre comité organisateur dévoué, vous aurez de nombreuses occasions d'explorer vos frontières personnelles et professionnelles au cours de ce rassemblement annuel. Des chefs de file en recherche, en mise au point de traitements et en pharmacie ont été sélectionnés pour présenter leurs expériences à ces frontières. Cette année, nous avons réparti les ateliers en trois volets – clinique, technique et administratif – pour vous permettre d'élargir vos horizons individuels dans un contexte où le défi est de planter des germes d'espoir pour un avenir sans cancer. Nous enregistrerons également les présentations aux fins de publication future sur le site Web de l'ACPhO.

Nous espérons qu'à l'issue du Symposium national de pharmaco-oncologie 2008, la vision et la force morale de tous les participants seront plus grandes – vision de nos rôles professionnels et individuels pour alléger la souffrance du cancer et force morale pour tirer le maximum des possibilités s'offrant à nous.

Allons au-delà des frontières!

Lee Gordon **Roxanne Dobish** **Hélène Bourget-Letarte** **Larry Broadfield**

Coprésidents du SNPO 2008

Bayer HealthCare Pharmaceuticals
Oncology

Bayer HealthCare Pharmaceuticals is among the top five specialty pharmaceutical companies in Canada and is a leader in the field of oncology. Despite significant advances in the fight against cancer, there remains a great medical need for therapies that can extend and improve the quality of life. We are combining passion with purpose to improve the lives of individuals touched by cancer.

As our understanding of the various mechanisms behind each type of cancer deepens, so does our ability to develop innovative approaches to combat uncontrolled cell growth and proliferation. We are focusing on developing targeted therapies to combat solid tumors and hematologic malignancies. We are deeply committed to providing Canadians with the best medicine and continue to invest in the research and development of innovative pharmaceutical products to improve the lives of patients.

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2008 | CAPhO Welcome message

On behalf of the Executive committee of the Canadian Association of Pharmacy in Oncology , I would like to welcome you to Calgary for NOPS 2008.

I know you will agree that the NOPS Organizing Committee has planned an outstanding educational program. We are also pleased to welcome several of our industry partners, who are sponsoring the NOPS and many very interesting Satellite symposiums. We hope that you will find the time to network with your colleagues from around the country, while at the same time learning all the most up to date oncology pharmacy information.

Many of the CAPhO executive members are present for the conference and will be pleased to discuss the upcoming CAPhO initiatives. I would encourage everyone to participate in the Annual General Meeting to be held on Saturday.

On behalf of the CAPhO Executive, we hope that you enjoy this educational event and we are looking forward to seeing you there!

Dana Cole
CAPhO President

Thank you to our CAPhO Executive: **Carlo DeAngelis** | **George Dranitsaris** | **Gabriel Gazzé** | **Kathy Gesy** | **Colleen Olson** **Kim Stefaniuk** | **Tim VanHelvert** | **Ing Collins** | **Marc Geirnaert** | **Lee Gordon** | **Betty Riddell**

2008 | Message de bienvenue de l'ACPhO

Au nom du comité directeur de l'Association canadienne de pharmacie en oncologie (ACPhO), j'aimerais vous souhaiter la bienvenue à Calgary à l'occasion du Symposium national de pharmaco-oncologie (SNPO) 2008.

Vous conviendrez tout comme moi que le comité organisateur du SNPO a mis sur pied un programme éducatif exceptionnel. Nous sommes également heureux d'accueillir bon nombre de nos partenaires du secteur, qui parrainent l'événement ainsi que différents symposiums satellites tout aussi intéressants les uns que les autres. Nous espérons que vous trouverez le temps de nouer avec vos collègues des quatre coins du pays tout en vous tenant au courant des dernières nouvelles dans le domaine de la pharmaco-oncologie.

De nombreux membres de la direction de l'ACPhO sont présents à l'événement et seront heureux de discuter des prochaines initiatives organisées par l'association. Je vous encourage tous à participer à l'assemblée générale annuelle, qui aura lieu samedi.

Au nom de la direction de l'ACPhO, j'espère que cet événement éducatif vous sera profitable. Espérant vous rencontrer là-bas, veuillez agréer mes salutations les plus distinguées.

Dana Cole
Présidente de l'ACPhO

Merci au Comité Exécutif de CAPhO: **Carlo DeAngelis** | **George Dranitsaris** | **Gabriel Gazzé** | **Kathy Gesy** | **Colleen Olson** **Kim Stefaniuk** | **Tim VanHelvert** | **Ing Collins** | **Marc Geirnaert** | **Lee Gordon** | **Betty Riddell**

ALBERTA
HEALTH AND WELLNESS

Office of the Minister

Message from the Honourable Ron Liepert
Minister of Health and Wellness

It is my pleasure to welcome the Canadian Association of Pharmacy in Oncology to our beautiful province.

You deal on a daily basis with one of the leading causes of death in this country. Everyone either knows someone or has a family member – or both – who has suffered from cancer.

You also are immersed in the pharmaceutical area, which, I do not need to tell you, is one of the leading drivers of health care cost increases – a challenge for health ministers from coast to coast. So your work could not be more important, both from a quality of care perspective and from a sustainability standpoint.

At events like this, experts in health care share ideas, whether formally in organized venues or informally in hallways and restaurants. Either way, the patient wins, and that is our common objective.

I understand this is the first time you have held your annual symposium in Alberta. I would encourage you to take some time away from your important work here to get out to the mountains, go for a walk along the Bow River, or sample some of the vibrant entertainment offered here in my hometown of Calgary, where we pride ourselves on our hospitality.

Sincerely,

Ron Liepert
Minister of Health and Wellness

(October 2008)

323 Legislature Building 10800-97 Avenue, Edmonton, Alberta, Canada T5K 2B6 Telephone 780-427-3665 Fax 780-415-0961

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2008 | Thank you to our CAPhO Executive
Merci au Comité Exécutif de CAPhO

Dana Cole, *President*

Carlo DeAngelis, *President-Elect*

Gabriel Gazze, *Past President*

Marc Geirnaert, *Treasurer*

Kathy Gesy, *Secretary*

Ing Collins, *NCIC Representative*

Kimberly Stefaniuk, *Education Chair*

Timothy VanHelvert, *Communications officer*

Colleen Olson, *Awards Committee Chair*

Betty Riddell, *Membership Committee Chair*

George Dranitsaris, *Member at Large*

Lee Gordon, *NOPS chair 2008*

2008 | Thank you to the NOPS Planning Committee Members
Merci aux membres du comité de planification du SNPO

Darryl Boehm
Allan Blair Cancer Centre, Regina, SK

Hélène Bourget-Letarte
The Ottawa Hospital Cancer Centre, Ottawa, ON

Venetia Bourrier
CancerCare Manitoba, Winnipeg, MB

Larry Broadfield
CancerCare Nova Scotia, Halifax, NS

Flay Charbonneau
Sunnybrook Health Sciences Centre, Toronto, ON

Ing Collins
Juravinski Cancer Centre, Hamilton, ON

Carlo De Angelis
Odette Cancer Centre, Toronto, ON

Roxanne Dobish
Cross Cancer Institute, Edmonton, AB

Scott Edwards
Dr. H. Bliss Murphy Cancer Centre, St.John's, NL

H. Lee Gordon
Lethbridge Cancer Center, Lethbridge, AB

Victoria Kyritsis
BC Cancer Agency, Vancouver, BC

Sandy Linseman
Grand River Regional Cancer Centre, Kitchener, ON

Coleen Schroeder
McGill University Health Center, Montreal, QC

Kimberley Stefaniuk
Princess Margaret Hospital, Toronto, ON

Pat Trozzo
CancerCare Manitoba and University of Manitoba, Winnipeg, MB

Thanh Vu
Health Canada, Burnaby, BC

A Satellite Symposium at the
National Oncology Pharmacy Symposium 2008

Calgary, Alberta

Roche

cardiac management during adjuvant trastuzumab therapy

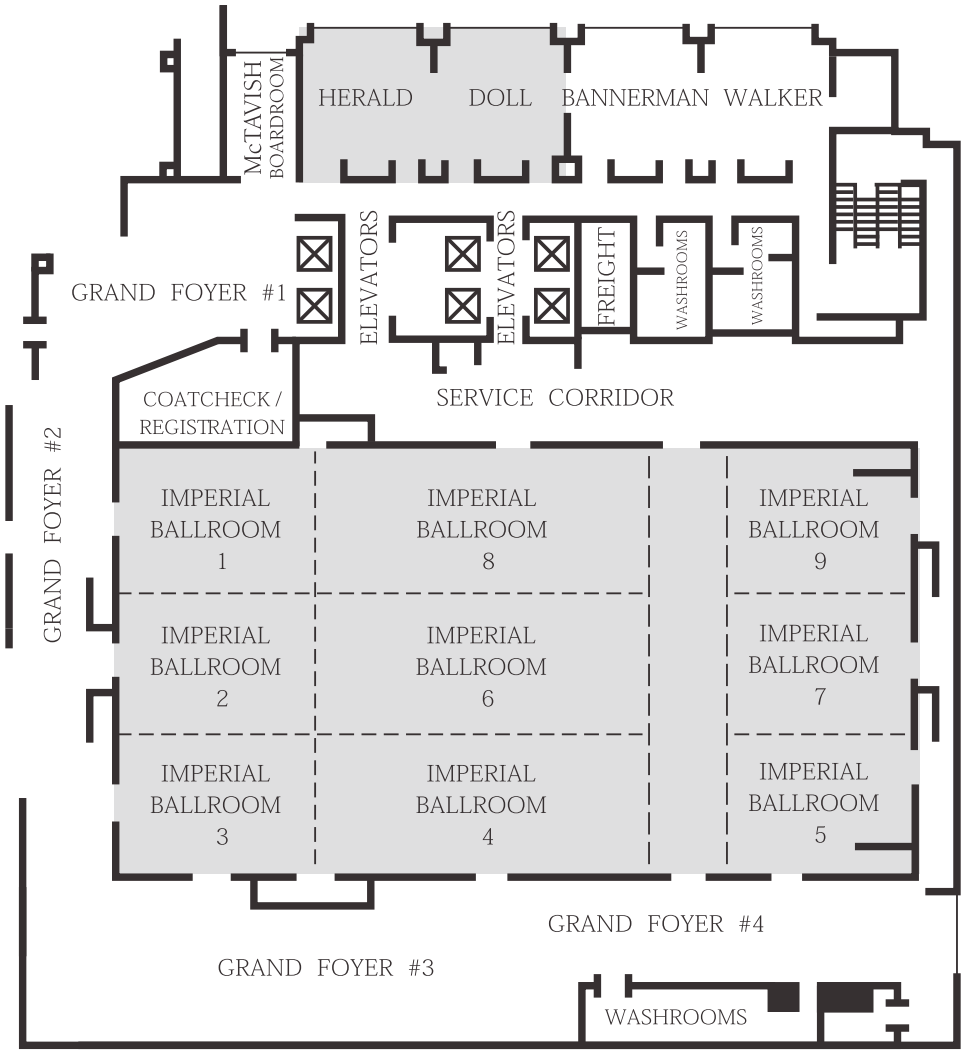
Recommendations of the Canadian Trastuzumab Working Group

Sunday, October 19, 2008

12:30 p.m. - 2:30 p.m. (Doll/Herald Room)
Lunch will be offered starting at 12:30 p.m.

2008 | Hyatt Regency Calgary Floorplan

Third Floor



2008 | **Saturday evening - Wild Wild West Event Centre**

This years' Saturday evening event will take us to the Wild Wild West Event Centre just outside of Calgary. Wear your jeans and cowboy boots and be prepared for an evening full of fun!

Transportation to the event will be provided. Buses will leave the Hyatt Regency's side entrance on Stephen Avenue at 6:30pm. Travel time to the Wild Wild West Event Centre will take approximately 20 to 30 minutes.

Come prepared for a fun filled night of country music and entertainment in a spectacular setting.

The dinner will consist of a casual BBQ style buffet. Two drink tickets per person will be provided upon arrival, additional drinks can be purchased from the cash bar.

There will be buses providing transportation back to the Hyatt Regency. These buses will depart the Wild Wild West Event Centre at 9:30pm, 10:00pm and 10:15pm.

If you would like to find your own way to this event, the Wild Wild West Event Centre is located at 67 Commercial Court in Calgary.

If you have any questions, please see the staff at the NOPS registration desk.

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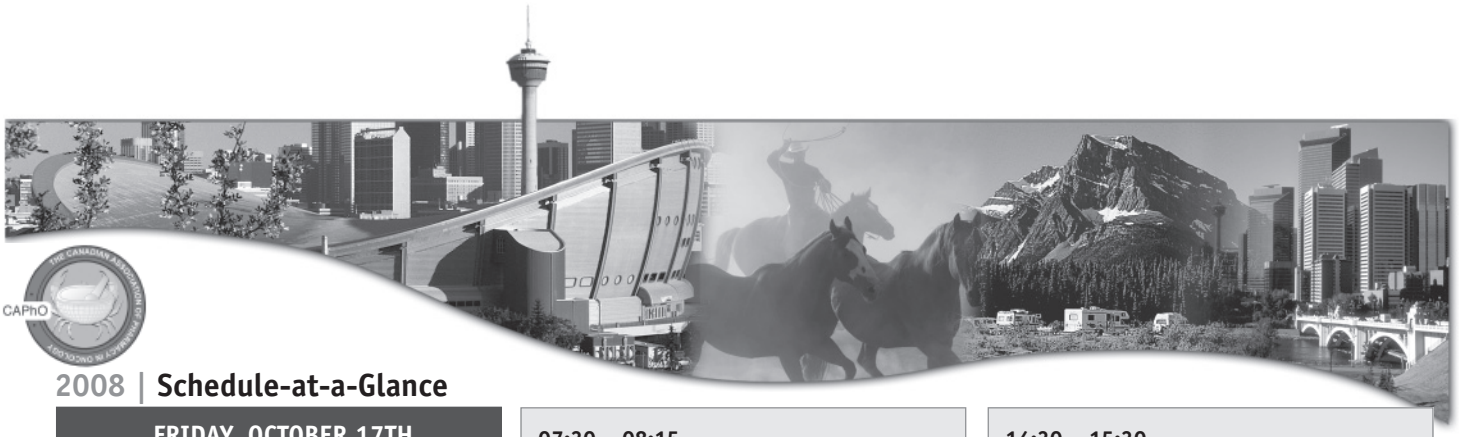


2008 | Schedule-at-a-Glance

FRIDAY, OCTOBER 17TH

07:30 – 09:30
SATELLITE SYMPOSIUM *(Imperial 1/2/3)*
Merck Frosst
REVIEWING THE EVIDENCE AND IDENTIFYING CHALLENGES IN THE PREVENTION AND MANAGEMENT OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING

09:45 – 11:45
SATELLITE SYMPOSIUM *(Imperial 5/7/9)*
Abraxis Bioscience Canada
FORMULARY DECISION MAKING DURING TIMES OF FISCAL RESTRAINT: PRACTICAL APPLICATIONS OF PHARMACOECONOMICS IN THE ONCOLOGY SETTING

12:00 – 14:00
SATELLITE SYMPOSIUM *(Imperial 1/2/3)*
Amgen
RESEARCH TO REALITY: THE FIRST INDIVIDUALIZED THERAPY IN MCRC

14:15 – 16:15
SATELLITE SYMPOSIUM *(Imperial 5/7/9)*
Wyeth
THE MASTER SWITCH OF CANCER CELLS: "MTOR INHIBITION – THE POWER LIES WITHIN!"

16:30 – 18:30
SATELLITE SYMPOSIUM *(Imperial 1/2/3)*
Sanofi Aventis
CURRENT ISSUES IN THE MANAGEMENT OF COLORECTAL CANCER

18:45 – 20:45
SATELLITE SYMPOSIUM *(Imperial 5/7/9)*
Pfizer
OPTIMIZING TREATMENT OF THE CANCER PATIENT

SATURDAY, OCTOBER 18TH

06:30 – 08:00
SATELLITE SYMPOSIUM *(Doll/Herald)*
Bayer
DRUG FUNDING 101 - WHEN THE MOON AND STARS ALIGN

07:30 – 08:15
BREAKFAST *(Imperial 1/2/3)*

08:15 – 08:25
WELCOME AND INTRODUCTION
(Imperial 5/7/9)

08:30 – 09:25
PLENARY SESSION *(Imperial 5/7/9)*
BREAKIN' A NEW TRAIL – PHARMACIST PRESCRIBING IN A CANCER INSTITUTE

09:30 – 10:25
PLENARY SESSION *(Imperial 5/7/9)*
SEE WHAT THE FUTURE HAS IN STORE

10:25 – 10:55
BREAK *(Imperial 4/6/8 & Corridor)*

11:00 – 11:45
PLENARY SESSION *(Imperial 5/7/9)*
VITAMIN D: A RAY OF HOPE FOR CANCER?

11:50 – 12:35
PLENARY SESSION *(Imperial 5/7/9)*
TARGETED THERAPIES - THE CHANGING TOXICITY PROFILE OF CANCER RELATED THERAPIES

12:35 – 13:15
CAPHO ANNUAL GENERAL MEETING
(Imperial 5/7/9)

13:15 – 14:15
LUNCH *(Imperial 4/6/8)*

14:30 – 15:00
BREAKOUT #A1 | TECHNICAL STREAM
(Imperial 1)
PART 1 | RIDING THROUGH THE CLINICAL TRIAL FRONTIER – THE PHARMACY RESEARCH TECHNICIAN TAKING THE LEAD

15:00 – 15:30
BREAKOUT #A1 | TECHNICAL STREAM
(Imperial 1)
PART 2 | CPOE-A NEW "TABLET"

14:30 – 15:30
BREAKOUT #A2 | CLINICAL STREAM
(Imperial 1)
EXPANDING CLINICAL PRACTICE? OUTPATIENT CLINIC OPTIONS

14:30 – 15:30
BREAKOUT #A3 | ADMINISTRATIVE STREAM *(Imperial 3)*
MAPPING THE LANDSCAPE OF DRUG SAFETY: THE CANADA VIGILANCE PROGRAM

15:35 – 16:05
BREAKOUT #B1: TECHNICAL STREAM
(Imperial)
PART 1 | CHEMOTHERAPY PREPARATION TRAINING COURSE- A NEW APPROACH TO ON-LINE TRAINING WITH OBJECTIVE STANDARDIZED PRACTICAL EVALUATION (OSPE) TO MEET PROVINCIAL STANDARDS

16:05 – 16:35
BREAKOUT #B1: TECHNICAL STREAM
(Imperial 1)
PART 2 | BCCA PROVINCIAL PHARMACY CHEMOTHERAPY CERTIFICATION PROGRAM

15:35 – 16:35
BREAKOUT #B2: CLINICAL STREAM
(Imperial 2)
A JOURNEY OF A THOUSAND MILES STARTS WITH THE FIRST STEP" DEVELOPING, MAINTAINING AND EXPANDING A CLINICAL ONCOLOGY PHARMACY PRACTICE

15:35 – 16:35
BREAKOUT #B3: ADMINISTRATIVE STREAM
(Imperial 3)
MIRAGE OR OASIS? ONCOLOGY PHARMACY PRACTITIONERS

16:35 – 18:30
(Imperial 4/6/8)
WINE AND CHEESE RECEPTION
POSTER AND EXHIBIT VIEWING
Sponsored by Carmel Pharma

19:00 – 22:30
DINNER & ENTERTAINMENT
(Wild Wild West Event Centre)

2008 | Schedule-at-a-Glance continued

SUNDAY, OCTOBER 19TH

07:00 – 08:30
SATELLITE SYMPOSIUM *(Doll/Herald)*
Eli Lilly
LUNG CANCER: NEW ADVANCES, NEW STRATEGIES, NEW THERAPIES: A NEW ERA!

08:00 – 08:45
BREAKFAST *(Imperial 1/2/3)*

08:45 – 09:15
ORAL SESSIONS - AWARD WINNING POSTERS *(Imperial 5/7/9)*
CAPHO AWARD WINNING POSTER
HONORABLE MENTION POSTER

09:20-10:05
PLENARY SESSION *(Imperial 5/7/9)*
TO FEAR OR NOT TO FEAR A NCIC MONITORING VISIT

10:05 – 10:25
BREAK *(Imperial 4/6/8 & Corridor)*

10:25-10:50
PLENARY SESSION *(Imperial 5/7/9)*
THE GOOD, THE BAD AND THE UGLY - A PHARMACIST'S ROLE ON THE RAPID ACCESS PALLIATIVE RADIOTHERAPY PROGRAM (RAPRP) TEAM

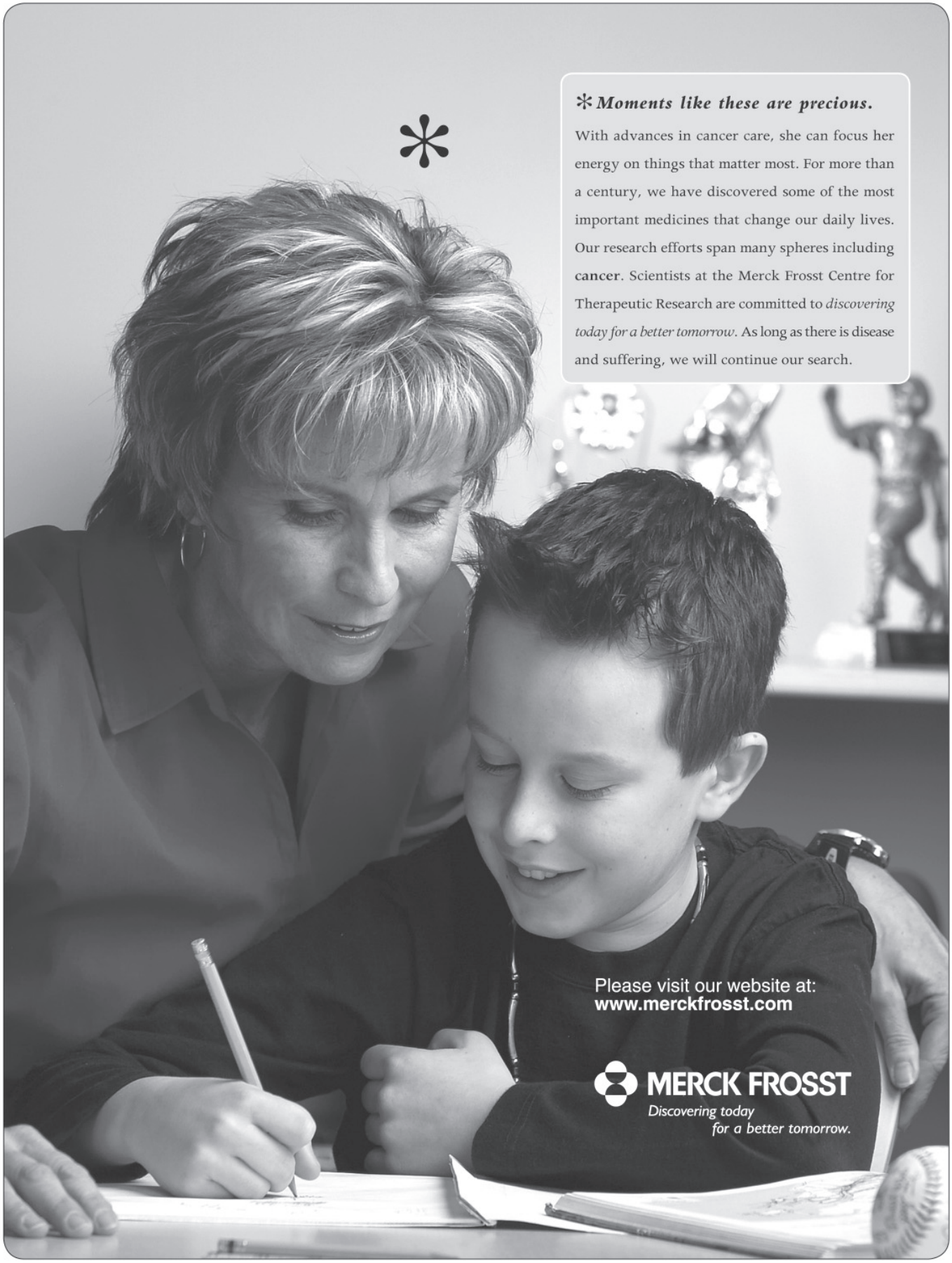
10:55 – 11:25
PANEL SESSION: MEDICATION SAFETY *(Imperial 5/7/9)*
ONCOLOGY MEDICATION SAFETY SELF-ASSESSMENT TOOL

11:30 - 12:00
PANEL SESSION: MEDICATION SAFETY *(Imperial 5/7/9)*
PAN-CANADIAN RESEARCH STUDY ON CHEMOTHERAPY SAFETY

12:00-12:20
PANEL SESSION: MEDICATION SAFETY *(Imperial 5/7/9)*
QUESTION AND DISCUSSION PERIOD

12:20 – 12:30
CLOSING REMARKS *(Imperial 5/7/9)*

12:30 – 14:30
ACCREDITED WORKSHOP *(Doll/Herald)*
ROCHE
CARDIAC MANAGEMENT DURING ADJUVANT TRASTUZUMAB THERAPY: RECOMMENDATIONS OF THE CANADIAN TRASTUZUMAB WORKING GROUP


*Moments like these are precious.
With advances in cancer care, she can focus her energy on things that matter most. For more than a century, we have discovered some of the most important medicines that change our daily lives. Our research efforts span many spheres including **cancer**. Scientists at the Merck Frosst Centre for Therapeutic Research are committed to *discovering today for a better tomorrow*. As long as there is disease and suffering, we will continue our search.
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2008 | Schedule for Friday, October 17

07:30 – 9:30
SATELLITE SYMPOSIUM: MERCK FROSST (*Location:* IMPERIAL BALLROOM 1/2/3)
REVIEWING THE EVIDENCE AND IDENTIFYING CHALLENGES IN THE PREVENTION AND MANAGEMENT OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING
Scott Edwards, PharmD, Clinical Oncology Pharmacy Specialist, Dr. H. Bliss Murphy Cancer Center, St. John's

09:45 – 11:45
SATELLITE SYMPOSIUM: ABRAXIS BIOSCIENCE CANADA, INC. (*Location:* IMPERIAL BALLROOM 5/7/9)
FORMULARY DECISION MAKING DURING TIMES OF FISCAL RESTRAINT: PRACTICAL APPLICATIONS OF PHARMACOECONOMICS IN THE ONCOLOGY SETTING
George Dranitsaris, M.Pharm, FCSHP, Research Pharmacist, Toronto
Sean Hopkins, BSc, BSP, RPEBC, RPh, Clinical Pharmacy Specialist, Ottawa Regional Cancer Centre

12:00 – 14:00
SATELLITE SYMPOSIUM: AMGEN (*Location:* IMPERIAL BALLROOM 1/2/3)
RESEARCH TO REALITY: THE FIRST INDIVIDUALIZED THERAPY IN mCRC
Biljana Spirovski, BScPhm, RPh, Clinical Oncology Pharmacist, Humber River Regional Hospital, North York, ON (Chair)
Sharlene Gill,MD, MPH, FACP, FRCPC, Assistant Professor of Medicine, Medical Oncologist, BC Cancer Agency Vancouver Centre, Vancouver, BC
Hélène Bourget-Letarte, BPharm,DPH, Pharmacy Manager, The Ottawa Hospital Regional Cancer Centre, Ottawa,ON
Nathalie Fernandes, BPharm, MSc, Oncology Pharmacist & Research Coordinator, Centre de la Santé et des Services Sociaux de Laval, Laval, QC

14:15 – 16:15
SATELLITE SYMPOSIUM: WYETH (*Location:* IMPERIAL BALLROOM 5/7/9)
THE MASTER SWITCH OF CANCER CELLS: "mTOR INHIBITION – THE POWER LIES WITHIN!"
Rick Abbott, Regional Pharmacy Manager, Systemic Therapy Eastern Health, Pharmacy Services, Dr. H. Bliss, Murphy Cancer Center

16:30 – 18:30
SATELLITE SYMPOSIUM: SANOFI-AVENTIS (*Location:* IMPERIAL BALLROOM 1/2/3)
CURRENT ISSUES IN THE MANAGEMENT OF COLORECTAL CANCER
1. Dr. Calvin Law, University of Toronto: Advances in Resection of Liver Metastases
2. Dr. Andrew Scarfe, Cross Cancer Centre: Update on Adjuvant Therapy of Colon Cancer
3. Mr. Gabriel Gazzé, McGill University Hospital Centre: Prevention and Treatment of Neurotoxicity with FOLFOX regimens

18:45 – 20:45
SATELLITE SYMPOSIUM: PFIZER (*Location:* IMPERIAL BALLROOM 5/7/9)
OPTIMIZING TREATMENT OF THE CANCER PATIENT
Carole Chambers, Director of Pharmacy, Alberta Cancer Board, Calgary (Chair)
Joseph "Dean" Ruether, MD FRCP (C), Assistant Professor, Division of Internal Medicine, University of Calgary, Medical Oncologist, Tom Baker Cancer Centre, Calgary
Scot Dowden, MD FRCP (C), Medical Oncologist, Tom Baker Cancer Centre, Alberta Cancer Board, Calgary

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2008 | Schedule for Saturday, October 18

SATURDAY, OCTOBER 18

06:30 – 08:00
SATELLITE SYMPOSIUM: BAYER *(Location:* DOLL/HERALD*)*
DRUG FUNDING 101 - WHEN THE MOON AND STARS ALIGN
Dr. Scot Dowden, MD FRCPC, Medical Oncologist, Clinical Assistant Professor, Department of Medicine and Oncology, Director, Medical Oncology Training Program, Deputy Chair, Gastrointestinal Tumor Program, Southern Alberta, University of Calgary

07:30 – 08:15
BREAKFAST *(Location:* IMPERIAL BALLROOM 1/2/3*)*

08:15 – 08:25
WELCOME AND INTRODUCTION *(Location:* IMPERIAL BALLROOM 5/7/9*)*

08:30 – 09:25
PLENARY SESSION
BREAKIN' A NEW TRAIL – PHARMACIST PRESCRIBING IN A CANCER INSTITUTE *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Dale Cooney, Deputy Registrar, Alberta College of Pharmacists
Jennifer Dutka, Consult Pharmacist, Symptom Control and Palliative Care, Cross Cancer Institute, Edmonton

09:30 – 10:25
PLENARY SESSION
SEE WHAT THE FUTURE HAS IN STORE *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Jeff Barnett, Director Clinical Informatics, Cancer Care, BCCA

10:25 – 10:55
BREAK (*Location:* IMPERIAL BALLROOM 4/6/8 & CORRIDOR)

11:00 – 11:45
PLENARY SESSION
VITAMIN D: A RAY OF HOPE FOR CANCER? *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Cheri Van Patten, RD, MSc, Research Practitioner, Oncology Nutrition, BCCA

11:50 – 12:35
PLENARY SESSION
TARGETED THERAPIES - THE CHANGING TOXICITY PROFILE OF CANCER RELATED THERAPIES *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Carlo De Angelis, Pharm D., Clinical Pharmacy Coordinator, Odette Cancer Centre, Toronto

12:35 – 13:15
CAPHO ANNUAL GENERAL MEETING *(Location:* IMPERIAL BALLROOM 5/7/9*)*

13:15 – 14:05
LUNCH *(Location:* IMPERIAL BALLROOM 4/6/8*)*

14:30 – 15:00
BREAKOUT #A1: TECHNICAL STREAM *(Location:* IMPERIAL BALLROOM 1)
PART 1: RIDING THROUGH THE CLINICAL TRIAL FRONTIER – THE PHARMACY RESEARCH TECHNICIAN TAKING THE LEAD
Nancy Drummond-Ivars, Clinical Trials Technician, The Ottawa Hospital Cancer Centre, Ottawa

2008 | Schedule for Saturday, October 18 Continued

15:00 – 15:30
BREAKOUT #A1: TECHNICAL STREAM (*Location:* IMPERIAL BALLROOM 1)
PART 2: CPOE-A NEW "TABLET"
Susan Kemp, Pharmacy Technician
Jillian Hardy, Patient Safety Liaison Pharmacist, CancerCare Manitoba

14:30 – 15:30
BREAKOUT #A2: CLINICAL STREAM (*Location:* IMPERIAL BALLROOM 2)
EXPANDING CLINICAL PRACTICE? OUTPATIENT CLINIC OPTIONS
Peggy Dang, Clinical Oncology Pharmacist, Burnaby Regional Cancer Center, Burnaby

14:30 – 15:30
BREAKOUT #A3: ADMINISTRATIVE STREAM (*Location:* IMPERIAL BALLROOM 3)
MAPPING THE LANDSCAPE OF DRUG SAFETY: THE CANADA VIGILANCE PROGRAM
Thanh Vu, Pharm D., Coordinator, Canada Vigilance Regional Office - BC and Yukon, Health Canada

15:35 – 16:05
BREAKOUT #B1: TECHNICAL STREAM (*Location:* IMPERIAL BALLROOM 1)
PART 1: CHEMOTHERAPY PREPARATION TRAINING COURSE- A NEW APPROACH TO ON-LINE TRAINING WITH OBJECTIVE STANDARDIZED PRACTICAL EVALUATION (OSPE) TO MEET PROVINCIAL STANDARDS
Kelly Robinson, Senior Pharmacy Technician
Larry Broadfield, Manager, Cancer Care Nova Scotia, Systemic Therapy Program

16:05 – 16:35
BREAKOUT #B1: TECHNICAL STREAM 1 (*Location:* IMPERIAL BALLROOM 1)
PART 2: BCCA PROVINCIAL PHARMACY CHEMOTHERAPY CERTIFICATION PROGRAM
Joan Fabbro, Chemotherapy Certification Pharmacist
Michelle Koberinski, Chemotherapy Certification Pharmacy Technician

15:35 – 16:35
BREAKOUT #B2: CLINICAL STREAM (*Location:* IMPERIAL BALLROOM 2)
A JOURNEY OF A THOUSAND MILES STARTS WITH THE FIRST STEP"
DEVELOPING, MAINTAINING AND EXPANDING A CLINICAL ONCOLOGY PHARMACY PRACTICE
Scott Edwards, Pharm. D., Clinical Oncology Pharmacy Specialist, Eastern Health Dr. H. Bliss Murphy Cancer Centre, St. John's, NL

15:35 – 16:35
BREAKOUT #B3: ADMINISTRATIVE STREAM (*Location:* IMPERIAL BALLROOM 3)
MIRAGE OR OASIS? ONCOLOGY PHARMACY PRACTITIONERS
Carole Chambers, Director of Pharmacy, Alberta Cancer Board

16:35 – 18:30
WINE AND CHEESE, POSTER AND EXHIBIT VIEWING (*Location:* IMPERIAL BALLROOM 4/6/8)
Sponsored by Carmel Pharma

19:00 – 22:30
DINNER & ENTERTAINMENT (*Location:* WILD WILD WEST EVENT CENTRE)

2008 | Schedule for Sunday, October 19

07:00 – 08:30
SATELLITE SYMPOSIUM: ELI LILLY *(Location:* DOLL / HERALD*)*
LUNG CANCER: NEW ADVANCES, NEW STRATEGIES, NEW THERAPIES: A NEW ERA!
Dr. Sunil Verma, Medical Oncologist
Assistant Professor, Faculty of Medicine, University of Toronto
Director of Post-Graduate Medical Oncology Education, Toronto Sunnybrook Regional Cancer Centre

08:00 – 08:45
BREAKFAST *(Location:* IMPERIAL BALLROOM 1/2/3*)*

08:45 – 09:15
ORAL SESSIONS - AWARD WINNING POSTERS *(Location:* IMPERIAL BALLROOM 5/7/9*)*
CAPhO Award Winning Poster
Honorable Mention Poster

09:20 – 10:05
PLENARY SESSION: TO FEAR OR NOT TO FEAR A NCIC MONITORING VISIT *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Norma May, Pharmacist, Tom Baker Cancer Centre, Calgary
NCIC Gyne Disease Site Pharmacist Representative and member of the Auditing and Monitoring Committee

10:05 – 10:25
BREAK *(Location:* IMPERIAL BALLROOM 4/6/8 & CORRIDOR*)*

10:25 – 10:50
PLENARY SESSION: THE GOOD, THE BAD AND THE UGLY - A PHARMACIST'S ROLE ON THE RAPID ACCESS PALLIATIVE RADIOTHERAPY PROGRAM (RAPRP) TEAM *(Location:* IMPERIAL BALLROOM 5/7/9*)*
Lori Gagnon, Pharmacist, Cross Cancer Institute, Edmonton

10:55 – 12:20
PANEL SESSION: MEDICATION SAFETY *(Location:* IMPERIAL BALLROOM 5/7/9*)*
ONCOLOGY MEDICATION SAFETY SELF-ASSESSMENT TOOL
Sylvia Hyland, RPh, BScPhm, MHSc (Bioethics), Vice President,
Institute for Safe Medication Practices (ISMP) Canada

11:30 - 12:00
PANEL SESSION: MEDICATION SAFETY *(Location:* IMPERIAL BALLROOM 5/7/9*)*
PAN-CANADIAN RESEARCH STUDY ON CHEMOTHERAPY SAFETY
Andrea Cassano-Piché, M.A.Sc., Human Factors Engineer
Healthcare Human Factors Group, University Health Network

12:00-12:20
QUESTION AND DISCUSSION PERIOD *(Location:* IMPERIAL BALLROOM 5/7/9*)*

12:20 – 12:30
CLOSING REMARKS *(Location:* IMPERIAL BALLROOM 5/7/9*)*

12:30-14:30
ACCREDITED WORKSHOP: ROCHE *(Location:* DOLL / HERALD*)*
CARDIAC MANAGEMENT DURING ADJUVANT TRASTUZUMAB THERAPY: RECOMMENDATIONS OF THE CANADIAN TRASTUZUMAB WORKING GROUP
Susan F. Dent, BSc, MD, FRCPC
Medical Oncologist, Ottawa Hospital Cancer Centre, Associate Professor of Medicine, University of Ottawa

National Cancer Institute of Canada
Institut national du cancer du Canada

Clinical Trials Group
Groupe Des Essais Cliniques

Call for Volunteers!!!! Pharmacists Network, NCIC CTG

If you are a pharmacist involved in oncology clinical trials, this is your chance to **get involved!**

We are always looking for volunteers on Disease Site Groups and Steering Committee.

As a member, you would be funded to attend NCIC meetings twice a year and get a chance to interact with other colleagues from across the country on clinical trials related issues.

We are a very active and fun group of people and **our mission is to:**

- **Promote** the optimum utilization and standardization of oncology pharmacy services in the development and conduct of clinical trials; and,
- **Improve** communication and share expertise in oncology issues and information between members, the central office and other professional groups within the NCIC CTG for the ultimate benefit of the cancer patient.

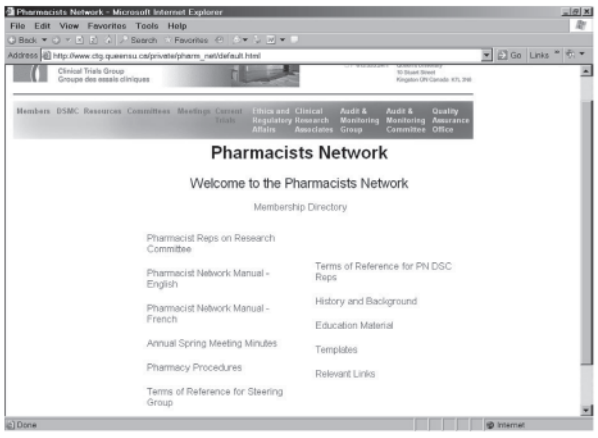
To learn more and to access our Pharmacy Manual, please visit our website at:

http://www.ctg.queensu.ca/private/pharm_net/default.html

Passwords are required to access this section of the website and a request for password information is on the NCIC website.

Passwords are restricted to members of NCIC Clinical Trials Group committees, working groups, and employees of participating member centres involved with the conduct of NCIC Clinical Trials Group studies.

From the Main page, illustrated below, you will be able to access valuable resources such as:



- The **Pharmacist Network Manual** in both languages, and
- **Numerous Templates** to assist with the start up of clinical trials for pharmacy.
  - *pharmacists' protocol review form*
  - *pharmacy procedures*
  - *drug accountability logs (open-label and blinded medication)*
  - *temperature logs and its deviation log*
  - *investigational drug (ID) information summary*
  - *pharmacy signature log*

If you are interested in volunteering for the Pharmacists Network or for more information about the Network, please contact Biljana Spirovski, chair of Pharmacists Network Steering Group at BSpirovski@HRRH.ON.CA

2008 | NOPS ANNUAL GENERAL MEETING NOTES

2008 | NOPS ANNUAL GENERAL MEETING NOTES

2008 | NOPS SPEAKER

DALE COONEY
BSP MBA

JENNIFER DUTKA
BSP

BIOGRAPHY

Dale Cooney graduated with a Bachelor of Science in Pharmacy from the University of Saskatchewan in 1987. Following graduation he worked two years in community pharmacy before moving to hospital pharmacy. Dale has worked as a staff pharmacist, supervisor and then manager in hospitals in Lethbridge, Red Deer and Edmonton. In 1997 Dale obtained a Diploma in Health Care Administration from the University of Saskatchewan and in 2002 earned a Masters in Business Administration from Athabasca University.

Dale has been the Deputy Registrar of the Alberta College of Pharmacists since June 2004. One of his key responsibilities has been to lead the development and implementation of new Standards of Practice in conjunction with the change in pharmacy legislation in Alberta.

Jennifer graduated with a Bachelor of Science in Pharmacy for the University of Saskatchewan in 1989. Upon receiving her degree, he moved to Edmonton to complete to complete at Hospital Pharmacy residency. During her residency is when she first began to develop and interest in Palliative Care. Jennifer has been an employee for Alberta Cancer Board since 1990. She initially began as a staff pharmacist, and in 1992 developed the role of the pharmacist with Pain and Symptom Consult team. 1994 saw a change in the clinic to a full multidisciplinary team. Over the years, JenniferÅfs role has evolved and her practice included the triage and coordination, assessment, recommendation and follow up of patients referred to the Department of Symptom Control and Palliative Care. In 2007 Jennifer successfully complete the Alberta College of Pharmacists pilot for Additional Prescribing Authorization.

SYNOPSIS

BREAKIN' A NEW TRAIL – PHARMACIST PRESCRIBING IN A CANCER INSTITUTE *Saturday, October 18th, 08:30 - 09:25*

It has been a long road to obtaining additional prescriptive authority in Alberta. We will review the standards and methods of qualification leading to safe, effective and responsible pharmacists practice. What is the role of pharmacist additional prescriptive authorization in a tertiary cancer centre? To understand how this compliments the collaborative working relationship with other healthcare professionals, during this plenary session we will glance into the past at the development of the role of the pharmacist as part of the Pain and Symptom Consult Team, review a case study and summarize how additional prescriptive authorization has been incorporated into the pharmacist practice.

International Society of Oncology Pharmacy Practitioners

6th ISOPP Australasian Regional Meeting
August 28 -30 2009
Sebel Albert Park Hotel
Melbourne Victoria

Breakin' a new trail: Pharmacist Prescribing in a Cancer Institute

New Frontiers in Oncology Pharmacy Symposium
October 18, 2008

Dale Cooney BSP,MBA
Deputy Registrar
Alberta College of Pharmacists

safe, effective, responsible pharmacist practice

Alberta College of Pharmacists

Mission:

ACP governs the pharmacy profession of Alberta to support and protect the public's health and well being.

We ensure excellent pharmacist practice by setting and enforcing high standards of practice, competence, and ethical conduct

safe, effective, responsible pharmacist practice

Legislation

- 1995 – Pharmaceutical Professions Act
- 1999 – Health Professions Act
  - Umbrella legislation
  - Restricted Activities
    - Activities that are restricted when carried out in relation to or as part of providing a health service
- 2006
  - Pharmacist Profession Regulation to the HPA
  - Regulations to Pharmacy and Drug Act
- April 1, 2007
  - Regulations came into effect

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Why did ACP seek the right to prescribe?

- Respond to needs identified directly by patients and indirectly through provincially and federally commissioned reports on health
- Meet the needs of patients
  - Improve drug therapy
  - Improve access
- Authorize roles that pharmacists have been providing for some time in various parts of the health system

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What is Pharmacist Prescribing?

1. Adapting a prescription
2. Prescribing in an emergency
3. Prescribing at initial access or to manage ongoing drug therapy

*does not include narcotics, controlled drugs or targeted substances (Benzodiazepines)

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Fundamentals of Prescribing

Professionalism
- Professional relationship with patient
- Maintain independence
- Refrain from prescribing for self or family
- Work collaboratively

Individual competence
- understanding of the condition being treated

Adequate information
- Information about the specific patient and situation

Informed consent

Approved indications
- HC approval or an approved clinical trial

Documentation

Notification of other health professionals

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What is Pharmacist Prescribing?

1. Adapting a prescription

1. Altering the dose, formulation or regimen
2. Renewing a prescription to ensure continuity of care
3. Substituting a drug that is expected to have a similar therapeutic effect

2. Prescribing in an emergency

If there is an immediate need for drug therapy AND
It is not reasonable possible for the patient to see another authorized prescriber

The pharmacist may prescribe a limited supply to treat symptoms until a diagnosis can be made.

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What is Pharmacist Prescribing?

3. Prescribing at initial access or to manage ongoing drug therapy

Prescribing based on:

1. the pharmacist's assessment of the patient
2. the recommendation of another authorized prescriber
3. collaboration with another regulated health care professional

* Additional Prescribing Authorization required

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Additional Prescribing Authorization

"... provided evidence satisfactory to the Registrar of having successfully completed the Council requirements to prescribe Schedule 1 drugs..."

How were council requirements and satisfactory evidence determined?

- Expert Panel
  - 4 Pharmacists
  - 1 Nurse Practitioner
  - 1 Physician
  - 1 Public Member
- Process recommended and approved by Council March 2007
- Pilot September – December 2007
- Applications process opened April 2008

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Additional Prescribing Authorization

Application Process

- **Meet Eligibility Requirements**
- **Complete Application Form**
- **Submit 3 care plans**

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Additional Prescribing Authorization

Eligibility Requirements:

- Good standing on ACP Clinical Register
- 2 years full time experience in direct patient care (or equivalent)
- Completed CE or training in the area(s) you anticipate prescribing within the past 5 years

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Application Form:

Education and Training

- How have you acquired sufficient knowledge, skills and abilities to enable you to prescribe?

Experience and Practice

- Description of current practice
- When would you prescribe in areas other than your primary area?
- When would you refer?

Collaborative Relationships

- How do you facilitate communication, id mutual goals, share information, and establish expectations?
- Letters of collaboration from 2 other health professionals

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2008 | DALE COONEY AND JENNIFER DUTKA PRESENTATION HANDOUTS

Care Plans

Actual documentation of care provided to 3 different patients that provides evidence that you routinely perform the 6 Key Activities:

1. Form and maintain professional relationship with the patient
2. Assess patient
3. Develop and implement care plan
4. Follow up with patient to monitor progress
5. Document patient information, assessment, interventions and communication with other health professionals
6. Make professional judgments to maximize patient safety and desired health outcomes

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Assessment of Application

- **Peer Assessment**
  - Clinical Pharmacists
  - Training provided
- **Criterion Based Assessment**
  - Indicators identified for each application question
  - Indicators identified for each key activity

Key Activities and Indicators based on *Standards for Pharmacist Practice*

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Additional Prescribing Authorization

Authorizations Granted to Date:

Pilot Program	**15**
April 2008 – present	**15**
Total	**30**

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Additional Prescribing Authorization

- **Cross Section of Pharmacists and Work Location**
  - Pharm D's, Bachelor, Bachelor with Residency &/or Certifications (eg) Diabetes Educators
  - Institution/Clinic
  - Community Pharmacy
  - Primary Care Networks

Note: Authorization is not a specialist certification
- May prescribe any schedule 1 drug as per the fundamentals

safe, effective, responsible pharmacist practice

NATIONAL ONCOLOGY PHARMACY SYMPOSIUM

Breakin' a New Trail: Pharmacist Prescribing in a Cancer Institute

October 18, 2008

Jennifer Dutka B.S.P.
Consult Pharmacist
Department of Symptom Control and Palliative Care, Cross Cancer Institute

OBJECTIVES

- Pain and Symptom Pharmacist Background
- Current Practice
- How Additional Prescriptive Authorization Has Impacted Practice

IN YEARS GONE BY….

" What do you think of pharmacist working in specialty areas?"

Hospital Pharmacy residency
- Introduction to Palliative Care

Cross Cancer Institute
- Department of Pharmacy
- Home Parenteral Pain Management Program
- Pain and Symptom position

THE EARLY YEARS

- Physician on site support on Wednesday afternoons only
- Trained to focus on assessment, seeing the patient as a whole

"… you can't recommend what is best for the patient until you really know the patient…"

ASSESSMENTS

- Visual Analogue Scales (Edmonton Symptom Assessment System –ESAS)
- Location, characteristic and descriptions
- Mini-mental State Exam
- Review of recent investigations
- Current Medications
- Opioid History

REFERALS

- Medical and Radiation Oncologists
- Outpatients and Inpatients
- Rapid Turn Around Time
- Recommendations Reviewed with Referring Physician

MULTIDISCIPLINARY PAIN AND SYMPTOM CLINIC

- 1994
- Nutrition, OT, PT, Respiratory, Social Work, Psychology, Pastoral Care, Pharmacy, Nursing, Senior Physicians, Family Medicine/Internal Medicine Residents
- Co-ordination of the Clinic

MULTIDISCIPLINARY TEAM PAIN AND SYMPTOM CLINIC

- Implementation of the Regional Palliative Care Program in Edmonton
- Palliative Patients Receiving Active Treatment
- Provide Consultative Support to Oncologists/ Family MD/Specialist in Management of Cancer Related Symptoms for Patients at the Cross Cancer Institute

Present Day

- Pain and Symptom Consult Team
- 1.0 + 0.6 FTE Physicians
- 0.8 + 0.4 FTE RN
- 0.9 FTE Clerical Support
- 0.5 FTE Pharmacist

OUR TEAM

Just Another Typical Day

- Referral and Triage Process
- Initial Telephone Assessment
- Assessment of Patients with Booked Appointments
- Review with Physician
- Phone Follow-up Calls with Dosage Adjustments as necessary
- Prescriptions and Counseling of Patients booked for that day.

Just Another Typical Day

- New Inpatient Referrals
- Inpatient Follow-up
- Emergency Referrals

Pain and Symptom New Patient Visits

N= 531

Outpatients seen	202
Multidisciplinary Clinic	169
Inpatients	160

Pain and Symptom Triage Assessments

Telephone	340
In- person	130

Pain and Symptom Follow-up

In-Person n = 1104

Outpatient	183	
Multidisciplinary clinic	94	
Inpatient		827

Telephone n = 2962 *

Patient	2286

* Phone calls with other healthcare professionals were not routinely recorded

Case Presentation

John 52 y.o. diagnosed with adenocarcinoma of the pancreas with liver metastasis and a large mediastinal mass

Enrolled in a clinical trial of Gemcitabine +/- a study drug, received two treatments to date

Referral to Pain and Symptom Control: pain and possible opioid toxicity

Symptom Assessment

Pain

- Left lower abdomen, radiating around to the back
- Constant, poking, knife like qualities
- Rolling in bed only trigger identified

Symptom Assessment

Nausea

- 5 day history, 3 days post chemotherapy
- 4.5 Kg weight loss in past 10 days, 39 Kg loss in past year
- Denies emesis
- Describes signs of early satiety
- Oral thrush on examination of mouth

Symptom Assessment

Constipation

- Last BM 3 days prior with a history of nothing for 4 days prior

Sleep Disturbances

- Life long issue. Worse in past 3 months

Symptom Assessment

Opioid Toxicity

- Present for the past 3 days
- Confusion
- Auditory and visual hallucinations
- Vivid dreams
- Fluid intake 1.5 L per day
- Denying myoclonus or tactile hallucinations

Additional Investigation

Additional Blood Work Requested at Time of Referral

WBC	4.6	Ca++	2.36
Neut	2.6	Albumin	38
Hgb	126	Glucose	7.7
Urea	2.7	AST	42
Cr	69	Alk Phos	161

Remainder of blood work unremarkable

Symptom Assessment

Symptom Assessment Scores

- Limited due to cognitive impairment
- MMSE 22/30 for a best expected 28/30
- CAGE ¾
- Pain 2/10 at present with worst 6/10 in past 3 days
- Nausea 3/10

PMH: Diabetes as a result of primary, kidney stones

Allergies: NKA

Medication History

Current Medications:

- Long Acting Morphine 300mg po q12h
- Morphine IR 25-30mg po q1h prn. (100mg/d)
- Docusate 3 capsules po tid
- Sennoside 1 tablet po bid
- Metoclopramide 10mg po q4h – started 3 days ago
- Ondansetron 8mg po bid-tid – started 1/52 ago
- Lactulose 30ml po tid prn – not using due to gas and cramping
- Simethicone 180mg po tid prn
- Metformin 500-750mg po qd
- Clonazepam 1mg po hs – started 1/52 ago. Trialed Lorazepam 1mg SL for 2 weeks prior

Opioid History

Opioid History

- T#3 (? Dose) started 1/12 prior to referral
- Switch to HM IR and subsequently to HMC 6mg po q12h with rapid escalation to 48mg po q12h. Felt it was ineffective
- Switch to MO IR 10 days prior to referral with escalation to 100mg po q4h
- Switch to MSC 300mg po q12h two days prior to referral

Recommendations

Pain:

- Discontinue Long Acting Morphine
- Dosage reduction to MO 75mg po q4h and 25mg po q1h prn
- Review appropriate use of BTP
- Dexamethasone 4mg po bid as adjuvant analgesic for visceral pain syndrome (monitor blood sugars)

Recommendations

Drowsiness/Confusion/Hallucinations:

- Maintain good fluid intake, if unable Clysis
- MO dosage reduction
- Discontinue Benzodiazepines
- Discuss realism of solving a life long problem i.e. sleep disturbance
- Haloperidol prn for hallucinations and nausea – patient declined

Recommendations

Nausea:

- R/O constipation as contributing factor
- Discontinue Ondansetron
- Continue Metoclopramide 10mg po q4h and 10mg po q1h prn nausea – to be reassessed
- Nystatin 500,000u swish and swallow

Recommendations

Constipation:

- Abdominal X-ray (score 9/12)
- Mineral oil retention enema, followed by cleansing enema. Once effective Oral Phosphate Solution.
- Sennoside 2 tablets po tid
- Docusate 3 capsules po tid
- Polyethylene Glycol Solution discussed

FOLLOW UP BY PHONE EARLY NEXT WEEK

How to Implement ?

- Locate referring physician
- Discuss plan and write up prescriptions for signatures
- Type up medication schedule
- Counsel patients on changes
- Lengthy wait for the patient

Additional Prescriptive Authority Pilot

Reflection on current practice

- Key components incorporated over the years
- Clear documentation of assessment, recommendations and follow up
- Collaborative working relationship with Palliative Care Consultants and referring physicians

Additional Prescriptive Authority Pilot

Challenges

- Physician awareness
- Continuing Professional Development Log
- Care Plans – Narcotic and Control Drugs exempt from additional prescriptive authorization

How have things changed?

How To Implement?

- Discuss changes with patient following assessment
- Write prescriptions for NON narcotic interventions without a lengthy wait
- Provide medication schedule and counsel
- Review narcotic adjustments with referring physician
- Patient able to leave in a more timely manner

Reaction to Pharmacist Prescribing

- Patients and families very open
- Referring physician do not have to interrupted
- Decreased wait times

Person Reaction

- Increased sense of autonomy
- Greater sense of responsibility for outcome
- Other healthcare professionals reaction

In Years Gone By …

"What do you think of pharmacists working in specialty areas?"

Present Day

"And they will be prescribing too!"

2008 | NOPS SPEAKER

JEFF BARNETT
BSc (Pharm), MSc, FCSHP

BIOGRAPHY

Jeff Barnett is a Professor of Health Information Science at the University of Victoria, and is the Director of Clinical Informatics at the BC Cancer Agency in Victoria, BC. He holds an MSc in Health Information from the University of Victoria, and has extensive experience as an analyst and project team member in health care systems deployment. He was a pharmacist for over 25 years prior to his entry into informatics. His research specializes in computers and IT. He has presented on many topics relating to these research interests and has coauthored several papers in health care journals.

SYNOPSIS

SEE WHAT THE FUTURE HAS IN STORE *Saturday, October 18th, 09:30 – 10:25*

Several new technologies and projects will be discussed that have relevance to Oncology Pharmacy. Everyone is aware of some of the new exciting technologies such as the Blackberry® and IPhone® but what is coming into the world of healthcare and in particular oncology pharmacy? Bar coding, hand held devices, wireless connectivity and robots are just some examples of technology that are starting to come into vogue now. There are other new exciting developments just around the corner that pharmacists and pharmacy technicians need to be aware of. This talk will cover the future of Information and Communication Technology (ICT) and how it will have a major impact on the practice of pharmacy.

In particular Canada is moving towards having a fully functional electronic health record for all Canadians. One of the cornerstones for this is drug information systems (DIS). DIS's across Canada are being designed and implemented at the provincial level and one day will be connected across Canada. These systems will be employing state of the art technology.

It is important to understand that new technologies are being discussed at many levels. Through several bodies such as CSHP, CPHA and the Blueprint for Pharmacy the needs of pharmacy are being discussed and there is some planning already started.

Objectives:

1. To help demystify the healthcare technologies that have been mentioned in the lay and scientific press.
2. To provide pharmacists and pharmacy technicians with useful and practical information on new technologies that will impact oncology pharmacy practice.
3. To highlight some of the ICT initiatives happening in Canada that involve pharmacy.
4. To provide pharmacy staff with an understanding of how these initiatives will be rolled out in the coming years

See what the Future Has in Store

NOPS 2008 Calgary Alberta
October 18 2008

Jeff Barnett BSc (Pharm), MSc, FCSHP
Director Clinical Informatics
Cancer Care
BC Cancer Agency

AGENDA

- Where we are and where are we going
- Challenges facing oncology pharmacy
- Factors leading to a new generation of pharmacy software
- Technology considerations for pharmacy
- What the future may hold

Change and Attitudes

In 1834, the following quote appeared in the *London Times:*

"That it will ever come into general use, notwithstanding its value, is extremely doubtful because its beneficial application requires much time and gives a good bit of trouble, both to the patient and to the practitioner."

The statement refers to introduction of the stethoscope into medical practice but could also apply to Computerized Physician OPOE.

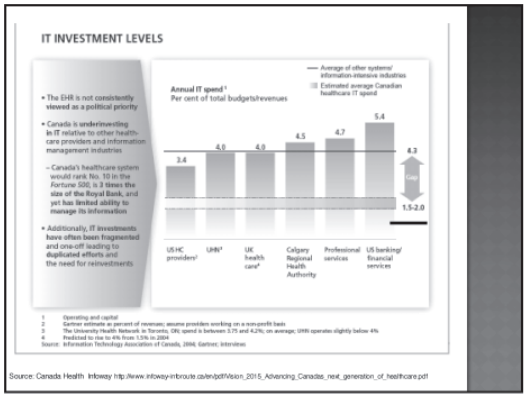
WHERE HAVE WE COME FROM

BIGGEST CHALLENGES FACING ONCOLOGY PHARMACY IN 2008?

- Lack of recognition for skills
- Lack of recognition of pharmacists in major IT projects
- Regionalization
- Funding
- Pharmacist shortage (and pharmacist wages)

HOSPITALS TARDY ON TECHNOLOGY

- 14% utilize technology (beyond pharmacy dispensing system) in dispensing process
- Less than 10% of hospitals in Canada have true Computerized Physician Order Entry (CPOE) in place
- Many hospitals either in the paper world or hybrid, few are full paperless
- Move toward increased patient access to electronic records - how does this affect pharmacy?

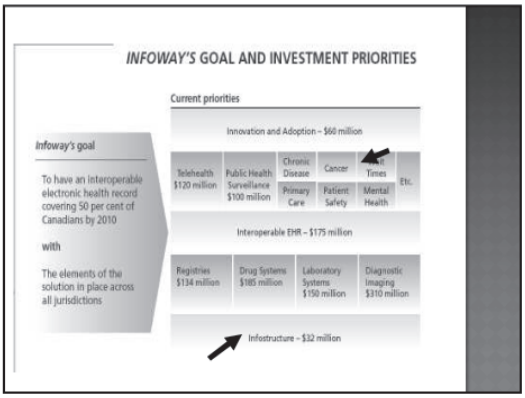


FACTORS LEADING TO NEW GENERATION OF PHARMACY SOFTWARE

- **Technology Factors**
- Current legacy systems and technology are outdated, using old code, and have been patched together with bolted on enhancements
- New and cheaper technology available
  - Bar codes/scanning
  - Robotics
  - Web technologies
- Regionalization has lead to enterprise wide systems

FACTORS LEADING TO NEW GENERATION OF PHARMACY SOFTWARE

- **Health System Factors:**
- Canada Health Infoway
  - "To have an interoperable electronic health record covering 50 per cent of Canadians by 2010"
  - Drug Information Systems are a key "E-Drug"
  - Cancer is also high on the radar
- National Pharmacy e-task Force
- Blue Print for Pharmacy
- Canadian Partnership Against Cancer
  - Pharmacy Systems?
  - Database Extraction



Infoway Drug Systems Strategy - Objectives

- Patient safety - reduced errors in the prescribing process resulting from incomplete, inaccurate and/or illegible information at the point of care, lack of clinical decision support
- Cost management - improved formulary compliance; improved efficiencies in workflow in prescribing and dispensing environments; reduced hospitalization
- Process efficiency - reduced "callbacks" from pharmacist to physician, ability to integrate e-prescribing tools into workflow
- Patient satisfaction - accurate drug profile, reduced wait time in pharmacy, reduced adverse drug events

BC eDrug Project Objectives

- Authorized access to more complete medication profiles widely available
- Provincial medication profile that includes:
  - Community medications available in PharmaNet
  - Acute care medications
  - Office samples
  - Cancer drugs etc.
- ePrescribing capabilities implemented, and Physician adoption launched
- Clinical and financial decision support tools available at the point of care

FACTORS LEADING TO NEW GENERATION OF PHARMACY DISPENSING SOFTWARE

- **Legal Factors**
- Provincial Legislation
  - FOIPPA
  - Changes for e-Health
    - E-Prescribing
    - Pharmanet type systems
- Modernization of Pharmacy Laws
  - Pharmacist Prescribing
  - Physician Order Entry

FACTORS LEADING TO NEW GENERATION OF PHARMACY SOFTWARE

- **Other Environmental Factors**
- Increased Rx Volume and complexity
- New automation options to integrate with Pharmacy systems
- Improved workflow
- Alternate site activities
  - Central Fill
  - Central Processing
  - Remote dispensing

KEY COMPONENTS OF NEW PHARMACY DISPENSING SYSTEM

- Scalable
- Workflow options to match Rx volume
- Alternate site dispensing options
- Interfaces easily with other automation and technology
- Maximizes use of technicians in non-clinical tasks
- Controls and checks to minimize Rx errors
- Easy conversion from existing platform

ADDITIONAL AUTOMATION TO CONSIDER

- Electronic Prescribing
- Robots
- IVR
- Telepharmacy

"If CAT scans can be read [by licensed physicians] outside the country, pharmacists in other countries who are certified here could conduct a patient's drug review."

-John Gans, Executive Vice President
American Pharmacists Association

ELECTRONIC PRESCRIBING

- A recent study* of e-prescribing found that when compared to all other modes of transmitting and receiving Rxs:
- New e-prescriptions
  - Required 26.6% less staff time for completion of five key dispensing activities
  - Saved $0.97 per prescription in pharmacy labor costs
- Refill e-prescriptions
  - Required 10.2% less time
  - Saved $0.37 per prescription in pharmacy labor costs

*Research of Michael Rupp as reported in Computer Talk May/June 2005

ELECTRONIC PRESCRIBING

- Various provinces moving towards e-prescribing
- Delay in getting clarity from Health Canada with regard to changes to allow an electronic signature
  - Health Canada confirmed that no regulatory changes are required

IVR TECHNOLOGY-NEXT GENERATION

- Prescription refill requests
- Outbound Refill reminders
- Phase IV study recruitment
- Offers to enroll patients in manufacturer programs for targeted patients

TELEPHARMACY AS POTENTIAL SOLUTION TO ACCESS?

- To extend pharmacy services
  - Provide access to remote areas
  - Create 24 hour pharmacy service
- Technology requirements
  - Computer, video, and audio links
  - Scanner, video camera, and microphone
  - Connectivity (dial-up vs. DSL)
- Legal factors
  - Individual provincial laws may vary

BENEFITS OF EMERGING PHARMACY TECHNOLOGY

- Integrating new technology into pharmacy dispensing process
- Dispense more Rxs safely with new technology (better controls)
- Comply with updated pharmacy laws and new laws
- Green considerations-less paper, more digital storage (Rx, signatures, patient records)
- Financial- studies show lower cost to dispense when properly deployed

WHERE WE ARE GOING

THE FUTURE?

"Technology is going to provide our incredibly stressed healthcare system with a chance to heal itself. By simplifying time-consuming processes and eliminating some of the major causes of medical errors, technology will ensure the right skill level and right cost structure is in place to provide the best care effectively and efficiently."
- Phil Edholm, Chief Technologist and VP Architecture, Nortel Enterprise

2008 | NOPS SPEAKER

CHERI VAN PATTEN
RD, MSc, BC Cancer Agency

BIOGRAPHY

Cheri Van Patten is a Registered Dietitian having completed a Bachelor of Applied Science and Master of Science majoring in Nutrition. She is an active member of the College of Dietitians of BC and Dietitians of Canada, and is an accredited member of the American Dietetic Association. Cheri has over a decade of experience in cancer care and research. Her current position is a Researcher & Clinical Practitioner in Oncology Nutrition at the BC Cancer Agency, specializing in breast and prostate cancer. She has been an invited speaker at numerous patient forums and professional conferences and is a regular contributor to the Abreast in the West breast cancer newsletter distributed to over 10,000 women with breast cancer across Canada and the popular Intelligent Patient Guide for Breast Cancer. Her areas of interest and scientific publications are mainly in cancer survivorship. This includes the investigation of the role of diet, body weight, obesity, exercise, and the use of Natural Health Products in quality of life, cancer recurrence and survival.

Cheri is also an avid cyclist and is proud to have participated in the Tour of Courage Challenge Ride with Lance Armstrong in 2007, an event which raised 1.8 million for cancer research.

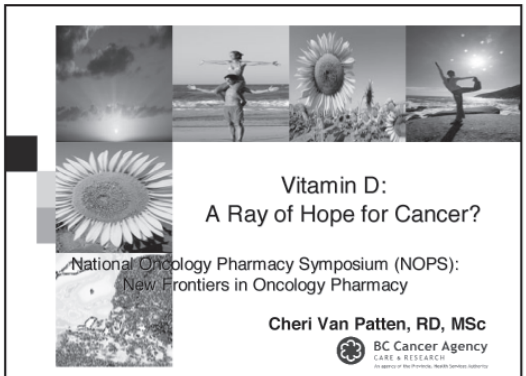
SYNOPSIS

VITAMIN D: A RAY OF HOPE FOR CANCER? *Saturday, October 18th, 11:00–11:45*

In keeping with the theme of this year's symposium, this session will highlight the latest evidence on vitamin D as a "new frontier" in cancer. New evidence on vitamin D in the last few years has generated scientific and clinical debate, while capturing media headlines and wide public interest. Once known only for its role in bone health there is now a growing body of evidence for vitamin D and cancer. This data has challenged the Dietary Reference Intake (DRI), established in 1997, suggesting that current recommendations for vitamin D intake are inadequate to achieve a variety of proposed positive health outcomes including cancer prevention. The session today will focus on an evaluation of evidence relating to vitamin D in the primary and secondary prevention of cancer, with an emphasis on the level one evidence from large scale, randomized clinical trials.

Objectives:

1. To provide pharmacists with an overview of vitamin D, Dietary Reference Intakes and proposed supplementation recommendations from various national and/or professional organizations/agencies.
2. To summarize strengths and limitations of the body of literature on the role of vitamin D in the primary and secondary prevention of cancer, with a focus on large scale randomized trials.
3. To explore some of the clinical dilemmas in cancer, arising from the latest literature, in determining what advice to provide to the public and cancer patients on vitamin D supplementation.



Vitamin D: A Ray of Hope for Cancer?

National Oncology Pharmacy Symposium (NOPS): New Frontiers in Oncology Pharmacy

Cheri Van Patten, RD, MSc

BC Cancer Agency
CARE & RESEARCH

Vitamin D 101

- Naturally occurring in very few foods
- Almost all human intake from foods comes from **fortified milk products** and other foods (eg. breakfast cereals)
- Photosynthesized in the skin by solar UVB radiation (aka "sunshine vitamin")
- Throughout the world, the **major source of vitamin D for humans is sunlight exposure**
- Fat soluble vitamin and stored in the body

Natural Sources of Vitamin D

Salmon, canned or cooked (75 g)	608 IU
Sardines, Pacific, canned (75 g)	360 IU
Salmon, Atlantic (75 g)	225 IU
Herring or trout, cooked (75 g)	156 IU
Tuna (albacore, ahi), canned (75 g)	105 IU
Mackerel, cooked (75 g)	80 IU
Tuna (light or white), canned (75 g)	41 IU
Egg yolk (1 large)	25 IU

BC Health Files, Food Sources of calcium and Vitamin D (June 2007)

Other Sources of Vitamin D

Supplements:	
Multi-vitamin	400 IU
Vitamin D	400-1000 IU
Fortified Foods:	
Cow's milk	100 IU
Orange juice	90 IU
Soy or rice beverage	80 IU
Breakfast cereals	~80 IU
Margarine (2 tsp)	50 IU

Vitamin D is inexpensive as a supplement (10¢ for 1000 IU)

Vitamin D Produced from Sunshine

- Exposure of arms and legs to 5 to 30 minutes of sunlight is often adequate, depending on time of day, season, latitude and skin pigmentation
- Exposure wearing a bathing suit is equivalent to ingestion of ~20,000 IU
- Body regulates production to prevent toxicity

Vitamin D 101

- There are many forms, but the two major physiologically relevant ones are:
- **D_2 (erogcalciferol)** = originates from yeast and ergosterol (plant sterol)
- **D_3 (cholecalciferol)** = originates from 7-dehydrocholesterol (precursor of cholesterol), when synthesized in the skin

National Institute of Medicine, 1997 http://www.nap.edu/

Vitamin D 101

- A multitude of other cells recognize active form of vitamin D or $1,25(OH)_2D$
- Major biological function as a potent antiproliferation and prodifferentiation hormone
- **25-hydroxyvitamin D** or **25(OH)D**, also known as **calcidiol**, is a functional indicator of vitamin D status

National Institute of Medicine, 1997 http://www.nap.edu/

Dietary Reference Intakes (DRI)

- **Vitamin D adult intake recommended**
- (joint Canadian and US):
- Ages 19-50 years: 200 IU
- Ages 51-70 years: 400 IU
- Ages >71 years: 600 IU
- Upper Limit: 2000 IU
  - *Combination of foods and supplements*

National Institute of Medicine, 1997 http://www.nap.edu/

Dietary Reference Intakes (DRI)

- **Vitamin D deficiency** is characterized by inadequate or demineralization of the skeleton, causing rickets (children) and osteomalacia (adults), with the absence of these condition as the de facto indicator of sufficiency
- Thus **bone health** was used as the basis for defining the "current" DRI for vitamin D (established in 1997) with no other health or disease outcome factored into the recommendations
- "Possibility that deficiency is associated with increased risk of colon, breast and prostate cancer; but requires prospective studies to test hypothesis"

National Institute of Medicine, 1997 http://www.nap.edu/

Comparison of Current Vitamin D Recommendations (Adults)

Organization	Vitamin D	Age Group
Health Canada	400 IU*	>50 years
Canadian Dermatology Association	1000 IU*	Adults
Canadian Cancer Society	1000 IU*	Adults
Osteoporosis Canada	400 IU 800 IU	19-50 years >50 years

*as a daily supplement of vitamin D

Serum Vitamin D levels & Health Outcomes

- There is no consensus on the optimal level of serum 25(OH)D
- The current DRI does not provide a range
- **>75 nmol/L is widely cited by experts**
- ~50-75 nmol/L for insufficiency
- <50 nmol/L for vitamin D deficiency
- 374 nmol/L for vitamin D toxicity

Holick M. New England Journal of Medicine 357(3): 266-81, 2007

Primary Prevention: Background

- A growing body of epidemiological evidence
- **Reduced cancer incidence *associated* with*:**
- increased exposure to **sunlight** (as a surrogate marker of vitamin D status)
- higher **serum 25-hyrdoxyvitamin D**, and/or
- higher **dietary intake** of vitamin D

Primary Prevention: Background

- The evidence is epidemiological and thus is based on associations (not causal relationships) with the majority, but not all studies, showing a significant inverse relationship
- **Two recent reviews include:**
- Garland et al. The role of vitamin D in cancer prevention. American Journal of Public Health 96(2): 252-61, 2006.
- Van der Rhee et al. Does sunlight prevent cancer? A systematic review. European Journal of Cancer 42: 2222-32, 2006.

Molecular Basis of the Potential of Vitamin D to Prevent Cancer

- Vitamin D has a role in nuclear transcription factor that regulates:
- **cell growth**
- **differentiation**
- **apoptosis,** and
- a wide range of cellular mechanisms central to the development of cancer

Ingraham et al, Current Medical Research & Opinion, 2008 (Review)

Nebraska Study Primary Prevention Trial

- Randomized placebo controlled double blinded
- Primary outcome was fracture risk
- Secondary outcome cancer incidence
- Included breast, colon, lung, lymph, leukemia, myeloma, uterus and other
- **Three treatment arms:**
  - Calcium supplement (1400-1500 mg)
  - Calcium + vitamin D (1100 IU) supplements
  - Placebo
- Healthy postmenopausal women (n=1179)
- 4 years of follow up

Lappe et al, American Journal of Clinical Nutrition 2007; 85: 1586-91

Nebraska Study Primary Prevention Trial

- Significant reduction in all cancers (combined) in the calcium plus vitamin D arm (p<0.03)
- Unadjusted relative risks (RR) were:
- **Calcium + Vitamin D:**
  - 13 *vs* 20 cases
  - RR=0.402 (CI 0.20,0.82) (p=0.01)
- **Calcium only:**
  - 17 *vs* 20 cases
  - RR=0.532 (CI 0.27, 1.03) (p=0.06)

Lappe et al, American of Journal of Clinical Nutrition 2007; 85: 1586-91

Nebraska Study Primary Prevention Trial

- For cancers diagnosed after the first 12 months:
- **Calcium + Vitamin D:**
- Increased reduction in cancer risk (6 *vs* 16 cases)
- RR=0.232 (p<0.005)
- **Calcium only:**
- Virtually no change in cancer risk (15 *vs* 16 cases)
- RR= 0.587 (p=0.147)
- In multiple logistic regression models, treatment and serum 25(OD) were significant independent predictors of cancer risk

Lappe et al, American Journal of Clinical Nutrition 2007; 85: 1586-91

Nebraska Study Primary Prevention Trial

- Effect of **calcium** on cancer risk:
- Not statistically significant in calcium only arm
- Marginal protective effect, that was *not improved* with the removal of "first year cancers"
- The results of several calcium trials have been reported but unfortunately few have cancer endpoints
- Some evidence that calcium may lower colon cancer risk

Lappe et al, American Journal of Clinical Nutrition 2007; 85: 1586-91

Women's Health Initiative (WHI) Randomized Trials

- **Purpose:**
- **Assess the risks and benefits of:**
- Hormone Therapy
- Dietary Modification
- Calcium and vitamin D supplementation*

Design:

- Randomized placebo controlled double blind
- Enrollment 1993-1998
- Postmenopausal women
- n=36,282

***The trial results have been published separately:**
Fracture Risk (New England Journal of Medicine 2006; 354: 669-83)
Colorectal Cancer (New England Journal of Medicine 2006; 354: 684-96)
Breast Cancer and Arthralgia (Journal of Clinical Oncology 2006; 24: 18S)

Women's Health Initiative (WHI) Randomized Trials

- Women were randomized within one year of entering the larger trial
- **Two treatment arms:**
  - Calcium (1000 mg) + Vitamin D (400 IU) supplements
  - Placebo
- Primary outcome was fracture risk
- 7 years of follow up

WHI Cancer Results

- No effect on **total risk of cancer** (p=0.53)
- No effect on risk of invasive **colorectal cancer** (or tumour characteristics)
  - 168 *vs* 154 cases
  - HR=1.08 (95%CI= 0.86, 1.34)
- These findings did not validate previous observational studies and polyp-prevention trials that associated calcium and vitamin D to lower risk

Wactawski-Wende et al. JCO 2006; 24:18S (June 20 supplement)

WHI Breast Cancer Results

- No effect on the risk of **breast cancer**
  - 528 *vs* 546 cases
  - HR=0.96 (95%CI=0.85, 1.09)
- Breast cancers were smaller in supplemented study arm (1.54 vs 1.71 cm, p=0.05)
- Baseline vitamin D intake was associated with lower breast cancer risk *in the placebo*
- Baseline vitamin D deficiency common

Chlebowski R et al. JCO 2006; 24:18S (June 20 supplement)

Main Study Characteristics

Study Characteristics	Nebraska Study	Women's Health Study
Design	RCT Placebo Controlled Double Blind	RCT Placebo Controlled Double Blind
Intervention	1000 IU vitamin D 1400-1500 mg calcium	400 IU vitamin D 1000 mg calcium
Population	Postmenopausal Mean BMI = 29 kg/m^2 (n=1,179)	Postmenopausal BMI>25 kg/m^2 (n=36,282)
Baseline 25(OH)D	71.8 nmol/L	-----
Duration	4 years	7 years
Cancer Incidence	Significant Reduction	No Difference

Strengths of Studies

Primary Prevention Trials Compared

- Randomized placebo controlled double blind design
- Low attrition

- **Nebraska Study:**
- Good adherence
- No serious adverse effects
- 25(OH)D >80 nmol/L with supplementation
- Improved RR with removal of early cancers
- Significant predictive effect of serum 25(OH)D
- Consistent with body of literature

- **WHI:**
- Measurement of cancer risk factors
- Diverse racial/ ethnicity and social economic status

Limitations of Studies

Primary Prevention Trials Compared

- Cancer incidence was a secondary outcome
- Short duration of follow for cancers with long latency
- Self-reported data
- Limited or lack of cancer screening and surveillance
- No 'vitamin D' only intervention arm
- Women were overweight and/or obese (risk factor)

- **Nebraska Study:**
- Limited number of cases
- Cancer risk factors not described

- **WHI:**
- Insufficient dose
- Poor adherence
- Participation in multiple trials (HRT and Dietary)?

Overall Findings from Vitamin D Primary Prevention RCTs

- Examining **Level 1 Evidence**, the effect of vitamin D supplementation on cancer outcomes has been assessed only in postmenopausal women and in combination with calcium, measured as a secondary outcome
- These trials reported:
- A significant **reduction in cancer incidence** was seen with **1000 IU of vitamin D**, in women who achieved >80 nmol/L 25(OH)D
- **No effect** seen with a lower dose of 400 IU of vitamin D in those with baseline deficiency

Evidence for Role of Vitamin D in Cancer Mortality

- **Epidemiological observational data:**
- Inverse association between sun exposure and/or serum vitamin D and cancer mortality for a variety of cancers
- Vitamin D insufficiency and deficiency common in breast cancer survivors
- Serum 25(OH)D is significantly higher in women with early vs late stage breast cancer (Palmieri et al, 2006) and in situ vs local & regional disease (Neuhouser et al, 2008)

Evidence for Role of Vitamin D in Cancer Mortality

- **Epidemiological observational data:**
- Women diagnosed (and treated) with breast cancer in the summer versus winter months (corresponding with higher serum 25(OH)D) have a significantly better survival rate (Porojnicu et al, 2007)
- Currently **no randomized controlled trials** to evaluate the effect of vitamin D supplementation in patients with cancer

Vitamin D Deficiency Common in Breast Cancer Survivors

Prevalence of Deficiency † and Insufficiency ‡	Mean 25(OH)D	Reference
76% (n=790)	62 nmol/L	Neuhouser (2008)
76% (n=512)	58.1 nmol/L	Goodwin (2008)
84% (n=103)	-----	Crew (2008)
72% (n=96)	-----	Trukova (2007)
n=11,622	44.4-62 nmol/L	Porojnicu (2007)
88% (n=147)	53-54.5 nmol/L	Geisler (2006)
n=279	46-57 nmol/L	Palmieri (2006)

† deficient defined as <15 nmol/L to up to <50 nmol/L
‡ insufficient defined as <25 nmol/L to up to <80 nmol/L

Vitamin D & Breast Cancer Survival

- **Prospective, observational study:**
- Newly diagnosed women with breast cancer (n=512)
- Serum vitamin D measured at diagnosis with 11.6 years of follow up
- Deficiency and insufficiency prevalent in cohort:
- **24.0% (n=123) adequate levels (>72 nmol/L)**
- 37.5% (n=192) deficient levels (<50 nmol/L)
- 38.5% (n=197) insufficient (50-72 nmol/L)

Goodwin, P et al (2008) ASOC Abstract #511

Vitamin & Breast Cancer Survival

- **Distant Disease Free Survival:**
- Lower with vitamin D deficiency
- HR = 1.94, p=0.2
- Independent of age, BMI, insulin, T and N stage, ER and grade (all HR ≥1.55 Q1 *vs* Q4, $p \leq 0.04$)
- Not modified by ER, chemotherapy or Tamoxifen
- **Overall Survival:**
- Lower with vitamin D deficiency
- HR = 1.73, p=0.2
- Attenuated by grade; absent in ER-

Goodwin, P et al (2008) ASOC Abstract #511

Meta-analysis of Vitamin D Supplementation and *Total Mortality*

- Included 18 RCTs with 57,311 participants
- Daily doses of vitamin D supplements ranged from 300-2000 IU
- **RR = 0.93 (all causes) (95%CI 0.87-0.99)**
- Not modified by the addition of calcium supplements in the intervention
- Editorial by Edward Giovannucci (page 1710) raised important issues

Autier and Gandini, Archives of Intern Medicine 2007

Observations from Literature

- Vitamin D *supplements* are being used to 'validate' observational data that is based on improved cancer outcomes (incidence and mortality) related to sunshine exposure
- The effects of sunshine (as a surrogate biomarker of vitamin D status) may be confounded by physical activity or other positive health behaviours such as body weight or other factors

Pros and Cons for Vitamin D

- **Vitamin D prevents cancer (PRO):**
- Supportive body of evidence of epidemiological data, and early clinical trial data
- Plausible mechanism(s) of action
- High prevalence of vitamin D deficiency
- **Not enough evidence for vitamin D (CON):**
- Limited level 1 evidence from RCTs
- Vitamin D may only be a surrogate for other factors that prevent cancer
- Other factors may explain relationship to improved outcomes

Weighing the Evidence

- What level of evidence will be used?
- **Under what scrutiny will vitamin D be subjected (more or less than drugs)?**
- Does this differ if it is deemed there is no potential for harm?
- **Is more vitamin D better? Or harmful?**
- What are the implications of vitamin D *supplementation* (potential for large public health implications or toxicity)?

Clinical Questions Arising

- What advice to health professionals provide to the public regarding a "optimal dose" of vitamin D for positive health benefits?
- **Does this differ in those at high risk for cancer or cancer survivors?**
- Should routine serum vitamin D testing (to assess vitamin D status) be encouraged for the public or cancer survivors?

2008 | NOPS SPEAKER

CARLO DEANGELIS
President Elect of the Canadian Association of Pharmacy in Oncology

BIOGRAPHY

Carlo earned his Bachelor of Science in Pharmacy from the University of Toronto in 1981 and completed a Hospital Pharmacy Residency at Sunnybrook Health Sciences Centre in 1982. He graduated with a Doctor of Pharmacy from the State University of New York at Buffalo in 1984. From 1985 to the present, Carlo has been the Clinical Pharmacy Coordinator for Oncology at the Odette Cancer Centre, Sunnybrook Health Sciences Centre and has owned and managed a community pharmacy, Panacea Pharmacy since 1994.

He is the current President Elect of the Canadian Association of Pharmacy in Oncology.

He is an Associate Professor in the Division of Pharmacy Practice at the Faculty of Pharmacy, University of Toronto and lectures in both the Undergraduate Bachelor of Science in Pharmacy and Doctor of Pharmacy Programs. He has given numerous presentations at local, national and international meetings on various oncology related topics.

His areas of interest include the prevention and management of treatment related side effects in cancer patients, with a particular interest in nausea and vomiting, neutropenia, anemia, pain management and end of life care. Additional interests include practice based research to support the clinical activities of Oncology Pharmacists in symptom management, patient counseling and the roll of Pharmacists in promoting good medication taking behavior in the oncology setting.

Carlo is a passionate advocate of the need for pharmacists in both the community and hospital settings to be more involved in the care of cancer patients.

SYNOPSIS

TARGETED THERAPIES - THE CHANGING TOXICITY PROFILE OF CANCER RELATED THERAPIES *Saturday, October 18th, 11:50 – 12:35*

Targeted Therapies – The Changing Toxicity Profile of Cancer Related Therapies

Carlo De Angelis, PharmD
Clinical Pharmacy Coordinator - Oncology
Department of Pharmacy
Sunnybrook Health Sciences Centre
Odette Cancer Centre

NOPS 2008

Financial Disclosure

I have received financial support for research, speaker consultant fees or honoraria from the following Pharmaceutical Manufacturers:

- Amgen
- Ortho Biotech
- Roche Oncology
- Wyeth
- Merck Frosst
- Pfizer Oncology
- Sanofi-Aventis

Learning Outcome Objectives

At the end of this presentation the participant will be able to:

- Identify the common side effects associated with the use of targeted anticancer agents
- Discuss the use of standardized assessment tools in the evaluation of side effects related to targeted anticancer therapies
- Develop strategies to prevent, mitigate and manage side effects associated with targeted anticancer therapies

History of Systemic Cancer Therapy

Chabner BA et al. Nature Reviews Cancer 2005

What is Targeted Therapy?

"An agent directed against predetermined & well-defined extracellular, transmembrane, or intracellular molecules involved in pathways controlling cellular growth, differentiation, transcription, or angiogenesis"

Shaheen PE, et al. Cancer Investigation 2006

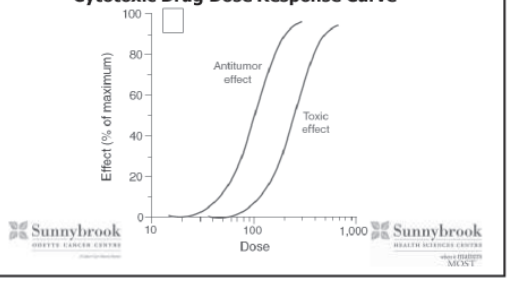
Cytotoxic versus Targeted Drug Development

Fox E et al. Oncologist 2002

	Empirical	Targeted
Discovery	Cell based	Receptor based
MOA	Unknown	Basis for selection
Effect	Cytotoxic	Cytostatic
Specificity	Nonselective	Selective
Dose/Schedule	Pulse/cyclical at MTD	Continuous at biologically effective dose

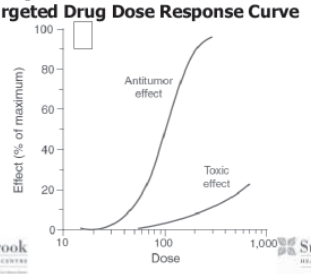
Goal of Targeted Therapy Development

Cytotoxic Drug Dose Response Curve



Goal of Targeted Therapy Development

Targeted Drug Dose Response Curve



Ideal Characteristics of a Targeted Therapy Agent

- High specificity & affinity for target
- Good oral absorption
- Metabolically stable - Long half-life
- No interaction with cytochrome P450
- Favourable toxicity profile

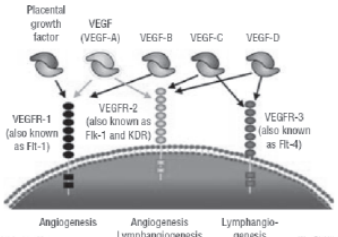
The Acquired Capabilities of Cancer

Hanahan B & Weinberg RA. Cell 2000

- Self sufficiency in growth signals
- Insensitivity to growth inhibitory signals
- Evasion of programmed cell death
- Limitless replication capability
- Sustained angiogenesis
- Tissue invasion and metastasis
- Genomic instability

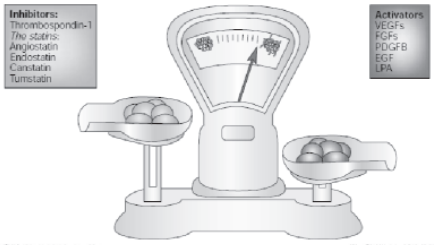
VEGF Family

Viele CS. Oncol Nurs Forum 2005



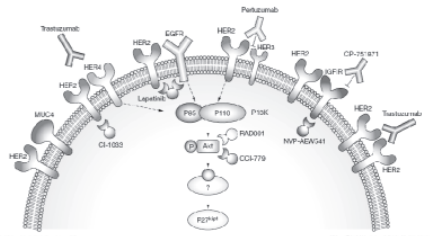
Angiogenic Balance

Bergers G, et al. Nature Rev Cancer 2002



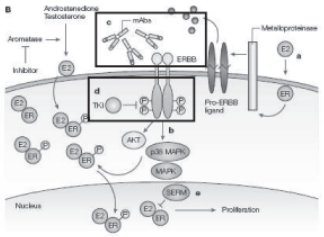
EGFR Family

Nahta R et al. Nature Clin Pract Oncol 2006



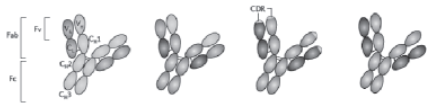
Targeted Therapy - EGFR

Hynes NE, et al. Nature Rev Cancer 2005



Targeted Therapy - MoAb

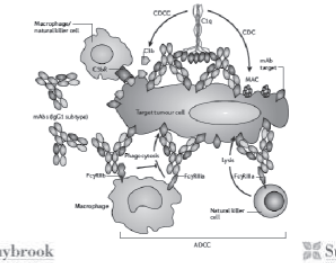
Imai K & Takaoka A Nature Reviews Cancer 2006



Type of mAb	Murine	Chimeric	Humanized	Human
	Ibritumomab tiuxetan (CD20); IgG1κ Tositumomab-^{131}I (CD20); IgG2aλ	Cetuximab (EGFR); IgG1κ Rituximab (CD20); IgG1κ	Trastuzumab (ERBB2); IgG1κ Bevacizumab (VEGF); IgG1 Alemtuzumab (CD52); IgG1κ Gemtuzumab ozogamicin (CD33); IgG4κ	Panitumumab (EGFR); IgG2

Targeted Therapy - MoAb

Imai K & Takaoka A Nature Reviews Cancer 2006



Monoclonal Antibodies

- Alemtuzumab - MabCampath®
- Bevacizumab - Avastin®
- Cetuximab - Erbitux®
- Ibritumomab - Zevalin®
- Panitumumab - Vectibix®
- Rituximab - Rituxan®
- Trastuzumab - Herceptin®

Monoclonal Antibodies - Infusion Related Reactions

- Infusion related reactions
  - Murine > Chimeric > Humanized > Human
- Reaction rates of various MoAb
  - Rituximab - 80 % first; 40% subsequent
  - Trastuzumab - < 10%
  - Panitumumab - < 3%
- Anaphylactoid in character
- Premedication
  - Antihistamine, corticosteroid, acetaminophen

Signs of infusion related reactions

Neurologic
- Dizziness, headache, weakness, syncope, seizure

Psychiatric
- Anxiety, "sense of impending doom"

Respiratory
- Nasal congestion, rhinitis, sneezing, oropharyngeal or laryngeal edema, broncospasm, tachypnea, cyanosis, resporatory arrest

Carviovascular
- Tachycardia, hypotension, arrhythmia, chest pain, ischemia or infarction, cardiac arrest

Cutaneous
- Flushing, erythema, pruritus, urticaria, angioedema, maculopapular rash

Gastrointestinal
- Nausea, vomiting, cramping, diarrhea

Oral Targeted Agents

- Dasatinib - Sprycel®
- Erlotinib - Tarceva®
- Gefitinib - Iressa®
- Imatinib - Gleevec®
- Lapatinib - Tykerb®
- Sunitinib - Sutent®
- Sorafenib - Nexavar®

Antiangiogenic Agents

- Bevacizumab
- Sunitinib
- Sorafenib

Side Effects of Anti-Angiogenic Agents

- Hypertension
- Proteinuria
- Hypothyroidism
- Cardiac impairment
- Bleeding
- Impaired wound healing
- Gastrointestinal perforation

Hypertension

- Mechanism
  - Decreased of nitric oxide production
  - Impairment of kidney control on blood pressure
- Bevacizumab
  - 30 % overall; 15% Grade 3; 1% Grade 4
- Sunitinib
  - 28% overall; 4% Grade 3
- Sorafenib
  - 17% overall; 3% Grade 3
- Treat with antihypertensive agents
- No need to adjust dose
- If patient has history of hypertension
  - Control high blood pressure
  - Monitor closely

Proteinuria

- Mechanism
  - Loss of fenestrations in glomerular capillaries
  - Inhibition of VEGF dependent interactions between podocytes and glomerular endothelial cells
  - Disruption of filtration barrier
- Bevacizumab
  - 25 % overall
- Asymptomatic
- Serious renal impairment is rare
- Decreases with therapy discontinuation

Impaired Wound Healing

- Mechanism
  - Formation of new blood vessels critical to wound healing
  - Impairment of epithelialisation
  - Decreased wound strength
- Bevacizumab - Grade 3 or 4 complications
  - Delayed/abnormal wound healing, wound dehiscence, bowel perforation, fistula and abscess formation, hemorrhage
  - Complication rate
    - 13% when surgery occurred within 60 days of last dose
    - 1.3 % when surgery preceded bevacizumab
  - Patient selection
    - Use at least 4 weeks after any major surgery
    - No brain metastases
    - Not on anticoagulant therapy

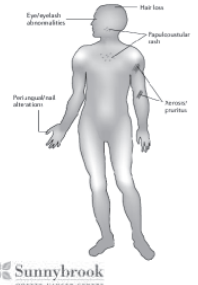
EGFR Inhibitors

- Cetuximab
- Panitumumab
- Trastuzumab
- Gefitinib
- Erlotinib
- Lapatinib

Side Effects of EGFRIs

- Diarrhea
- Skin toxicity
- Nail toxicity
- Hepatic toxicity
- Cardiac toxicity
- Endocrine abnormalities

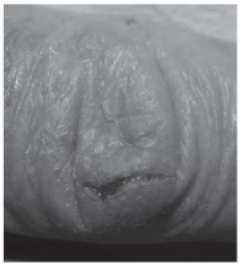
Skin Toxicities of EGFRIs



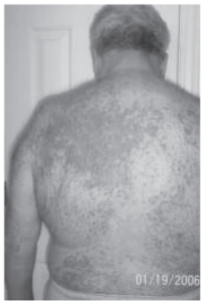
- Papulopustular rash
  - 45 - 100%
- Abnormalities in hair growth
  - 20%
- Dry itchy skin
  - 12 - 16%
- Periungual inflammation and tenderness
  - 12 - 16%

EGFRI - Xerosis, dry eczema

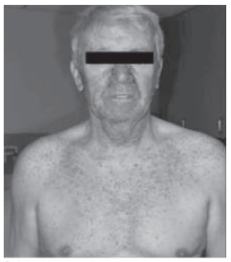
Segaert S and Van Cutsem E. Ann Oncol 2005

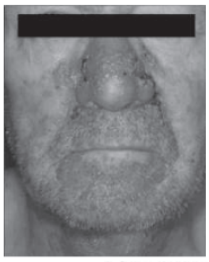


EGFR Inhibitor - Rash

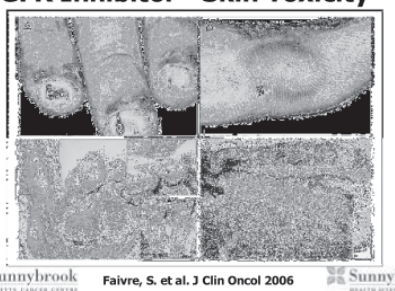


EGFR Inhibitor Rash





EGFR Inhibitor - Skin Toxicity

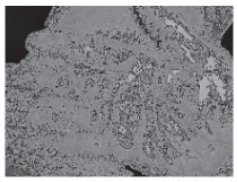


Faivre, S. et al. J Clin Oncol 2006

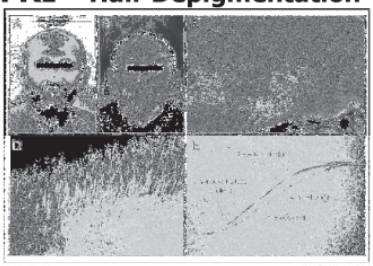
EGFR Inhibitor - Skin Toxicity PPE

Grade 2

Grade 3



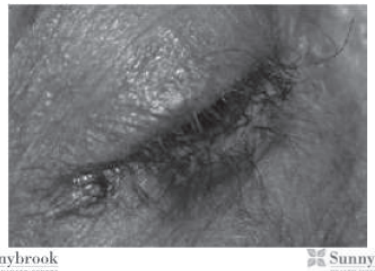
EGFRI - Hair Depigmentation



Faivre, S. et al. J Clin Oncol 2006

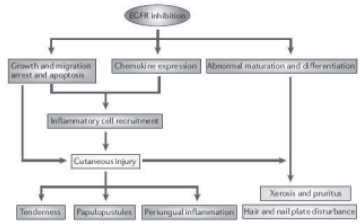
EGFRI - Trichomegaly

Segaert S and Van Cutsem E. Ann Oncol 2005



Model For EGFR Reactions

Lacouture ME Nature Rev Cancer 2006



Lapatinib Side Effects

Moy B & Goss PE Oncologist 2007

- **Skin Rash**
  - 30% of patients treated
  - Inflammatory papules/pustules
  - Scalp, face, neck, chest, back
  - Pathologically - folliculitis
- **Management**
  - Interrupt treatment
  - Clindamycin 1% gel or Clindamycin 1% with Benzoyl peroxide 5%
  - Tetracycline 250 mg four times daily, minocycline 100 mg twice daily
  - Topical retinoids NOT recommended

Management Algorithm

Lapatinib Side Effects

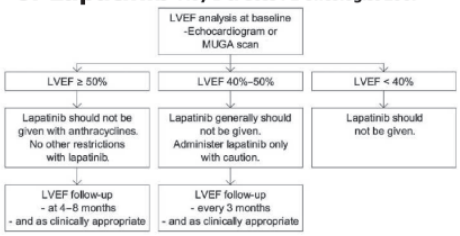
Moy B & Goss PE Oncologist 2007

Cardiac toxicity

- 1.6% (58/3558) experienced decrease in LVEF
- 0.2% symptomatic
- Mean decrease 18.7%

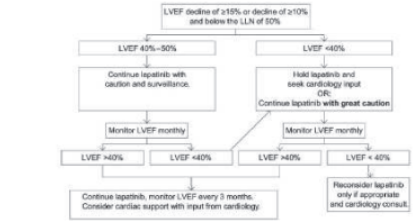
Cardiac Assessment at Initiation of Lapatinib

Moy B & Goss PE Oncologist 2007



Management of Lapatinib Cardiac Toxicity

Moy B & Goss PE Oncologist 2007



Adherence to Imatinib

Feng W et al. 2006 ASCO Annual Meeting - Abstract #6038

- **Claims database**
  - 878 imatinib treated patients
  - CML (286) and GIST (34)
- **Compliance**
  - Medication possession ratio
  - Persistency
- **Population**
  - Mean age - 51; 58% males
  - 80% starting dose of 400 mg daily

Adherence to Imatinib

Feng W et al. 2006 ASCO Annual Meeting - Abstract #6038

- Mean Medication Possession Ratio - 76%
- 28% of patients discontinued imatinib for at least 30 consecutive days
- Predictors of compliance
  - Age - better up to 51 then declined
  - ↓ with increasing number of medications
  - Lower in women
  - ↓ in patients with more cancer complications
- Women more likely to D/C (OR = 2.08)

Sunitinib
Dosing

- Starting dose: 50 mg qd, 4 weeks on/2 weeks off
  - Reduce off period to 1 week if well tolerated
- DL 2: 50mg qd, 2 weeks on/1 week off
- DL 3: 37.5 mg qd, 4 weeks on/1 week off
  - If tolerated 37.5 mg continuously
- DL 4: 25 mg qd, 4 weeks on/1 week off
  - If tolerated 25 mg continuously

Adherence to Imatinib & Health Care Costs

Henk HJ et al. 2006 ASCO Annual Meeting - Abstract #6083

MPR	Total Health Care Costs*	Disease Related Health Care Costs*
< 50%	$163,828	$103,118
50-90%	$53,924	$36,436
90-100%	$40,924	$34,086

* Costs in first year of imatinib therapy

Patients Are In Control

Glasgow RE & Anderson RM Diabetes Care 1999

"Patients are in control. No matter what we as health care professionals do or say, patients are in control of . . . selfmanagement decisions. When patients leave the clinic . . . they can and do veto recommendations . . ."

Challenges and Opportunities of Targeted Therapies

- Optimizing therapy
  - Selection of patients
    - Tumour gene expression profile
    - Patient genetic profile
  - Individualizing therapy
    - Pharmacogenetic covariates of drug metabolism, Therapeutic Drug Monitoring?
- Evaluation of response
- Monitoring toxicity
- Use of targeted agents in combination with "traditional" antineoplastic agents
- Pharmacoeconomics

Summary

If you don't measure and record it you can't prevent or manage it!

- Consistent structured evaluation
- Standardized assessment tools
- Standardized prevention and management plans
- Pre-emptive routine follow-up
- Adjust your prevention or treatment strategy next cycle

Summary

- Movement from intravenous antineoplastics to orally administered targeted agents
  - Effect on ability to monitor toxicities
  - Effect on adherence to therapy
  - Patient counseling issues
  - Increases drug interaction potential


Make A Difference
For Your Patient
Sunnybrook
Sunnybrook

2008 | NOPS SPEAKER

NANCY DRUMMOND-IVARS
Pharmacy Research Technician/Clinical Trials
The Ottawa Hospital Cancer Centre Pharmacy Department.

BIOGRAPHY

Nancy Drummond-Ivars graduated from the Algonquin College Pharmacy Technician program in 1985. Prior to joining the Ottawa Hospital team in 1989, Nancy was employed by the Federal Government working in the area of Radioisotopes, and was employed by Algonquin College as an Instructor in the Pharmacy Technician program. During this time she coauthored a self directed learning module for students in the program.

Nancy has witnessed the role of the Pharmacy Technician evolve at The Ottawa Hospital and has enjoyed various positions before joining the Clinical Trials team in 2000. Nancy started her clinical trial role working with a diverse group of investigators and their team within the main hospital. In 2002, Nancy joined the Oncology group, coordinating the pharmacy involvement for the 100 plus trials ongoing at the centre.

Although clinical trials are her main focus, Nancy is also involved with computer support within the cancer centre.

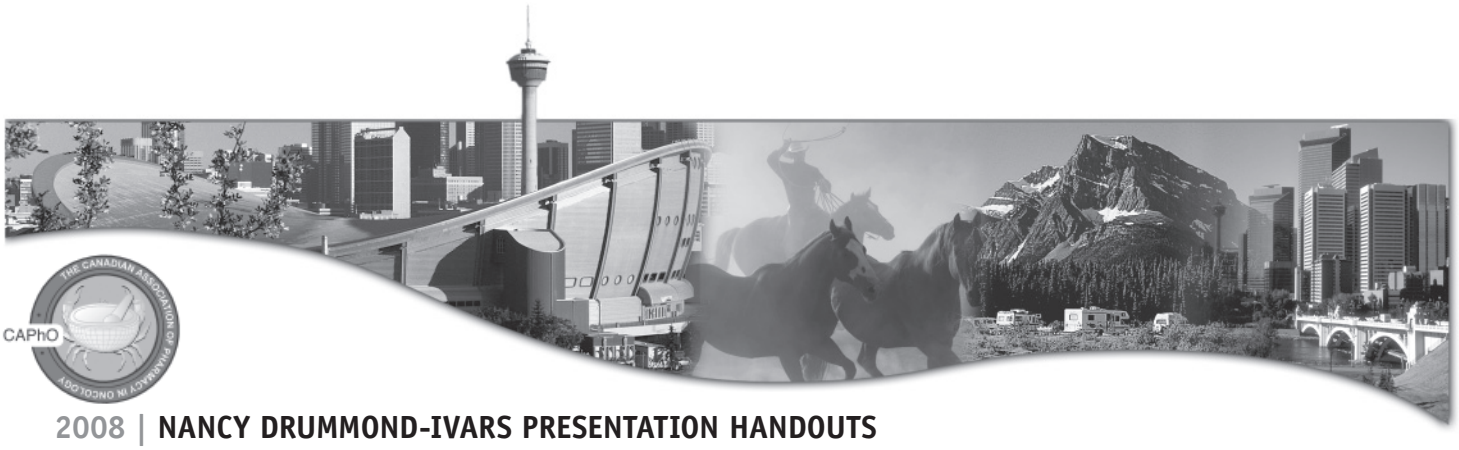
SYNOPSIS

RIDING THROUGH THE CLINICAL TRIAL FRONTIER
- THE PHARMACY RESEARCH TECHNICIAN TAKING THE LEAD

Saturday, October 18th, 14:30 – 15:00

Objectives:

1. To highlight the role of the Pharmacy Research Technician at the Ottawa Hospital Cancer Centre
2. To identify activities the Pharmacy Research Technician can contribute to improve efficiencies in the delivery of care to clinical trial patients
3. To summarize the value of the Pharmacy Research Technician to the Clinical Trial Team



NOPS 2008

Riding through the Clinical Trial frontier-
The pharmacy technician taking the lead….

Nancy Drummond-Ivars
The Ottawa Hospital Cancer Centre

Objectives

- To highlight the role of the Pharmacy Research Technician at The Ottawa Hospital Cancer Centre
- To identify activities the Pharmacy Research Technician can contribute to improve efficiencies in the delivery of care to clinical trial patients
- To summarize the value of the Pharmacy Research Technician to the Clinical Trial Office (CTO)

Pharmacy

- Background
- Current staffing 1 pharmacy manager, 5 pharmacists,1.6 pharmacy research technicians, 1 team leader, 6 pharmacy technician positions
- Workload stats

Ancient History

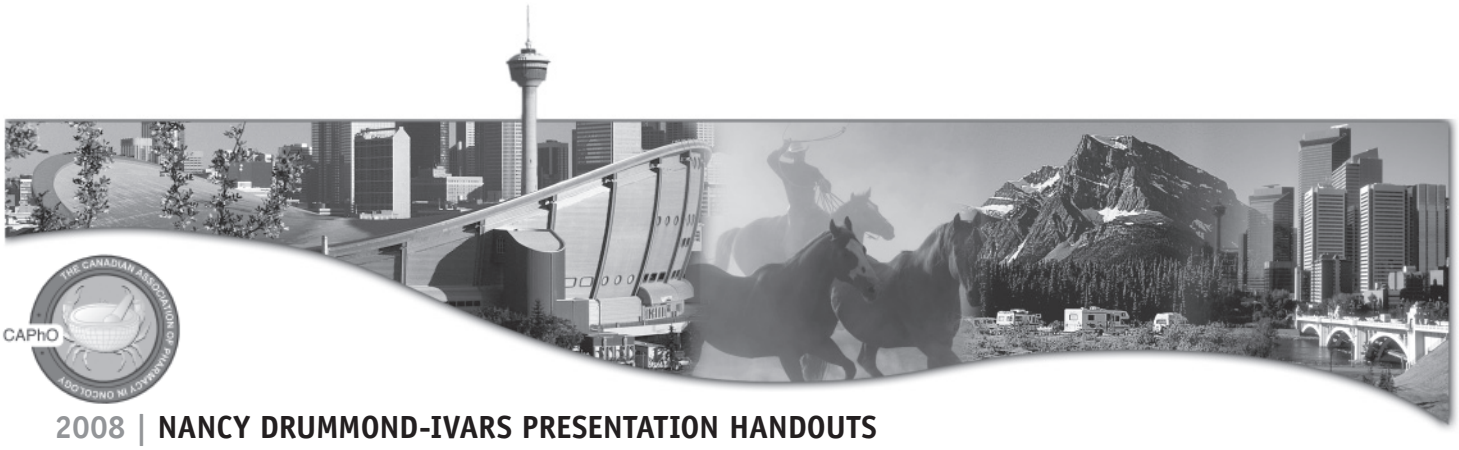
- Position was created on a smaller scale approximately twelve years ago
- Official in 1999: a job description was created to address the growing number of trials
- Computer support and training for computerized physician order entry

Clinical Trials Office

- Opened in 1970
- Current staffing:
  - 1 Medical Director, 1 Supervisor, 21 Clinical Research Assistants, 4 Clinical Research Scientists, 4 Ethics Liaisons, 2 Pharmacy Research Technicians, 5 Clinical Pharmacology Nurses, 2 Financial Officers, 1 Follow-Up Data Technician and 2 Data Entry students

Working As A Team

- Part of the CTO team
- Attends CTO staff meetings
- Receives all CTO general correspondence



Clinical Trials Activities

- TOHCC is involved in approximately 110 drug trials at present
- Trials offered in all site groups
- Phase I clinic is the newest addition to the centre
- Virus studies
- Average monthly accrual

CREC

- Clinical Research Evaluation Committee
- Pharmacy membership
- The cost of doing business with pharmacy
- Identify any pharmacy issues i.e. drug funding prior to protocol approval

Site Selection Visit

- Sponsor will request a site selection visit
- The pharmacy tour
- The interrogation of our practice
- Provides reassurance to the sponsor

Investigator Meeting

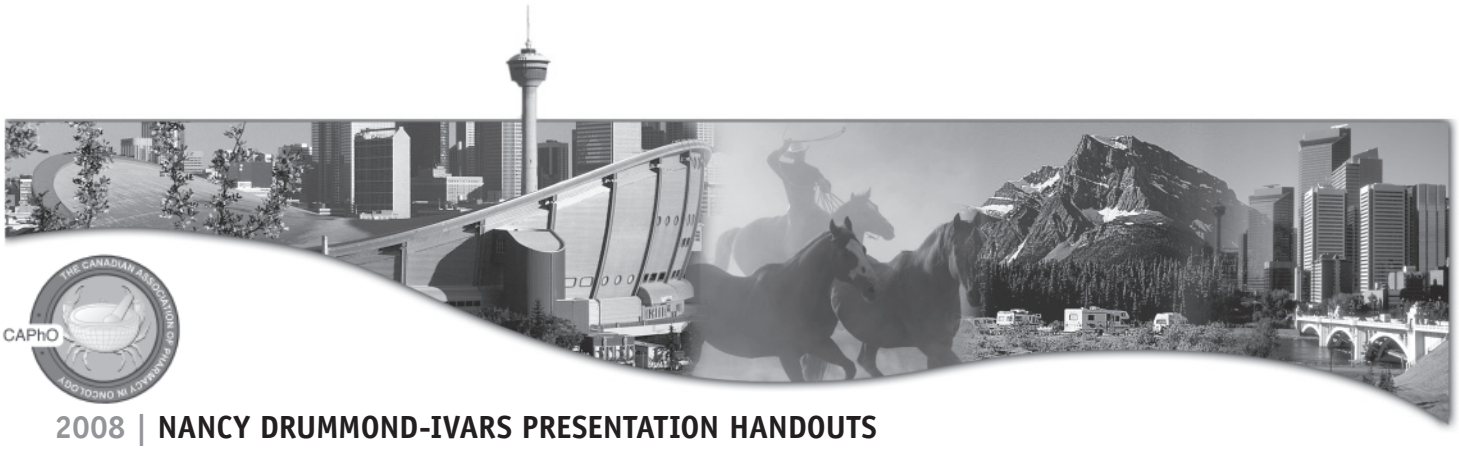
- Reason for the invite
- The learning outcome
- The experience and networking

Protocol Review

- Familiarize with the protocol small print
- Create a quick reference summary for the pharmacist
- Provide detailed mixing instructions
- Create a computer regimen
- Prepare questions for site initiation

Site Initiation

- Attend on site initiation meeting
- Review the protocol with sponsor
- Review the pharmacy details
- Networking



Opening of the Protocol

- Work within agreed time lines
- Network with sponsor and all departments involved
- Confirm drug supply has arrived

Monitoring Visits

- Schedule appointment at request of sponsor
- Work with monitor to answer queries
- Discuss any pharmacy related concerns

Audits

- Prepare Pharmacy data such as drug accountability logs, etc.
- Attend audit opening/closing meeting
- Address any questions or concerns the auditor may have
- Prepare corrective action plan

Patient Interaction

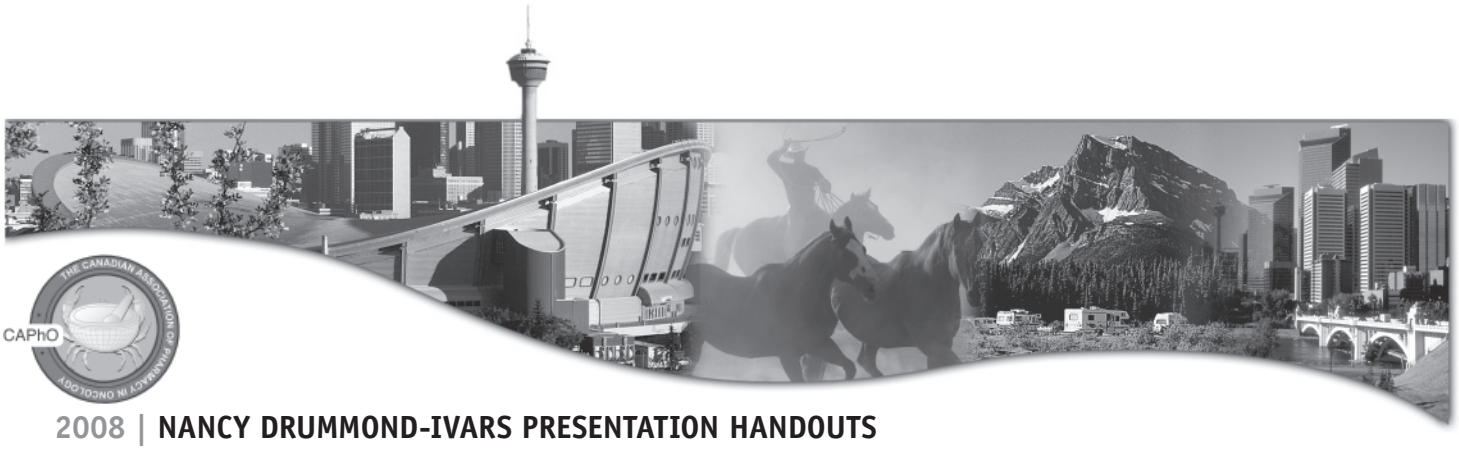
- Creates a good patient relationship
- Provides feedback
- Completes the CTO team

Communication

- Field questions and concerns from Sponsors, Principal Investigators, Pharmacy and CTO
- Discuss with patients the study logistics
- Assist sponsors with upcoming protocols

Troubleshooting

- Field protocol questions from study team
- Main communication link between pharmacist and CTO
- Investigate drug supply issues
- Address physician concerns



Finance

- Negotiate drug funding
- Budget review
- Invoice sponsor for drug reimbursement
- Work closely with Head of Clinical Trials Office and the CTO Financial Officer to ensure payment of invoices

Multicentre Drug Distribution

- Meet with investigator and team to discuss the protocol
- Prepare documents and drug shipments
- Visit or teleconference potential site to review pharmacy procedures
- Provide re supply of drug as required
- Field questions or concerns from sites

Blinding

- Only unblinded study team member
- Allows the pharmacist to be an active member of the clinical team

Quality Assurance Committee

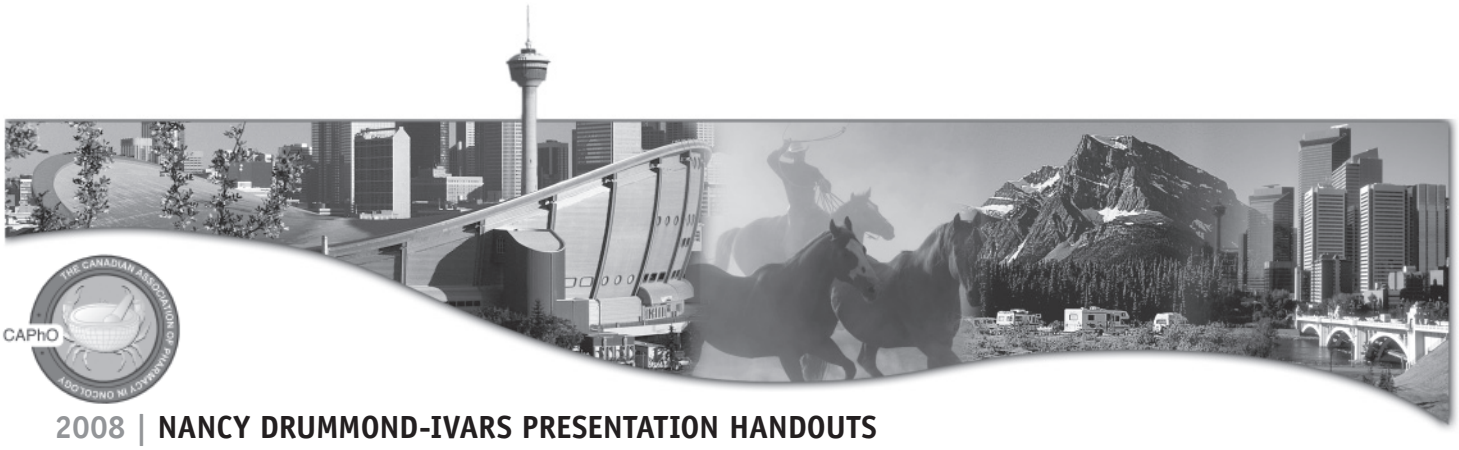
- Mandate of committee
- Membership of the committee
- Pharmacy's role

Must Not Forget

- Day to day activities
- Drug accountability
- Set up drug for mixing
- Perform final check of product administered in the centre

Conclusion

- Summarize the role , activities and the value of the Pharmacy Research Technician at the Ottawa Hospital Cancer Centre.



Riding through the clinical trial frontier-
The pharmacy technician taking the lead….

Hope you have enjoyed the ride….

Thank you

Contact Information

Nancy Drummond-Ivars
Pharmacy Research Technician
Department of Pharmacy/Clinical Trials Office
The Ottawa Hospital Cancer Centre
613.737.7700 x 70131
ndrummond@toh.on.ca

2008 | NOPS SPEAKER

SUSAN KEMP
Pharmacy Technician

JILLIAN HARDY
Patient Safety Liaison Pharmacist

BIOGRAPHY

Susan Kemp is a Pharmacy technician employed by CancerCare Manitoba in 2003 Joined the PODP(Provincial Oncology Drug Program) team in 2007 developing VMO(ARIA) computer order entry guide and participating in community site visits Contact and trouble-shooter for community cancer care units using ARIA(VMO) computer system Became involved with the CPOE project – a natural progression using ARIA software knowledge.

Jillian is the Patient Safety Liaison Pharmacist with the Manitoba Provincial Oncology Drug Program. Current projects include the Computerized Physician Order Entry Project, Medication Reconciliation and Medication Management initiatives at CancerCare Manitoba.

Jillian graduated from the University of Manitoba Pharmacy Program in 2006 and from the U of M Faculty of Science in 2002. Jillian was previously a staff pharmacist at CancerCare Manitoba and has rural community pharmacy experience. Jillian completed the Canadian Patient Safety Institute (CPSI) Patient Safety Officer Course in 2008 and was a recipient of the 2007 MPhA Young Leaders Award.

SYNOPSIS

CPOE-A NEW "TABLET" *Saturday, October 18th, 15:00 – 15:30*

CPOE - Computer **P**hysician **O**rder **E**ntry

Patient safety literature has demonstrated that CPOE resulted in a decrease of 58% in problem medication orders and 60% in medication discrepancies. David W. Bates, MD, et al (1998). While computerized physician order entry is available via the ARIA system, the number of physicians using this technology is very low. CCMB's quality priorities for April 1, 2008 to March 31, 2009 include 95% compliance with the CPOE initiative.

Learning Objectives:

- Discuss tool development required for implementation of the CPOE initiative.
- Define the role of the pharmacy technician and pharmacist relative to the physician's clinical practice and the ARIA computer system.
- Developing a working relationship with the HIS department and the introduction of the tablet.
- Creating a database to track problems encountered by physicians entering orders.
- "Taking the pulse" – A reporting system documenting the number of orders entered by physicians/ total number of orders generated through ARIA. "How well are we doing?"

Computerized Physician Order Entry (CPOE) "A New Tablet"

Susan Kemp, Jillian Hardy
CancerCare Manitoba
October 18th, 2008

CCMB's Quality priorities for April 1, 2008 to March 31, 2009 are:

A. A culture where Quality and Patient Safety embraces a process of appropriate indicator reporting that is an integral part of oncology services
   - Purchase and implement electronic occurrence reporting system
   - Develop and implement indicator reporting for organization and all quality projects
   - Report to CAPCA Systemic Therapy Working Group

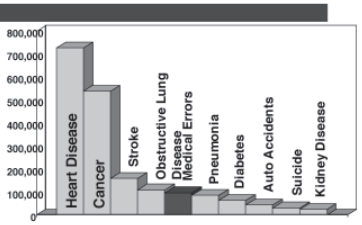
B. Patient Identification
C. Computerized Physician Order Entry for Medications
D. As Identified by CCHSA accreditation
E. Clinical Practice Guidelines
F. Patient Navigation

What is CPOE?

- "A process which allows physicians to use a computer to directly enter medical orders. At the critical point when an order is entered, the system can feed information back to the physician about drug interaction, cost of the item ordered etc. in a "just in time" manner".
  - ASH, Gorman et al, 1998.
- Medical Orders includes medications, diagnostic tests, consults and care and treatment

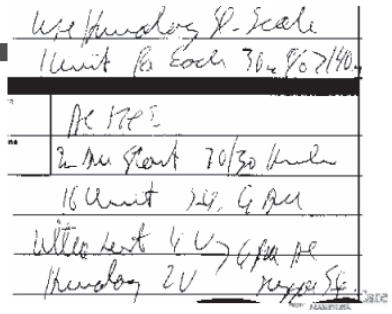
Why should we be concerned?

Leading Causes of Deaths per Year



Source: Institute of Medicine and the Centers for Disease Control and Prevention

Written Orders



What about Patient Safety?

- The patient safety literature has demonstrated that CPOE reduces the medication error rate by 80% and by 55% for errors with serious potential harm (Bates, JAMA 1998)
- Electronic medication management eliminated pharmacy transcription errors such as incorrect date, time, quantity, route & frequency

Implementation Plan

- Timelines-May, 2008 to April, 2009
- New technology-computer tablets
- Trained pharmacy personnel-technicians and pharmacists competent with the order entry process will be training the physicians.
- Support will be provided for a period of time directly in the clinics until the physicians are comfortable with the process (minimum time is one month)

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The new computer tablets….

http://www.motioncomputing.com

CancerCare Manitoba

Physician Training Plan

- Initial meeting with CPOE team member to develop training schedule.
- Observation of current workflow and processes (1 week)
- Physician Order Entry in ARIA (≥ 2 weeks)
- Tablet training with Information Services (1 week)
- Assessment and evaluation

CancerCare Manitoba

Role of the Technician in CPOE

- Pharmacy technicians are trained to enter orders from preprinted orders which are triaged and approved by pharmacists
- Have developed skills in order entry and recognition of the appropriate regimens
- Work with analysts in the HIS department to build regimens and to correct problems with the Aria program

CancerCare Manitoba

Quality Indicators

- Internal (in-house) and External (take home) prescriptions
- A prescription can be a regimen that involves multiple oncology & supportive care drugs
- Track internal and external prescriptions for a particular physician, group of physicians, and for organization relating to the following:

$$\frac{\text{Number physician entered prescriptions}}{\text{Number prescriptions}}$$

- Report monthly progress toward the April 1, 2009 target of 95% compliance

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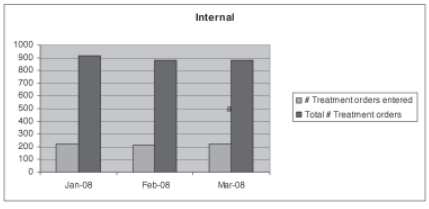
In the Beginning…… Internal Prescriptions



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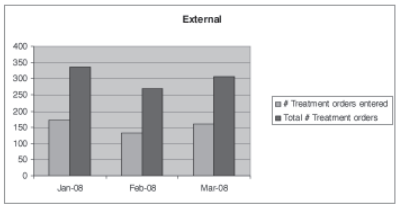
External Prescriptions (Take home medications)



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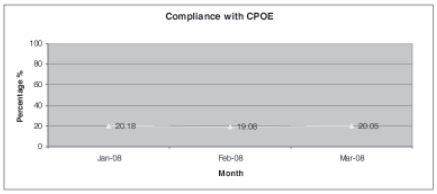
Compliance with CPOE



* Goal is to be 95% compliant by April 1, 2009.

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CPOE TOOLS Training Modules Binders & Project Updates

- Training modules for order entry & for navigating the tablets have been developed
- Physician specific binders have been created for all physicians to be trained-contents to include training plans, favourites, correspondence and problem issues etc
- Project updates will be provided to pharmacy weekly and also provided to the relevant nurse managers for distribution

CancerCare Manitoba

Physician Entered Orders Trouble Shooting

- The technicians working on the project carry pagers so that they may be contacted for order related problems.
- Errors that are corrected by Pharmacy are recorded so that it can be addressed with the physician.
- This will assist us in identifying areas that require attention and resolution with each physician.

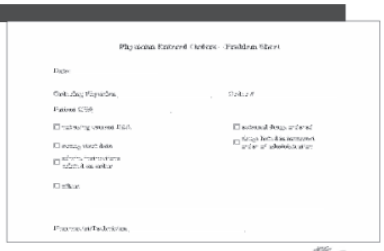
CancerCare Manitoba

CPOE TOOLS Problem Tracking Sheets

- For ease of reporting, problem order tracking checklists are available at both Order entry (OE) and triage desks in the pharmacy
- A folder for completed problem sheets is provided and these sheets are collected daily.
- Incorrectly entered orders by physicians identified in pharmacy- the training technician will be paged and the order re-entered correctly by the physician

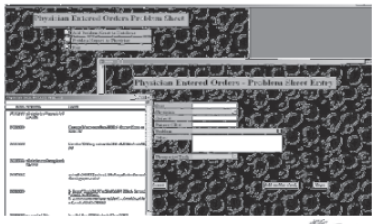
CancerCare Manitoba

Order Entry Problem Sheet



CancerCare Manitoba

Problem Tracking Database



CancerCare Manitoba

Physician Order Entry Report

- Monthly Prescriptions Written by versus Ordered by

Prescriptions Written By versus Ordered By
CancerCare MB - MacCharles Unit
Approved Aug 1, 2008 To Aug 29, 2008

CancerCare Manitoba

What about the physicians?

Dr. Harding is proud to be one of the first physicians trained and the first to have his own tablet

CancerCare Manitoba

Evaluation of Training

- Formal evaluation will be conducted with the physicians
- Informal feedback has been very positive
  - "The technicians have been great-always ready to help-it has been very valuable having them in the clinics with us to assist us with order entry"
- Very challenging and rewarding role for a pharmacy technican

CancerCare Manitoba

In closing…

- CPOE systems when correctly configured and IMPLEMENTED markedly increase efficiency and improve patient safety and patient care.
- We are very optimistic that we will have a successful implementation of CPOE at CancerCare Manitoba

CancerCare Manitoba

Thank you for your attention..

CancerCare Manitoba

2008 | NOPS SPEAKER

PEGGY DANG
Clinical Oncology Pharmacist, Burnaby Regional Cancer Center, Burnaby

BIOGRAPHY

Peggy Dang received a biology degree and her pharmacy degree from UBC. She completed her hospital residency in 1991 at Burnaby Hospital. She worked in general surgery/general medicine as a clinical pharmacist until switching in 2001 to the Burnaby Cancer Centre as their 100% clinical oncology pharmacist. Her favourite "non-work" activity is vacationing with her husband and her 15-yr old daughter & 11-yr old son.

SYNOPSIS

EXPANDING CLINICAL PRACTICE? OUTPATIENT CLINIC OPTIONS *Saturday, October 18, 14:30 – 15:30*

The objectives of the presentation include understanding the potential scope of a clinical oncology pharmacist in an outpatient chemotherapy clinic, understanding the skills required to increase clinical oncology pharmacist involvement, being familiar with some of the common questions chemotherapy patients and their families have for a clinical pharmacist, and being aware of useful resources for the clinical oncology pharmacist who wishes to expand their practice into an outpatient chemotherapy clinic.

Expanding Clinical Practice? Some Outpatient Options

NOPS Oct 18, 2008

Peggy Dang, BSc (Biol), BSc (Pharm)
Clinical Oncology Pharmacist

fraserhealth

Objectives

- Understand the potential scope of a clinical oncology pharmacist in an outpatient chemotherapy clinic
- Understand skills required to increase clinical oncology pharmacist involvement
- Be familiar with some of the common questions patients & their families have for a clinical pharmacist
- Be aware of useful resources for the clinical oncology pharmacist

Burnaby Cancer Centre

- An outpatient cancer centre located within Burnaby Hospital in British Columbia (east of Vancouver)
- An average of 40 patients per day (Mon-Fri)
  - 10 IV chemotherapy
  - 15 PO chemotherapy
  - Remainder follow-up, e.g. for chemo the next day
- 3 physicians, 2 FTE nursing positions
- 1 FTE clinical oncology pharmacist (100% clinical)
- 0.6 FTE pharmacy technician in the clinic
- In the pharmacy – 0.8 FTE IV pharmacist plus 1 FTE chemotherapy technician
- Other health professionals and support staff

Outpatient Clinical Oncology Pharmacist

- Do we need an outpatient clinical pharmacist in the chemotherapy clinics?
- Why? What would you say to the patient?

Historically - 1985

- *Justification and Implementation of an Oncology Pharmacist Practitioner in an HMO Setting.*
- Clinic nurses had been preparing IV chemo for 60-80 pts/day
- Pharmacist position created for sterile preparation of IVs and for oral dispensing
- "Nurses able to devote more time to direct patient care"
- "Assures patients receive the highest standard of care"

Hosp Pharm. **1985** Aug ;20 (8):568-9, 573-4
http://lib.bioinfo.pl/pmid:10272397

1999

- *Clinical Pharmacy Services in Oncology Clinics.*
- One of the first prospective studies measuring the impact of a clinical pharmacist in outpatient oncology-hematology clinics
- A total of 211 recommendations recorded in 36 days, with a 94.5% physician acceptance rate
- Main activity was patient counseling followed by therapeutic recommendations
- Conclusion: important role for clinical pharmacists, to decrease cost and improve patient care

Journal of Oncology Pharmacy Practice, Vol. 5, No. 1, 49-54 (1999)

Case Study

- MM, a 31-yo female, sees oncologist for initial consultation re: Stage III colorectal adenocarcinoma associated with newly-diagnosed familial adenomatous polyposis (FAP) in fall of 2003
- Patient is a highly anxious mother of a 2-year old boy
- What is the role of the clinical pharmacist?

The Patient's Pathology

- Need to be familiar with the patient's pathology
  - Will the patient benefit from chemotherapy?
  - What is the treatment of choice for the patient?
- FAP
- Stage III Colorectal Cancer

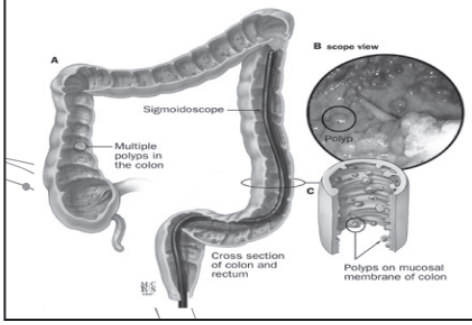
Oncology Pharmacotherapy Resources

- **Pharmacotherapy: A Pathophysiologic Approach.** Edited by Joseph T DiPiro et al
- **Cancer: Principles & Practice of Oncology** by Vincent DeVita et al
- ASCO website http://www.asco.org
- Pharmacy hospital residents and Pharm D students – offer 1-month oncology rotations
- Attending clinic rounds

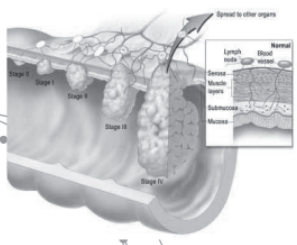
FAP

- Familial Adenomatous Polyposis
- Hereditary mushroom-shaped polyps
- Poplyposis = up to hundreds of polyps
- Diagnosed in teens/early twenties
- 100% will become colon cancer in 5-10 years if not treated
- Surgery required to remove the polyps

Sigmoidoscopy for FAP



Colorectal Cancer

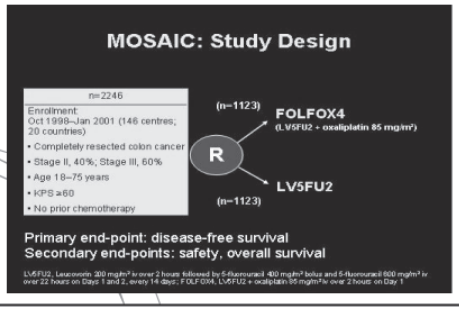


- 5-YR Survival
- Stage I – >90%
- Stage II – 72-85%
- Stage III – 44-83%
- Stage IV – 8%

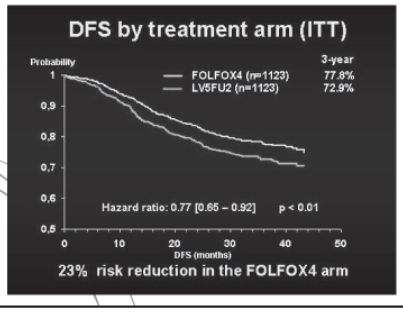
Keeping Up With New Data

- **Proc Am Soc Clin Oncol 22: 2003 (abstr 1015) A. de Gramont et al**
- **Oxaliplatin/5-FU/LV in adjuvant colon cancer: Results of the international randomized MOSAIC trial.**
- http://www.asco.org/ASCO/Abstracts+%26+Virtual+Meeting/Abstracts?&vmview=abst_detail_view&confID=23&abstractID=102693
- **NEJM Volume 350:2343-2351 June 3, 2004 Number 23**
  Oxaliplatin, Fluorouracil, and Leucovorin as Adjuvant Treatment for Colon Cancer
  Thierry André, M.D.,
  Aimery de Gramont, M.D
  Multicenter International Study of Oxaliplatin/5-Fluorouracil/Leucovorin in the Adjuvant Treatment of Colon Cancer (MOSAIC)

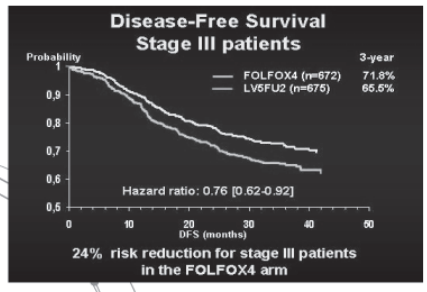
Best of ASCO 2007 San Fransisco, speaker Jean Grem, MD



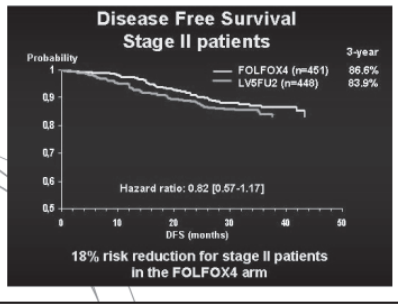
4.9% **ABSOLUTE** risk reduction DFS



6.3% ABSOLUTE risk reduction DFS



2.7% **ABSOLUTE** risk reduction DFS – NOT statistically significant



MOSAIC - Conclusion

- FOLFOX4 is the first treatment to demonstrate superiority over LV5FU2 in adjuvant colorectal cancer
- Positive trial for the primary endpoint
- 3-Year DFS 78% vs. 73% (p<0.01)

Treatment Challenges for this Patient

- Patient at high risk for relapse, therefore agrees to treatment with oxaliplatin based on preliminary results of MOSAIC trial
- Challenge #1: oxaliplatin not marketed in Canada in 2003
- Pharmacist: facilitate SAP application to Health Canada
- http://www.hc-sc.gc.ca/dhp-mps/alt_formats/hpfb-dgpsa/pdf/acces/sapf1_pasf1-eng.pdf

Treatment Challenges (cont'd)

- Challenge #2: adjuvant oxaliplatin not a funded treatment by BCCA in 2003
- Pharmacist: explore funding options
  - Undesignated request to BCCA (denied)
  - Explore extended health options (none)
  - Request funding assistance from drug company Sanofi – none available
  - Calculate patient's BSA to determine dose & thus cost
  - Patient agrees to pay for treatment 100% out-of-pocket
  - Patient asks how much weight she can gain before her dose & therefore her cost goes up!

Preparing for Chemotherapy

- Patient requires counseling re: chemotherapy agents
- Use chemotherapy information sheets for patient's individual chemotherapy agents
- www.bccancer.bc.ca
- www.cancercare.on.ca

Patient Counseling

- What side effects are the patients most concerned about?
- What side effects are the health care team most concerned about?

Preparing for Chemotherapy

- Challenge #3 – clinic has not used adjuvant oxaliplatin-based chemotherapy prior to this patient
  - What side effects can patient expect?
  - How frequent are the side effects?
  - How severe are the side effects?
  - What management techniques are recommended?

NCIC Common Toxicity Criteria

- http://www.rtog.org/members/toxicity/ctcmanual6-1-99.pdf
- **Grades (General Definitions)**
- 0 = No adverse event or within normal limits
- 1 = Mild adverse event
- 2 = Moderate adverse event
- 3 = Severe and undesirable adverse event
- 4 = Life-threatening or disabling adverse event
- 5 = Death related to adverse event

MOSAIC: Safety Results

Proc Am Soc Clin Oncol 22: 2003 (abstr 1015) A. de Gramont et al

NCI Gr >= 3 %	FOLFOX (n=1108)	LV5FU2 (n=1111)
Thrombocytopenia	16	0.4
Neutropenia	41 (gr 4 12.2)	4.7
Feb neutropenia	**0.7**	**0.1**
Neutropenic sepsis	**1.1**	**0.1**
Diarrhea	10.8	6.7
Stomatitis	2.7	2.2
Vomiting	**5.9**	**1.4**
Allergy	3.0	0.2
Alopecia (Grade 2)	**5.0**	**5.0**
All-cause mortality	0.5	0.5

MOSAIC Peripheral Neuropathy

Proc Am Soc Clin Oncol 22: 2003 (abstr 1015) A. de Gramont et al

Paresthesias in FOLFOX arm	Per Patient (n=1108)	One Year Later
Grade 0	8%	71%
Grade 1	48.1%	24%
Grade 2	31.5%	4%
Grade 3	12.4%	1%

Oxaliplatin Peripheral Neuropathy
Grades per UGIAJFFOX Protocol BCCA

http://www.bccancer.bc.ca/default.htm

Grade 1	Paresthesias / dysesthesias of short duration that resolve; do not interfere with function
Grade 2	Paresthesias / dysesthesias interfering with function, but not activities of daily living (ADL)
Grade 3	Paresthesias / dysesthesias with pain or with functional impairment which interfere with ADL
Grade 4	Persistent paresthesias / dysesthesias that are disabling or life-threatening

Preventing Nausea/Vomiting

- Pt will benefit from preventative antiemetics
- Pharmacist may write prescription as verbal order from oncologist &/or counsel patient on appropriate use
- Ensure patient has financial access to serotonin antagonists such as ondansetron
- Medication calendar very useful

Review Article for N/V

- **NEJM Volume 358:2482-2494 June 5, 2008 Number 23**
- **Chemotherapy-Induced Nausea and Vomiting**
- *Paul J. Hesketh, M.D.*

Example of Antiemetic Prescription

1. DEXAMETHASONE 4mg tablets
   S: Take 8 mg qam & hs cc x 48-72 hrs post-treatment
   M: 40 tablets repeat x 1

2. ONDANSETRON 8mg tablets
   S: Take 8 mg qam & hs x 24-72 hrs post-treatment
   M:_____ tablets repeat x _____

3. PROCHLORPERAZINE 10mg tablets
   S: Take 10 mg up to every 4 hours prn nausea
   M: 30 tablets repeat x 1

Example of Medication Calendar

TIME	MEDICATION	1	2	3	4	5	6	7	8	9	10
Morning	Ondansetron 8mg ONE tablet Oval, Yellow				o	*	*				
Morning with breakfast	Dexamethasone 4mg TWO tablets Pentagonal White				o o	o o	* *				
Bedtime	Ondansetron 8mg ONE tablet Oval, Yellow			o	*	*					
Bedtime with food	Dexamethasone 4mg TWO tablets Pentagonal White			o o	o o	* *					
ONE Tab Every 4 Hours As Needed	Prochlorperazine 10mg Round, Orange										

Getting Ready!

- Chemotherapy order needs to be written
- If not already done, pharmacist can take patient's height & weight
- Pharmacist calculates BSA
- Mosteller formula: Mosteller RD: Simplified Calculation of Body Surface Area. *N Engl J Med* 1987 Oct 22;317(17):1098

$$x = \sqrt{\frac{\text{weight} \times \text{height}}{3600}}$$

- http://www.bccancer.bc.ca/HPI/DrugDatabase/Appendices/appendix9/BSACalculator/BCCACalculator.htm

The Chemotherapy Order

- Pre-printed orders useful
- Pharmacist can write the chemotherapy order as verbal order from oncologist
- After order is signed by physician, faxed to pharmacy for double-check by chemotherapy-checking pharmacist

CHEMOTHERAPY
OXALIPLATIN, 5-FLUOROURACIL and LEUCOVORIN
Protocol _____

Action Taken
Date: _____
Time: _____

To Begin: _____ (date)
Height: _____ cm Weight: _____ kg BSA: _____ m²
Lab work: _____

PRE-CHEMOTHERAPY
•**ONDANSETRON** 8 mg PO
•**DEXAMETHASONE** 8 mg PO

CHEMOTHERAPY (repeat every _____ days x _____ cycles)

Hour 0:
•**OXALIPLATIN** _____ mg/m² = _____ mg IV in 500 mL D5W over 120 minutes via central line, simultaneously with
•**LEUCOVORIN** 400mg/m² = _____ mg IV in 250mL D5W over 120 minutes via Y-site or peripheral line, followed by

Hour 2:
•**FLUOROURACIL** 400mg/m² = _____ mg IV bolus in 50mL NS over 5 minutes
•**FLUOROURACIL** 2400mg/m² = _____ mg IV by continuous infusion:
☐Over 46 hours (mix in _____ mL NS in CADD cassette) at 2.2 mL/hr
☐Via Baxter 2-Day Infusor® (mix in _____ mL NS)

Physician's Signature and Code:
_____

Treatment Day

- Pharmacist speaks with patient on treatment day
- Treatment Day #1
  - Address any remaining questions patient has, ensure patient knows to AVOID COLD! (for a few days)
  - Ensure patient has antiemetic prescription, financial coverage for same
  - Ensure patient understands medication calendar
- Future Treatment Days
  - Monitor lab values, write adjusted orders if required
  - Initiate other supportive meds if required, e.g. G-CSF, EPO
  - Thorough side effect assessment
  - Individualize side effect management

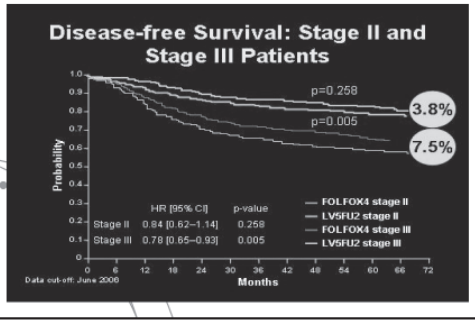
Patient Follow-Up

- In 2008 patient doing well, comes back for follow-up 1-2 times per year
- Asks about update from trial results

MOSAIC Update

- ***Journal of Clinical Oncology*, 2007 ASCO Annual Meeting Proceedings Part I. Vol 25, No. 18S (June 20 Supplement), 2007: 4007, A. de Gramont et al**
- **Oxaliplatin/5FU/LV in adjuvant colon cancer: Updated efficacy results of the MOSAIC trial, including survival, with a median follow-up of six years.**

Best of ASCO 2007 San Fransisco, speaker Jean Grem, MD



Probability of Surviving at 6 Years,
data cut-off January 2007

	FOLFOX-4 (n=1108)	LV5FU2 (n=1111)	HR
Overall population	78.6%	76%	0.85 (0.72-1.01)
Stage III	73.0%	68.6%	0.80 (0.66-0.98)
Stage II	86.9%	86.8%	1.00 (0.7-1.42)

- Assure patient that study results continue to improve
- No unexpected adverse long-term side effects reported in study update
- BCCA now funds adjuvant oxaliplatin-based chemo per MOSAIC study for stage III patients and some high-risk stage II patients

Pharmacist & this Patient

- Disease State/Pathology Report
- SAP for non-marketed medications
- Up-to-date with current treatment recommendations
- Aware of study inclusion criteria, primary endpoints, side effects
- Calm patient's fears by reiterating info re: FAP, stage III colorectal cancer, MOSAIC trial
- Funding challenges
- Counseling for chemotherapy agents
- Assess side effects with each cycle
- Write prescription for supportive medications
- Ensure patient has financial access to supportive medications
- Write chemotherapy order after taking height/weight/calculated BSA
- Monitor lab values with each cycle & write order if need adjusted doses
- Provide updated information as the trial data matures

Sample Student Rotation Schedule

WEEK 1
Monday: Introduction/Orientation to clinic
-Review Goals/Objectives/Assessment Forms
-Review Counseling Information
-Review "Cancer Treatment and Chemotherapy" chapter in DiPiro

Tuesday: Oncology Rounds 0930 every Tuesday
- Review Colorectal Cancer
- Drug review session (leucovorin, fluorouracil, capecitabine)

Wednesday Oncology Rounds 0930 every Wed.
-Relaxation Class (1030-1200)
-Continue review of Colorectal Cancer
-Drug review session (irinotecan/topotecan/raltitrexed)
-Review nausea medications/dosing (see Appendix on BCCA website)
-Session with Dietician

Thursday Oncology Rounds 0930 every Thursday
- Choose disease for presentation next Thursday
- Review a typical colorectal case - adjuvant and metastatic
- Drug review session (cisplatin, carboplatin, oxaliplatin)
-Review landmark study re: colorectal cancer treatment adjuvant & metastatic

Friday
- Drug review session (epirubicin, doxorubicin, clodronate, megestrol)
- Review febrile neutropenia & G-CSF
- Review Breast Cancer chapter in DiPiro

WEEK 2 – breast cancer, disease presentation
WEEK 3 – lymphoma & chronic leukemias
WEEK 4 – 2 cancers of student's choice, case presentation
By end of rotation, review all chemotherapy and supportive meds used in outpatient clinic

Role of Clinical Pharmacist

- Accessible resource for patients & their families
- Preceptor
- Drug information resource for clinic staff, hospital staff, community pharmacists, regional staff, pharmacists & physicians from outside region
- Write new protocols from new studies
- NOT IV/oral chemotherapy checker!

The Clinical Oncology Pharmacist is a

CRUCIAL & CRITICAL

healthcare team member in the cancer patient's journey!

2008 | NOPS SPEAKER

THANH VU
Pharm D., Coordinator, Canada Vigilance Regional Office - BC and Yukon, Health Canada

BIOGRAPHY

Thanh Vu is the Coordinator of the BC and Yukon Canada Vigilance Regional Office. Thanh is responsible for providing regional management pertaining to the national adverse reaction reporting program, and for developing and providing scientific and regulatory advice and policy guidance to Federal/Provincial/Territorial counterparts.

Thanh earned her Bachelor in Pharmaceutical Sciences and Doctor of Pharmacy degrees from the University of British Columbia. She is a Clinical Assistant Professor with the Faculty of Pharmaceutical Sciences at UBC.

Thanh has a clinical interest in the management of breast cancer and continues to serve as an expert reviewer for the Canadian Cancer Society.

SYNOPSIS

MAPPING THE LANDSCAPE OF DRUG SAFETY: THE CANADA VIGILANCE PROGRAM *Saturday, October 18th, 14:30 – 15:30*

Adverse reactions (ARs) are one of the leading causes of morbidity and mortality in health care, and continue to remain a significant burden on health care resources. The prevalence of hospital admissions due to ARs range from 5-25% and up to 21% of emergency department visits are due to drug-related adverse reactions. There is evidence of significant under-reporting of ARs. International studies estimate under-reporting to be in excess of 90%. The effectiveness of a monitoring system and signal detection work are both compromised by low reporting rates.

Session Objectives:

- Understand the purpose and function of the Canada Vigilance Program
- Understand the potential impact of adverse reactions (ARs) on population health
- Understand the outcomes that may occur with reporting ARs
- Understand the barriers, and their solutions, to AR reporting
- Know how to report an AR

Health Canada / Santé Canada — Your health and safety...our priority. / Votre santé et votre sécurité...notre priorité.

Mapping the Landscape of Drug Safety:
The Canada Vigilance Program

NOPS 2008
October 18, 2008
Calgary, Alberta

Thanh Vu, BSc(Pharm), PharmD
Coordinator, Canada Vigilance Regional Office – BC & Yukon
Clinical Assistant Professor
Faculty of Pharmaceutical Sciences
University of British Columbia

Canada

Objectives

- Understand the purpose and function of Canada's adverse reaction (AR) reporting program - Canada Vigilance
- Understand the potential impact of ARs on population health, and what outcomes may occur with reporting ARs
- Understand the barriers (and their solutions) to AR reporting
- Know how to report an AR

2

Self-Assessment Question

- **Which of the following statements concerning Adverse Reactions (ARs) is true?**
  a) ARs are responsible for significantly fewer deaths than pulmonary disease, diabetes and pneumonia
  b) Patients in the hospital experiencing an AR have the same mortality as those not experiencing an AR
  c) In general, patients have little concern about potential drug interactions
  d) On average, an increase in the number of concomitant drugs does not increase the risk of an interaction
  e) The yearly costs for ARs are greater than total costs for cardiovascular or diabetic care

3

Self-Assessment Question

- **Which of the following statements concerning Adverse Reactions (ARs) is true?**
  a) When new drugs are approved, their toxicity profiles are fully evaluated
  b) There have been an average of 1,500 subjects exposed to each new drug approved for marketing
  c) If a new drug causes liver failure in 1 out of 20,000 people, it will easily be recognized before the drug is released to the market
  d) A single reported AR from a health professional/consumer would not help to identify that a specific drug may produce toxicity
  e) Nationally, there is a higher rate of AR reporting from pharmacists than physicians

4

The Ideal Medicine....

- Effectively treats or prevents disease
- Has no adverse effects

5

The Reality…Adverse Reactions

- **4th** leading cause of death in the USA[1]
- **5%-25%** of all hospital admissions related to ARs[2-5]
- **12%-21%** of ER visits related to ARs[6,7]
- Associated costs: **$177 billion** annually (USA)[8]
- Under-reporting of ARs estimated at 95%[9]

[1] Lazarou et al. *JAMA* 1998
[2] Roughead et al. *Med J Aust* 1998
[3] Pirmohamed et al. *BMJ* 2004
[4] Bakker et al. *CMAJ* 2004
[5] Sarosy et al. *Pharmacotherapy* 2006
[6] Queneau et al. *Drug Safety* 2007
[7] Zed et al. *CMAJ* 2008
[8] Ernst et al. *J Am Pharm Assoc* 2001
[9] Hazell et al. *Drug Safety* 2006

7

The Reality…ARs in Oncology

- **11%** of ARs in Australia associated with anti-neoplastic drugs (1992)[1]
- **3-5%** of hospital admissions result of serious ARs to anti-neoplastics[2,3]
  - 8% of ARs reported[2]
  - 2% of total hospital budget to treat ARs associated with anti-neoplastics[3]

[1] National Hospital Morbidity Data Collection – Australia (1992-1993).
[2] Lapeyre_Mestre et al. *Eur J Clin Pharmacol* 1997.
[3] Coutlignol et al. *Therapie* 2000.

8

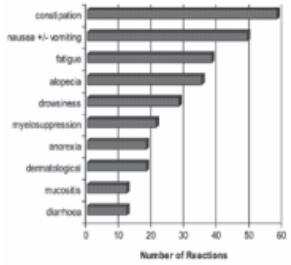
The Reality…ARs in Oncology

- Low therapeutic index of chemotherapeutic agents
- Chemotherapy-related ARs are predictable and common (42-74% develop at least one AR)[1,2]
- Toxicity viewed as 'unavoidable' and 'acceptable' by both patients and health-care providers
- ARs can serve as end-points for treatment

[1] Mallik et al. *Pak J Pharm Sci* 2007.
[2] Lau et al. *Support Care Cancer* 2004.

9

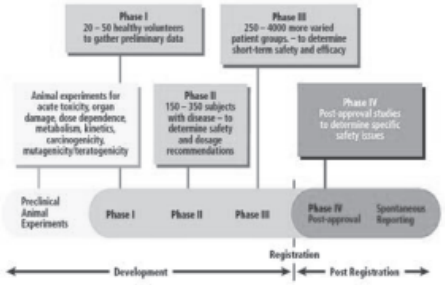
10 Most Common ARs in Oncology



Lau et al. *Support Care Cancer* 2004.

10

Figure 1 Clinical development of medicines

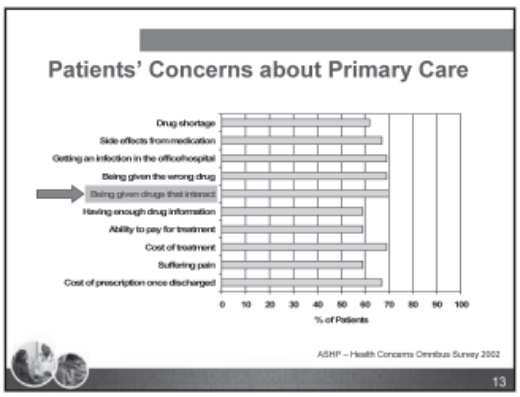


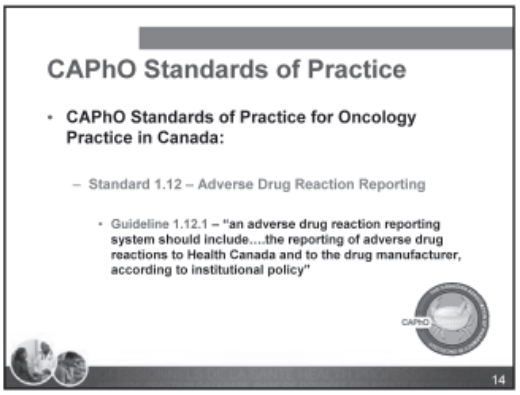
Pharmacovigilance: ensuring the safe use of medications. WHO 2004

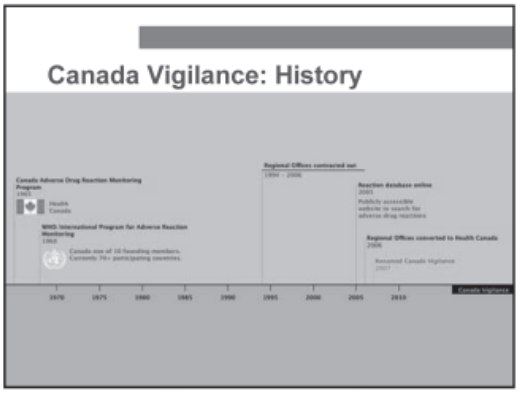
Clinical Trials vs. 'real world'

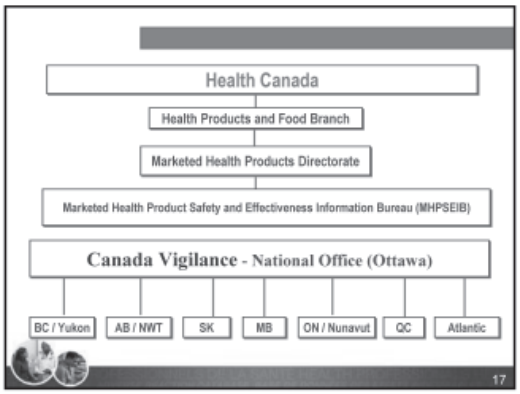
- Limited sample size, short duration
- Selected patients, very carefully monitored
- 'signals' of potential ARs are often seen in trials but are not statistically significant *within* the trial context

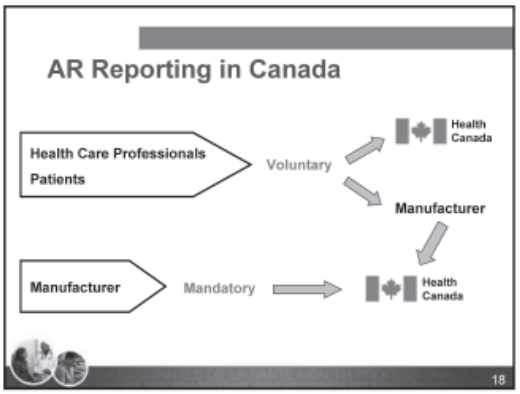
12

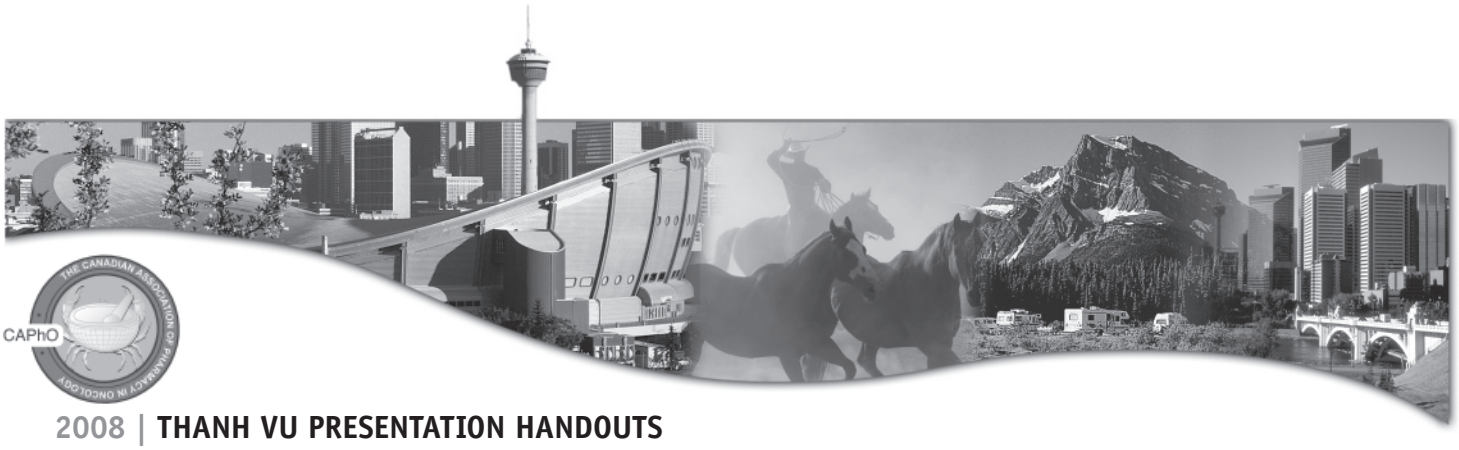

Patients' Concerns about Primary Care
Drug shortage
Side effects from medication
Getting an infection in the office/hospital
Being given the wrong drug
Being given drugs that interact
Having enough drug information
Ability to pay for treatment
Cost of treatment
Suffering pain
Cost of prescription once discharged
0 10 20 30 40 50 60 70 80 90 100
% of Patients
ASHP – Health Concerns Omnibus Survey 2002
13


CAPhO Standards of Practice
• CAPhO Standards of Practice for Oncology Practice in Canada:
– Standard 1.12 – Adverse Drug Reaction Reporting
• Guideline 1.12.1 – "an adverse drug reaction reporting system should include….the reporting of adverse drug reactions to Health Canada and to the drug manufacturer, according to institutional policy"
14


Canada Vigilance: History


Health Canada
Health Products and Food Branch
Marketed Health Products Directorate
Marketed Health Product Safety and Effectiveness Information Bureau (MHPSEIB)
Canada Vigilance - National Office (Ottawa)
BC / Yukon
AB / NWT
SK
MB
ON / Nunavut
QC
Atlantic
17


AR Reporting in Canada
Health Care Professionals
Patients
Voluntary
Health Canada
Manufacturer
Manufacturer
Mandatory
Health Canada
18



Adverse Drug Reaction: Definition

Food and Drug Regulations definitions:

ADR

"a noxious and unintended response to a drug which occurs at doses normally used or tested for the diagnosis, treatment or prevention of a disease or the modification of an organic function"

Serious ADR

"a noxious and unintended response to a drug, that occurs at any dose and requires in-patient hospitalization or prolongation of existing hospitalization, causes congenital malformation, results in persistent or significant disability or incapacity, is life-threatening or results in death"

ARs that require significant medical intervention to prevent one of the outcomes listed above are also considered serious.

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Canada Vigilance: Monitoring

- Health products for which Canada Vigilance collects AR reports include:
  - Prescription & non-prescription drugs
  - Natural health products
  - Biologics (e.g., fractionated blood products, therapeutic and diagnostic vaccines)
  - Cells, tissues & organs
  - Radiopharmaceuticals
- Products not reported to Canada Vigilance:
  - Vaccines for prevention of infectious diseases (reported to local health department or PHAC)
  - Medical devices (reported to Health Products and Food Branch Inspectorate)

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Canada Vigilance: Monitoring

- Proof that a health product caused an undesirable effect (causality) is NOT a requirement for reporting
- Practitioners should report all clinically significant suspected ARs, but especially those that are:
  - Unexpected (not consistent with product information or labelling), regardless of severity
  - Serious, whether expected or not
  - Recently marketed health products, regardless of their severity (on the market for < 5 years)

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Canada Vigilance: Monitoring

- The following are also considered to be reportable ARs:
  - Abuse (dependence)
  - Overdose
  - Interactions (with other health products, food or laboratory tests)
  - Unusual lack of therapeutic efficacy
  - Exaggerated response
  - Teratogenic effect

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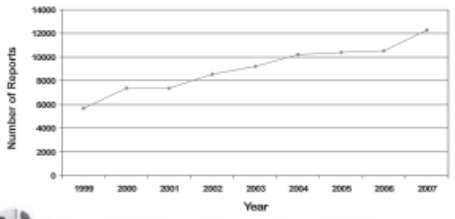
Number of Domestic Cases of ARs (1999 – 2007)



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Source of Reports: 2007

Reporter	% of Cases
Physician	31.8
Patient/consumer	29.2
Pharmacist	17.9
Health Professional (not specified)	12.1
Nurse	7.1
Other	1.9

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Barriers to Reporting

- AR already well known
- AR too trivial to report
- Uncertainty concerning definite causality
- Heavy workload; lack of time
- Reporting too bureaucratic
- Lack of familiarity with reporting process
- No form, phone or fax number for reporting
- Misconceptions about the purpose and usefulness of reporting
- Concern about legal liability
- Fear of breaching patient confidentiality
- Lack of financial reimbursement

Hanford J, *et al. J Clin Epidemiol* 2002; 55:945
Belton KJ, *et al. Br J Clin Pharmacol* 1995;39:223
Green CF, *et al. Br J Clin Pharmacol* 2001;51:81
Generali JA, *et al. Ann Pharmacother* 1995;29:365
Eland IA, *et al. Br J Clin Pharmacol* 1999;48:623

26

Barriers: Misperceptions

Perception	Reality
AR already well known AR too trivial to report	Ongoing reports help update database & nature of AR's, help detect 'signals'
Uncertainty concerning definite causality	Clinicians not expected to establish causality
Reporting too bureaucratic	Single form/fax/website entry
Concern about legal liability	Submission of report DOES NOT constitute admission of causing harm, patient data anonymous
Fear of breaching patient confidentiality	Patient identifiers protected as per the ***Access to Information Act*** and the ***Privacy Act***

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Barriers: Surmountable

Perception	Solution
Misconceptions about the purpose and usefulness of reporting	Ongoing public and health care professional education & updates
Lack of familiarity with reporting process	
No form, phone or fax number for reporting	Canada Vigilance Reporting Form is in your CPS **1 (866) 234-2345** **1 (866) 678-6789** Canada Vigilance Regional Offices www.healthcanada.gc.ca/medeffect

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Minimum Requirements

- Identifiable patient **(A)**
- Description of the reaction **(B)**
- Suspected health product(s) **(C)**
- Identifiable reporter **(D)**

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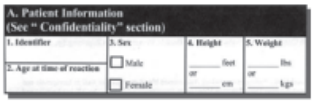
A. Patient information

All patient identifiers will be protected as per the *Access to Information Act* and the *Privacy Act.*



Patient identifier

- DO NOT provide names, initials, DOB, SIN, PHN
- Pertinent patient characteristics: age, gender, height, weight

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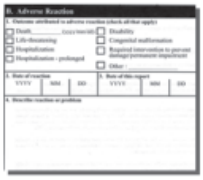
B. Adverse reaction

Information on recovery and any related outcomes is important



Description of the adverse reaction

- Provide clear and relevant details
- Provide reaction outcome: if outcome is not known at the time of the report, indicate "unknown" and provide details when available

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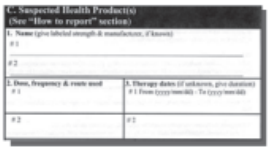
C. Suspected health product(s)

- Time-lines are very important
- Include indication for use



Suspected Health Product(s)

- Provide brand name of suspected product, or generic + manufacturer
- Include strength, dose and frequency
- Provide start and stop dates of therapy. Include dates of dose increases and decreases

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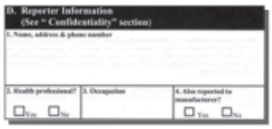
D. Reporter information

All reporter identifiers will be protected as per the *Access to Information Act* and the *Privacy Act.*



Reporter Details

- Provide name and contact information in order to facilitate sending acknowledgement letters and requesting follow-up information if needed
- Indicate whether the manufacturer has been notified

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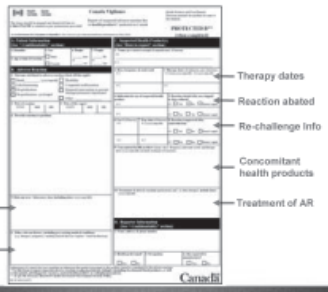
Other Information to Include



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Outcomes of AR Reporting

"SIGNAL" detection

- preliminary indication of a product-related safety issue - not in itself proof of the association, but triggers the need for further investigation

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Outcomes of AR Reporting

- Approaches to prioritize signals are based on:
  - International best practices
  - SNIP Criteria[1]
    - **Strength:** *Is this a strong signal?*
      - are there many cases; are there good case descriptions; is there good evidence of causality
    - **Newness:** *Is the signal new?*
      - unidentified/unlabelled; change of frequency; change of severity/ new risk factors; time interval since product marketed
    - **Importance:** *Is this an important issue?*
      - are cases serious (WHO definition); severe; sustained; who and how many could be affected; is product used widely; used by special populations
    - **Potential for prevention:** *Can the risk be reduced?*
      - revise indications; add contraindications; strengthen warnings; inform public/professionals; suspend or revoke

[1] *Walker PC, Lee EH. Responding to drug safety issues. Pharmacoepidemiol Drug Safe 1998; 8: 535-552*

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Risk Communication

- Labelling changes
- Public Advisory
- Health Professional Letter
- Notice to Hospitals
- Press Release, Media Lines
- CARN
- MedEffect e-Notice
  - Sign up for email news updates
  - Report ARs:
    - Download form
    - Report directly on website

www.healthcanada.gc.ca/medeffect

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Conclusions

- ARs are common, can be serious
- Clinical trial data provides 'best-case' scenario and likely underestimates frequency of ARs in the real world
- "Any drug, any time"
- Most perceived barriers to reporting are misperceptions, easily overcome with education
- Filing a report is not an admission of wrongdoing; patient and reporter information are anonymous
- **Single page, single sided** report form in your CPS, and online at: www.healthcanada.gc.ca/medeffect
- Improved AR reporting will improve public safety

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AR Reporting in the Oncology Setting

- Serious ARs (CTCAE Grade 3 or 4 toxicities)
- Death related to AR
- ARs to recently marketed agents

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Reporting is EASY!

By telephone	By fax	By mail	Online
			
1-866-234-2345	1-866-678-6789	Canada Vigilance Regional Office (BC/Yukon)	MedEffect

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AR Reporting Form

Report form

The AR reporting form may be obtained from:

- Canada Vigilance Regional Offices
- The *Compendium of Pharmaceuticals and Specialties* (CPS)
- Download form at www.healthcanada.gc.ca/medeffect
- Report online at www.healthcanada.gc.ca/arronline

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Self-Assessment Question

- **Which of the following statements concerning Adverse Reactions (ARs) is true?**
  - a) ARs are responsible for significantly fewer deaths than pulmonary disease, diabetes and pneumonia
  - b) Patients in the hospital experiencing an AR have the same mortality as those not experiencing an AR
  - c) In general, patients have little concern about potential drug interactions
  - d) On average, an increase in the number of concomitant drugs does not increase the risk of an interaction
  - e) The yearly costs for ARs are greater than total costs for cardiovascular or diabetic care

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Self-Assessment Question

- **Which of the following statements concerning Adverse Reactions (ARs) is true?**
  - a) When new drugs are approved, their toxicity profiles are fully evaluated
  - b) There have been an average of 1,500 subjects exposed to each new drug approved for marketing
  - c) It will easily be recognized before the drug is released to the market
  - d) A single reported AR from a health professional/consumer would not help to identify that a specific drug may produce toxicity
  - e) Nationally, there is a higher rate of AR reporting from pharmacists than physicians

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QUESTIONS

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2008 | NOPS SPEAKER

LARRY BROADFIELD
Manager, Systemic Therapy Program, Cancer Care Nova Scotia

KELLY ROBINSON
Senior Pharmacy Technician

BIOGRAPHY

Kelly Robinson:
1984: Graduated from the Pharmacy Technician Program from Algonquin College Ottawa, Ont.
1984-1985: Pharmacy Technician position - hired by K-Mart Pharmacy in Ottawa, Ont. to prepare medications to four nursing homes and to update computer MARS
1985 – 1996: Hired as a Pharmacy Technician to prepare sterile products including a new TPN program and Chemotherapy Preparation, Capital Health, Victoria General site, Halifax, N.S.
1996-2002: Technician Supervisor for Sterile Preparations - New CIVA Program and OR-Satellite, Capital Health, Halifax Infirmary, with a transfer to 6 North (VG site)
2002-2003: Research Technician for trials in MS, Dermatology and Oncology, Capital Health (VG-site)
2003- present: Technician Supervisor for Sterile Preparations, TPN, Chemotherapy, unit dose, Dispensary, OR- Satellite, Capital Health (VG- site), 6 North

Larry Broadfield is Manager of the provincial Systemic Therapy Program with Cancer Care Nova Scotia (CCNS). Responsible for the creation and management of this provincial program, Larry has developed and maintained a Systemic Therapy Manual for Cancer Treatment and standard Medication Info Sheets for patients on cancer drugs. In close collaboration with Cancer Site Teams, the Guidelines Resource Team, and various other health care professionals, Larry is very active in development of guidelines for individual new drugs, as well as cancer disease management and symptom management. Larry is also the Clinical Co-ordinator for the oncology clinical pharmacists and co-ordinator of pharmacy support for oncology clinical trials at the QEII Health Sciences Centre in Halifax, and practices clinical pharmacy on consultation with the Palliative Care Team at the same site. Larry is appointed as Adjunct Professor by Dalhousie University, where he teaches oncology therapeutics to undergraduate pharmacy students.

SYNOPSIS

**CHEMOTHERAPY PREPARATION TRAINING COURSE-
A NEW APPROACH TO ON-LINE TRAINING WITH OBJECTIVE STANDARDIZED
PRACTICAL EVALUATION (OSPE) TO MEET PROVINCIAL STANDARDS**

Saturday, October 18th, 15:35 – 16:05

PRESENTATION

Speaker handouts for this presentation will be available onsite.

Training Course- A New Approach to On-Line Training with Objective Standardized Practical Evaluation (OSPE) to Meet Provincial Standards

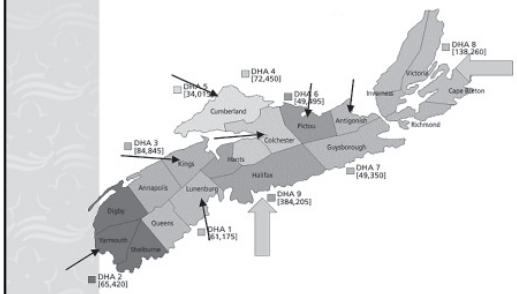
Larry Broadfield, Cancer Care Nova Scotia
And
Kelly Robinson, Capital Health
Halifax

Cancer Care Nova Scotia

Let us ELUMINATE you- East Coast Style

Larry Broadfield, Cancer Care Nova Scotia
And
Kelly Robinson, Capital Health
Halifax

Cancer Care Nova Scotia



Levels of Care- A Model for Systemic Therapy

- A model that will define the type of cancer service that can safely and appropriately be provided in a particular location
- Infrastructure standards with pre-defined & objective criteria
- Includes numbers and qualifications of health care providers

Levels of Care- A Model for Systemic Therapy

- Education/training for HCPs outlined in LoC Model
- One group identified for more formalized training- pharmacy technicians (and others) who prepare chemotherapy drugs
  - No provincial training program
  - Variable training between sites
  - Pharmacy dep'ts agreed there was a need

Chemotherapy Preparation Course

- Partnership between Cancer Care Nova Scotia (CCNS) and Nova Scotia Community College (NSCC)
- Curriculum developed based on provincial Policies and Procedures for Chemotherapy Preparation
- Advisory group
- NSCC Educational Consultant

The Challenges:

- Geography
- Limited resources for trainers
- Limited time for techs-as-students
- Expectation to train all 80+ techs/ nurses who prepare chemo at 10 or more different sites
- Completion within 1-2 years
- STANDARDIZATION!

The Solutions:

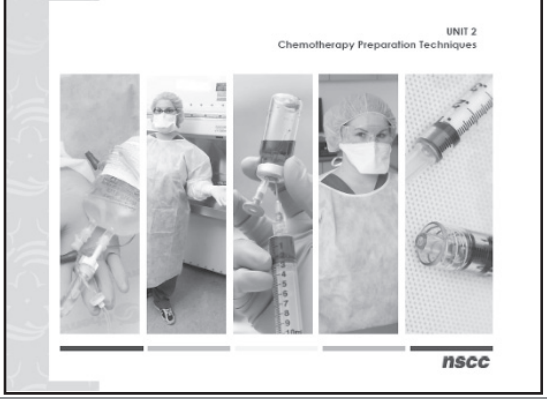
- On-line training for content and knowledge transfer
  - On-line testing of knowledge
- Play Boxes- for practice of simulated techniques
- Course organized in Study Guides
- Weekly 'live' discussions/lectures via Elluminate- web conferencing
- Practical skills assessment at OSPE

Why On-line?

- Almost no travelling for students
  - Cost and coverage issues for Health Districts
  - Travel once only for OSPE- on a weekend
- Self-study
  - Most of study done on 'work time'
  - Free time variable for different students
- Weekly group discussion
  - Problem-solving
  - Some content

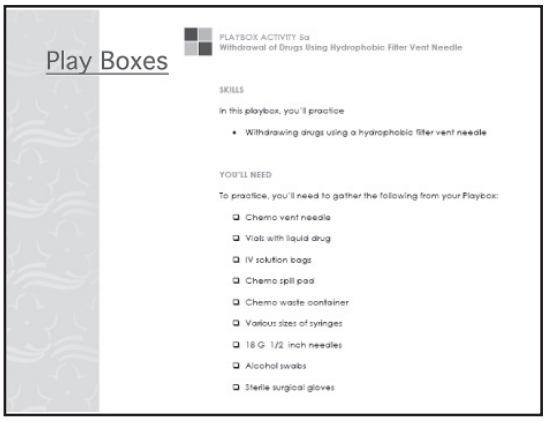
Curriculum Content

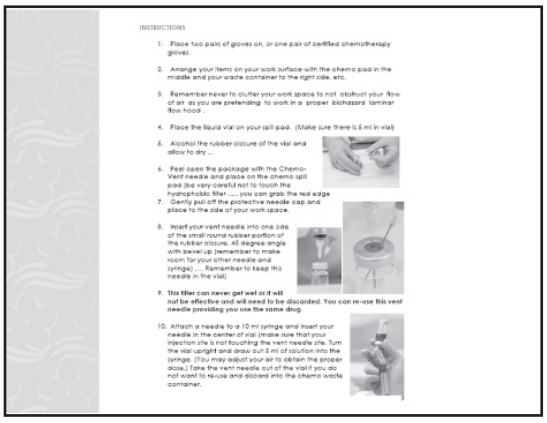
- Before You Start
  - Principles, PPE's, BSC, USP 797
- Preparing Chemotherapy
  - Drug preparation- syringes, IV bags, Infusors, BCG, crushing oral tablets
  - Pharmaceutical calculations
- Occupational Safety
  - Health surveillance, chemo spills, waste management
- Understanding Cancer and Cancer Treatment
  - Cancer biology, systemic therapy, adverse effects

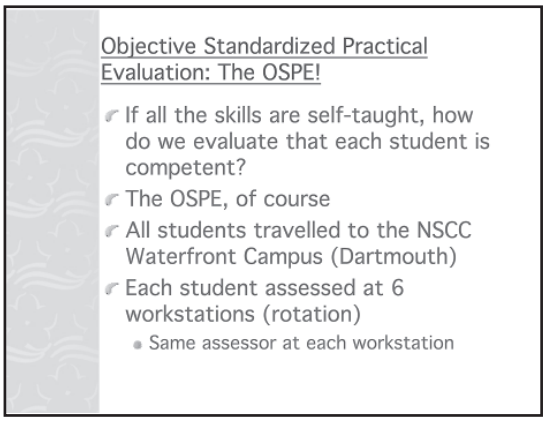


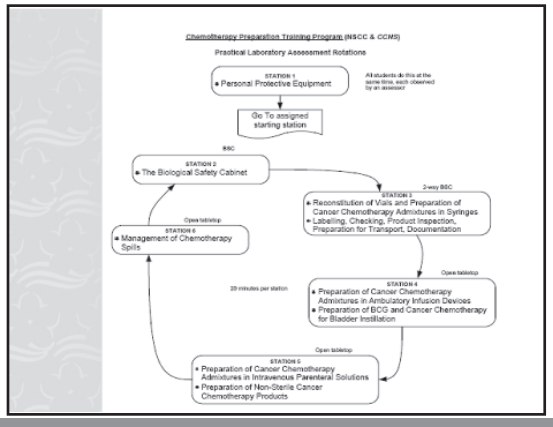
Curriculum Software

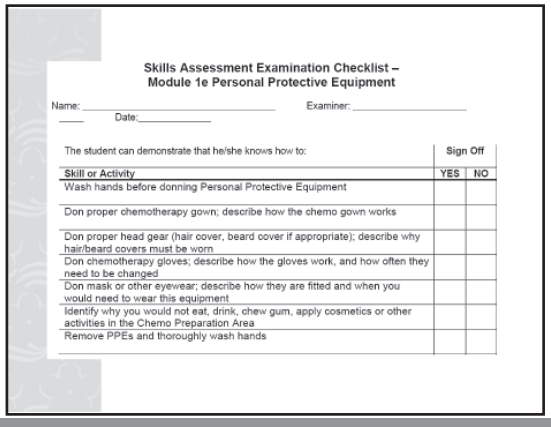
- TLM (The Learning Manager)
  - Flowchart of units, tests, quizzes
  - Access to Study Guides
  - Resources- Policy document, Chemo Preparation Chart, other documents
- Elluminate
  - Web conferencing software for 'live' discussions
- WebBoard
  - Bulletin Board for discussions











Skills Assessment Examination Checklist – Module 1e Personal Protective Equipment

Name: _____ Examiner: _____

Date: _____

The student can demonstrate that he/she knows how to:	Sign Off	
Skill or Activity	**YES**	**NO**
Wash hands before donning Personal Protective Equipment		
Don proper chemotherapy gown; describe how the chemo gown works		
Don proper head gear (hair cover, beard cover if appropriate); describe why hair/beard covers must be worn		
Don chemotherapy gloves; describe how the gloves work, and how often they need to be changed		
Don mask or other eyewear; describe how they are fitted and when you would need to wear this equipment		
Identify why you would not eat, drink, chew gum, apply cosmetics or other activities in the Chemo Preparation Area		
Remove PPEs and thoroughly wash hands		

The Pilot

- The Chemotherapy Preparation Course was offered Feb-June 2008 as a pilot
- 2 techs from each DHA + 2 from IWK
  - Many senior techs
  - 6 techs were given additional training to become the OSPE Assessors
- Evaluation

Evaluation Results

- Major themes from evaluation:
- Too much reading to do
  - Removed background slides from TLM Resources
- Testing process worked poorly
  - Many technical problems with on-line testing, local proctors, timing
  - Educational Consultant suggested learning better if assessment of APPLIED knowledge
- Videos of techniques would be helpful

Revisions for Second Course Offering

- Second offering began Sept 2008
- Study Guides changed
  - No readings in Study Guides- moved into Resources section of TLM
  - All activity-based
  - Play Boxes added to Study Guides
- Quizzes, tests and final exam removed- now assessed by short weekly assignments on WebBoard
- Videos added to Resources
- 29 new students enrolled

Graduation Day!

- All 20 students graduated on Sept 9, 2008- HOORAY!!
- Local site graduations shared by Telehealth
  - Everyone had cake
  - Kentville had a big party!
- Media coverage, NSCC Annual Report
- HUGE SUCCESS

Future Plans...

- One more course offering to certify 80+ pharmacy techs/RNs
  - Meet LoC Standard
- Open negotiations with other jurisdictions & community colleges to offer course
- Re-certifications and new employees
- Use 'learnings' from this course on future courses
  - Chemo Administration (Nurses)
  - Oncology Clinical Pharmacists

2008 | NOPS SPEAKER

JOAN FABBRO
Chemotherapy Certification Pharmacist

MICHELLE KOBERINSKI
Chemotherapy Certification Pharmacy Technician

BIOGRAPHY

Joan Fabbro has been working in oncology practice at the BC Cancer Agency for the past 10 years. For the past 5 years (3 years as chairperson) she has been involved in the BCCA Pharmacy Safe Handling Working Group that was formed to monitor and review published literature dealing with occupational exposure to cytotoxic drugs and to then develop evidence based standards for the safe handling of chemotherapy at the BC Cancer Agency.

Jean has been in the full time role of chemotherapy certification pharmacist for the past year, where together with Michelle Koberinski, she has been working on the development, implementation and maintenance of a provincial pharmacy chemotherapy certification program.

Michelle Koberinski has worked in various community oncology hospital pharmacies for the past 9 years. I have been working at the BC Cancer agency for just over 2 years. I am a member of ISOPP and I am on their Standards Committee. I am also on the BC Cancer Agency's safe handling committee. We research current literature regarding the safe handling of hazardous drugs and create pharmacy directives based on those standards. A year ago, I was hired to jointly create, implement and maintain a chemotherapy certification program for the pharmacists and pharmacy technicians in British Columbia who mix and dispense chemotherapy medication. This position is a great opportunity for me to travel to various hospitals around the province and meet their staff

SYNOPSIS

THE ROAD TO CHEMOTHERAPY CERTIFICATION
BCCA PROVINCIAL PHARMACY CHEMOTHERAPY CERTIFICATION PROGRAM

Saturday, October 18th, 16:05 – 16:35

This presentation will describe the experience of a pharmacist and pharmacy technician challenged with the task of creating a chemotherapy certification program for pharmacy workers responsible for chemotherapy delivery in BC.

After hearing this presentation the attendees will be aware of the steps involved in the 'creation' of a Chemotherapy Certification Program, the content of the BCCA Chemotherapy Certification Program and the timeline involved in generating the program.

PRESENTATION

Speaker handouts for this presentation will be available onsite.

2008 | NOPS SPEAKER

SCOTT EDWARDS
Pharm. D., Clinical Oncology Pharmacy Specialist, Eastern Health Dr. H. Bliss Murphy Cancer Centre, St. John's, NL

BIOGRAPHY

Scott Edwards is currently the clinical oncology pharmacy specialist at the Dr. H. Bliss Murphy Cancer Center in St. John's, NL and also an assistant professor at Memorial University School of Pharmacy. Scott is active in clinical cancer research in the area of chemotherapy toxicities, supportive care and seamless care. He graduated from Memorial University of Newfoundland with a B.Sc. (Neuroscience) in 1994 and a B.Sc (Pharmacy) in 1997. In 2005 Scott graduated with a Doctor of Pharmacy degree from the University of Washington.

SYNOPSIS

A JOURNEY OF A THOUSAND MILES STARTS WITH THE FIRST STEP" *Saturday, October 18th, 15:35 – 16:35*
DEVELOPING, MAINTAINING AND EXPANDING A CLINICAL ONCOLOGY PHARMACY PRACTICE

As the care of oncology patients becomes more complex, the roles and responsibilities of oncology pharmacy continues to evolve. Oncology clinical pharmacists play an important role in the treatment of patients with cancer, as well as the management and prevention of cancer- and treatment-related complications. This presentation will take you on our journey of developing and maintaining an oncology practice. It will discuss the challenges we encountered as well as the important strides we have taken in expanding our ambulatory oncology pharmacy practice in Newfoundland.

Learning Objectives

1. Highlight how the oncology pharmacist plays a key role as a member of the oncology team.
2. Identify challenges to establishing an oncology pharmacy practice.
3. Discuss ways to overcome these challenges
4. Explore the potential for expansion of oncology pharmacy services

PRESENTATION

Speaker handouts for this presentation will be available onsite.

2008 | NOPS SPEAKER

CAROLE CHAMBERS
Director of Pharmacy, Alberta Cancer Board

BIOGRAPHY

Carole is the Director of Pharmacy with the Alberta Cancer Board, with over 28 peer reviewed publications. She is also Director of the accredited Pharmacy Residency Program, a general residency with a focus in oncology.

Carole has received the Distinguished Service Award from the Canadian Association of Pharmacy in Oncology (2005), and an Achievement Award (2006) from the International Society of Oncology Pharmacy Practitioners for longstanding commitment to oncology pharmacy practice through sustained excellence in providing oncology pharmacy services, leadership in innovative oncology pharmacy, related research and ongoing contributions to ISOPP. She is currently serving as the President of ISOPP.

SYNOPSIS

MIRAGE OR OASIS? ONCOLOGY PHARMACY PRACTITIONERS *Saturday, October 18th, 09:20 – 10:05*

This presentation will look at the wide range of training/education that pharmacists undertake when practicing in the field of oncology. A specific focus will be on an estimation tool that has been developed in response to ISMP recommendations as all practitioners should have this skill for performing a reasonableness check for patient safety. Whether it is conferences, didactic, precepting, online or hands-on practical oncology practice is an ever changing field of practice that ensures life long learners gravitate to this area of practice.

Objectives:

1. Share some examples of the diversity of education/training
2. Take one new idea to try at home after attending this session
3. Oasis or mirage - be ready for the question and share your views

Mirage or Oasis?

Oncology Pharmacy Practitioners

Carole R Chambers B.Sc.(Pharm) MBA
Director of Pharmacy, Alberta Cancer Board
President, International Society of Oncology Pharmacy Practitioners

Objectives:

- Share some examples of the diversity of education/training
- Take one new idea to try at home after attending this session
- Oasis or mirage - be ready for the question and share your views.

Education/Training Oncology Pharmacists

- Adult learners
- Multiple learning styles
- Multiple learning opportunities
- Constantly changing area of practice

Just in Time

- Within practice – in each new situation you create an education opportunity when you research a topic or issue

Mental Exercise Break

- A drug dosed at 75mg/m² and the patient's BSA = 1.8m².
- Estimated dose = ____
- A dose is 387mg and drug concentration is 5mg/mL.
- Estimated Volume of drug needed = ____

Conferences

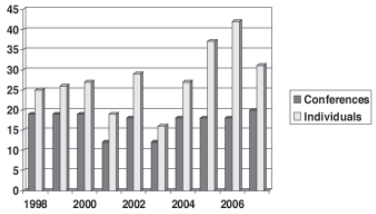
- Education and training opportunities are here today
- Networking, discussion, take away messages, and an overview of current issues in this area of practice
- Share the key learnings: present to your team, write up for newsletter, summarize for your learning portfolio

What I learned at NOPS 2007

By: Patrick Yau Pharmacy Resident

- **"Aprepitant from Neuropharmacology to Clinicial Investigations** Advancing Patient care for Chemotherapy-Induced Nausea and Vomiting" was presented by Carlo De Angelis, a Pharm D. at the Odette Cancer Centre and Sunnybrook Health Science Centre. In his presentation, he indicated that Chemotherapy Induced Nausea and Vomiting (CINV) still impacted the quality of life in 39% of patients overall. Patients on highly emetogenic chemotherapy (HEC), such as regimes containing cisplatin or dacarbazine, had a poorer quality of life than patients taking moderately emetogenic chemotherapy (MEC), such as regimes containing cyclophosphamide or doxorubicin. A higher percentage of patients suffer from delayed CINV (days 2-5 from chemotherapy) compared to Acute CINV (day 1 of chemotherapy) despite taking current anti-emetic therapies, 5HT3 -receptor antagonists and corticosteroids.
- **Myelodysplastic Syndrome: Is there a therapeutic light at the end of the tunnel"** was presented by Dr. Sandra Cohen, MD, FRCPC from Maisonneuve Rosemont Hospital in Montreal. Myelodysplastic syndrome (MDS) is a clonal hematopoietic disorder where there are ineffective haematopoiesis and marrow dysplasias with cytopenias. It can ultimately lead to AML. Currently, the only curative treatment for MDS is allogeneic stem cell transplantation (AlloSCT), capable of achieving 30-50% long term remission. Unfortunately, only a minority of patients are capable of receiving alloSCT due to age and comorbid restrictions. For instance, conventional myeloablative transplantation is given to patients less than 60-65 years of age, and nonmyeloablative transplant given to patients under 70 years of age. However, the median age for MDS is 70 years old, leaving a majority without treatment.

ACB Participation in Conferences



Didactic

- Oncology Therapeutics Course – U of A undergraduate pharmacy students
- 2000 first offering as a 4th year option
- 2004 lobbied by students to offer both terms in 4th year as most popular option
- 2006 became core curriculum in 3rd year
- Taught by faculty, physicians, nurses, and pharmacists.

PHARMACY 467/589 – Oncology Therapeutics

- ***Concepts in Oncology Therapeutics*** -- Finley & Balmer, Editors, 3rd Ed 1998 (New edition expected).
- **Overview of Cancer** – Chapter I Text
- **Principles of Cancer Detection for Treatment** – Chapter 1 and 2
- **Optimizing Chemotherapy Outcomes** – Chapter 6
- **Review of Cytotoxic Chemotherapy** – Chapter 3 and 4
- **Anticancer Drug Development – Chapter 1,2 and 6**

Oncology Therapeutics

- **Novel Anticancer Agents** –Chapter 3 and 4
- **Concepts in Cancer Immunotherapy** –Chpt 5
- **Psychosocial Care** – Chapter 17
- **Nutritional Support** – chapter I8
- **Systemic Toxicity of Chemotherapy** – Chpt 7
- **Health Care System Resources**
- **Management of Breast Cancer** –chpt 12
- **Palliative Care & Pain Management I & II** – chapter I6,I7

Oncology Therapeutics

- **Oncologic Complications** – chapter I9
- **Pediatric Oncology**
- **Management of Lung Cancer** – chapter 11
- **Management of Prostate Cancer** –chapter 12
- **Major Organ Toxicity** – chapter 8
- **Chemotherapy Regimens and Administration** – chapters 6 and I0
- **Pharmacy Practice Issues** –chapter 20
- **Infectious Complications** –chapter I5
- **Integrative Cancer Therapies**

ISMP Recommendations

- Following the death of a patient at the Alberta Cancer Board's (ACB) Cross Cancer Institute (CCI) in August 2006 from a chemotherapy overdose, the Institute for Safe Medication Practices (ISMP) Canada was called in to conduct a root cause analysis (RCA) of the event. The RCA identified 16 causal statements and 40 recommended actions related to the event. One of the causal statements included:
- **"Lack of use of mental approximation to validate calculations decreased the likelihood that the miscalculation would be detected before the infusion pump was programmed."**
- The recommended action in the report was:
- **"Include mental estimation as part of training and orientation about check processes**

ISMP

Rank Order of Error Reduction Strategies

- Forcing functions and constraints
- Automation and computerization
- Simplify and standardize
- Reminders, check lists & double check systems
- Rules and policies
- Education
- Information
- Punishment (no value)

Residency

- Out of the classroom
- Intense, practical, pushing
- Accredited program
- Outline

ACB Residents 2006 & 2007

Residency Training
CHPRB Accredited Programs
Alberta Cancer Board

- **Director**: Carole Chambers
  Residency Director/Director of Pharmacy
- **Coordinator**: Dianne Kapty
  Residency Coordinator/
  Pharmacy Operations Coordinator
- **RESIDENCY PROGRAM**
- **Type:** General Residency
  Focus: Oncology
  Established in: 2005
  # Positions: Two

Program Highlights

- The Alberta Cancer Board (ACB) is responsible for the coordination of all cancer research, prevention and treatment programs in Alberta. The Cross Cancer Institute, in Edmonton, and the Tom Baker Cancer Centre, in Calgary, are the major sites in Alberta associated with these activities, but the ACB also encompasses associate and community centers that assist in meeting the needs of rural Albertans. One residency position is offered at each of the main sites. A resident with the ACB will have the opportunity to observe and participate in a broad range of activities which contribute to cancer patients' experiences and outcomes in both the inpatient and outpatient setting. The resident will participate in the treatment and management of various malignant solid tumours; the management of autologous and allogeneic stem cell transplant patients; the dosing, preparation and monitoring of chemotherapeutic agents and hormonal therapies; as well as providing counseling and monitoring of supportive care needs. **The philosophy and principles of pharmaceutical care will be applied throughout these activities. Through these experiences we hope to enable the resident to develop exceptional knowledge and skills, to become an exemplary oncology pharmacy practitioner and to become a leader in pharmacy practice**.

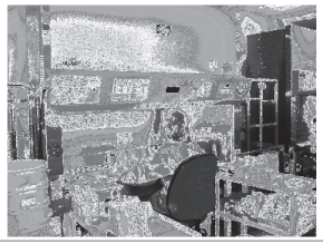
Rotations

- **Required Rotations:**
  Drug Information: 4 weeks
  Drug Distribution: 3 weeks
  IV Admixture: 3 weeks
  Practice Management: 2 weeks
  Hematology 2 weeks
  Bone Marrow Transplant: 3-4 weeks
  Pain and Palliative Care: 4 weeks
  Inpatient Care: 4 weeks
  Community Cancer Network: 1 week
  Project: 10 weeks
- **Elective Rotations:**
  Lung Cancers: 3-4 weeks
  Gastrointestinal Cancers: 4 weeks
  Breast Cancer: 4 weeks
  Genitourinary, Prostate Cancers: 4 weeks
  Pediatric Oncology: 2 weeks

Oasis: Specialization

- BCOP in US – Board Certification in Oncology Pharmacy
- Oncology Pharmacists worldwide have obtained this certification – BCOP
- Other countries are investigating creating similar specialization recognition (eg England)

Cytotoxic Handling Training



Hands On Practical

- Oncology Cytotoxic Handling
- 3 days, 15 CEU
- Didactic, Practical, Evaluation – written, simulation, peer review
- Annual certification – Dr Trissel reminded me that this is a natural place for education opportunity

Written question example:

- Work in the biological safety cabinet (BSC) should be performed:
- A) within 3 inches inside the hood
- B) at least 3 inches from the side walls
- C) at least 6 inches from the front of the hood and side walls
- D) A and B
- E) none of the above

Mental Estimation

- Estimation is the calculated approximation of a result, or an educated guess of what a number or value should be without having calculated the exact value. **Estimation should be thought of as a way to quickly determine or judge the reasonableness of a numerical output from a computer or exact calculation**.
- Two categories of estimation are perceptual and computational. Perceptual estimation is used when making direct, intuitive judgments in areas such as quantity, linear measure, area, and volume. Computational estimation is intended to make computation easier.

1. Front End Strategy

- focuses on the "front-end", or left-most digits of a number. Because these digits are the most significant, they are the most important for forming an estimate. Examples:
- a) 4496 + 3745 is estimated to be 8100 by estimation 4400 + 3700,
- b) 4496 + 745 is estimated to be 5100 by estimation 4400 + 700,
- c) 7396 – 3745 is estimated to be 3600 by estimation 7300 – 3700.

2. Clustering Strategy

- Clustering strategy can be used when a group of numbers clusters around a common value. Example:
- 72,250 + 67,490 + 74,918 is estimated to be 210,000 by estimating all numbers are close to 70,000 then multiplied by 3.

3. Rounding Strategy

- involves rounding numbers to the nearest whole or easily usable number (either up or down), and then computing with the rounded number.
- a) 0.988 + 0.53 is estimated to be 1.5 by rounding 0.988 to 1 and 0.53 to 0.5,
- b) 28 x 56 is estimated to be 1800 by estimation 30 x 60,
- c) 62 x 23 is estimated to be 1200 by estimation 60 x 20.

4. Compatible Numbers

- Compatible numbers strategy refers to a set of numbers that can be easily "fit together" (ie, are easy to manipulate mentally). Example:
- a) 3388 ÷ 7 can be estimated using
  3500 ÷ 7,
  3200 ÷ 8,
  4000 ÷ 8

5. Special Numbers Strategy

- overlaps some of the other strategies and focuses on numbers that are near "special" values that are easy to compute mentally. Special values include powers of ten and common fractions and decimals. Examples:
- a) 7/8 + 12/13 is estimated at 2 by estimation of each near 1, and 1 + 1 =2,
- b) 23/45 of 720 is estimated to be 360 by estimating that 23/45 is near ½, and ½ of 720 =360,
- c) 9.84% of 816 is estimated to be 81.6 by estimating that 9.84% is near 10% and 10% of 816 = 81.6.

Mentoring/Precepting

- Students and Residents
- You are educating yourself as you mentor and precept others.

Sharing

- Journal clubs
- Publishing
- Research – the introduction provides some of the best overview of an area for your own education purposes
- Research – ask a question and scientifically answer it is very educational
- Give a talk
- Benchmark, participate in surveys

Modules/Newsletters

- Medication Error Prevention
- Lab Monitoring
- Many other offerings that others provide that can contribute to your learning portfolio
- Monthly Newsletter – incorporate a medication error scenario puzzle to keep awareness and education heightened.

Technology

- On-line education : eg CAPhO, many other groups offering for distance education and other purposes
- Dial in ISMP sessions: barcoding, etc watch and sign up
- Distance education PharmD programs and many others

CAPhO Website www.capho.org

- **HOPE CINV** was developed to assist pharmacists with the supportive care of oncology patients who experience chemotherapy-induced nausea and vomiting (CINV). This innovative e-learning initiative is designed to update knowledge on the clinical practice guidelines and recent advances in the prevention and management of CINV. **Click here to partake in the HOPE program on CINV.**
- Accredited for 4.0 CEUs by the CCCEP

www.ismp.org/educational/teleconferences.asp

- ISMP teleconferences are a convenient way for healthcare professionals to stay ahead of new trends in medication safety and gain additional knowledge in key areas.
- ISMP's teleconferences focus on practical issues that healthcare professionals find themselves addressing every day in practice, such as the JC's National Patient Safety Goals, bar coding, and IV drug compounding.

ACB Staff Education On-Line

Online Education Print

The ACB Information Security and Privacy Office has online Privacy and Security Awareness Training which is available through the ACBnet Learning Facility (ALF).

For more information on this training, you may refer to the ACB Online Privacy and Security Awareness Training Frequently Asked Questions.

Just In Time Mental Estimation

- A drug dosed at 75mg/m² and the patient's BSA = 1.8m².
- Estimated dose = ____

Dose may be estimated to be 150mg by rounding 1.8 to 2 and 75 x 2 = 150.

Actual calc'n = 135mg

Just In Time Mental Estimation

- A dose is 387mg and drug concentration is 5mg/mL.
- Estimated Volume of drug needed = ____

Volume may be estimated to be 80mL by rounding 387 to 400 and 400 ÷ 5 = 80.

Actual calc'n = 77.4mL

Pharmacy Educators

Support for oncology pharmacists, residents, students, and technicians

- Leadership activities
- Continuing education
- Evidence Based Practice
- Orientation

Mirage or Oasis?

Oncology Pharmacy Practitioners

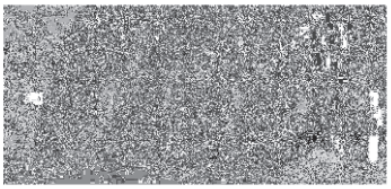
4 Pillars of Learning

- Learning to know: formal education
- Learning to do: applied skills and access to workplace training
- Learning to live: volunteering
- Learning to be: cultural opportunities

United Nations Educational, Scientific and Cultural Organization (UNESCO)

MACLEAN'S Sept 8,2008

Thank you: Celebrate Diversity
Learning to know, do, live, & be



2008 | NOPS SPEAKER

NORMA MAY
Pharmacist, Tom Baker Cancer Centre, Calgary
NCIC Gyne Disease Site Pharmacist Representative and member of the Auditing and Monitoring Committee

BIOGRAPHY

Norma has worked in oncology pharmacy for over 30 years in a variety of roles.

Her areas of interest include clinical trials in gynecology oncology, medication reconciliation in the outpatient setting and treatment of lung cancer. She has been actively involved as the Gynecology Disease Site pharmacist for the National Cancer Institute of Canada, Clinical Trials Group (NCIC CTG) for several years. As a member of the NCIC CTG Audit and Monitoring Committee, Norma has participated in monitoring visits to several Canadian cancer centers.

SYNOPSIS

TO FEAR OR NOT TO FEAR A NCIC MONITORING VISIT *Sunday, October 19th, 09:20 – 10:05*

This presentation will provide an overview of why and how a National Cancer Institute of Canada _ Clinical Trials Group (NCIC-CTG) monitoring visit is conducted. Tips for being prepared for the visit and what issues the pharmacy monitor is reviewing will be addressed. As well, examples of common non-compliance concerns will be discussed.

Objectives:

1. NCIC CTG monitoring visit objectives
2. Preparation prior to the visit
3. Expectations during the visit
4. Compliance versus non-compliance
5. On Site Monitoring 2007-pharmacy results
6. Corrective Action Plans

To Fear or Not to Fear an NCIC Monitoring Visit

Presented at National Oncology Pharmacy Symposium
October 19, 2008

Presentation Objectives

- NCIC CTG monitoring visit objectives
- Preparation prior to the visit
- Expectations during the visit
- Compliance versus non-compliance
- On Site Monitoring 2007-pharmacy results
- Corrective Action Plans

NCIC CTG Monitoring Objectives

- Ensure the conduct of the study is compliant with the protocol/amendment(s), with GCP and with applicable regulatory requirements
- Ensure the rights and well being of subjects are protected
- Educate Investigators and Study staff, at the centre being visited as well as members of the site visit team

Key Components of a Monitoring Visit

- REB/ethics documentation
- review of REB approvals, notifications
- Pharmacy
- review of drug accountability records
- storage of investigational drugs
- Patient Cases
- review of source documentation for accuracy
- protocol compliance review

Preparing for an NCIC Monitoring Visit

- Notification of visit is sent to the site's NCIC contact CRA and physician representative 12 weeks prior to the visit
- Pharmacy information is included on "Site Visit Venue Form" that is completed and returned to NCIC
  - Pharmacy location, location of any satellite pharmacy, contact pharmacist name, arrival time for monitor & attendance at exit interview

- List of announced trials received 2-4 weeks prior to date of visit
- Centres are requested to send in copies of all Drug Accountability Logs (DALs) for announced trials 2 weeks prior to visit:
  - these are reviewed in advance by a monitor at NCIC for completeness and timeliness
  - potential concerns are flagged for on-site clarification

Review study logs:

- Ensure log headers are complete
- Use 2 unique identifiers for each patient
- Ensure inventory balance matches DAL balance
- Ensure returned drugs are documented in a timely fashion with accurate return dates
- Explain discrepancies/protocol deviations with Notes-to-File

Have Pharmacy Standard Operating Procedures (SOPs) ready for the team to review

Expectations During the Visit:

- Make a workspace available for the monitor(s)
- Have a staff member available to answer questions
- NCI US trials are always checked first followed by the NCIC trials
- Have all trial documents available:

- drug logs, shipping & return documentation, correspondence and temperature logs

Pharmacy Review Checklist

- Part of monitor's pharmacy review package
- Provides a consistent approach
- Lists issues flagged at time of DAL "pre"review that require on-site clarification with source documents

1. Drug accountability log completely & correctly filled out:

- Inability to track the receipt, use and disposition of supplied investigational agents.
- Drug accountability log not maintained on a timely basis
- There are erasures or "whiteouts" , corrections are not lined out, dated and initialled
- Registered, randomized patients who have received trial drug are not recorded on DAL
- Discrepancies between DAL and patient data on CRF print-out
- Agents have been transferred to an unapproved investigator/site

2. Drug Accountability Logs are Protocol & Drug Specific

- Patients on DAL's are not registered/randomized patients
- Substitution with other agents without written approval: *commercial supply used*
- One DAL for multiple patients on a double-blinded protocol (NA for non NCI US trials unless specified in protocol)

3.Satellite Accountability Records Completed & Correct

- Satellite and control records do not agree

4. DALs Kept as Record of Receipt/Dispensing

- Balance on DAL does not match inventory balance
- Not all transactions documented on DAL

3.Satellite Accountability Records Completed & Correct

- Satellite and control records do not agree

4. DALs Kept as Record of Receipt/Dispensing

- Balance on DAL does not match inventory balance
- Not all transactions documented on DAL

5. Drug Order/Shipment Receipts Kept

- All drug orders/shipment receipts not kept as required

6. Return of Drug to Relevant Organization (or Destruction)

- Agent not returned/destroyed as required
- Return/destruction documentation not kept as required

7. Appropriate Drug Storage

- Agent not stored separately from commercial stock
- Agents used for more than one protocol combined in storage
- Agent not stored under proper conditions e.g.. temperature log not maintained

8. Appropriate Drug Security

- Agent stored in insecure dispensing area
- Unauthorized people having access to a secure area without supervision

Reporting Visit Findings Process Overview

- Exit interview – Provisional summary of major findings
- Monitoring Visit Report and Corrective Action request will be emailed to Cen Rep and CCRA 3-10 weeks post visit
- Post visit conference call to discuss questions about the visit report and planned corrective action responses

Corrective Action Plans Pharmacy Example

Deficiency	Sample Response
Corrections on DAL not lined out/dated and initialed	As outlined in our pharmacy SOP, our process is lining out, dating and initialing changes. We do acknowledge though, that this was inadvertently missed on a few occasions. After the site visit a memo was circulated to all pharmacy staff to remind them of the proper procedure for documenting changes on drug accountability logs. DALs will be routinely reviewed by senior pharmacy staff to assess compliance in the future.

Major versus Minor Deficiencies

Definitions

Lesser (Minor) Deficiency

- Deficiencies that do not affect the outcome or interpretation of the study. NOTE: An unacceptable frequency of lesser deficiencies, or recurrent lesser deficiencies, may be treated as a major deficiency in determining the final assessment of a component

Major Deficiency

- A protocol variance that makes the resulting data questionable, i.e., factors having a significant impact on treatment or reporting of toxicity

Majors vs Minors Pharmacy Examples

- The header on the drug accountability log for 2 of 9 trials is incomplete
- The Investigator's names and dispensing area are blank

- Compliant or non-compliant?
- Major or Minor deficiency?

Pharmacy examples cont'd:

- On a double-blinded protocol (NCI-US), separate DALs are kept for each individual patient

- Compliant or non-compliant?
- Major or Minor deficiency?

Pharmacy examples cont'd:

- Once shipments are received the information on the shipping receipts is transferred to the DAL and the receipts are then shredded. This process was noted on 5 of 5 trials reviewed.

- Compliant or non-compliant?
- Major or minor deficiency?

Pharmacy Examples cont'd

- An oral agent X is required to be stored at 15-30^{0}C. Upon review of the daily temperature log it was noted that the room exceeded 30^{0}C by 10^{0}C over a span of 3 days. No action was taken by the centre.

- Compliant or non-compliant?
- Major or minor deficiency?

Summary of Major Pharmacy Findings

- Examples of major issues of noncompliance resulting in the unacceptable ratings were
  - Balance on DAL does not concur with balance on shelf; not all transactions documented on the DAL; late entries on the DAL
  - Incomplete DAL for IND studies
  - Incorrect kit # recorded as dispensed to patient on DAL for double blinded study
  - Recurrent out of range temperature excursions that were not addressed, the drug was no longer viable/stable, and drug was dispensed to pt
  - Expired drug was dispensed to patient

Resources:
www.ctg.queensu.ca
- Audit & Monitoring group
-Committees….Pharmacist Network

ACKNOWLEDGEMENTS

Thank you to the NCIC CTG Audit & Monitoring Group staff for their willingness to share presentation slides.

2008 | NOPS SPEAKER

LORI GAGNON
Pharmacist, Cross Cancer Institute, Edmonton

BIOGRAPHY

Lori graduated with a Bachelor of Science in Pharmacy from the University of Alberta in 1992. Following graduation, Lori moved to Calgary where she worked in community pharmacy for 13 years. After moving back to Edmonton 3 years ago, it seemed like a good time for a change. Lori has been employed by the Alberta Cancer Board, working at the Cross Cancer Institute for 3 years now. After experiencing the exceptional care her father received in the hands of the multidisciplinary Pain and Symptom team at the Cross, she knew this was an area of practice she wanted to pursue. An opportunity arose when the Rapid Access Palliative Radiotherapy Program was initiated with a role for a clinical pharmacist on the multidisciplinary team.

SYNOPSIS

THE GOOD, THE BAD AND THE UGLY - A PHARMACIST'S ROLE ON THE RAPID ACCESS PALLIATIVE RADIOTHERAPY PROGRAM (RAPRP) TEAM

Sunday, October 19th, 10:25 – 10:50

Explain the rationale behind the Rapid Access Palliative Radiotherapy Program. Describe the unique multidisciplinary aspect of the clinic. Discuss the role of a clinical pharmacist on the team.

The Good, the Bad and the Ugly- a Pharmacist's Role on the Rapid Access Palliative Radiotherapy Program (RAPRP) Team

Lori Gagnon
Pharmacist
Cross Cancer Institute

Why a RAPRP at the CCI ??

- Approximately 25% of all patients with cancer will develop bone metastases.
- The majority of these patient's will experience pain, fracture, impaired mobility
- The focus of care switches to symptom control and quality of life.
- RT remains the gold standard for palliation of painful bone metastases

- Evidence is mounting that single fraction RT treatment is as effective as multiple for pain relief from BM.
- Approximately 60 - 70 % of patients experience pain relief within 2 to 4 weeks after treatment.
- The CCI serves a geographically vast area and repeated travel is taxing on the patient and takes them away from home and family.
- "Time is precious when life is short"

Primary Objectives of the RAPRP

- Provide timely and efficient access to both palliative RT and a patient-centered, holistic, inter-disciplinary team specialized to address symptom control and quality of life.

Why a Multidisciplinary Approach ?

- If a patient requires palliative RT, they likely have other needs
- Increased efficiency by offering consultation with multiple health care professionals in one visit, in one clinic area, versus having numerous appointments.
-

Who Makes up our Multidisciplinary Team?

- Radiation Oncologist (RO)
- Radiation Oncology Resident (Res)
- Nurse Practitioner (NP)
- Registered Clinic Nurse (RN)
- Clinical Pharmacist (Pharm)
- Radiation Therapist (RTT)
- Occupational Therapist (OT)
- Social Worker (SW)
- Registered Dietician (RD)
- Access to Respiratory Therapist, Physiotherapist and Fatigue Nurse if required
- Streamlined referral and case conference to Orthopedic Surgeon or Palliative Care Physician if needed

Clinic Flow

- Patient oriented to clinic day – RN
- Screening tools administered – RN, Pharm or RTT
- Medication History – Pharm
- Assessment for suitability of RT – NP, RO, Res
- X-rays, blood work if necessary
- Simulation of radiotherapy – RP, Res, RTT
- Meal break for patients while RT is planned – RTT, RN
- Multidisciplinary consultations – Pharm, OT, SW, RD
- Patient specific booklet received with recommendations from each discipline seen
- Radiotherapy administration – RTT
- Telephone follow-up one and three weeks later - RTT

Screening Tools Utilized

- ESAS – main patient self-completed screening tool.
- PG-SGA – nutritional needs
- KPS, PPS, ECS-CP – completed by medical team
- MMSE – if necessary
- Our own screening tool to determine needs of patient with respect to OT, Psychosocial etc.

Pharmacist's Role

- Work-up
- Assessment
- Complete medication History
- Pharmaceutical monitoring
  - Therapeutic duplication
  - Opioid toxicities
  - Medication adverse reactions
  - Drug interactions
  - Therapeutic need requiring pharmaceutical intervention
  - Change in dose or dosage form

- Recommendations to RO, Res, NP for potential pharmaceutical interventions
- Counsel patient and caregiver on any medication changes
- Medication schedule provided if necessary
- Patient education on pain and effective use of pain medication, treating and preventing side effects of opioids
- Keeping a pain diary
- Follow-up within 72 hours if medication changes are made

References

- Fairchild A, Pituskin E, Rose B, Ghosh S, Dutka J, Driga A, Tachynski P, Borscheneck J, Gagnon L, MacDonnell S, Middleton J, Thavone K, Carstairs S, Brent D, Severin D (2008) The rapid access palliative radiotherapy program: blueprint for initiation of a one-stop multidisciplinary bone metastases clinic. Support Care Cancer Aug (2008)

2008 | NOPS SPEAKER

SYLVIA HYLAND
Pharmacist, Tom Baker Cancer Centre, Calgary
NCIC Gyne Disease Site Pharmacist Representative and member of the Auditing and Monitoring Committee

BIOGRAPHY

Sylvia Hyland, BScPhm, MHSc, is Vice President and Chief Operating Officer of the Institute for Safe Medication Practices Canada (ISMP Canada), an independent, not-for-profit agency committed to the advancement of medication safety.

After receiving her pharmacy degree from the University of Toronto, she completed a clinical pharmacy residency at Women's College Hospital in Toronto. Her Master of Health Sciences in Bioethics was received from the Joint Centre for Bioethics, University of Toronto. Ms. Hyland's professional experience includes positions in clinical and administrative pharmacy in several hospitals; she has also assisted with medication adverse event analyses and focused reviews of medication use systems in health care.

Presently, Ms Hyland is also Co-chair of the national Expert Advisory Committee on the Vigilance of Health Products.

SYNOPSIS

TO FEAR OR NOT TO FEAR A NCIC MONITORING VISIT *Sunday, October 19th, 09:20 – 10:05*

Objectives:

1. Developing a Medication Safety Self-Assessment® for Oncology
   An outline of work to be done in partnership with ISMP (U.S.) and the International Society of Oncology Pharmacy Practitioners will be presented. The Medication Safety Self-Assessment® for Oncology will be based on similar programs from ISMP (U.S.) and ISMP Canada (i.e., for Community/Ambulatory Pharmacy, Hospitals, Long term care facilities, and Complex Continuing Care and Rehabilitation Facilities), and will have a specific focus on medication safety related to provision of systemic therapy.

2. Medication incident analyses – Example findings of interest
   Findings of interest from analyses of oncology medication incidents, reported to ISMP Canada, will be described.

PRESENTATION

Speaker handouts for this presentation will be available onsite.

2008 | NOPS SPEAKER

ANDREA CASSANO-PICHÉ
M.A.Sc., Human Factors Engineer
Healthcare Human Factors Group, University Health Network

BIOGRAPHY

Andrea is a Human Factors Engineer in the Healthcare Human Factors Group at the University Health Network. She earned her B.A.Sc and M.A.Sc. in Industrial Engineering from the University of Toronto where she studied the application of Human Factors Engineering to the healthcare domain.

She is currently a researcher on a national chemotherapy safety research project sponsored by the Canadian Patient Safety Institute. Some of her recent work includes the expansion of a hospitalÅfs electronic incident reporting system to include hazards reporting, providing human factors input on the design of a new smart ambulatory infusion pump, and conducting a root cause analysis of factors contributing to repetitive strain injuries affecting heart and circulation pharmacists.

SYNOPSIS

PAN-CANADIAN RESEARCH STUDY ON CHEMOTHERAPY SAFETY *Sunday, October 19th, 11:30 - 12:00*

This presentation will describe a pan-Canadian research study sponsored by the Canadian Patient Safety Institute to investigate how to improve the safety of ambulatory IV chemotherapy in Canada. The motivations for this research, the methodology, and progress to date will be shared.

Pan-Canadian Research Study on Chemotherapy Safety

Improving the Safety of Ambulatory IV Chemotherapy in Canada

Andrea Cassano-Piché
October 19, 2008

Healthcare Human Factors
University Health Network

CAPCA

CPSI Research Project

Improving the Safety of Ambulatory IV Chemotherapy in Canada


Dr. Tony Easty

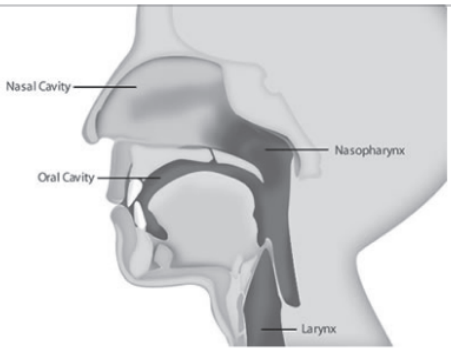

Dr. Anthony Fields

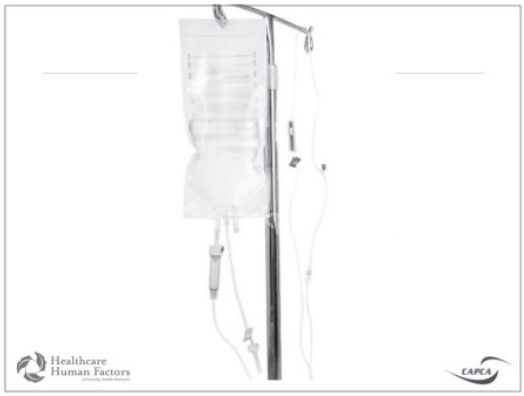
- Multi-disciplinary / multi-jurisdictional team of researchers
  - Human factors engineering
  - Pharmacy
  - Nursing
  - Medical oncology

Sponsors

- Canadian Patient Safety Institute
- Canadian Association for Provincial Cancer Agencies
- BC Cancer Agency
- Alberta Cancer Board
- Cancer Care Manitoba
- Cancer Care Ontario
- New Brunswick Cancer Network
- Institute for Safe Medication Practices

Denise Melanson





Denise Melanson

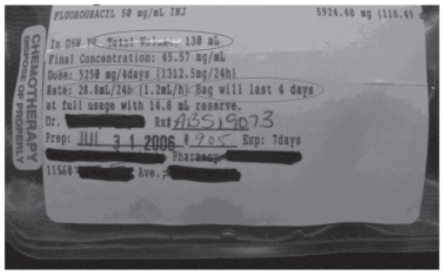
Medication Order

5-Fluorouracil 5,250 mg (at 4,000 mg/m2) Intravenous once continuous over 4 d

Cis_5FU_Part2-HN-CC - Cycle - 1, Day - 1
Substitutions Allowed

Administration Instructions:
Continuous infusion via ambulatory infusion pump
(Baseline regimen dose = 1000 mg/m2/day = 4000 mg/m2/4 days)

Drug Label



Calculation

Dose ordered: 5250 mg per 4 days
Pump programmed in: mL per hour

5250 mg / 4 days = 1312.5 mg per day
→ 1312.5 mg / 24 hours = 54.6875 mg per hour
54.6875 mg per hour / 45.57 mg per mL mixed concentration from pharmacy

= 1.2 mL per hour infusion rate
28.8 mL per hour

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How Many Passes?

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Anything Else?

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Inattentional Blindness

- Failing to see what should have been plainly visible
  - Because attention is not focused on it
- Attentional resources are finite

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Confirmation Bias

- A tendency to search for or interpret new information in a way that
  - confirms one's preconceptions
  - avoids information and interpretations which contradict prior beliefs

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Systems Issues

- Label contained information that allowed false confirmation
- Drug order required complex calculation to derive rate
- 2 different types of pumps used on the same unit
- No safety measures to help prevent/detect errors once they have occurred (e.g., smart pump technology)

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Research Project Objectives

1. Identify current practices and policies for ordering, labeling, verifying & administering ambulatory IV chemotherapy in Canada
2. Learn about current initiatives to reduce known risks
3. Identify additional sources of risk in a wide variety of environments
4. Recommend strategies to reduce risks
5. Ensure that recommendations are generalizable and relevant to a variety of programs using a wide range of technologies

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Phase 1 - Survey

- September - October 2008
- National survey distributed to all cancer centres in Canada via provincial agencies
- Focuses on:
  - Policies and practices in use
  - Current and future safety initiatives
  - Tools and technologies that support safe delivery of take-home ambulatory chemotherapy

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Phase 2 - Field Studies

- October 2008 - February 2009
- 6 site visits to identify potential risks
  - (BC) Vancouver Island Cancer Centre
  - (AB) Medicine Hat Cancer Centre
  - (MB) MacCharles site of Cancer Care MB
  - (MB) Rural community site
  - (ON) Toronto East General Hospital
  - (NB) Atlantic Health Sciences Cancer Centre

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Phase 3 - Technology Reviews

- January - May 2009
- Investigate potential error sources for technologies most commonly used across Canada
  - CPOE
  - eMAR
  - Infusion pumps (current and smart pumps)
  - Drug labels

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Phase 4 - Recommendations

- June 2009 to January 2010
- Develop and test recommendations for improving the safety of ambulatory IV chemotherapy
- Disseminate recommendations

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Questions?

Link to National Survey on Chemotherapy Safety

English
www.surveymk.com/chemosafety

Français
www.surveymk.com/chemosafety_Francais

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Since our company was founded in Canada nearly a century ago, the face of our country has changed – and so have the health needs of Canadians. Yesterday, we pioneered innovative products and techniques that changed the lives of diabetic patients, improved cardiovascular outcomes and that helped eliminate diseases such as smallpox, polio and diphtheria and overall extended life expectancy in Canada. Today, 2,200 dedicated employees at our pharmaceutical division in Laval and at our vaccines division in Toronto are using groundbreaking methods and technology to find cures and treatments for current health challenges. But one thing has not changed – our commitment to providing essential, innovative medicines and vaccines that help people improve their health and the quality of their lives. Because health matters to all Canadians. **www.sanofipasteur.ca** **www.sanofi-aventis.ca**

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The vaccines division of sanofi-aventis Group

sanofi aventis
Because health matters

NEW PATIENT TEACHING PROGRAM AT THE JURAVINSKI CANCER CENTRE

I. Collins, S. Hapke, R. Bland, N. Ross, K. Ward, S. Bains

In the Fall of 2006, an innovative program to implement a standardized new patient teaching program at the Juravinski Cancer Centre became a reality. This was a collaborative effort between pharmacy and chemotherapy nursing staff to engage cancer patients and their families in a friendly environment to discuss chemotherapy and its side effects, self care and coping strategies, as well as drug coverage issues.

This program is intended to complement and reinforce the teaching provided by the primary care team and other allied health care professionals. The positive feedback from the patient satisfaction surveys demonstrated that the goals of this program have been realized to benefit patients and their families.

Contact Information:
Satvir N. Bains, R.Ph., BSc. Phm.
Juravinski Cancer Centre, Hamilton, ON

ECONOMIC ANALYSIS OF ALBUMIN BOUND PACLITAXEL FOR THE TREATMENT OF METASTATIC BREAST CANCER (MBC)

George Dranitsaris, Wayne Cottrell, Biljana Spirovski and Sean Hopkins
Princess Margaret Hospital, Humber River Regional Cancer Centre, Toronto and,
Ottawa Regional Cancer Centre, Ottawa, Ontario, Canada

Background: An albumin-bound formulation of paclitaxel (nab-paclitaxel) was developed to provide additional efficacy and to overcome the safety drawbacks of paclitaxel and docetaxel. To provide economic data for the Canadian MBC setting, an economic analysis comparing nab-paclitaxel to docetaxel, both as alternatives to paclitaxel in MBC was conducted

Methods: The clinical and safety data were obtained from a meta analysis of randomized trials comparing either nab-paclitaxel (260 mg/m2 q3wk) or docetaxel (100 mg/m2 q3wk), to standard paclitaxel (175 mg/m2 q3wk). Health care resource use for the delivery of chemotherapy and the management of grade III/IV toxicity was collected from the oncology literature. Treatment preferences and health state utilities were obtained from 24 female oncology nurses and pharmacists.

Results: Nab-paclitaxel had the lowest incidence of grade III/IV toxicity which translated to lower overall costs for the management of side effects relative to both docetaxel and paclitaxel ($597 vs. $2,626 vs. $1,227). Using the median number of cycles administered and the cost impact of grade III/IV toxicity, the overall cost for nab-paclitaxel would be $15,105 compared to $15,268 and $3,557 for docetaxel and paclitaxel. When treatment preferences were assessed, 20 of 24 (83.3%) respondents selected nab-paclitaxel as their preferred choice, which corresponded to a 0.203 QALY gain. With this utility benefit, the incremental cost per QALY gained was more favourable for nab-paclitaxel than docetaxel ($56,800 vs. > 200,000).

Conclusions: Given its more favorable safety profile and comparable overall cost, nab-paclitaxel would be an economically sound alternative to docetaxel in MBC patients. As an alternative to paclitaxel, Canadian formulary committees must decide if the $56,800 cost per QALY gained represents good economic value.

Contact Information:
George Dranitsaris: gdranit@ca.inter.net

LEARNING FROM OUR ERRORS:
EVALUATING TRENDS OF ONCOLOGY MEDICATION ERRORS AND INITIATING NEW SAFETY PRACTICES

Rosanne Thalakada and Lynne Nakashima

Objective: The purpose of this study was to review error trends over the past ten years and to identify opportunities for improvement in our pharmacy processes in an effort to prevent future errors and improve the quality of our clinical practice.

Design: A retrospective review of our centreÅfs medication incident reports from April 1,1995 through March 31, 2008 was undertaken. Each pharmacy incident was categorized according to the type of error made and trends were analyzed.

Results: A number of factors can affect the occurrence of a medication error including workload and changes to work spaces and work flow. Any stressors to staff can act as a catalyst for errors. The three most common error categories over the ten year period were 1) wrong dose 2) expired medication dispensed 3) miscommunication.

Conclusion: Three key areas for safety improvement:

1) Organization of work spaces and work flow
2) Communication between pharmacy staff and with other health care professionals
3) Redundancy in the system

Education and sharing of information is important and we hope that our study could be used as a learning tool for other pharmacy systems to evaluate their processes and prevent similar errors.

Submission Category: Pharmacy Practice and Administration

Contact Information:
Rosanne Thalakada, BC Cancer Agency, Vancouver Centre

EVALUATION OF A PROTOCOL ALGORITHM FOR THE TREATMENT OF EGFR INHIBITORS-INDUCED DERMATOLOGICAL SIDE EFFECTS (EPIDERM Study)

Marie-Hélène Pilon, Marie-Hélène Mailhot, Alexandre Comtois, Nathalie Letarte, Lysanne Besse, Dr Denis Soulières, Yola Moride

Background: Epidermal growth factor receptor inhibitors (EGFRIs) are targeted therapy agents used in oncology. They are associated with dermatological toxicities for which no treatment is yet defined.

Objective: The EPIDERM study evaluated the impact of a standardized protocol of intervention for active treatment of the EGFRIs-induced skin rash.

Design: We compared historical controls with a prospective group of patients receiving EGFRIs and treated following an algorithm (topical and p.o. steroids and antimicrobials according to toxicity). The end-points were rates of resolution and improvement of rash and rates of discontinuation, interruption and dose reduction of EGFRIs.

Results: 59 patients were included (44 controls and 15 prospective patients) between May 2006 and April 2007. Most of them (99%) received erlotinib or cetuximab. Incidence of rash of was 83% in the historic group and 75% in the prospective group. Patients showed a better evolution (improvement and resolution) of rash (p = 0,025), and a reduction of dose modification of the EGFRIs treatment (p= 0,041). No patient discontinued EGFRIs in the prospective group.

Conclusion: This study shows that early and standardized interventions treating the EGFRIs-induced skin rash has a positive impact on skin toxicity and helps patients continue on with their planned treatment.

A TELEPHARMACY TRAINING AND CERTIFICATION PROGRAM IN AN ONCOLOGY SETTING

Lee Gordon, Cross Cancer Institute, Alberta Cancer Board

Objective: To develop and evaluate a telepharmacy training and certification program for pharmacy staff providing intravenous chemotherapy.

Methods: Knowledge and skill requirements were evaluated and a training manual developed and distributed prior to training at a teleconference meeting. Two pharmacists and 2 technicians from 2 remote sites participated. Certification was divided into 3 competencies: review of standards and policy, live telepharmacy simulation and successful completion of a written exam. Training on the telepharmacy equipment occurred at each site. Participants made repeated telepharmacy connections and controlled the remote camera. Simulation was accomplished by using telepharmacy in parallel with the standard processes to prepare and process actual chemotherapy orders. Participants completed a 10 question written examination. A satisfaction survey of the training and resulting confidence was completed.

Results: All participants passed the written module (92.5 % average). On a scale of 1 (very poor – no use) to 10 (excellent very useful) average satisfaction with the areas of training were policy and procedures 9.5, telepharmacy process 9, care, acquisition and return 9.5, equipment operation 9.5, simulation 9.5, and written component 9.25. All participants (100 %) stated they felt able to provide competent and safe pharmacy services via telepharmacy after the training.

Conclusion: Trainees feel the training and certification process developed adequately prepares pharmacy staff to deliver chemotherapy services via telepharmacy safely. This training and certification model will be useful in the expanding deployment of telepharmacy services in an oncology setting.

PATIENT ACCEPTANCE OF POST-CHEMOTHERAPY TELEPHONE CALLS BY PHARMACISTS AS A PHARMACEUTICAL CARE TOOL

Gordon, HL, Cross Cancer Institute, Alberta Cancer Board, Edmonton

Purpose: To examine patient acceptance of a post-chemotherapy telephone call from a pharmacist providing care regarding treatment and adverse reactions (AE).

Methods: Patients were invited to participate in a study to determine the usefulness of a follow-up telephone call approximately 3 days after each treatment from a pharmacist to update medication histories and allergies; identify grade and document AEs and make appropriate interventions; answer treatment related questions; and to reassure patients. Baseline conditions were recorded. AE's and severity were documented. A satisfaction survey grading the helpfulness of the call was done. Interest in continuing the service was examined.

Results: 63/63 patients aged 17 – 86 years, agreed to participate, 116 of 121 contacts were completed averaging 3.8 minutes. Interventions averaged 0.85 per telephone call. Satisfaction surveys were completed by 51 participants, 12 male and 39 female. The five most frequent AEs reported were fatigue (25 %), nausea (23 %), constipation (22 %), vomiting (17 %), neuropathy (11%). Grade 3 toxicity was reported for pain and fever. On a scale from 1 (not useful) to 10 (very useful) patients reported the usefulness of the follow-up call to manage side effects, to answer questions regarding AEs, to answer questions about medicine or treatments, and to provide reassurance as 7.4, 7.7, 7.6, and 9.3 respectively. 100% felt the service should continue.

Conclusion: Patients feel a post-chemotherapy telephone call from a pharmacist is useful and desirable.

Acknowledgements: Appreciation is extended to the patients, families and staff at the Lethbridge Cancer Center, Lethbridge, Alberta, Canada, without whose assistance this study would not have been possible.

This project was conducted in part to fulfill the requirements for the Doctor of Pharmacy degree at the University of Montana.

PRIVATE PAYMENT OF UNFUNDED CANCER DRUGS IN ONTARIO HOSPITALS

Yeung L, Gavura S, Deane C, Trudeau M

Objective: Not all intravenous cancer drugs are funded. The extent of private payment for unfunded therapies, provided by public hospitals, is not known. A survey of all public hospitals providing chemotherapy to adults was conducted to characterize the current landscape of unfunded drug provision.

Design: A web-based survey of providers under Cancer Care Ontario's (CCO) New Drug Funding Program (NDFP) was conducted. Results were analyzed to identify provincial trends and regional differences in access.

Results: 60 of 63 eligible CCO-affiliated providers completed the survey. 55% of respondents provide unfunded drugs for private payment, out of which 52% reported providing unfunded drugs in combination with funded NDFP regimens. Demand for unfunded drugs was perceived to be increasing for drugs not yet listed and for funded drugs being used for unfunded indications/regimens. A lack of consistency exists in terms of in-house policies and concordance with a 2006 Provincial Working Group Report recommendations.

Conclusion: A majority of hospitals in Ontario have provided unfunded cancer drugs for private payment. Formal guidance is needed to promote equal access and to ensure consistent standards and practices surrounding the provision of unfunded cancer drugs for private payment in Ontario hospitals.

Contact Information:
Lyndee Yeung
Cancer Care Ontario
Toronto, Ontario

CANCER CARE IN THE NEXT FRONTIER-HOME CHEMOTHERAPY AND TELEONCOLOGY JOINT PROJECT

Cathy Duong, BScPharm, PharmD (candidate)
Clinical Leader, Provincial Program Development
Medical Affairs and Community Oncology, Alberta Cancer Board

Objective: This poster describes the planning and implementation of the Alberta Cancer Board's new and innovative Home Chemotherapy and Teleoncology joint project. This project seeks to deliver home chemotherapy and supporting patients with home telehealth through a newly created Home Services unit. This unit will be staffed by nurses, pharmacists, medical oncologists, Telehealth support technicians, and psychosocial staff.

Design: Following a Feasibility study completed by the Alberta Cancer Board, the Planning of the Project is currently taking place, involving the completion of a Failure Modes and Effect Analysis (FMEA) to prospectively identify patient safety risks and risk mitigation strategies. The FMEA also helps to guide program design. A multidisciplinary approach is employed, involving expertise from nursing, pharmacy, medical oncology, psychology, social work, patient advocacy, Telemedicine, patient education, health economics, and health research and evaluation. This approach will help to design a robust program with diverse health disciplines, including pharmacy, at all levels of program planning, from Steering and Planning committees to working groups.

Discussion: Home chemotherapy programs exist in France, the UK, the US, Australia and parts of Canada. Home chemotherapy has high patient acceptance, offering patients choice, convenience, and alleviates capacity and space issues at the cancer centres. The current project is unique in the world in that it uses Telehealth to support home chemotherapy patients. Telehealth will be used to monitor vital signs, chemotherapy toxicities, assist with patient assessment and education, facilitate self-management and offer real time videoconferencing between patients and clinicians.

Conclusion: The joint Home Chemotherapy/Teleoncology pilot project is expected to launch in the Fall of 2008. It is hoped that the evaluation results and the learning points for this project will help other organizations who are interested in exploring home chemotherapy and supporting patients using state-of-the-art telehealth technology.

SURVIVAL ANALYSIS OF SEQUENTIAL USE OF FIRST-LINE TAMOXIFEN VERSUS AROMATASE INHIBITORS FOR ESTROGEN-POSITIVE METASTATIC BREAST CANCER IN POSTMENOPAUSAL WOMEN

Kyritsis V, de Lemos M, Speers, C, Kennecke H, Barnett J. BC Cancer Agency, Vancouver, BC, Canada

Background: Tamoxifen has been the gold standard of treatment in postmenopausal women with estrogen receptor positive (ER+) metastatic breast cancer (MBC). Over the past decade, new aromatase inhibitors (AIs) – anastrozole, letrozole, exemestane – have emerged as equally efficacious alternatives to tamoxifen. Recent data suggest that first-line AI therapy may even confer a moderate but statistically significant increase in overall survival compared to tamoxifen (~ 4months). Traditionally, patients with disease progression after tamoxifen are often treated with second-line AI. Similarly, tamoxifen may be used as second-line for disease progression after AI therapy. It is unclear if the sequence of use of tamoxifen vs. AI would confer any difference in benefits. We performed a population-based analysis of survival associated with sequential use of first-line tamoxifen versus AIs for ER+ MBC to examine whether there is any difference in overall survival for patients in BC.

Methods: This is a population-based retrospective analysis. A total of 162 patients were identified from the BC Cancer Agency Information System (CAIS), systemic therapy drug database, and the provincial registry (Breast Cancer Outcomes Unit). Data was analyzed for all postmenopausal women treated with the sequential use of tamoxifen to AIs and from AIs to tamoxifen for ER+ MBC (stage IV disease) from January 1998 through December 2003 in BC. Patients treated with other first-line hormonal agents were excluded. The primary outcome is overall survival, defined as the time to death by any cause from the date of first-line tamoxifen or AI therapy. Overall survival (OS) was compared between patients treated with tamoxifen versus AI.

Results: A total of 93 patients were identified in the Tamoxifen to AI group with an OS OF 44.5 % (95% CL=36.8-53.4) and 69 patients in the AI to Tamoxifen group with an OS of 30.7% (95%CI= 22-35.2) (p=<0.0001). We found that there is an overall survival benefit with the use of sequential first line tamoxifen to AI therapy in comparison to AI to tamoxifen in our patient population.

Discussion: This analysis provides pertinent information regarding the survival benefit between the sequential use of first-line treatment with tamoxifen and AI. Several limitations have been identified; however the preliminary data provided by this analysis will assist in decision making regarding appropriate sequential use of hormonal therapy for ER+ MBC.

SOURCE OF COMPLEMENTARY OR ALTERNATIVE MEDICINE (CAM) INFORMATION BY CANCER PATIENTS

Darryl Boehm, Lynn Dwernychuk, Kathy Gesy, Shannan Neubauer, Colleen Olson: Saskatchewan Cancer Agency

Introduction: The use of CAM* has become increasingly more common in recent years. The statistics evaluating the use of CAM by adults range from as little as 30% of the adult population to as high as 90%. The vast difference in reported use varies significantly depending on what therapies and what disease states are included / excluded in the question.

As practicing oncology pharmacists, we are aware that many of our patients are either interested in, or are using, some form of CAM. The potential for drug-herb, herb-herb and disease-herb interactions is considerable.

Through discussions with patients regarding the use of CAM, a trend seemed to emerge regarding the source of information on CAM practices. Many patients who were discussing different herbal products and complementary medicine practices had not sought out the information for themselves, but rather had received unsolicited information through a variety of avenues.

Design:A literature search was performed on Medline, PubMed and Cochrane. Key words such as: complementary and alternative medicine, herbs, exposure, experience, cancer, oncology, practices and uses, were used to find relevant articles. Although many articles were found concerning Complementary and Alternative Medicine (CAM), there were no studies found that described oncology patients' source of information exposure with these healthcare modalities.

A questionnaire was designed to elicit information regarding patients perceived knowledge of CAM and the source of that information. Demographic data was also included in the questionnaire. Patients offered the questionnaire were registered patients of the Saskatchewan Cancer Agency and currently receiving drug treatment, either IV or oral. Ethics approval and signed informed consent was obtained prior to completion by any patients. Patients filled out the questionnaires at one of three cancer treatment facilities in Saskatchewan. The questionnaire consisted of 16 questions and took 10-15 minutes to complete.

Discussion: The main purpose of the data collection was to learn about the sources of information that our oncology patients were using to obtain their knowledge regarding CAM. The results showed that for our sample group, the major source of information was family and friends. Written and visual media sources were the second largest source.

The data was categorized by individual patient tumor sites as well. However, the numbers in each tumor site are very small so that any trends or conclusions are difficult to ascertain.

Knowing the source of CAM information that patients with specific tumors use would be helpful when planning targeted education programs.

This initial small survey is useful as a first step. The plan is to expand the trial to other cancer centres in order to increase the responses per tumor group to obtain more meaningful data.

For further information:
Please contact colleen.olson@saskcancer.ca if you are interested in administering this questionnaire at your centre, or for further information on other results collected.

PLANNING TOOLS AND METHODS TO SUPPORT THE DEVELOPMENT OF REGIONAL MODELS OF CARE FOR SYSTEMIC TREATMENT

Woodward G, Trudeau M, Hertz S, Burns J, Sawka C, Iverson A, Woltman K

Purpose: The goal of the Regional Systemic Treatment Program is to implement evidence-informed standards to optimize use of resources and ensure safe delivery of chemotherapy as close to home as possible while maintaining high quality care.

Design: Tools were developed to assist regions and system administrators to implement the standards including (1) A funding model that takes into account the complexity of a hospital's case-mix, (2) A demand modelling tool which takes into account current and future rates of cancer incidence and prevalence, patient travel patterns and health human resources, and (3) Assessment of standards alignment for each facility.

Results: Based on assumptions made, the tools were applied and future models of care proposed in development of comprehensive regional plans for the 14 Local Health Integration Networks (LHINs) in Ontario.

Conclusions: Regional planning for systemic treatment requires collaboration on many levels. Standardized tools and ongoing engagement enhance the collective ability to plan better both provincially and locally, and to collaborate effectively within and between LHINs.

Contact Information:
Sherrie Hertz
sherrie.hertz@cancercare.on.ca

STANDARDS FOR THE ORGANIZATION AND DELIVERY OF REGIONAL MODELS OF CARE FOR SYSTEMIC TREATMENT

Vandenberg T, Trudeau M, Green E, Hertz S, Sawka C

Objective: In order to meet rising demand for chemotherapy services across Ontario while optimizing quality, Cancer Care Ontario developed evidence-informed organizational standards to guide the delivery of systemic therapy.

Design: A systematic search of the literature and environmental scan were conducted. A consensus process of key clinical and administrative stakeholders proved essential due to the low quality of available evidence.

Results: Standards were developed to inform the organization and operations of regional systemic treatment programs to ensure safe delivery of high quality chemotherapy as close to home as possible. The standards describe four levels of care from the patient, organization and system perspective. Details are articulated by category: Health Care Providers and Their Roles; Education of Providers; Service Type and Complexity; Quality Assurance and Safety; Facility Requirements; Administration and Organizational Responsibilities. The standards also provide a foundation for activity-based funding and planning approaches.

Conclusions: Organizational standards will support integration and alignment of regional systemic treatment programs across the Province that are patient-focused, quality driven and sustainable over the long-term.

Contact Information:
Sherrie Hertz
sherrie.hertz@cancercare.on.ca

PREVENTING OCCUPATIONAL EXPOSURE TO HAZARDOUS DRUGS IN A COMMUNITY HOSPITAL

E.Spears BScPhm; C. Fan-Lun BScPhm; S.Moledina BScPhm; E.Emmanuel PhmTech

Safety is a priority at Markham Stouffville Hospital. After reviewing the USP 797 standards and guidelines for safe compounding of sterile preparations, we needed to ensure compliance with these requirements. A Gap analysis showed the handling of antineoplastics and other hazardous drugs was a significant safety issue and was the target of our safety improvement initiative.

We identified two main safety improvements:

1. Investigate and implement a closed system transfer device for antineoplastic preparation and administration

2. Meeting the new USP 797 cleaning and decontamination procedure

Both initiatives were huge change initiatives that required buy-in from our senior administration to support financially. Our nurses, pharmacy technicians and pharmacists feel safer with the process changes. Initial testing for our environmental contamination was done in several areas of the clean room and the chemotherapy patient suite prior to the closed system implementation and the new cleaning procedure. To quantify the change, another test is scheduled this fall.

Contact Information:
Elizabeth Spears
Markham Stouffville Hospital
lspears@msh.on.ca

PATIENT-PHARMACIST COMMUNICATION REGARDING THE USE OF NATURAL HEALTH PRODUCTS (NHP) DURING TREATMENT WITH PALLIATIVE CHEMOTHERAPY

Sanna Pellatt BSc(Pharm) , Jeff Barnett, BSc(Pharm), MSc 1,2, Elizabeth Borycki, RN, HBScN, PhD , Heather Jennings B.Sc. M.Sc.(c) 2, Stacey Slager BA., MSc(c) 2, Susan Walisser BSc(Pharm) 1, Ken Wong BSc (c) 2

Patients who are taking chemotherapy for palliation are also using natural health products (NHP) to manage their disease. There are a number of concerns associated with NHP usage during chemotherapy. Some NHP products may enhance the effects of chemotherapy medication(s) while others may diminish their effectiveness. There is very limited research about NHP use in cancer patients on palliative chemotherapy.

The objectives of this pilot study were to: (a) develop an understanding of NHP usage by palliative patients, (b) determine the effects of a patient-pharmacist communication upon palliative patient decisions to use NHP, and c) estimate a sample size with sufficient power (i.e. 80%) to complete a full study. Study participants were randomly assigned to one of two study arms: the "standard communication" or the "individualized communication" arm. In the "standard communication" arm, the pharmacist reviewed the standard institutional information re NHP use . In the "long communication" arm, the pharmacist provided education tailored to the individual NHP products that the patient was taking.

The preliminary findings of the study will be discussed in terms of their impact upon pharmacist practice and their potential implications for developing educational programs for patients who are using or plan to use NHP's.

IMPACT OF DRUG CONCENTRATION AND DILUENT ON THE OSMOLALITY AND PH OF INTRATHECAL CHEMOTHERAPY PREPARATION: SURVEY, LITERATURE REVIEW AND IN VITRO EVALUATION

de Lemos ML, Monfared S, Hamata L, Jennings S, Thiessen B, Smith S, Denyssevych T, Waterhouse D

Objective: To evaluate the choice of drug concentrations and diluent of intrathecal (IT) chemotherapy used in practice and in the literature; to evaluate the in vitro IT chemotherapy, and in vitro pH and osmolality of commonly used IT chemotherapy preparations.

Design: Cancer centres were contacted and Medline was searched regarding the volume, drug concentrations and diluents used for IT chemotherapy. We also evaluated the in vitro pH and osmolality of methotrexate, cytarabine and thiotepa in normal saline (NS), sterile water for injection and lactated Ringer's solution.

Results: Most centres surveyed (9) and clinical reports (44) used 5 mL of preservative free NS, irrespective of the drug or drug concentration. The most common concentrations were: methotrexate 1-2.5 mg/mL, cytarabine 0.4-20 mg/mL, thiotepa 1 mg/mL. In vitro, most tested solutions showed pH and osmolality within 10% of the physiologic range of cerebral spinal fluid (CSF), except for the higher pH of cytarabine 10 and 25 mg/mL solutions.

Conclusions: There is limited evidence to support the conventional use of 5 mL of preservative diluent NS for IT chemotherapy. Our in vitro evaluation suggests that most methotrexate preparations likely have pH and osmolality comparable to CSF, while cytarabine preparations may show significantly higher pH.

Contact information:
Mário L. de Lemos
BC Cancer Agency
Vancouver, BC

IMPROVING RISK MANAGEMENT WITH THE DEVELOPMENT OF A BEST EVIDENCE-BASED, PROVINCIAL CHEMOTHERAPY PREPARATION AND STABILITY CHART

de Lemos ML, Hamata L, Bingham R, Conklin J, Hsia B, Iqbal S, Jang D, Kapty AD, Kovacic L, Kuik K, Murrell T, Nakashima L, Pellatt S, Soon S, Leduc T, Walisser

Objective: To develop and implement a fully referenced, provincial chemotherapy preparation and stability chart that contains the basic information for the storage, preparation and stability of parenteral antineoplastic drugs commonly used in British Columbia (BC).

Design: A policy and methodology was developed at the BC Cancer Agency. Drafts of the chart were reviewed by staff at the regional cancer centres. The final version of the chart was made available to all the regional and community centres through our website. Success was defined as > 80% adoption rate.

Results: A standard process on data interpretation was developed, based on the major official guidelines and empiric assumptions to address practice issues which cannot otherwise be resolved, including beyond-use date of vials and finished products, infusion volumes, protection from light, and latex content. The chart currently contains information of approximately 63 parenteral antineoplastics (164 products). It has been adopted by 88% (28/32) of cancer centres in BC.

Conclusions: We have developed a fully referenced chemotherapy preparation and stability chart that has been adopted by 88% of the cancer centres in our province.

Contact information:
Mário L. de Lemos
BC Cancer Agency
Vancouver, BC

Sponsor:
Partly supported by the Medbuy Endowment/Bursary Fund.

COMPUTERIZED PHYSICIAN ORDER ENTRY (CPOE) –A NEW TABLET

Dr. Dhali Dhaliwal, Dr. Eric Bow, Venetia Bourrier, Jillian Hardy, Kimberly Watkinson, Danica Lister, Susan Kemp, David Phillips, Jamie Trudel, Scott Streilein, Tamera Wilson, Alison BertramFarough, Kristen Martin, Jeff Peitsch, Mark Kuchnicki, Brian Hiebert, Victoria Morris, Leah McIsaac
CancerCare Manitoba (CCMB)

Background: The patient safety literature has demonstrated that CPOE resulted in a decrease of 58% in problem medication orders and 60% in medication discrepancies.

Accreditation Canada has identified Medication Management as a priority process and has required that organizations have verification processes and other checking systems for high-risk activities. CPOE will greatly enhance CCMB's ability to fulfill these mandates. In Manitoba, all sites that deliver systemic chemotherapy to cancer patients are electronically linked via the Aria Manager computer program. New technology, computer tablets will facilitate the training of physicians in CPOE.

Objective: While computerized physician order entry is available via the Aria system, the percentage of physicians using the technology is low. Through the Quality program of the agency, CPOE was identified as a priority and a project team was identified. The order entry skills of pharmacy technicians were utilized to train the physicians to use the Aria system to enter their chemotherapy orders. The goal is to have 95% of all orders entered electronically by April, 2009.

Design: Pharmacy technicians under the supervision of a pharmacist work individually with the physicians in their clinics for a minimum of one month . A training plan is established for each physician. Protocols and regimens were developed and a favourites list created for each physician. The Health Information Systems (HIS) department provided support in the development of training modules, the collection of statistics and the training on the tablets. The data manager in the Quality , Risk and Patient Safety department provided graphical representation of the indicators for the project status reports.

Results: After one month, thirteen physicians are scheduled for training and three have completed training. The indicator monitored-the percentage of orders entered by physicians have increased from a baseline of ~20% to ~33% . This indicator will be updated on a monthly basis to show the progress of the project.

Conclusion: The quality outcome of this project is enhanced patient care through increased efficiencies and increased patient safety.

NEW CHEMOTHERAPY LABELS: LESS IS MORE

Venetia Bourrier, Pat Trozzo, Alison Bertram Farough, Evelyn DeGrave, Jenny Billey, Theresa Whiteside, Charles Moody, Victoria Morris, Marc Geirnaert, Susan Kemp, Kimberly Watkinson, David Phillips
CancerCare Manitoba

Background: A highly publicized incident in Alberta in 2006 involving a fatal overdose of a medication delivered via an ambulatory infusion device that was incorrectly programmed has facilitated national review and collaboration by provincial jurisdictions. A Root Cause Analysis on the incident was performed by the Institute of Safe Medication Practices in Canada (ISMP). One causal statement from the ISMP Report on this incident identified that the medication label contained unnecessary information and did not incorporate human factors engineering design principles.

In April 2007 following the release of the ISMP Report, a Working Group was established at CancerCare Manitoba (CCMB) to review existing medication processes associated with infusional systemic therapy to ensure the highest level of safety.

Objective: In response to the Root Cause Analysis, CCMB aimed to design and implement new chemotherapy labels with enhanced safety, including removal of extraneous information.

Design: The established CCMB Working Group made up of pharmacy, nursing and quality program representatives met to review the existing chemotherapy labels. The expertise of a human factors/literacy expert was enlisted to assist in designing new chemotherapy labels. The end result was creation of a label with a number of improved safety features, incorporating an innovative concept of two distinct labels;

1) One label for the final product with less extraneous information and more pertinent administration information for nursing ("less is more").

2) One preparation label intended for pharmacy use with admixing instructions.

Results: The new chemotherapy labels have been successfully created and implemented at CancerCare Manitoba, all but one Winnipeg Community hospital site, and 13 out of 16 rural Community Cancer Program sites.

Conclusion: The quality outcome of this project is enhanced patient safety through improved chemotherapy labels.

ONCOLOGY CLINICAL PRACTICE GUIDELINES IN QUEBEC

Jean Morin

Objective: In 2001, the Quebec Minister of Health and Social Services created the Comité de l'évolution des pratiques en oncologie (CEPO), an oncology clinical practice guideline (CPG) program. The projects started in 2002 and since 2004, it is under the authority of the Quebec Cancer Department.

Design: The CEPO is a committee of experts with mandate of improving oncology clinical practice in Quebec. It is composed of haematologists, oncologists, radio-oncologists, surgeons, pharmacists, methodologists, and representative of various agencies involved in health services and technology assessment.

Results: The CEPO is developing or adopting evidence-based CPG with recommendations for cancer screening, diagnosis and treatment. The pharmacists committee is writing administration protocols and General Information brochure for patients on medication side effects and management. To date, the CEPO has published 15 CPG and 66 drug administration protocols and information brochures. The CPG are distributed to all concerned professionals in oncology and, together with the administration protocols, they are available on the Groupe d'étude en oncologie du Québec website.

Conclusion: The CEPO is a committee of oncology experts developing recommendations in order to improve clinical practice and to provide best care to cancer patients in Quebec.

Contact information:
Mélanie Kavanagh, Ph. D., CEPO coordinator
1075, chemin Sainte-Foy, 7th floor
Québec (Québec) G1S 2M1
Phone : 418-266-6940
Fax : 418-266-4605
email: melanie.kavanagh@msss.gouv.qc.ca

DEVELOPMENT OF A CLINICAL PHARMACIST ROLE IN AMBULATORY MEDICAL DAY UNIT

Killen K, Walker K, Broadfield L, Harding C, Godin J, Bowley D, MacDonald J, Sellon M. Department of Pharmacy, Capital District Health Authority, Halifax Nova Scotia

At the QEII Health Sciences Centre, cancer patients are cared for in multiple locations throughout the hospital. The Medical Day Unit (MDU) is one of the ambulatory units, where patients with hematologic malignancies are treated. Until 2007 there was no clinical pharmacist assigned to the MDU. The MDU administers chemotherapy and other high risk drugs. The use of high-cost drugs in hematology was not monitored efficiently, with several patients placed on expensive drugs (e.g. Rituximab) who did not qualify according to hospital guidelines. A new clinical pharmacist position was created to provide services in the MDU.

The new clinical pharmacist reviews all patient charts for drug- related problems, verifies all chemotherapy orders before transmission to the central pharmacy for preparation, coordinates timely pharmacy services with patient appointments, counsels selected patients on high-risk protocols, ensures timely and accurate completion of forms to enable coverage of high cost drugs, and performs rounds with the hematologists in the ambulatory clinic.

This new position has been demonstrated to save the hospital over $750,000 in cost recovery and over $25,000 in cost avoidance, far more than the cost of the 1.54 FTE allocated. Many significant interventions have been made to improve the quality and safety of patient care. Staff (including nurses and hematologists) and patients feel that the quality of their care is improved with the availability of a pharmacist on the unit. In addition, pharmacy services run more smoothly with a clinical pharmacist coordinating care and distribution. This is a success story for the entire pharmacy team at QEII!

THE IMPACT OF THE ONCOLOGY PHARMACIST DETERMINED BY A TOXICITY ASSESSMENT PROGRAM IN ADJUVANT BREAST CANCER PATIENTS

S. Edwards, Pharm D, Clinical Oncology Pharmacy Specialist, Cancer Care, St. John's, NL and M. Wall, Pharmacy Student, Memorial University of Newfoundland School of Pharmacy, J. Edwards, BSc. Kinesiology

Introduction: Adjuvant breast cancer patients at the Dr. H. Bliss Murphy Cancer Center are offered clinical pharmacy services to alleviate the adverse drug events (ADEs) caused by their chemotherapy treatments. Oncology pharmacist performed toxicity assessments on the day of chemotherapy and two days post chemotherapy for all cycles of chemotherapy. Contact information for an oncology pharmacist is also provided to patients, and they are encouraged to utilize the service when they are experiencing ADEs. Pharmacists have the potential to make interventions with these patients using their toxicity assessment program. Interventions have been documented during a five month period to determine the impact of the oncology pharmacist on adjuvant breast cancer patients.

Objectives:

1. To quantitatively determine how essential the oncology pharmacist is to adjuvant breast cancer patients experiencing ADEs.
2. To determine the most common interventions made by oncology pharmacists.

Methods: A toxicity assessment program has been developed to document interventions made by oncology pharmacists to aid adjuvant breast cancer patients during chemotherapy. The number and type of interventions were examined retrospectively over a five month period (February 1st-June 30th, 2008). This data was used to determine the most common ADEs experienced by our patient population as well as the total number of interventions made per chemotherapy cycle.

Results: Most common ADEs where oncology pharmacists made interventions:

- constipation (23.7%), nausea (19.7%), mucositis (19.1%), diarrhea (7.2%), pain (7.2%)
- Percentage of patients using the toxicity assessment program were 90.5%
- Percentage of patients requiring pharmacist intervention per cycle 94.0%

Conclusion: The oncology pharmacist has a vital role in controlling ADEs caused by chemotherapy. The toxicity assessment program was utilized by the majority of adjuvant breast cancer patients to help ameliorate their chemotherapy experience.

Contact Information:
Dr. Scott Edwards
Scott.edwards@easternhealth.ca
709.777.8521

INCIDENCE AND GRADING OF SELECTED TOXICITIES OF AMBULATORY BREAST CANCER PATIENTS – AN EVALUATION OF CLINICAL CARE

Edwards S., Pharm. D, Clinical Oncology Pharmacy Specialist; Edwards J., B. Kinesiology; Ghumman A, B. Pharm. candidate

Objective:

- To determine the rates of selected toxicities (nausea, vomiting, diarrhea, constipation, stomatitis) in a population of adjuvant breast cancer patients in a St. John's ambulatory care setting.
- To compare these rates to those reported in recent literature
- To draw conclusions on the toxicity grades and temporal patterns of selected toxicities associated with adjuvant breast cancer regimens.

Design: Selected toxicities for an adjuvant breast cancer population were isolated retrospectively from a toxicity assessment database (OPIS 2000) used to document chemotherapy-induced toxicities. Rates and grades of occurrence were calculated and compared with literature reports. Patients included in the study had completed all cycles of their chemotherapy treatment.

Results: Based on a population of 43 patients, 316 toxicity events were reported over five consecutive months (February to June 2008) of data collection. Incidence of nausea was highest at 29.7% while vomiting was least frequently reported at 4.7%. Of note, with only 3 patients on a regimen of TCH, an average of 8.7 toxicities per patient were seen, or 25 in total. Similarly although only 3 patients were on a regimen of AC, 20 toxicities were reported or an average of 6.7 per patient. These regimens represent the highest toxicity events over the number of patients enrolled.

Conclusion: Vomiting occurred the least while nausea occurred most frequently. Constipation incidence was also high. These results can be used to improve side-effect management in our clinical practice, as before implementation of this pharmacy toxicity assessment and documentation, there was no method for assessment and recording of toxicities in our patient population. Pharmacy toxicity assessments and appropriate documentation has enhanced our monitoring and improvement capacities.

Contact Information:
Dr. Scott Edwards (Pharm. D.)
709.777.8521 / (e) scott.edwards@easternhealth.ca

PREVENTION OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV) - A REPORT CARD FOR AN OUTPATIENT ONCOLOGY CLINIC

Mulherin K, BSc Pharm, University of Toronto and Edwards S, Pharm D, Clinical Specialist, Cancer Care, St. John's, NFLD

Objective: In 2001, **Introduction:** Patients rank CINV first in terms of dreaded chemotherapy-related adverse drug events (ADEs). Validation of CINV-devoted pharmacy resources can be achieved through measuring avoidance rates of this important ADE and comparing CINV rates to benchmarks.

Objectives: To gauge successful CINV prevention in local adjuvant breast cancer patients through:

1. Determining CINV rates
2. Comparing these rates to those in naturalistic studies and clinic professionals' estimations.

And:

3. Determine documentation aspects requiring improvement for future research.

Methods: CINV events were extracted retrospectively from a population database used to document chemotherapy-induced toxicity. Calculated rates were compared with literature and local professional staff estimates. Future improvements for data recording were noted during the audit.

Results:

- Avoidance rates of acute/delayed vomiting were 88/77%.
- Avoidance rates of acute/delayed nausea were 96/23%.
- Literature avoidance rates of acute/delayed vomiting were 72/61% and nausea 53/47%.
- Professional estimation of avoidance rates of acute/delayed vomiting were 84/82% and nausea 70/69%.
- There was difficulty categorizing CINV as acute or delayed secondary to documentation deficiencies.

Conclusion: Rates of avoided vomiting mirrored literature reports and clinic professionals' estimations. Rates of avoided delayed nausea appear lower than the literature and overestimated by clinic professionals and require remediation. Time of onset of CINV should be recorded for accurate categorization as acute or delayed toxicity.

Contact Information:
Dr. Scott Edwards
709.777.8521
Scott.edwards@easternhealth.ca

PHARMACY COMMUNITY ONCOLOGY NETWORK (C.O.N) EDUCATOR WEBPAGE

Joan Fabbro, BC Cancer Agency - Centre for the Southern Interior (CSI); Rhonda Kalyn, BC Cancer Agency - CSI

Objective: To describe the educational content that is available on the Pharmacy CON Educator webpage on the BC Cancer Agency website.

Design: The Pharmacy CON Educator position was created in November 2001 to address the need for continuing education and professional development for pharmacy staff working in the field of oncology. A webpage for the Pharmacy CON Educators was created on the BC Cancer Agency website to provide BC hospital pharmacy staff with easy access to Pharmacy CON Educators contact information, links and educational material.

Results: Highlights of the information provided on this Pharmacy CON Educator webpage to enhance the oncology education for BC pharmacy staff include:

- The BC Cancer Agency Pharmacy Practice Standards for Hazardous Drugs
- The Pharmacy Guide to the BC Cancer Agency Protocols
- Supportive Care Directory
- Frequently Asked Questions (FAQ's

Conclusion: The Pharmacy CON Webpage provides convenient access to educational material for oncology pharmacy staff in BC. The Pharmacy CON Educator Webpage will continue to evolve as the Pharmacy CON Educators develop more educational content for publication.

Contact Information for presenting author:
Joan Fabbro
Chemotherapy Certification Pharmacist
BC Cancer Agency, CSI
399 Royal Ave.
Kelowna, B.C. V1Y 5L3
Phone: 250-712-3966 local 6741
Fax: 250-712-3968
jfabbro@bcccancer.bc.ca

EVIDENCE, ECONOMICS AND ETHICS IN THE FUNDING DECISIONS FOR BEVACIZUMAB FOR THE TREATMENT OF METASTATIC COLORECTAL CANCER

Shawn Bugden B.Sc (Hons), B.Sc.(Pharm), M.Sc., Pharmacoeconomics Pharmacist, CancerCare Manitoba

Advances in the treatment of cancer are often step-wise with modest gains in survival. The cost of these treatments can be a daunting challenge for funding bodies. Bevacizumab for the treatment of metastatic colorectal cancer represents an important example of the challenge faced by decision makers funding oncology medications. Bevacizumab is associated with a 2-5 month improvement in survival. Cost effectiveness analysis suggests that bevacizumab likely exceeds traditionally accepted thresholds. In addition, because colon cancer is relatively common it can be expected to have a major budget impact. Approximately 100 patients/million population will require treatment at a cost of $3-4 million/million population. Evidence of survival benefits combined with the economic analysis of cost effectiveness and budget impact, leave decision makers with difficult challenges in the area beyond the evidence.

The varying decisions in Canada, US and the UK will be explored. From full public coverage to capped coverage, no coverage and private 3rd party arrangements, bevacizumab funding involves difficult and politically sensitive decisions for funding bodies around the world. These are interesting times, where tough decisions involve evidence, economics and an ethics of fairness that balances the needs of the individual and our society.

Contact Information:
Shawn Bugden, shawn.bugden@cancercare.mb.ca

THE IMPACT OF PHARMACIST DISCHARGE MEDICATION RECONCILIATION ON UNINTENTIONAL MEDICATION DISCREPANCIES FROM INPATIENT DISCHARGES AT THE ALBERTA CANCER BOARD CROSS CANCER INSTITUTE

Patrick Yau, Carole Chambers, Serena Rix, David Candler, Steve Follett, Pervez Khan, Louise Kaminski, Karen Saban, Dianne Kapty, Cross Cancer Institute, Edmonton, Alberta Canada

Purpose: Current literature suggests, absence of medication reconciliation at discharge is a patient medication safety concern. This study was designed to determine the effect of pharmacist discharge medication reconciliation on the number and type of unintentional discrepancies and estimate their potential to cause harm.

Patient & Methods: Subjects were randomized to receiving pharmacist discharge medication reconciliation plus standard care at discharge (study arm), or standard care only (control arm). Subjects were given a follow up phone call post-discharge to identify medication discrepancies.

Results: Twenty nine subjects were included. In the study arm one of thirteen subjects were discharged with at least one unintentional discrepancy, compared to six of sixteen subjects in the control arm (p=0.06). A total of one unintentional discrepancy was found in the study arm compared to fourteen in the control (p=0.07). No subjects in the control arm were deemed at risk of harm compared to three in the control arm (p=0.35).

Conclusion: Pharmacist discharge medication reconciliation trended towards reducing unintentional discrepancies. No effect in harm reduction was found likely due to a limited sample size. The investigators believe, pharmacist discharge medication reconciliation improves seamless care and is recommended for improving patient medication safety.

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Cheers,

Hélène Bourget-Letarte

Hélène Bourget-Letarte, NOPS 2009 Co-chair
See you in 2009!

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Pour obtenir plus d'information ou pour vous joindre à l'équipe du SNPO 2009, veuillez communiquer avec moi à hbourget@ottawahospital.on.ca. Je serai heureuse de répondre à toutes vos questions.

Espérant que vous serez des nôtres au symposium de 2009, veuillez agréer mes salutations distinguées.

Hélène Bourget-Letarte

Hélène Bourget-Letarte, co-présidente,
SNPO 2009