

Systemic Therapy Update



BC Cancer Agency

CARE + RESEARCH

An agency of the Provincial Health Services Authority

January 2012
Volume 15, Number 1

For Health Professionals Who Care For Cancer Patients

Available online at: www.bccancer.bc.ca/HPI/ChemotherapyProtocols/stupdate

Inside This Issue:

- **Editor's Choice – Highlights of Changes in Protocols, PPOs and Patient Handouts** – Bortezomib-Dexamethasone-Cyclophosphamide in Multiple Myeloma, Increased Duration of Imatinib in GIST, Octreotide in Pituitary Adenoma, Limiting Duration of Bisphosphonates in Metastatic Breast Cancer, Single-Agent Taxanes Require No Prior Treatment in Metastatic Breast Cancer, Cytarabine in AML, CVP-R in Relapsed Indolent Lymphoma, Fludarabine in Relapsed Leukemia, Maintenance RiTUXimab for Mantel Cell Lymphoma, Temozolomide in Malignant Melanoma with Brain Metastases; **New Program**: Letrozole for Advanced Ovarian Cancer
- **Patient Safety Update** – Evidence on Therapeutic Heat Application
- **Pharmacy Update** – New BCCA Pharmacy Website, Updates on Practice Standards for Hazardous Drugs
- **Education Update** – Hepatitis B Screening & Prophylaxis in Cancer Patients, Upcoming Conferences
- **Cancer Drug Manual – Revised Monographs**: Fluorouracil, Nilotinib, Pamidronate, Temozolomide; **Revised Handouts**: BCG, Tamoxifen; **Farewell to Editorial Board Member**
- **Benefit Drug List – New**: Letrozole for Advanced Ovarian Cancer; **Revised**: FOLFOX in GI chemotherapy protocols
- **List of New and Revised Protocols, Pre-Printed Orders and Patient Handouts – New**: CNOCTLAR, GOOVAI, LKAMLCYT; **Revised**: BRAVABR, BRAVCLOD, BRAVDOC, BRAVDOC7, BRAVPAM, BRAVT7, BRAVTAX, BRAVTRVIN, GIAJFFOX, GIFOLFOX, GIRAJFFOX, GUBCG, UGUPABI, GUPDOC, LYCVP-R, LYFLUDR, ULYRMTN, UMYBORPRE, UMYBORREL, UMYLENDEX, SAAJGI, SMAVTMZ; **Deleted**: CMLIFNCYT
- **New Systemic Therapy Update Editor**
- **Website Resources and Contact Information**

EDITOR'S CHOICE

HIGHLIGHTS OF CHANGES IN PROTOCOLS, PRE-PRINTED ORDERS AND PATIENT HANDOUTS

Multiple Myeloma:

- ***UMYBORPRE*** – The eligibility criteria for using **bortezomib** and **dexamethasone** with or without **cyclophosphamide as induction therapy** have been expanded to include *all* multiple myeloma patients who are eligible for autologous stem cell transplantation (ASCT), rather than limiting to high risk patients. The expansion in eligibility is based on a phase III trial that demonstrated significant improvement in 3-year overall survival (78% vs. 70%, P=0.02), and three phase III trials that showed increased overall tumour response rates post-ASCT and improved 3-year progression free survival with bortezomib compared to conventional therapy. [*Harousseau JL et al. JCO 2010;28(30):4612-29*] [*Cavo M et al. Lancet 2010;376(9785):2075-85*] [*Sonneveld P et al. ASH Annual*

Meeting Abstracts 2010;116(21):40] The protocol has also been adjusted to indicate the preference of using once weekly bortezomib with the addition of cyclophosphamide. This preference is based on data indicating improved efficacy with the triplet combination, and reduced toxicity with the weekly administration of bortezomib. [*Stewart et al. Blood 2009;114:5436-5443*]

Sarcoma:

- **SAAJGI** – The **duration of adjuvant imatinib** therapy for c-kit positive **Gastrointestinal Stromal Cell Tumours (GIST)** has been extended to 3 years. This is based on an open-label phase III trial (Scandinavian Sarcoma Group [SSG] XVIII) that compared 36 mo vs. 12 mo of imatinib therapy in 400 patients with high risk, resected GIST. Patients in the 36-month treatment arm demonstrated improved 5-yr overall survival (92.0% vs. 81.7%, HR 0.45, 95% CI 0.22-0.89) and 5-year relapse-free survival (65.6% vs. 47.9%, HR 0.46, 95% CI 0.32-0.65). [*Joensuu H et al. JCO 2011;29:18s:775s*] Note that patients who had previously completed 1 year of adjuvant imatinib therapy within the past 6 months may continue treatment for a total of 3 years.

Neuro-Oncology:

- **CNOCTLAR** – A **new Protocol** has been developed for **octreotide (SANDOSTATIN LAR®)** in the treatment of **growth hormone secreting pituitary adenoma**. Patients are now required to meet only two criteria to be eligible for treatment – (1) not cured by surgical procedure or not good surgical candidate, and (2) persistent growth hormone metabolic symptoms. Patients requiring octreotide for functional carcinoid and neuroendocrine tumours of the gastrointestinal tract should be treated with the recently implemented chemotherapy protocol, UGIOCTLAR. The protocol code, UCN0, should no longer be used.

Breast:

- **BRAVCLOD, BRAVPAM** – The Breast Tumour Group has introduced a new recommended **maximum exposure to bisphosphonate therapy of 2 to 3 years** for breast cancer patients with bone metastases. This is due to recognition of atypical femoral fractures arising with greater incidence among individuals exposed to bisphosphonates for long periods. [*Park-Wyllie LY et al. JAMA 2011;305(8):783-89*] In addition, the most recent American Society of Clinical Oncology (ASCO) guidelines for bisphosphonate use in metastatic breast cancer indicated that there are no randomized data to support their use beyond one year of therapy. [*Van Poznak et al. ASCO Guideline Update. Approved 02Dec2011.*] Cautionary language has been added to the clodronate (BRAVCLOD) and pamidronate (BRAVPAM) protocols.

This class of drugs has provided significant palliative benefit for symptomatic bone metastases and modest reduction and/or delay in the development of bone related events (i.e. pathologic fractures, spinal cord compression, need for palliative radiation and surgery). They have a clear role in the treatment of bone metastases from breast cancer. However, prescribers are now asked to strongly consider discontinuing bisphosphonates after 2 to 3 years unless individual cases merit longer exposure in the clinician's opinion. There are trials underway examining the benefit of intermittent use, and use guided by urine markers of bone turnover, which may provide additional guidelines for their optimal use in the future.

- **BRAVTAX, BRAVT7, BRAVABR, BRAVDOC, BRAVDOC7** – The use of **single-agent taxanes** in metastatic breast cancer **no longer requires prior treatment with anthracyclines**. It is recognized that taxanes have efficacy at various times in the trajectory of

metastatic disease, and that the order in which chemotherapies are used in the metastatic setting is not necessarily critical. As such, the Breast Systemic Group has removed the requirement for prior exposure to anthracyclines from these protocols.

Leukemia:

- **LKAMLCYT** – A new Protocol has been developed for **cytarabine** in the treatment of newly diagnosed **acute myeloid leukemia (AML)**. This low-dose subcutaneous (SC) cytarabine therapy is indicated for patients who are not candidates for the standard “7 plus 3” induction regimen (cytarabine continuous infusion x 7 days plus DAUNOrubicin x 3 days), but who would prefer “more aggressive” therapy compared to oral hydroxyurea and transfusion support.

Lymphoma:

- **LYCVP-R and LYFLUDR** – The eligibility criteria for these two protocols have been expanded from initial treatment to include patients with relapsed indolent lymphomas, small lymphocytic lymphoma or chronic lymphocytic lymphoma, provided that patients do not have refractory disease (i.e. previous response longer than 6 months).
- **ULYRMTN** – The eligibility criteria for **maintenance riTUXimab** therapy have been expanded include **mantel cell lymphoma**. A recent phase III trial demonstrated an overall survival advantage for patients who received R-CHOP followed by riTUXimab maintenance compared to those who received interferon maintenance (77% vs. 62%, p=0.17). [Kluin-Nellimens et al. *Ann of Oncol* 2011;22: suppl 14, abstract from ICML] Maintenance riTUXimab has become the standard of care in the treatment of mantel cell lymphoma across Canada and world-wide.

NEW PROGRAM

The **Provincial Systemic Therapy Program** has approved **Letrozole** for the Treatment of **Advanced Ovarian Cancer (GOOVAI)**. Aromatase inhibitors offer an oral and relatively non-toxic alternative to single-agent chemotherapy in patients with advanced ovarian cancer. At this time, only letrozole is approved for this indication by the BC Cancer Agency. Response rates of up to 36% have been reported, with disease stabilization in 20% to 40% of patients. [Li YF et al. *Intl J Gynecol Canc* 2008;18:600-614]

PATIENT SAFETY UPDATE

EVIDENCE ON THERAPEUTIC HEAT APPLICATION

Therapeutic heat is widely used to promote comfort and relaxation, relieve muscle and joint pain, and facilitate venous cannula insertion. A variety of generally safe modalities are actively utilized within health care and include, but are not limited to, the application of dry or moist warmed towels and blankets, gel packs, aquathermia machines, hot water bottles, wheat-based heat packs and electrical heating pads.^{1,2,3}

PATIENT SAFETY UPDATE

Modalities traditionally employed at the BC Cancer Agency include the application of hot moist towels and/or electrical heating pads to promote vasodilation prior to intravenous insertions. These devices are applied to promote comfort during intravenous infusions of irritating agents or blood products, for conditions such as back or abdominal pain, and following the insertion and/or removal of peripherally inserted central catheters.⁴

An incident involving a patient who experienced a serious burn to the lower back from an electrical heating pad was the impetus for a review of care practices associated with the application of therapeutic heat. A review of the literature revealed a paucity of evidence-based research, however, embedded within some articles were discussions related to patient safety.^{3,5,6}

The salient points of discussion found within the literature include:

- 1. The Time- and Temperature-Burn Relationship:** The relationship between temperature and the duration of heat exposure to the severity and extent of tissue injury are influenced by patient variables such as comorbidities, tissue depth, age and gender. A temperature of 40 °C is considered safe for relatively longer periods of time. However, for every 1 °C increase in temperature between 44 °C and 51 °C, there is an exponential decrease in the time it takes to cause burning.³ A phenomenon known as *adaptation* results when heat receptors are stimulated following the initial heat application.³ The sensitivity to heat diminishes over time and the perceived decreased feeling of heat may lead patients to increase the temperature on an electrical heating pad.
- 2. Application and Monitoring:** Heating devices should be checked prior to use, have a protective cover and be placed on top of and not underneath the patient. They should never be attached using a safety pin, and never used in an oxygen enriched environment. These devices should also never be used on a patient who is sleeping, has altered mental status, or has decreased skin sensation.^{5,6,7} The *Infusion Nurses Society* recommends that a patient should never be left unattended during heat application.⁸ *Clinical Nursing Skills & Techniques* also recommends that the patient's skin be assessed every 5 minutes during the application of heat.⁹
- 3. Modalities:** Electrical heating pads are manufactured to a domestic standard, not a medical safety standard. Also, the distribution of heat and regulation of temperature may be inconsistent on these devices.⁶ There is currently no national standard for temperature settings on warming devices. In 2008, 1494 emergency department visits were reported in the United States for thermal burns due to electrical heating pads.³

RECOMMENDATIONS:

Although there may be several indications for and benefits to using therapeutic heat, the question is whether electrical heating pads are the safest choice for heat application. A review of the literature supported the conclusion that the risks associated with the use of electrical heating pads within the BCCA clinical environments out-weighed the benefits. Based on the following reasons, their use has been discontinued:

1. Inconsistency of a heating pad temperature.
2. Heating pads can cause burns even when used appropriately.⁵
3. No device meets medical safety standards, only domestic standards.⁶

PATIENT SAFETY UPDATE

4. Using an electrical heating pad safely would require extensive assessment of patient risk factors prior to application, and frequent site assessment during heat application. It may not be practical or feasible to meet this standard in busy inpatient and outpatient settings.
5. Alternative methods of heat application are available. Dry or moist heat (via dry towels or blankets) is safe, comfortable, feasible and economical.

The use of electrical heating pads will be reviewed in the future if a device that meets medical safety standards (thermostat and auto-shut off) becomes available. Rigorous guidelines related to contraindications, high-risk conditions, patient monitoring and nursing education will be required.

Submitted by: Anne Hughes RN, BSN, MN, CON(C)
Regional Professional Practice Leader, Nursing
BC Cancer Agency

Michelle Moore RN, BSN, CON(C)
Clinical Resource Nurse
BC Cancer Agency

References:

1. Lenhardt R *et al.* Local warming and insertion of peripheral venous cannulas: single blinded prospective randomised controlled trial and single blinded randomised crossover trial. *British Medical Journal* 2001;325 (7361):409-410.
2. Fink RM *et al.* The impact of dry versus moist heat on peripheral IV catheter insertion in a hematology-oncology outpatient population. *Oncology Nursing Forum* 2009;36(4):198-204.
3. Ebbinghaus S and Kobayashi H. Safe heat application for pediatric patients – a hot item. *Journal of Nursing Care Quality* 2010;25(2):168–175.
4. Moore M. Survey of Heating Pad Use by RN's at BCCA (via surveymonkey.com). 2011.
5. Todd JF. Heating devices: how to avoid burns. *Nursing* 97; October 1997: p. 83.
6. Chandler A, Preece J, Lister S. Using heat therapy for pain management. *Nursing Standard* 2002;17(9):40-42.
7. Metules TJ. Hands-on help: hot and cold packs. 1997;70 (1):45-48. www.rnweb.com.
8. Infusion Nurses Society. Infusion nursing standards of practice. 2006, p.60.
9. Perry AG, Potter PA. Clinical nursing skills and techniques. 7th edition. 2010. Mosby-Elsevier. pp1039-1056.

PHARMACY UPDATE

NEW AND IMPROVED BCCA PHARMACY WEBSITE

The **Clinical Oncology Resource Educators in Pharmacy (CORE-Rx) Team** has updated the Pharmacy portion of the BC Cancer Agency website effective 07 December 2011. The Pharmacy website is now **relocated directly below the *Health Professionals Info* section on the BCCA homepage**. All contents that were previously available in the *CON Pharmacy Resource* and the *Continuing Education Pharmacy* pages have now been transferred to this new location. New resources have also been added.

Highlights on the changes include:

- Reorganization of content for easy access
- Addition of new webpages:
 - BCCA Education Program for Oncology Pharmacists
 - Education Links

PHARMACY UPDATE

- BCCA Pharmacy Practice Residency Program
- Financial Support and Benefit Lists

CORE-Rx hopes users will find the new website more useful and easier to navigate. Please send your comments or suggestions to Ms. Rhonda Kalyn, Pharmacy CON Educator (rkalyn@bccancer.bc.ca), or Dr. Sally Man, Provincial Pharmacy Education Coordinator (sman3@bccancer.bc.ca), to continually improve the Pharmacy website.

UPDATES ON BCCA PHARMACY PRACTICE STANDARDS FOR HAZARDOUS DRUGS

The **BCCA Pharmacy Practice Standards for Hazardous Drugs Manual** has been updated on the BCCA Pharmacy website. Updated information are highlighted in yellow on the online documents. These documents can be accessed at:

<http://www.bccancer.bc.ca/HPI/Pharmacy/GuidesManuals/safehandling.htm>.

Key changes include:

- Module 1:
- Expanded information about elastomeric INFUSOR™
 - Definition and explanation of First Air (with diagrams)
 - Clarification of:
 - Biological Safety Cabinet (BSC) cleaning standards
 - Standards for Personal Protective Equipment (PPE) & clothing requirements
 - New and updated *Checklists* and *Directives*
- Module 2:
- New table summarizing USP <797> Engineering Control Requirements for hazardous drugs (HDs) Storage and Preparation
- Module 3:
- Expanded recommendations for labelling outpatient prescriptions
 - New *Checklist* for preparation of HDs for latex allergy patients
 - 2 new *Directives* for labelling outpatient prescriptions and preparation of HDs for latex allergy patients

Submitted by: Joan Fabbro (BScPharm, ACPR)
Chemotherapy Certification
Pharmacist

Michelle Koberinski
Chemotherapy Certification Pharmacy
Assistant

HEPATITIS B SCREENING AND PROPHYLAXIS IN CANCER PATIENTS

Cancer patients with chronic or prior infection of hepatitis B virus (HBV) are at risk of reactivation following immunosuppressive therapy. The clinical presentation of HBV reactivation (also called a “flare”) can vary from asymptomatic hepatitis to potentially fatal fulminant hepatic failure.^{1,2} In general, the risk of reactivation in hepatitis B carriers undergoing chemotherapy ranges from 20% to 50%, and peaks just after chemotherapy is withdrawn. As the patient recovers from chemotherapy, the immunocompetent cells attack the hepatocytes that became infected during treatment, causing a flare of the HBV disease.² Associated mortality rates have been reported in up to 30% of patients.^{1,3} Risk factors include the type of cancer, degree and type of immunosuppression (i.e. long-term corticosteroid use), selective immunosuppressive medications such as rituximab and fludarabine, and status of the hepatitis B infection.¹ HBV serology testing is used to identify patients at risk for reactivation, and antiviral prophylaxis with lamivudine is recommended for these patients.

Who Should Be Screened?

The BC Cancer Agency recommends routine HBV screening for all patients with lymphoid malignancies (including Hodgkin lymphoma, non-Hodgkin lymphoma, myeloma and lymphocytic leukemia) prior to receiving immunosuppressive therapy.⁶ This is because patients with lymphoid malignancies are at particular high risk for reactivation due to their exposure to the immunosuppressive effects of both chemotherapy treatment and their disease.⁴

HBV reactivation has also been reported in some patients undergoing chemotherapy for solid tumours such as breast, lung and gastrointestinal cancers.³ The American Society of Clinical Oncology (ASCO) does not currently recommend routine HBV screening in these patients unless they exhibit other risk factors for reactivation (i.e. born in high/intermediate HBV endemic regions, HIV carriers, receiving highly immunosuppressive therapy such as hematopoietic cell transplantation, prior parenteral drug abuse and regimens containing rituximab).⁵

Hepatitis B Serologic Test Results – What Do They Mean?

Hepatitis B serology testing can be used to identify patients at risk for HBV reactivation by measuring serum concentrations of HBV-specific antigens and antibodies (see table 1). Different combinations of serology markers are used to determine the clinical status of the hepatitis B infection (see table 2).

Table 1. Common Hepatitis B Serology Markers^{7,8}

Marker	Definition	Note
HBsAg	Hepatitis B surface antigen	<ul style="list-style-type: none"> ▪ General marker of hepatitis B infection ▪ Usually disappears 4 to 6 months after infection ▪ Persistence for more than 6 months suggests chronic hepatitis B infection
Anti-HBs	Hepatitis B surface antibody	<ul style="list-style-type: none"> ▪ Immunity to hepatitis B from prior infection or vaccination
Anti-HBc <ul style="list-style-type: none"> ▪ IgM anti-HBc ▪ IgG anti-HBc 	Hep B core antibody	<ul style="list-style-type: none"> ▪ Confirmed prior exposure to HBV (resolved or acute/chronic infection) ▪ IgM anti-HBc : Acute hepatitis B infection (usually disappear within 6 months)

EDUCATION UPDATE

- IgG anti-HBc: Resolved or chronic hepatitis B infection

Table 2. Interpretation of Hepatitis B Serology Test Results

Tests	Results	Interpretation ⁹	At Risk For Reactivation
HBsAg	–	Susceptible to future hepatitis infection	No
Anti-HBc	–		
Anti-HBs	–		
HBsAg	–	Immune due to natural infection	Yes
Anti-HBc	+		
Anti-HBs	+		
HBsAg	–	Immune due to hepatitis B vaccination	No
Anti-HBc	–		
Anti-HBs	+		
HBsAg	+	Acutely infected	Yes
Anti-HBc	+		
IgM anti-HBc	+		
Anti-HBs	–		
HBsAg	+	Chronically infected	Yes
Anti-HBc	+		
IgM anti-HBc	–		
Anti-HBs	–		
HBsAg	–	<u>Four Possible Interpretations:</u> 1. Resolved infection ^a (most common) 2. False positive anti-HBc, thus susceptible 3. ‘Low level’ chronic infection ^b 4. Resolving acute infection ^c	Yes
Anti-HBc	+		
Anti-HBs	–		

^a After many years of acute hepatitis B recovery, anti HBs may fall to undetectable levels

^b After many years of chronic hepatitis B infection, HBsAg may fall to undetectable levels

^c May occur in patients with fulminant hepatitis B where virus clearance tends to be more rapid.

During this window, HBsAg may disappear while anti-HBs is still not detected. The sole marker that indicates acute hepatitis B infection is the presence of IgM-anti HBc.

How to Minimize the Risk for Hepatitis B Reactivation?

Patients who test positive for either HBsAg or Anti-HBc antibody are at risk for HBV reactivation and should receive antiviral prophylaxis. Lamivudine, a reverse transcriptase inhibitor, is recommended by the BCCA. The recommended dose is 100 mg daily to be started the week before immunosuppressive therapy and continued for six months after immunosuppressive therapy is completed. Viral load (HBV DNA) and liver function tests should be evaluated at baseline and monitored minimally every 2 months.⁶ British Columbia PharmaCare provides limited coverage benefit for lamivudine if physicians submit a Special Authority form to apply for drug coverage. More information can be found at: <http://www.health.gov.bc.ca/pharmacare/sa/criteria/restricted/lamivudine.html>.

EDUCATION UPDATE

In patients undergoing chemotherapy, lamivudine has been shown to reduce the risk of reactivation by 79% or more when compared to placebo.³ Although resistance against lamivudine is more common than with other reverse transcriptase inhibitors (i.e. adefovir, tenofovir, entecavir), these agents are not considered the standard of care because of the lack of long-term safety data, and are not as cost effective.⁴

References:

1. Kusumoto S, Tanaka Y, Ueda R, et al. Reactivation of hepatitis B virus following Rituximab-plus-steroid combination chemotherapy. *J Gastroenterol* 2011;46:9-16.
2. Keam B, Lee JH, Im SA, et al. Why, when, and how to prevent Hepatitis B virus reactivation in cancer patients undergoing chemotherapy. *J Natl Compr Canc Netw* 2011 May; 9(5): 465-477.
3. Roche B, Samuel D. The difficulties of managing severe hepatitis B virus reactivation. *Liver Int* 2011 Jan; 31 Suppl 1:104-110
4. Marinone C, Mestriner M. HBV disease: HBsAg carrier and occult B infection reactivation in haematological setting. *Dig Liver Dis* 2011 Jan;43 Suppl 1:S49-56
5. Artz AS, Somerfield MR, Feld JJ, et al. American Society of Clinical Oncology Provisional Clinical Opinion: Chronic hepatitis B virus infection screening in patients receiving cytotoxic chemotherapy for treatment of malignant diseases. *J Clin Oncol* 2010; 28:3199-3202.
6. BC Cancer Agency Lymphoma, Leukemia/BMT Tumour Group. BCCA protocol summary for the treatment of high risk multiple myeloma using Bortezomib, Dexamethasone, with or without Cyclophosphamide as induction pre-stem cell transplant. Vancouver, British Columbia: BC Cancer Agency; 1 July 2011.
7. Krajden M, McNabb G, Petric M. The laboratory diagnosis of hepatitis B virus. *Can J Infect Dis Med Microbiol* 2005; 16(2):65-72
8. Kao JH. Diagnosis of Hepatitis B virus infection through serological and virological markers. *Expert Rev Gastroenterol Hepatol* 2008 Aug; 2(4):553-562
9. Centers for Disease Control and Prevention. Interpretation of Hepatitis B Serologic Test Results. <http://www.cdc.gov/hepatitis/HBV/PDFs/SerologicChartv8.pdf>. Accessed 18 August, 2011

Submitted by:	Dr. Enny Oetomo (PharmD) Pharmacy CON Educator	Reviewed by:	Dr. Joseph Connors (MD) Clinical Professor & Director, BCCA Centre for Lymphoid Cancer
	Ms. Lynne Ferrier (BScPharm, MBA) Pharmacy CON Educator		Dr. Caroline Lohrisch (MD) Medical Oncologist – BCCA Chair, Breast Systemic Group

UPCOMING CONFERENCES

Annual Interprofessional Clinical Educators Workshop:

Developing the New Health Care Practitioner: Insights and Strategies for Clinical Preceptors

Date: January 24, 2012

Location: Chan Centre for Family Health Education, Vancouver, BC

Registration Deadline: 13 Jan 2012

Website: <https://www.eplyevents.com/Event.aspx?evt=e58c5a65-8593-4252-9cdf-1ca8e00232cd>

Topics will include: (1) the role of the preceptor and their impact on team culture and student learning, (2) the philosophies of practice and their impact on team culture and student learning, (3) team factors and influences on the learning environment, and (4) the value of informal leaders within team-based organizations.

EDUCATION UPDATE

Canadian Lung Cancer Conference (CLCCO):

Date: January 26-27, 2012

Location: Fairmont Pacific Rim Hotel, Vancouver, BC

Early Bird Registration Deadline: 10 Jan 2012

Website: <http://clcco.ca/main.html>

This multidisciplinary conference will highlight the new approaches and surgical options in the management of Non-Small Cell Lung Cancer (NSCLC), the concept of maintenance chemotherapy in NSCLC, the role of predictive biomarkers in systemic treatment decisions in NSCLC, the role of stereotactic radiosurgery in NSCLC pulmonary nodules, and much more.

Symposium on Hepatic Oncology at Whistler (SHOW):

Date: February 2-4, 2012

Location: Fairmont Chateau Whistler, BC

Early Bird Registration Deadline: 05 Jan 2012

Website: <http://www.show-whistler.ca>

This is an inaugural conference to present practical multidisciplinary perspectives on the treatment of liver cancers in the setting of community based practice. To facilitate cross-specialty dialogue through case-based review, lectures and active audience participation, there will be three co-chairs representing three specialties involved in liver directed cancer care at this conference.

Canadian Conference on Lymphoproliferative Disorders (CCOLD):

Date: March 16-18, 2012

Location: Fairmont Chateau Lake Louise, Alberta

Early Bird Registration Deadline: 15 Feb 2012

Website: <http://www.ccold.ca>

This is the 4th annual CCOLD conference. New this year will be a Pharmacy/Nursing session with a focus on multiple myeloma.

CANCER DRUG MANUAL

REVISED MONOGRAPHS AND PATIENT HANDOUTS

The following monographs have been revised:

CANCER DRUG MANUAL

- **Fluorouracil** – to include a hyperlink for the 5-FU Overdose Guidelines
- **Nilotinib** – to include the new 150 mg capsule formulation in the Supply and Storage section
- **Pamidronate** – to replace the dosing information for Hypercalcemia of Malignancy in the Adult Dosing section with a new hyperlink to the SCHYPCAL protocol
- **Temozolomide** – to update the contact information of the manufacturer and to delete the 180 mg capsule formulation from the Supply and Storage section

The following patient handouts have been revised:

- **BCG (Bladder and Intralesional)** – to update recommendations for abstinence/condom use for one week post-treatment
- **Tamoxifen** – to update the names of the included supportive care documents as per the current template, and to correct a spelling error

EDITORIAL BOARD MEMBERSHIP

The Cancer Drug Manual Team would like to bid farewell to CDM editorial board member, **Dr. Sheila Souliere**, as she steps down from the board in December 2011. The team would like to extend its sincere thanks for her many contributions to the board and wishes her all the best in her retirement.

BENEFIT DRUG LIST

NEW PROGRAMS

The following program has been added on the benefit list effective 01 January 2012:

- **Letrozole** (class I) for advanced ovarian cancer (GOOVAI)

REVISED PROGRAMS

The following programs have been revised on the benefit list effective 01 January 2012:

- **Oxaliplatin** with **Fluorouracil** and **Leucovorin (FOLFOX)** (class II) for:
 - Adjuvant treatment of stage III and stage IIB colon cancer (GIAJFFOX)
 - Adjuvant treatment of stage III rectal cancer (GIRAJFFOX)
 - Palliative treatment of metastatic colorectal cancer (GIFOLFOX)

LIST OF NEW AND REVISED PROTOCOLS, PRE-PRINTED ORDERS AND PATIENT HANDOUTS

BC Cancer Agency Protocol Summaries, Provincial Pre-Printed Orders (PPPOs) and Patient Handouts are revised periodically. New, revised or deleted protocols, PPPOs and patient handouts for this month are listed below. Protocol codes for treatments requiring “Compassionate Access Program” (previously Undesignated Indications Request) approval are prefixed with the letter “U”.

NEW Protocols, PPPOs and Patient Handouts (AFFECTED DOCUMENTS ARE CHECKED):

CODE	Protocol	PPPO	Patient Handout	Protocol Title
CNOCTLAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Treatment Of Growth Hormone Secreting Pituitary Adenoma Using Octreotide (SANDOSTATIN LAR [®])
GOOVAI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Therapy For Advanced Ovarian Cancer Using An Aromatase Inhibitor
LKAMLCYT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Therapy of Acute Myeloid Leukemia Using Low Dose Cytarabine

REVISED PROTOCOLS, PPPOs AND PATIENT HANDOUTS (AFFECTED DOCUMENTS ARE CHECKED):

CODE	Protocol	PPPO	Patient Handout	Changes	Protocol Title
BRAVABR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Removed anthracycline pre-treatment requirement from Eligibility Criteria</i>	Palliative Therapy For Metastatic Breast Cancer Using Nanoparticle, Albumin-Bound (Nab)-PACLitaxel (ABRAXANE [®])
BRAVCLOD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Added maximum treatment duration of 2 to 3 years in Treatment and Precautions Sections</i>	Therapy For Therapy Of Bone Metastases In Breast Cancer Using Oral Clodronate
BRAVDOC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Removed anthracycline pre-treatment requirement from Eligibility Criteria</i>	Palliative Therapy For Metastatic Breast Cancer Using DOCETaxel
BRAVDOC7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Removed anthracycline pre-treatment requirement from Eligibility Criteria</i>	Palliative Therapy For Metastatic Breast Cancer Using Weekly DOCETaxel
BRAVPAM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Added maximum treatment duration of 2 to 3 years in Precautions Section</i>	Treatment Of Acute Bone Pain Secondary To Breast Cancer Metastases Using Pamidronate
BRAVT7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Removed anthracycline pre-treatment requirement from Eligibility Criteria</i>	Palliative Therapy For Metastatic Breast Cancer Using Weekly PACLitaxel
BRAVTAX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Removed anthracycline pre-treatment requirement from Eligibility Criteria</i>	Palliative Therapy For Metastatic Breast Cancer Using PACLitaxel

REVISED PROTOCOLS, PPPOs AND PATIENT HANDOUTS (AFFECTED DOCUMENTS ARE CHECKED):

CODE	Protocol	PPPO	Patient Handout	Changes	Protocol Title
BRAVTRVIN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Protocol title corrected</i>	Palliative Therapy for Metastatic Breast Cancer using Trastuzumab and Vinorelbine
GIAJFFOX	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Revised Eligibility Criteria and Protocol Code</i>	Adjuvant Combination Chemotherapy For Stage III And Stage IIB Colon Cancer Using Oxaliplatin, 5-Fluorouracil And Folinic Acid (Leucovorin)
GIFOLFOX	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Revised Eligibility Criteria and Protocol Code</i>	Palliative Combination Chemotherapy For Metastatic Colorectal Cancer Using Oxaliplatin, 5-Fluorouracil And Folinic Acid (Leucovorin)
GIRAJFFOX	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Revised Eligibility Criteria and Protocol Code</i>	Adjuvant Combination Chemotherapy For Stage III Rectal Cancer Using Oxaliplatin, 5-Fluorouracil And Folinic Acid (Leucovorin)
GUBCG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Revised maintenance treatment interval</i>	Therapy For High Risk Superficial Transitional Cell Bladder Cancer Using BCG
UGUPABI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrected Treatment Section to delete statement that non-steroidal antiandrogen should be maintained</i>	Palliative Therapy for Metastatic Castration Resistant Prostate Cancer Using Abiraterone and Prednisone After Failure of Docetaxel Therapy
GUPDOC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrected Treatment Section to delete statement that non-steroidal antiandrogen should be maintained</i>	Palliative Therapy for Metastatic Hormone Refractory Prostate Cancer Using Docetaxel
LYCVP-R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Revised Eligibility Criteria to include relapsed patients</i>	Treatment Of Advanced Indolent Lymphoma Using Cyclophosphamide, VinCRistine, Prednisone And RiTUXimab (CVP-R)
LYFLUDR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Revised Eligibility Criteria to include relapsed patients</i>	Treatment Of Chronic Lymphocytic Leukemia Or Polymorphocytic Leukemia With Fludarabine And RiTUXimab
ULYRMTN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Added Mantel Cell Lymphoma to Eligibility Criteria</i>	Maintenance RiTUXimab For Indolent Lymphoma
UMYBORPRE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Revised Eligibility Criteria to include all patients from only high risk patients; clarified preferred starting dose</i>	Treatment Of High Risk Multiple Myeloma Using Bortezomib, Dexamethasone With Or Without Cyclophosphamide As Induction Pre-Stem Cell Transplant
UMYBORREL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Lab requirements clarified</i>	Treatment of Relapsed Multiple Myeloma Using Bortezomib, Dexamethasone with or without Cyclophosphamide

REVISED PROTOCOLS, PPPOs AND PATIENT HANDOUTS (AFFECTED DOCUMENTS ARE CHECKED):

CODE	Protocol	PPPO	Patient Handout	Changes	Protocol Title
UMYLENDEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Tests and Dose Modifications updated</i>	Therapy of Multiple Myeloma Using Lenalidomide with Dexamethasone
SAAJGI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Revised Eligibility Criteria to allow 3-year total treatment</i>	DOXOrubicin For Adjuvant Use For Patients With Non-Metastatic Operable Large High Grade Soft Tissue Sarcoma
SMAVTMZ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Deleted requirement of prior treatment in Eligibility Criteria</i>	Palliative Therapy For Malignant Melanoma With Brain Metastases Using Temozolomide

DELETED Protocols, PPPOs and Patient Handouts (AFFECTED DOCUMENTS ARE CHECKED):

CODE	Protocol	PPPO	Patient Handout	Protocol Title
CMLIFNCYT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Therapy Of Chronic Myeloid Leukemia Using Interferon And Cytarabine

NEW SYSTEMIC THERAPY UPDATE EDITOR

The **Systemic Therapy Update (STU)** has a **New Editor! Dr. Sally Man**, the BCCA Provincial Pharmacy Education Coordinator, joined the editorial board in January 2011 and became the Assistant Editor in July. She has now assumed the editorship as part of her oncology education responsibilities.

The STU Editorial Board would like to thank **Dr. Mário de Lemos** for his many years of contribution and leadership as the Editor of the STU over the last 12 years. Dr. de Lemos is currently the BCCA Provincial Drug Information Coordinator, a member of the Expert Review Committee of the Pan-Canadian Oncology Drug Review process, and an Associate Clinical Professor in the Faculty of Pharmaceutical Sciences at the University of British Columbia. He began his role as the STU Editor with little fanfare in November 1999 when he replaced the original editor, Dr. Robin O'Brien. Under Dr. de Lemos' leadership, the STU has maintained the essence of communication and education regarding policies, professional standards and areas of interest for oncology practitioners intended at the inception of the fledgling publication, while responding to the evolving environment of oncology practice. He will continue to serve as a member of the editorial board.

WEBSITE RESOURCES AND CONTACT INFORMATION

WEBSITE RESOURCES	
	www.bccancer.bc.ca
Reimbursement & Forms: Benefit Drug List, Class II, Compassionate Access Program	www.bccancer.bc.ca/HPI/ChemotherapyProtocols/Forms
Cancer Drug Manual	www.bccancer.bc.ca/cdm
Cancer Management Guidelines	www.bccancer.bc.ca/CaMgmtGuidelines
Cancer Chemotherapy Protocols, Pre-printed Orders, Protocol Patient Handouts	www.bccancer.bc.ca/ChemoProtocols
Systemic Therapy Program Policies	www.bccancer.bc.ca/HPI/ChemotherapyProtocols/Policies
Systemic Therapy Update	www.bccancer.bc.ca/HPI/ChemotherapyProtocols/stupdate
CON Pharmacy Educators	www.bccancer.bc.ca/RS/CommunitiesOncologyNetwork/Educators/Pharmacists

CONTACT INFORMATION	PHONE	FAX	EMAIL
Systemic Therapy Update Editor	604.877.6277		mdelemos@bccancer.bc.ca
Provincial Systemic Therapy Program	604.877.707.5973		ldasilva2@bccancer.bc.ca
Communities Oncology Network (CON)	250.519.5501		jdenduyf@bccancer.bc.ca
Oncology Drug Information	604.877.6275		druginfo@bccancer.bc.ca
Education Resource Nurse	604.877.6000 x 2638		nursinged@bccancer.bc.ca
Library/Cancer Information	888.675.8001 x 8003		requests@bccancer.bc.ca
Pharmacy Professional Practice	250. 519.5574		jkippen@bccancer.bc.ca
Nursing Professional Practice	604.877.6000 x 2623		ilundie@bccancer.bc.ca
OSCAR	888.355.0355	604.708.2051	oscar@bccancer.bc.ca
Compassionate Access Program (CAP)	604.877.6277	604.708.2026	cap_bcca@bccancer.bc.ca
Pharmacy Chemotherapy Certification	250.712.3900 x 686741		rxchemocert@bccancer.bc.ca
BCCA-Abbotsford Centre	604.851.4710 Toll Free 877.547.3777		
BCCA-Centre for the Southern Interior	250.712.3900 Toll Free 888.563.7773		
BCCA-Fraser Valley Centre	604.930.2098 Toll Free 800.523.2885		
BCCA-Vancouver Centre	604.877.6000 Toll Free 800.663.3333		
BCCA-Vancouver Island Centre	250.519.5500 Toll Free 800.670.3322		

EDITORIAL REVIEW BOARD

Sally Man, PharmD (Editor)
 Mário de Lemos, PharmD, MSc (Oncol)
 Beth Morrison, MLS
 Caroline Lohrisch, MD

Jaya Venkatesh, MHA, CMA
 Johanna Den Duyf, MA
 Susan Walisser, BSc (Pharm)