Provincial Health Services Authority

Systemic Therapy Update

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June 2020

For Health Professionals Who Care for Cancer Patients

Inside This Issue:

Editor's Choice

New Programs

Effective 01 June 2020, the BC Cancer Provincial Systemic Therapy Program has approved the following new pembrolizumab-containing treatment programs. Recommended pembrolizumab dosing schedules are dependent on clinical and pharmacokinetic data, as well as on the administration schedule of concomitant agents; therefore, protocols may include 3-weekly, 6-weekly, or both 3- and 6-weekly dosing schedules. In general, 6-weekly dosing allows for added flexibility in scheduling patient appointments. Full details of these programs can be found on the BC Cancer website in the Chemotherapy Protocols section.

For patients approved for 3-weekly pembrolizumab treatment by the BC Cancer Compassionate Access Program (CAP), new CAP approval is not required when switching to a 6-weekly dosing schedule. Note that because of the significant workload associated with the large number of eligible patients, new patients should be prioritized by BC Cancer centres and Community Oncology Network (CON) sites. Patients currently being treated with pembrolizumab via the manufacturer patient assistance program can be transitioned to a BC Cancer treatment protocol from 01 June through 15 October 2020.

Genitourinary

Pembrolizumab for Locally Advanced or Metastatic Urothelial Carcinoma (UGUAVPEM, UGUAVPEM6) — The Genitourinary Tumour Group is introducing pembrolizumab as the first immunotherapy agent to be approved in patients with locally advanced or metastatic urothelial carcinoma who have disease progression during or following platinum-containing chemotherapy. Until now, there has been no established standard of care for patients progressing after platinum-containing chemotherapy; thus, pembrolizumab fills an unmet need in this patient population.[1] A BC Cancer CAP approval is required. As per below, pembrolizumab can be given every 3 or 6 weeks.

Protocols	Dosing Schedules
UGUAVPEM	Pembrolizumab 2 mg/kg IV every 3 weeks (*maximum 200 mg*)
UGUAVPEM6	Pembrolizumab 4 mg/kg IV every 6 weeks (*maximum 400 mg*)

Approval of this new treatment is based on the phase III KEYNOTE-045 trial, which compared pembrolizumab with investigator's choice of chemotherapy (paclitaxel, docetaxel or vinflunine) in the second-line setting.[2] After a median follow-up of 22.5 months, the median overall survival (mOS) was significantly improved in the pembrolizumab group (10.3 months vs. 7.4 months, HR 0.70, 95% CI 0.57-0.86). Pembrolizumab was associated with a lower rate of any-grade (60.9% vs. 90.2%) and grades 3 to 5 (15.0% vs. 49.4%) treatment-related adverse events (TRAEs). Immune-mediated adverse events occurred more frequently with pembrolizumab, including hypothyroidism (6.4% vs. 1.2%), pneumonitis (4.1% vs. 0.4%), hyperthyroidism (3.8% vs. 0.4%) and colitis (2.3% vs. 0.4%).

Lung

First-Line Platinum-Pemetrexed with Pembrolizumab for Advanced Non-Squamous Non-Small Cell Lung Cancer (NSCLC) — The Lung Tumour Group is implementing this first-line combination therapy for patients whose disease demonstrates any level of programmed death-ligand 1 (PD-L1) expression, but is negative for EGFR, ALK or ROS1 mutations. Four cycles of 3-weekly platinum-pemetrexed and pembrolizumab **(ULUAVPPPMB)** are followed by 3-weekly pemetrexed and pembrolizumab maintenance therapy for up to two years of total treatment **(LUAVPPMBM)**. If pemetrexed maintenance is discontinued due to toxicity, patients may continue maintenance pembrolizumab alone **(LUAVPMBM** or **LUAVPMBM6)**. A BC Cancer CAP approval is required for the initial 4-cycle treatment protocol. Note that the use of pembrolizumab in the first-line setting precludes the use of atezolizumab or nivolumab in subsequent lines of therapy.

<table>
<tr><th>Initial Protocol</th><th></th><th>Maintenance Protocol</th></tr>
<tr><td rowspan="3">ULUAVPPPMB
Platinum + Pemetrexed + Pembrolizumab
every 3 weeks x 4 cycles</td><td rowspan="3">THEN</td><td>LUAVPPMBM
Pemetrexed + Pembrolizumab every 3 weeks</td></tr>
<tr><td>If pemetrexed-intolerant:</td></tr>
<tr><td>LUAVPMBM Pembrolizumab every 3 weeks
OR
LUAVPMBM6 Pembrolizumab every 6 weeks</td></tr>
</table>

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Approval of these programs is based on the phase III KEYNOTE-189 trial, which compared platinum-pemetrexed chemotherapy plus either pembrolizumab or placebo.[3,4] The pembrolizumab-combination group demonstrated significantly longer mOS (not reached vs. 11.3 months, HR 0.49, 95% CI 0.38-0.64); the overall survival rate at 12 months was also significantly improved (69.2% vs. 49.4%, HR 0.49, 95% CI 42.1-56.2). Rates of grade 3 or higher adverse events were comparable (67.2% vs. 65.8%), although adverse events that led to treatment discontinuation were reported more frequently in the pembrolizumab-combination group (13.8% vs. 7.9%).

First-Line Paclitaxel-Carboplatin with Pembrolizumab for Advanced Squamous NSCLC — The Lung Tumour Group is implementing this first-line combination therapy with paclitaxel-carboplatin and pembrolizumab for patients with advanced, squamous NSCLC with any level of PD-L1 expression. Four cycles of 3-weekly paclitaxel-carboplatin and pembrolizumab **(ULUAVPCPMB)** are followed by pembrolizumab maintenance therapy given every 3 weeks **(LUAVPMBM)** or 6 weeks **(LUAVPMBM6)** for up to two years of total treatment. Platinum-gemcitabine and pembrolizumab may be used for patients intolerant to taxanes **(ULUAVPGPMB)**. A BC Cancer CAP approval is required for the initial 4-cycle treatment protocol. Note that the use of pembrolizumab in the first-line setting precludes the use of atezolizumab or nivolumab in subsequent lines of therapy.

<table>
<tr><th>Initial Protocol</th><th></th><th>Maintenance Protocol</th></tr>
<tr><td>ULUAVPCPMB
Paclitaxel + Carboplatin + Pembrolizumab
every 3 weeks x 4 cycles</td><td rowspan="3">THEN</td><td rowspan="3">LUAVPMBM Pembrolizumab every 3 weeks
OR
LUAVPMBM6 Pembrolizumab every 6 weeks</td></tr>
<tr><td>If taxane-intolerant:</td></tr>
<tr><td>ULUAVPGPMB
Platinum + Gemcitabine + Pembrolizumab
every 3 weeks x 4 cycles</td></tr>
</table>

Approval of this new treatment is based on the phase III KEYNOTE-407 trial, which compared paclitaxel-carboplatin chemotherapy plus either pembrolizumab or placebo.[5,6] The pembrolizumab-combination group demonstrated significantly longer mOS (15.9 months vs. 11.3 months, HR 0.64, 95% CI 0.49-0.85). Rates of grade 3 or higher adverse events were comparable (69.8% vs. 68.2%), although treatment discontinuation due to adverse events was reported more frequently in the pembrolizumab-combination group (13.3% vs. 6.4%).

Lymphoma

Pembrolizumab for Relapsed or Refractory Hodgkin Lymphoma (ULYPEM, ULYPEM6) — The BC Cancer Lymphoma Tumour Group is introducing pembrolizumab for patients with classical Hodgkin lymphoma (cHL) that has relapsed or progressed after autologous stem cell transplantation and brentuximab vedotin (BV). A BC Cancer CAP approval is required. Pembrolizumab joins nivolumab (ULYNIV, ULYNIV4) as a treatment option in this small, heavily pretreated patient population.

Protocols	Dosing Schedules
ULYPEM	Pembrolizumab 2 mg/kg IV every 3 weeks (*maximum 200 mg*)
ULYPEM6	Pembrolizumab 4 mg/kg IV every 6 weeks (*maximum 400 mg*)

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Approval of this new treatment is based on the phase II KEYNOTE-087 trial, which evaluated pembrolizumab in patients with relapsed or refractory cHL. Applicable cohorts included patients whose disease had progressed after BV; an objective response rate was achieved in 73.9% (95% CI 61.9% to 83.7%) and 64.2% (95% CI 52.8% to 74.6%) of these patients.[7,8] The most common grade 1 or 2 TRAEs were hypothyroidism (12.4%) and pyrexia (10.5%), while the most common grade 3 TRAEs were neutropenia (2.4%), diarrhea (1%) and dyspnea (1%); no grade 4 TRAEs were reported in the trial.

Melanoma

Pembrolizumab for Adjuvant Treatment of Resected Stage III-IV NED Melanoma (USMAJPEM) — The BC Cancer Skin and Melanoma Tumour Group is introducing pembrolizumab as a new adjuvant treatment option for fully resected stage III or IV melanoma, regardless of BRAF mutation status. A BC Cancer CAP approval is required. Note that patients are eligible to receive one of pembrolizumab, nivolumab (USMAJNIV, USMAJNIV4) or combination dabrafenib/trametinib (USMAJDT), but not the sequential use of these agents.

Protocol	Dosing Schedule
USMAJPEM	Pembrolizumab 2 mg/kg IV every 3 weeks (*maximum 200 mg*)

Approval of this new program is based on the phase III, placebo-controlled KEYNOTE-054 trial, in which pembrolizumab demonstrated an improved 12-month recurrence-free survival (75.4% vs. 61.0%, HR 0.57, 98.4% CI 0.43-0.74).[9,10] More grades 3 to 5 TRAEs were reported in the pembrolizumab group (14.7% vs. 3.4%). Most grade 3 or 4 immune-related adverse events resolved within 2 months after the last dose of pembrolizumab.

References

1. Pan-Canadian Oncology Drug Review (pCODR) Expert Review Committee (pERC). Final recommendation for pembrolizumab (Keytruda®) for metastatic urothelial carcinoma. 15 February 2018.
2. Bellmunt J, de Wit R, Vaughn DJ, et al. Pembrolizumab as second-line therapy for advanced urothelial carcinoma. *New Engl J Med* 2017;376(11):1015-1026. https://doi.org/10.1056/NEJMoa1613683
3. Pan-Canadian Oncology Drug Review (pCODR) Expert Review Committee (pERC). Final recommendation for pembrolizumab (Keytruda®) for non-squamous non-small cell lung cancer (NSCLC). 16 May 2019.
4. Gandhi L, Rodríguez-Abreu D, Gadgeel S, et al. Pembrolizumab plus chemotherapy in metastatic non-small cell lung cancer. *New Engl J Med* 2018;378(22):2078-2092. https://doi.org/10.1056/NEJMoa1801005
5. Pan-Canadian Oncology Drug Review (pCODR) Expert Review Committee (pERC). Final recommendation for pembrolizumab (Keytruda®) for squamous non-small cell lung cancer (NSCLC). 12 December 2019.
6. Paz-Ares L, Luft A, Vicente D, et al. Pembrolizumab plus chemotherapy for squamous non-small cell lung cancer. *New Engl J Med* 2018;379(21):2040-2051. https://doi.org/10.1056/NEJMoa1810865
7. Pan-Canadian Oncology Drug Review (pCODR) Expert Review Committee (pERC). Final recommendation for pembrolizumab (Keytruda®) for classical Hodgkin lymphoma. 19 October 2017.
8. Chen R, Zinzani PL, Fanale MA, et al. Phase II study of the efficacy and safety of pembrolizumab for relapsed/refractory classic Hodgkin lymphoma. *J Clin Oncol* 2017;35:2125-2132. https://doi.org/10.1200/JCO.2016.72.1316
9. Pan-Canadian Oncology Drug Review (pCODR) Expert Review Committee (pERC). Final recommendation for pembrolizumab (Keytruda®) for melanoma adjuvant therapy. 18 July 2019.
10. Eggermont AMM, Blank CU, Mandala M, et al. Adjuvant pembrolizumab versus placebo in resected stage III melanoma. *N Engl J Med* 2018;378(19):1789-1801. https://doi.org/10.1056/NEJMoa1802357

Drug Update

New Immunotherapy Dosing Schedule Options

Effective 01 June 2020, BC Cancer has approved new dosing schedule options for atezolizumab and pembrolizumab. These changes allow for additional flexibility in scheduling patient clinic appointments. For patients previously approved for these treatments by the BC Cancer Compassionate Access Program (CAP), new CAP approval is not required when switching to a new dosing schedule.

Atezolizumab

4-Weekly Atezolizumab Dosing for Advanced NSCLC (ULUAVATZ4) — Atezolizumab may now be administered as a 3-weekly or 4-weekly fixed-dose regimen.[1] Note that patients switching from the existing 3-weekly dosing schedule (ULUAVATZ) to the 4-weekly dosing schedule should receive the first 4-weekly dose on the day they are due for their next 3-weekly dose.

Atezolizumab dosing schedules are summarized below:

Protocols	Dosing Schedules
ULUAVATZ	Atezolizumab 1200 mg IV every 3 weeks
ULUAVATZ4 *(new)*	Atezolizumab 1680 mg IV every 4 weeks

Pembrolizumab

6-Weekly Pembrolizumab Dosing for Unresectable or Metastatic Melanoma (USMAVPEM6) — The BC Cancer Skin and Melanoma Tumour Group is adding a 6-weekly dosing schedule option for pembrolizumab in the metastatic setting, based on clinical data from the KEYNOTE-555 trial.[2] Note that patients switching from the existing 3-weekly dosing schedule (USMAVPEM) to the 6-weekly dosing schedule should receive the first 6-weekly dose on the day they are due for their next 3-weekly dose.

Pembrolizumab dosing schedules are summarized below:

Protocols	Dosing Schedules
USMAVPEM	Pembrolizumab 2 mg/kg IV every 3 weeks (*maximum 200 mg*)
USMAVPEM6 *(new)*	Pembrolizumab 4 mg/kg IV every 6 weeks (*maximum 400 mg*)

References

1. Morrissey KM, Marchand M, Patel H, et al. Alternative dosing regimens for atezolizumab: An example of model-informed drug development in the postmarketing setting. *Cancer Chemother Pharmacol* 2019;84:1257-1267. https://doi.org/10.1007/s00280-019-03954-8
2. Lala M, Akala O, Chartash E, et al. Pembrolizumab 400 mg Q6W dosing: First clinical outcomes data from KEYNOTE-555 cohort B in patients with metastatic melanoma. American Association for Cancer Research Annual Virtual Meeting 2020. Abstract #CT042.

Drug Update

Biosimilar Rituximab Coming Soon

Effective 01 July 2020, the BC Cancer Provincial Systemic Therapy Program will implement the use of biosimilar rituximab for rituximab given intravenously. Note that the reference biologic product will continue to be used when rituximab is administered subcutaneously. Funding details and updates to applicable rituximab-containing documents will be outlined in the July 2020 Systemic Therapy Update.

More information and resource materials on biosimilar drugs are available on the BC Cancer website, located in the Biosimilar Drugs section.

Discontinuation of Brand-Name Warfarin

Warfarin is used for anticoagulation in select oncology patients. In BC, the majority of patients use a generic warfarin product. Effective 01 June 2020, the sale and distribution of all strengths of brand-name warfarin tablets (Coumadin®, Bristol Myers Squibb) will be discontinued in Canada. Full discontinuation is expected by 30 August 2020.

Clinicians and patients should be aware that warfarin generic alternatives remain available and covered under PharmaCare. If switching from brand-name warfarin to a generic warfarin product, additional laboratory (INR) testing is not required. Full details are summarized in the 21 May 2020 issue of the BC PharmaCare Newsletter.

Manufacturer Patient Assistance Programs

The listing of patient assistance programs offered by pharmaceutical manufacturers has been updated and can be accessed on the BC Cancer website under Health Professionals > Systemic Therapy > Reimbursement & Forms.

Drug Shortages

The following are updates of drug supply shortages in BC. Full details about new, updated or resolved drug shortages, including recommended treatment alternatives, can be found in the *Briefing Notes* and email communications previously circulated to BC Cancer and the Community Oncology Network (CON).

New

Bromocriptine
(Adapted from BC Cancer Briefing Note 08May2020)

There is a current shortage of bromocriptine in Canada. The estimated release date for additional supply is July 2020. BC Cancer centres and CON sites may have limited quantities on hand and may run out prior to the release date. As a mitigation strategy, BC Cancer centres and CON sites may reduce the total quantity dispensed to enable all active patients to continue on treatment.

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Drug Shortages

Bromocriptine is used at BC Cancer for the treatment of pituitary adenomas producing prolactin or growth hormone (CNB). If necessary, patients can be switched to cabergoline (CNCAB) or quinagolide (CNQUIN) as alternative treatment options. Existing bromocriptine supplies should be prioritized for patients who are pregnant or are trying to conceive, and for patients who are unable to tolerate cabergoline or quinagolide.

Nystatin Oral Suspension
(Adapted from BC Cancer Briefing Note 28May2020)

Commercially available nystatin oral suspension is an antifungal ingredient used in the preparation of BC Cancer Magic Mouthwash.

There is a current backorder on all brands of oral nystatin suspension in Canada. The estimated release date for additional supply is mid-June 2020. Although there is no anticipated supply interruption of oral nystatin suspension or BC Cancer Magic Mouthwash at BC Cancer centres, community pharmacies may have variable supplies of nystatin oral suspension on hand.

If a community pharmacy does not have nystatin oral suspension on hand, BC Cancer Magic Mouthwash may be compounded by substituting nystatin powder for nystatin oral suspension at an equivalent dose. Prescriptions compounded with nystatin powder will be covered by BC PharmaCare Special Authority with the existing PIN for BC Cancer Magic Mouthwash (22123334).

Resolved

Cabergoline
(Adapted from BC Cancer email communication 08May2020)

Cabergoline supplies are now readily available.

Systemic Therapy Update Editorial Board

Membership Update

The Systemic Therapy Update Editorial Board sincerely thanks **Dr. Caroline Lohrisch** (Medical Oncologist, BC Cancer Breast Tumour Group and Department Head, Medical Oncology, BC Cancer – Vancouver Centre) for her invaluable contributions over the years. She is stepping down from the Editorial Board as a long-term member after serving as the Medical Oncology representative since November 2005. The ST Update has benefited from Dr. Lohrisch's tremendous expertise in systemic therapy, as well as from her aptitude for clarity in the written language.

At this time, the Editorial Board would like to welcome **Dr. Alina Gerrie** (Hematologist, BC Cancer Lymphoma Tumour Group) to the Board. Welcome Dr. Gerrie!

Cancer Drug Manual©

All BC Cancer Drug Manual© documents can be accessed from the Cancer Drug Manual© home page on the BC Cancer website.

New Documents

Note that the following drug is not a BC Cancer Benefit Drug and requires application to the BC Cancer Compassionate Access Program (CAP). The corresponding Monograph and Patient Handout are made available for reference only.

The **Cemiplimab Interim Monograph** has been updated to the full **Monograph**, and a **Patient Handout** has been developed. Expert review was provided by Dr. Vanessa Bernstein (Medical Oncologist) and Robert Tillmanns (Pharmacist) of the Skin and Melanoma Tumour Group. The updated monograph includes expanded sections, including *Pharmacokinetics*, *Special Precautions*, and *Dosage Guidelines*. Cemiplimab is a programmed death receptor-1 (PD-1) immune checkpoint inhibitor used in the treatment of squamous cell skin cancer. Usual cemiplimab dosing follows either a weight-based regimen (3 mg/kg IV every 2 weeks) or a flat-dose regimen (350 mg IV every 3 weeks).

Highlights from these documents include:

- potentially life-threatening immune-related reactions such as pneumonitis, hepatitis, endocrinopathies, encephalitis, meningitis and nephritis
- other common side effects include nausea, musculoskeletal pain, infection, diarrhea, constipation, fatigue and rash

Cemiplimab was previously added to the **Chemotherapy Preparation and Stability Chart** and evaluated for the **BC Cancer Hazardous Drug List**.

Revised Documents

Highlights of key changes are listed below:

Cabazitaxel Monograph and **Chemotherapy Preparation and Stability Chart**

Cautions: deleted brand-specific information about alcohol
Supply and Storage: added Sandoz as new brand; updated Sanofi-Aventis brand information
Solution Preparation and Stability: deleted brand-specific information from *Additional Information*
Chemotherapy Preparation and Stability Chart: added Sandoz formulation as new brand

Pembrolizumab Monograph

Uses: updated Health Canada-approved indications

Benefit Drug List

New Programs

Effective 01 June 2020, the following new treatment programs have been added to the BC Cancer Benefit Drug List:

Protocol Title	Protocol Code	Benefit Status
Treatment of Locally Advanced or Metastatic Urothelial Carcinoma using **Pembrolizumab**	**UGUAVPEM**	Restricted
Treatment of Locally Advanced or Metastatic Urothelial Carcinoma using 6-Weekly **Pembrolizumab**	**UGUAVPEM6**	Restricted
Treatment of Advanced Non-Small Cell Lung Cancer using 4-Weekly **Atezolizumab**	**ULUAVATZ4**	Restricted
Maintenance Therapy of Advanced Non-Small Cell Lung Cancer with **Pembrolizumab**	**LUAVPMBM**	Class I
Maintenance Therapy of Advanced Non-Small Cell Lung Cancer with 6-Weekly **Pembrolizumab**	**LUAVPMBM6**	Class I
First-Line Treatment of Advanced Squamous Non-Small Cell Lung Cancer with **Paclitaxel**, **Carboplatin** and **Pembrolizumab**	**ULUAVPCPMB**	Restricted
First-Line Treatment of Advanced Squamous Non-Small Cell Lung Cancer with **Platinum**, **Gemcitabine** and **Pembrolizumab**	**ULUAVPGPMB**	Restricted
Maintenance Therapy of Advanced Non-Squamous Non-Small Cell Lung Cancer with **Pemetrexed** and **Pembrolizumab**	**LUAVPPMBM**	Class I
First-Line Treatment of Advanced Non-Squamous Non-Small Cell Lung Cancer with **Platinum**, **Pemetrexed** and **Pembrolizumab**	**ULUAVPPPMB**	Restricted
Treatment of Relapsed or Refractory Hodgkin Lymphoma using **Pembrolizumab**	**ULYPEM**	Restricted
Treatment of Relapsed or Refractory Hodgkin Lymphoma using 6-Weekly **Pembrolizumab**	**ULYPEM6**	Restricted
Adjuvant Treatment of Resected Stage III – IV NED Melanoma using **Pembrolizumab**	**USMAJPEM**	Restricted
Treatment of Unresectable or Metastatic Melanoma using 6-Weekly **Pembrolizumab**	**USMAVPEM6**	Restricted

Benefit Drug List

Revised Programs

Effective 01 June 2020, the following treatment program has been revised on the BC Cancer Benefit Drug List:

Protocol Title	Protocol Code	Benefit Status
Treatment of Acute Lymphoblastic Leukemia and Lymphoblastic Lymphoma using **Asparaginase-Erwinia (Erwinase®)** in Patients Allergic to Asparaginase (Kidrolase®) or Pegaspargase (Oncaspar®)	**LKNOS** **LYNOS**	Class I *(expanded eligibility)*

Deleted Programs

Effective 01 June 2020, the following treatment programs have been deleted from the BC Cancer Benefit Drug List:

Protocol Title	Protocol Code	Benefit Status
Palliative Treatment of Metastatic or Locally Advanced Gastric, Gastroesophageal Junction or Esophageal Adenocarcinoma using **Cisplatin**, **Capecitabine** and **Trastuzumab**	**GIGAVCCT**	Deleted *(replaced by* **GIGAVCOXT***)*

Highlights of New & Revised Protocols, PPPOs and Patient Handouts

BC Cancer 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, with document revisions indicated in the respective columns. Protocol codes for treatment requiring BC Cancer Compassionate Access Program (CAP) approval are prefixed with the letter **U**.

NEW Protocols, PPPOs and Patient Handouts *(new documents checked ☑)*

Code	Protocol Title	Protocol	PPPO	Handout
UGUAVPEM	Treatment of Locally Advanced or Metastatic Urothelial Carcinoma using Pembrolizumab	☑	☑	☐
UGUAVPEM6	Treatment of Locally Advanced or Metastatic Urothelial Carcinoma using 6-Weekly Pembrolizumab	☑	☑	☐
ULUAVATZ4	Treatment of Advanced Non-Small Cell Lung Cancer using 4-Weekly Atezolizumab	☑	☑	☑
LUAVPMBM	Maintenance Therapy of Advanced Non-Small Cell Lung Cancer with Pembrolizumab	☑	☑	☐
LUAVPMBM6	Maintenance Therapy of Advanced Non-Small Cell Lung Cancer with 6-Weekly Pembrolizumab	☑	☑	☐
ULUAVPCPMB	First-Line Treatment of Advanced Squamous Non-Small Cell Lung Cancer with Paclitaxel, Carboplatin and Pembrolizumab	☑	☑	☐
ULUAVPGPMB	First-Line Treatment of Advanced Squamous Non-Small Cell Lung Cancer with Platinum, Gemcitabine and Pembrolizumab	☑	☑ *Cisplatin and carboplatin PPPOs*	☐
LUAVPPMBM	Maintenance Therapy of Advanced Non-Squamous Non-Small Cell Lung Cancer with Pemetrexed and Pembrolizumab	☑	☑	☐
ULUAVPPPMB	First-Line Treatment of Advanced Non-Squamous Non-Small Cell Lung Cancer with Platinum, Pemetrexed and Pembrolizumab	☑	☑ *Cisplatin and carboplatin PPPOs*	☐
ULYPEM	Treatment of Relapsed or Refractory Hodgkin Lymphoma using Pembrolizumab	☑	☑	☐
ULYPEM6	Treatment of Relapsed or Refractory Hodgkin Lymphoma using 6-Weekly Pembrolizumab	☑	☑	☐
USMAJPEM	Adjuvant Treatment of Resected Stage III – IV NED Melanoma using Pembrolizumab	☑	☑	☑
USMAVPEM6	Treatment of Unresectable or Metastatic Melanoma using 6-Weekly Pembrolizumab	☑	☑	☑

REVISED Protocols, PPPOs and Patient Handouts *(revisions in respective columns)*				
Code	**Protocol Title**	**Protocol**	**PPPO**	**Handout**
BR | Breast				
BRAVPTRAD	Palliative Therapy for Metastatic Breast Cancer using Pertuzumab, Trastuzumab (Herceptin®), and Docetaxel as First-Line Treatment for Advanced Breast Cancer	-----	*Minor typo corrected*	-----
BRAVTCAP	Palliative Therapy for Metastatic Breast Cancer using Trastuzumab and Capecitabine	-----	*Herceptin® brand name deleted*	-----
GI | Gastrointestinal				
GIGAVFFOXT	Palliative Treatment of Metastatic or Locally Advanced Gastric, Gastroesophageal Junction or Esophageal Adenocarcinoma using Oxaliplatin, Fluorouracil, Leucovorin and Trastuzumab	-----	*Minor typo corrected*	-----
GO | Gynecologic				
GOCXCRT	Treatment of High-Risk Squamous Carcinoma, Adenocarcinoma, or Adenosquamous Carcinoma of the Cervix with Concurrent Cisplatin and Radiation	*Eligibility, Tests and Dose Modifications (renal) revised*	*Pre-treatment tests revised*	-----
GOOVGEM	Treatment of Relapsed/Progressing Epithelial Ovarian, Primary Peritoneal or Fallopian Tube Carcinoma using Gemcitabine	-----	*Tests revised and institutional logo updated*	-----
GOOVTOP	Treatment of Relapsed/Progressing Epithelial Ovarian, Primary Peritoneal or Fallopian Tube Carcinoma using Topotecan	*Tests clarified*	*Tests clarified and institutional logo updated*	-----
GU | Genitourinary				
GUBEP	Curative Therapy for Germ Cell Cancer using Bleomycin, Etoposide and Cisplatin	-----	*Minor typo corrected*	-----
HN | Head and Neck				
HNAVPE	Treatment of Recurrent and Metastatic Squamous Cell Cancer with Platinum and Etoposide	*Institutional name and Dose Modifications revised*	-----	-----
HNNAVPE	Treatment of Recurrent and/or Metastatic Nasopharyngeal Cancer with Platinum and Etoposide	*Dose Modifications revised*	-----	-----
HNOTVAN	Treatment for Locally Advanced or Metastatic Medullary Thyroid Cancer using Vandetanib	*Tests and Precautions updated*	*Tests, Treatment and Return Appointment Orders updated*	-----

REVISED Protocols, PPPOs and Patient Handouts *(revisions in respective columns)*				
Code	**Protocol Title**	**Protocol**	**PPPO**	**Handout**
LK | Leukemia				
ULKAMLAS	Therapy of Acute Myeloid Leukemia using Azacitidine and Sorafenib	*Tests updated (serum bicarbonate and chloride added)*	*Tests updated (serum bicarbonate and chloride added)*	-----
ULKMDSA	Therapy of Myelodysplastic Syndrome and Acute Myeloid Leukemia using Azacitidine	*Tests updated (serum bicarbonate and chloride added)*	*Tests updated (serum bicarbonate and chloride added)*	-----
LU | Lung				
ULUAVATZ	Treatment of Advanced Non-Small Cell Lung Cancer using Atezolizumab	*Eligibility clarified*	*Hypersensitivity tray added*	-----
MY | Myeloma				
UMYCARLD	Therapy of Multiple Myeloma using Carfilzomib, Lenalidomide with Dexamethasone	-----	*Dispensing quantity revised*	-----
UMYLDF	Treatment of Previously Untreated Multiple Myeloma and Not-Eligible for Stem Cell Transplant using Lenalidomide with Low-Dose Dexamethasone	-----	*Dispensing quantity revised*	-----
UMYLDREL	Therapy of Relapsed Multiple Myeloma using Lenalidomide with Dexamethasone	-----	*Dispensing quantity revised*	-----
UMYLENMTN	Maintenance Therapy of Multiple Myeloma using Lenalidomide	-----	*Dispensing quantity revised*	-----
UMYPOMDEX	Therapy of Multiple Myeloma Using Pomalidomide with Dexamethasone	-----	*Dispensing quantity revised*	-----
SA | Sarcoma				
SAAI	Therapy for Advanced Soft Tissue Sarcoma using Doxorubicin, Ifosfamide-Mesna	*Mesna diluent updated*	-----	-----
SC | Supportive Care				
SCDRUGRX	Management of Infusion-Related Reactions to Systemic Therapy Agents	*Bronchospasm management and references updated*	*Inhalers added*	-----
SCNAUSEA	Prevention and Treatment of Chemotherapy-Induced Nausea and Vomiting in Adults	*Netupitant-palonosetron and antiemetics for multi-day chemotherapy clarified*	-----	-----

REVISED Protocols, PPPOs and Patient Handouts *(revisions in respective columns)*				
Code	**Protocol Title**	**Protocol**	**PPPO**	**Handout**
SM | Skin and Melanoma				
USMAJDT	Adjuvant Treatment of Stage III and IV, BRAF-Mutated, Fully Resected Melanoma using Dabrafenib and Trametinib	*Eligibility updated*	-----	-----
USMAJNIV	Adjuvant Treatment of Resected Stage III – IV NED Melanoma using Nivolumab	*Eligibility updated and treatment duration clarified*	*Repeat treatment checkbox added*	*Description of immunotherapy updated and corticosteroid examples clarified (dexamethasone added)*
USMAJNIV4	Adjuvant Treatment of Resected Stage III – IV NED Melanoma using 4-Weekly Nivolumab	*Eligibility updated and treatment duration clarified*	-----	
USMAVFIPI	First-Line Treatment of Unresectable or Metastatic Melanoma using Ipilimumab	-----	-----	
USMAVIPI	Treatment of Unresectable or Metastatic Melanoma using Ipilimumab	-----	-----	
USMAVIPNI	Treatment of Unresectable or Metastatic Melanoma using Ipilimumab and Nivolumab	-----	-----	
USMAVNIV	Treatment of Unresectable or Metastatic Melanoma using Nivolumab	-----	*Repeat treatment checkbox added*	
USMAVNIV4	Treatment of Unresectable or Metastatic Melanoma using 4-Weekly Nivolumab	-----	-----	
USMAVPEM	Treatment of Unresectable or Metastatic Melanoma using Pembrolizumab	-----	-----	
SMAVTMZ	Palliative Therapy for Malignant Melanoma with Brain Metastases using Temozolomide	*Contact physician updated and protocol reformatted*	-----	-----
USMMCCAVE	Second-Line Treatment of Recurrent or Metastatic Merkel Cell Carcinoma using Avelumab	-----	-----	*Immunotherapy and corticosteroids updated*
SMMCCPE	Treatment of Recurrent or Metastatic Merkel Cell Carcinoma (MCC) with Cisplatin and Etoposide	*Contact physician and institutional name updated; Protocol reformatted*	-----	-----

Antiemetic regimens in the **Premedications** section have been revised (based on updated recommendations for the use of **NK_1 receptor antagonists**) in the following BC Cancer protocols and/or pre-printed orders:

CODE	Protocol Title
BRAJAC	Adjuvant Therapy for Breast Cancer using Doxorubicin and Cyclophosphamide
BRAJACT	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Doxorubicin and Cyclophosphamide Followed by Paclitaxel
BRAJACTG	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Dose-Dense Therapy: Doxorubicin and Cyclophosphamide Followed by Paclitaxel
BRAJACTT	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Doxorubicin and Cyclophosphamide Followed by Paclitaxel and Trastuzumab
BRAJACTTG	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Dose-Dense Therapy: Doxorubicin and Cyclophosphamide Followed by Paclitaxel and Trastuzumab
BRAJACTW	Neoadjuvant or Adjuvant Therapy for Early Breast Cancer using Doxorubicin and Cyclophosphamide Followed by Weekly Paclitaxel
BRAJDAC	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Cyclophosphamide, Doxorubicin and Docetaxel
BRAJFEC	Adjuvant Therapy for Breast Cancer using Fluorouracil, Epirubicin and Cyclophosphamide
BRAJFECD	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Fluorouracil, Epirubicin, Cyclophosphamide and Docetaxel
BRAJFECDT	Neoadjuvant or Adjuvant Therapy for Breast Cancer using Fluorouracil, Epirubicin and Cyclophosphamide Followed by Docetaxel and Trastuzumab
BRAVAC	Palliative Therapy for Metastatic Breast Cancer using Doxorubicin and Cyclophosphamide
BRLAACD	Treatment of Locally Advanced Breast Cancer using Doxorubicin and Cyclophosphamide Followed by Docetaxel
BRLAACDT	Treatment of Locally Advanced Breast Cancer using Doxorubicin and Cyclophosphamide Followed by Docetaxel and Trastuzumab
BRLACTWAC	Neoadjuvant Therapy for Triple-Negative Breast Cancer using Carboplatin and Weekly Paclitaxel Followed by Doxorubicin and Cyclophosphamide
BRLATACG	Neoadjuvant Therapy for Breast Cancer using Dose-Dense Therapy: Paclitaxel Followed by Doxorubicin and Cyclophosphamide
BRLATWAC	Neoadjuvant Therapy for Locally Advanced Breast Cancer using Weekly Paclitaxel Followed by Doxorubicin and Cyclophosphamide
GIENDO2	Palliative Therapy for Pancreatic Endocrine Tumours using Streptozocin and Doxorubicin
GIFIRINOX	Palliative Combination Chemotherapy for Advanced Pancreatic Adenocarcinoma using Irinotecan, Oxaliplatin, Fluorouracil and Leucovorin
GIGAJCPRT	Adjuvant Chemotherapy of Gastric Cancer Patients with Completely Resected Gastric Cancer using Cisplatin and Capecitabine and Radiation Therapy
GIGAVCC	Palliative Therapy of Metastatic or Locally Advanced Anal Squamous Cell Carcinoma using Cisplatin and Capecitabine
GIGAVCFT	Palliative Treatment of Metastatic or Inoperable, Locally Advanced Gastric or Gastroesophageal Junction Adenocarcinoma using Cisplatin, Infusional Fluorouracil and Trastuzumab
GIGECC	Perioperative Treatment of Resectable Adenocarcinoma of the Stomach, Gastroesophageal Junction or Lower 1/3 Esophagus using Epirubicin, Cisplatin and Capecitabine
GIPAJFIROX	Adjuvant Chemotherapy for Resected Pancreatic Adenocarcinoma using Irinotecan, Oxaliplatin, Fluorouracil and Leucovorin
GOBEP	Therapy of Non-Dysgerminomatous Ovarian Germ Cell Cancer using Bleomycin, Etoposide and Cisplatin
GOCISP	Alternative Treatment of Gynecological Malignancies using Cisplatin and Paclitaxel
GOEP	Therapy of Non-Dysgerminomatous Ovarian Germ Cell Cancer using Etoposide and Cisplatin
GOOVCIS	Therapy for Invasive Epithelial Ovarian Cancer using Cisplatin
GUAJPG	Adjuvant Therapy for Urothelial Carcinoma using Cisplatin and Gemcitabine
GUAVPG	Palliative Therapy for Urothelial Carcinoma using Cisplatin and Gemcitabine

CODE	Protocol Title
GUBEP	Curative Therapy for Germ Cell Cancer using Bleomycin, Etoposide and Cisplatin
GUEDPM	Treatment of Metastatic Adrenocortical Cancer with Etoposide, Doxorubicin, Cisplatin and Mitotane
GUEP	Therapy for Nonseminoma Germ Cell Cancer using Etoposide-Cisplatin
GUMVAC	Therapy for Transitional Cell Cancers of the Urothelium using Methotrexate, Vinblastine, Doxorubicin and Cisplatin
GUNAJPG	Neoadjuvant Therapy for Urothelial Carcinoma using Cisplatin and Gemcitabine
HNAVFUP	Treatment of Advanced Squamous Cell Carcinoma of the Head and Neck Cancer using Fluorouracil and Platinum
HNAVPC	Treatment for Unresectable, Locoregionally Recurrent or Metastatic Squamous Cell Carcinoma of the Head and Neck using Paclitaxel and Cisplatin or Carboplatin
HNAVPD	Treatment of Recurrent or Metastatic Squamous Cell Carcinoma of the Head and Neck with Platinum and Docetaxel
HNAVPE	Treatment of Recurrent and Metastatic Squamous Cell Cancer with Platinum and Etoposide
HNLAALTPRT	Treatment of Locally Advanced (Alternate) Head and Neck Cancer using Cisplatin During Radiation Therapy
UHNLADCF	Treatment of Locally Advanced Squamous Cell Carcinoma of the Head and Neck with Docetaxel, Cisplatin and Infusional Fluorouracil
HNLAPRT	Combined Chemotherapy (Cisplatin) and Radiation Treatment for Locally Advanced Squamous Cell Carcinoma of the Head and Neck
HNNAVFUP	Treatment for Advanced Nasopharyngeal Cancer of the Head and Neck using Platinum and Fluorouracil
HNNAVPE	Treatment of Recurrent and/or Metastatic Nasopharyngeal Cancer with Platinum and Etoposide
HNNAVPG	Treatment of Locoregionally Recurrent and/or Metastatic Nasopharyngeal Cancer with Platinum and Gemcitabine
HNNLAPG	Induction Treatment of Locally Advanced Nasopharyngeal Cancer with Cisplatin and Gemcitabine
HNSAVFAC	Palliative Therapy for Advanced Salivary Gland Cancers using Cyclophosphamide, Doxorubicin and Fluorouracil
HNSAVFUP	Treatment of Advanced Head and Neck Cancer using Cisplatin and Fluorouracil
HNSAVNP	Treatment of Advanced Salivary Gland Cancers with Cisplatin and Vinorelbine
HNSAVPAC	Treatment of Advanced Salivary Gland Cancers with Platinum, Doxorubicin and Cyclophosphamide
LUAJNP	Adjuvant Cisplatin and Vinorelbine Following Resection of Non-Small Cell Lung Cancer
LUAVDC	First-Line Treatment of Advanced Non-Small Cell Lung Cancer with Cisplatin and Docetaxel
LUAVPG	Treatment of Advanced Non-Small Cell Lung Cancer with Platinum and Gemcitabine
LUAVPP	First-Line Treatment of Advanced Non-Small Cell Lung Cancer with Platinum and Pemetrexed
LUMMPG	Treatment of Malignant Mesothelioma with Platinum and Gemcitabine
LUMMPP	Treatment of Malignant Mesothelioma with Platinum and Pemetrexed
LUOTCAV	Treatment of Thymoma/Thymic Carcinoma with Cyclophosphamide, Doxorubicin and Vincristine
LUOTPAC	Treatment of Thymoma with Platinum, Doxorubicin and Cyclophosphamide
LUSCCAV	Treatment of Extensive Small Cell Lung Cancer with Cyclophosphamide, Doxorubicin and Vincristine
LUSCPI	Second-Line Treatment of Extensive Stage Small Cell Lung Cancer with Irinotecan with or without Platinum
SAAI	Therapy for Advanced Soft Tissue Sarcoma using Doxorubicin, Ifosfamide-Mesna
SAAI3	3-Day Doxorubicin-Ifosfamide-Mesna for Use in Patients with Advanced Soft Tissue Sarcoma
SAAJADIC	Adjuvant Treatment of Patients with Soft Tissue Sarcoma using Doxorubicin and Dacarbazine
SAAJAP	3-Day Doxorubicin-Ifosfamide-Mesna for Use in Patients with Advanced Soft Tissue Sarcoma
SAAVADIC	Treatment of Patients with Soft Tissue Sarcoma using Doxorubicin and Dacarbazine
SAAVAP	Therapy of Advanced Osteosarcoma using Doxorubicin and Cisplatin
SAAVI	Therapy for Advanced Soft Tissue Sarcoma using Ifosfamide
SAAVI3	3-Day Ifosfamide for Use in Patients with Advanced Soft Tissue Sarcoma
SAAVIME3	3-Day Etoposide and Ifosfamide-Mesna for Patients with Advanced Soft Tissue or Bony Sarcomas
SADTIC	High-Dose Single-Agent Dacarbazine for Metastatic Soft Tissue Sarcoma

CODE	Protocol Title
SAIME	Etoposide and Ifosfamide-Mesna for Use in Sarcomas
SAVAC	Treatment of Sarcomas with Vincristine, Doxorubicin and Cyclophosphamide
SAVDC	Adjuvant Therapy for Rhabdomyosarcoma using Vincristine, Dactinomycin, and Cyclophosphamide
SAVDCM	Adjuvant Therapy for Rhabdomyosarcoma using Vincristine, Dactinomycin, Cyclophosphamide and Mesna
SMDTIC	Therapy for Metastatic Malignant Melanoma using High-Dose Single-Agent Dacarbazine

Resources and Contact Information

Resource	Phone	Email / Toll Free / Fax
Systemic Therapy Update: www.bccancer.bc.ca/health-professionals/clinical-resources/systemic-therapy/systemic-therapy-update		
Systemic Therapy Update Editor	604-877-6000 x 672649	bulletin@bccancer.bc.ca
Oncology Drug Information Cancer Drug Manual Editor Pharmacy Oncology Certification Nurse Educators	604-877-6275 250-519-5500 x 693742 250-712-3900 x 686820 604-877-6000 x 672638	druginfo@bccancer.bc.ca nbadry@bccancer.bc.ca rxchemocert@bccancer.bc.ca nursinged@bccancer.bc.ca
Compassionate Access Program (CAP)	604-877-6277	cap_bcca@bccancer.bc.ca fax 604-708-2026
OSCAR – Online System for Cancer Drugs Adjudication and Reimbursement	888-355-0355	oscar@bccancer.bc.ca fax 604-708-2051
Library/Cancer Information	604-675-8003	toll free 888-675-8001 x 8003 requests@bccancer.bc.ca
Library Document Delivery	604-675-8002	requests@bccancer.bc.ca
Pharmacy Professional Practice Professional Practice, Nursing Provincial Systemic Therapy Program	604-877-6000 x 672247 604-877-6000 x 672623 604-877-6000 x 672247	mlin@bccancer.bc.ca BCCancerPPNAdmin@ehcnet.phsa.ca mlin@bccancer.bc.ca
BC Cancer – Abbotsford BC Cancer – Kelowna BC Cancer – Prince George BC Cancer – Surrey BC Cancer – Vancouver BC Cancer – Victoria	604-851-4710 250-712-3900 250-645-7300 604-930-2098 604-877-6000 250-519-5500	toll free 877-547-3777 toll free 888-563-7773 toll free 855-775-7300 toll free 800-523-2885 toll free 800-663-3333 toll free 800-670-3322
Community Oncology Network (CON) sites: To update your contact information, please contact: bulletin@bccancer.bc.ca		

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