BC Cancer Protocol Summary for Management of Infusion-Related Reactions to Systemic Therapy Agents

Protocol Code	*SCDRUGRX*
Tumour Group	*Supportive Care*
Contact Program	*Provincial Systemic Therapy*

Definition of Infusion-Related Reactions

An infusion-related reaction (IRR) is an adverse reaction that occurs during or shortly after an infusion of pharmacological or biological substances[1]. IRRs include hypersensitivity or allergic reactions such as anaphylaxis (antibody-mediated), or anaphylactoid reactions (not antibody-mediated) such as cytokine-release syndrome – refer to BC Cancer SCCRS Protocol.[1-6] Reactions may include urticaria, dyspnea, bronchospasm, angioedema, hypotension, tachycardia, and back or abdominal discomfort/pain. Occasionally cardiorespiratory arrest may occur. See Appendix I for Terminology and Definition.

Risk Factors[2-10, 13, 14]

Certain risk factors, such as drug class, drug formulation, and patient specific characteristics (summarized in Table 1), may increase the risk of IRRs. It is important to assess for risk factors and to provide patient education on signs and symptoms of IRRs.

Platinum agents (CISplatin, CARBOplatin, oxaliplatin) are most commonly associated with IgE-mediated reactions that are different from typical IRRs. Initial symptoms can be non-specific and difficult to interpret (e.g. itchy palms, fever). Platinum reactions tend to occur upon re-exposure, differing from most systemic therapy reactions, which typically occur at first or second infusions. A key concern with IgE-mediated reactions is their potential to progress to anaphylaxis, and unlike other hypersensitivity reactions, their incidence cannot be reliably reduced with standard pre-medications (e.g. steroids, H1 inhibitors, anti-histamines)[9]. See Appendix II for Platinum specific information.

Table 1. IRR risk factors. Adapted from Cancer Care Ontario, Cancer Care Alberta[5-6]

Patient Related	Drug Formulation Related	Treatment Related
• Multiple allergies (food, drug, etc) • High tumor burden (e.g. increased risk of reaction noted with riTUXimab lymphocyte count greater than 25-50x10^9/L)	• Solvents (Cremophor EL or Polysorbate 80) in taxanes, etoposide, etc	• Prior exposure or multiple exposures (platinum) • Concurrent radiation (platinum) • Prior reaction to same drug class (e.g. Taxanes like DOCEtaxel, PACLitaxel)

TREATMENT[8-14]

- Platinum (CISplatin, CARBOplatin, oxaliplatin) drug reactions of **all Grades** require stopping the infusion and notifying Most Responsible Physician (MRP) or provider (including nurse practitioner) for assessment and plan of care.
- For all other drugs, MRP/provider must be notified for any infusion-related reaction greater than a mild (Grade 1) reaction (see table 2 below) and re-challenge instructions will be written (where electronic order entry is not in place).
- Nurses: A clinical description, time of reaction, volume of drug infused at time of reaction, and rate of infusion at the time of reaction will be documented for all grades of reactions.
- Providers: A clinical description, time, and management of reaction will be documented in the clinical note section of the medical record for all reactions grade 2 or higher.

Two preprinted orders are available for use:

- Preprinted Order A **(PPO A) for immediate management**, including the infusion rate for restart of infusion for selected drugs (PACLitaxel, DOCEtaxel, riTUXimab, daratumumab).
- Preprinted Order B **(PPO B) for subsequent cycle management** after infusion related reaction.

Related Documents:

Provincial Systemic Program Policies:

- III-10 Systemic Therapy Treatment Delivery Process
- III-60 Drug Reaction Management - Physician Coverage During Delivery Of Selected Systemic Therapy Drugs
- Serious Adverse Drug Reaction (ADR) Documentation and Reporting Protocol

VCH Parenteral Drug Therapy Manual:

- Diphenhydramine VCH Adult Parenteral Drug Therapy Manual
- Famotidine VCH Adult Parenteral Drug Therapy Manual
- Hydrocortisone VCH Adult Parenteral Drug Therapy Manual
- Meperidine VCH Adult Parenteral Drug Therapy Manual

Nursing Reference Documents:

- VPP - Nurse Independent Activities (NIA) and Nurse-Initiated Protocols (NIP)
- BC Cancer - National Cancer Institute (NCI) Common Terminology Criteria for Adverse Events (CTCAE) Grading Procedure
- Elsevier Medication Administration: Metered-Dose Inhalers
- Adverse Drug Reaction: Nursing Follow-Up Protocol

Clinical Documents:

- SCCRS_Protocol
- SCICANS_Protocol
- NCI CTCAE Version 5.0

Immediate Management – use PPO A:

Follow the general management below or as directed by the MRP/covering provider.

- Ensure emergency equipment and medications are available should the reaction progress.
- Check the chemotherapy protocol for specific management or re-start directives.
- Based on their clinical judgment, nursing may choose to stop an infusion at any time for safety reasons. If an infusion is stopped due to an infusion-related reaction, a provider order is required to restart.
- Update patient's health record and submit Health Canada reporting as per Serious Adverse Drug Reaction (ADR) Documentation and Reporting Protocol.
- Nursing to provide follow-up care as per Adverse Drug Reaction: Nursing Follow-Up Protocol.

Table 2: Infusion-Related Reaction Grading and Immediate Management

Infusion Related Reactions	Immediate Management
Mild (Grade 1) *Mild-transient reaction* **Any of the following symptoms may be observed:** •Mild flushing •Mild chills • Dizziness (not interfering with activity) • Pruritus (mild or localized) N.B. Platinum agents may cause a skin reaction in palms of hands and/or other body parts not easily visible •Transient rash (covering less than 10% BSA with or without symptoms) •Mild allergic rhinitis	• Check vital signs, assess, and monitor patient via constant visual observation. Remain with patient until symptoms have resolved. • Nursing to use discretion to STOP infusion. Additional management for platinum agents • STOP infusion. • Contact MRP/provider to assess reaction. • Do NOT restart at resolution of symptoms without provider order. • If a rechallenge/restart is deemed appropriate by provider, an order with titration infusion rates and extended infusion duration is required. • If reaction recurs and/or worsens, stop and inform provider. **If symptoms progress to Grade 2 proceed as outlined below.**

Infusion-Related Reactions	Immediate Management

Moderate (Grade 2)
 	
Therapy or infusion interruption indicated but responds promptly to symptomatic treatment (e.g., antihistamines, NSAIDs, narcotics, IV fluids); medications indicated for less than or equal to 24 h[1]
 	
Any of the following symptoms may be observed:
• Transient rash (covering 10 to 30% BSA with or without symptoms)
• Moderate flushing
• Dizziness (moderate unsteadiness or sensation of movement)
• Pruritus (intense or widespread; intermittent)
• Moderate allergic rhinitis
• Urticaria (lesions covering 10 to 30% BSA)
• Moderate dyspnea (shortness of breath with minimal exertion)
• Rigors (associated with administration of monoclonal antibodies)
• Mild to moderate chest discomfort
• Mild to moderate abdominal discomfort
• Mild to moderate back pain
• Mild hypotension (less than or equal to 20 mmHg drop from baseline)
• Mild to moderate nausea, vomiting, and/or diarrhea
• Fever 39 to 40 degrees Celsius
	Use Preprinted Order A
	
	• STOP infusion. Alert team that a reaction is occurring.
	• Check vital signs, assess, and monitor patient through constant visual observation. Remain with patient until symptoms have resolved.
	• Contact MRP/provider to assess reaction and provide plan and order for restart, if appropriate.
	• Give diphenhydrAMINE 50 mg IV x 1 dose
	• Obtain provider order for additional supportive medications as clinically indicated (e.g. hydrocortisone)
	• After recovery of symptoms, restart infusion at a rate per protocol. If no direction in protocol, use the following increments (assuming no reaction after the assigned minutes, proceed to the next increment):
	  ◦ 25% of the rate at time of reaction for 5 minutes
	  ◦ 50% of the rate at time of reaction for 5 minutes
	  ◦ 75% of the rate at time of reaction for 5 minutes
	  ◦ 100% of the rate at time of reaction
	• Depending on the severity of reaction, may increase to full rate at provider's discretion.
	
	Additional Management for Platinum agents
	• If a restart is deemed appropriate by provider, an order with titration infusion rates and extended infusion duration is required.
	• If reaction recurs and/or worsens, stop and inform provider.

Infusion-Related Reactions	Immediate Management
Severe (Grade 3) *Prolonged (i.e., not rapidly responsive to symptomatic medication and/or brief interruption of infusion); recurrence of symptoms following initial improvement; hospitalization indicated for clinical sequelae*[1] **Any of the following symptoms may be observed:** • Severe rash (covering greater than 30% BSA with or without associated symptoms) • One or more symptoms of respiratory distress requiring treatment (e.g., repetitive cough, wheeze, throat tightness/change in voice) • Symptomatic bronchospasm with or without urticaria • Generalized urticaria (covering greater than 30% BSA) • Hypoxia: decreased oxygen saturation at rest (e.g., pulse oximeter less than 88%) N.B. Pharyngo-laryngeal Dysesthesia, Oxaliplatin Infusion Related Reaction Comparison Table • Edema/angioedema • Dizziness: severe unsteadiness or sensation of movement • Severe nausea, vomiting, and/or diarrhea • Uncontrolled hypotension (more than 20 mmHg drop from baseline) requiring therapy • Fever greater than 40 degrees Celsius **Severe (Grade 4)** *Life-threatening consequences; urgent intervention indicated*[1] **Any of the following symptoms may be observed:** • Hypoxia: Life-threatening airway compromise • Cyanosis • Altered level of consciousness • Severe angioedema (periorbital/facial)	**Use Preprinted Order A** - STOP infusion. Alert team that a reaction is occurring. - Check vital signs (at least Q5min), assess, and monitor patient through constant visual observation. Remain with patient until transfer of care. - Initiate Emergency Response System appropriate for facility if patient condition warrants. - Contact MRP/provider to assess reaction. - Assess for any one of the three anaphylaxis criteria: o acute onset of symptoms with involvement of skin/mucous membranes, respiratory compromise, and/or hypotension. - If anaphylaxis suspected, give epinephrine 0.5 mg (of 1mg/mL) IM STAT as per Anaphylaxis DST ▪ Repeat epinephrine 0.5 mg IM Q5min max 3 total doses or per provider order as clinically indicated. - Consider giving diphenhydrAMINE 50 mg IV x 1 dose and obtain provider order for additional medications as clinically indicated (e.g. hydrocortisone). - If suspected cytokine-release syndrome, refer to SCCRS. - See Other Immediate Management for additional supportive care measures as per provider's orders (i.e. Normal Saline, oxygen, bronchodilators, etc) - Infusion restart is strongly discouraged. Provider should consider other treatment options, i.e. protocols when determining resumption of current therapy. - Nurse to submit report as per Serious ADR Documentation and Reporting Protocol

Other Immediate Management[16--18]:

If needed, provide additional supportive medication(s) as per provider orders:

1. **Hypotension:** Administer normal saline to maintain blood pressure per provider orders (e.g., 300 mL/h). Place patient in Trendelenburg position.
2. **Dyspnea:** Administer oxygen to maintain oxygen saturations per provider orders and/or provide patient comfort. Place patient in a sitting position.
3. **Fever**: antipyretic e.g. acetaminophen 650mg PO
4. **Flushing, Rash, Urticaria**: famotidine 20mg IV; hydrocortisone 100mg IV
5. **Nausea/vomiting:** dimenhyDRINATE 25-50mg IV
6. **Rigors/Chills:** meperidine 25-50mg IV
7. **Bronchospasm:**

Drug	Dose	BC Cancer Administration Guideline
In Order of Preference:		
salbutamol (inhaler)*	200 mcg	2 puffs (100 mcg x 2) via aerosol chamber
salbutamol (nebules)	5 mg	by nebulizer per facility standard
ipratropium / salbutamol§ (COMBIVENT RESPIMAT)	20 mcg /100 mcg	1 puff via aerosol chamber
ipratropium (inhaler)† (ATROVENT)	40 mcg	2 puffs (20 mcg x 2) via aerosol chamber
ipratropium (nebules) (ATROVENT)	0.5 mg	by nebulizer per facility standard
If severe bronchospasm:		
Salbutamol AND ipratropium (ATROVENT)	Select one formulation of salbutamol AND one formulation of ipratropium listed above, and follow dosing and administration guidelines	
ipratropium / salbutamol§ (COMBIVENT RESPIMAT)	20 mcg /100 mcg	1 puff via aerosol chamber

Table 3: Drugs for Immediate Management of Bronchospasm. Refer to Elsevier Skills: Medication Administration: Metered-Dose Inhalers - CE/NCPD for information on administering medication by inhalation.

* Before administration, prime the device by shaking well and releasing 4 puffs into the air, away from the face.
§ Before administration, prime the device by releasing 1 puff into the air, away from the face, until a soft mist is visible. Then, repeat the process 3 more times. COMBIVENT RESPIMAT does not need to be shaken.
† Before administration, prime the device by shaking well and releasing 2 puffs into the air, away from the face.

Subsequent Management After an Infusion-Related Reaction – Use PPO B

1. Following an IRR, ensure patient's health record is updated and Health Canada report is submitted per Serious Adverse Drug Reaction (ADR) Documentation and Reporting Protocol.
2. Nursing to provide follow-up care per Adverse Drug Reaction: Nursing Follow-Up Protocol.
3. Assessment and differentiation of whether an infusion-related reaction represents anaphylaxis should take place. Any subsequent administration of an agent suspected of causing anaphylaxis or after a grade 4 infusion-related reaction should not take place unless medically indicated based on available evidence.[15]
4. If you are making changes to the administration of a drug due to a prior infusion related reaction (e.g., addition of premedication, infusion rate adjustment), SCDRUGRX – PPO B is required.
5. For the management of subsequent infusions consider the following actions:
    - Substitution with an alternative agent may be considered at the provider's discretion based on the characteristics of the infusion-related reaction and other patient-specific factors.
    - Practice of rechallenging platinum agents after severe reactions (grade 3 to 4) is discouraged. There is insufficient evidence that routine prophylaxis pre-medications prevent platinum reactions.
        - Appendix II for Platinum specific information.
    - If the drug or route is essential, premedicate prior to subsequent treatment/cycle(s) according to the prophylaxis guidelines for infusion-related reactions in the protocol by which the patient is being treated.
        - If there are no specific protocol premedication guidelines, consider one or more of the options in Table 4 below.
    - Consider initiating and/or capping the infusion rate as outlined in the associated treatment protocol and as warranted by clinical judgement.
        - If there are no specific protocol rate guidelines, use standardize rate options in PPO B.

Table 4: Drugs for Preventing Infusion-Related Reactions in Subsequent Treatment

Drug	Dose	BC Cancer Administration Guideline
dexamethasone	20 mg given 12 h and 6 h pre-chemo	PO
hydrocortisone sodium succinate	100 mg given 30 min pre-chemo	IV in 50 to 100 mL NS over 20 min
diphenhydrAMINE	50 mg given 30 min pre-chemo	IV in 50 mL NS over 15 min
famotidine	20 mg given 30 min pre-chemo	IV in 100 mL NS over 15 min (diphenhydrAMINE and famotidine are Y-site compatible)

References:

- National Cancer Institute. (2017). *Common Terminology Criteria for Adverse Events (CTCAE) Version 5.0*. https://ctep.cancer.gov/protocoldevelopment/electronic_applications/docs/CTCAE_v5_Quick_Reference_8.5x11.pdf
- Doessegger, L., & Banholzer, M. L. (2015). Clinical development methodology for infusion-related reactions with monoclonal antibodies. *Clinical & Translational Immunology, 4*(7), 1-9. https://doi.org/10.1038/cti.2015.25
- Roselló, S., Blasco, I., García Fabregat, L., et al. (2017). Management of infusion reactions to systemic anticancer therapy: ESMO Clinical Practice Guidelines. *Annals of Oncology, 28*(suppl_4), iv100–iv118. https://doi.org/10.1093/annonc/mdx180
- Rombouts, M. D., Swart, E. L., van den Eertwegh, A. J. M., & Crul, M. (2020). Systematic review on infusion reactions to and infusion rate of monoclonal antibodies used in cancer treatment. *Anticancer Research, 40*(3), 1201–1218.
- Crespo, A., Forbes, L., Gallo-Hershberg, D., Enright, K., Kukreti, V., Martelli, L., DeAngelis, C., Granic, A., Kaizer, L., Lot, M., Mothersill, C., Rashid, F., Spasic, L., Young, L., & Yu, J. (2019). *Management of cancer medication-related infusion reactions*. https://www.cancercareontario.ca/en/guidelines-advice/types-of-cancer/60646
- Cancer Care Alberta. (2020). *Acute infusion-related adverse events to chemotherapy and monoclonal antibodies*. https://www.albertahealthservices.ca/assets/info/hp/cancer/if-hp-cancer-guide-supp019-infusionreactions.pdf
- Roselló, S., Blasco, I., García Fabregat, L., Cervantes, A., & Jordan, K. (2018). Management of infusion reactions to systemic anticancer therapy: ESMO Clinical Practice Guidelines. *Annals of Oncology, 29*(4), iv260. https://doi.org/10.1093/annonc/mdy158
- Van Gerpen, R. (2009). Chemotherapy and biotherapy-induced hypersensitivity reactions. *Journal of Infusion Nursing, 32*(3), 157–165. https://doi.org/10.1097/NAN.0b013e3181a1a8ae
- Makrilia, N., Syrigou, E., Kaklamanos, I., Manolopoulos, L., & Saif, M. W. (2010). Hypersensitivity reactions associated with platinum antineoplastic agents: A systematic review. *Metal-Based Drugs, 2010*, 207084. https://doi.org/10.1155/2010/207084
- Tsao, L. R., Young, F. D., Otani, I. M., & Castells, M. C. (2022). Hypersensitivity reactions to platinum agents and taxanes. *Clinical Reviews in Allergy and Immunology, 62*(3), 432–448. https://doi.org/10.1007/s12016-021-08877-y
- Dizon, D. S., Sabbatini, P. J., Aghajanian, C., Hensley, M. L., & Spriggs, D. R. (2002). Analysis of patients with epithelial ovarian cancer or fallopian tube carcinoma retreated with cisplatin after the development of a carboplatin allergy. *Gynecologic Oncology, 84*, 378–382. https://doi.org/10.1006/gyno.2002.6752
- Otani, I. M., & Castells, M. (2020). Novel roles for platinum and taxane agent skin testing in risk stratification of chemotherapy hypersensitivity. *Journal of Allergy and Clinical Immunology: In Practice, 8*(5), 1665–1667. https://doi.org/10.1016/j.jaip.2020.02.008
- Koren, C. M. D., Yerushalmi, R. M. D., Katz, A. M. D., Malik, H. R. N., Sulkes, A. M. D., & Fenig, E. M. D. (2002). Hypersensitivity reaction to cisplatin during chemoradiation therapy for gynecologic malignancy. *American Journal of Clinical Oncology, 25*(6), 625–626.
- Salman, B., Al-Rasbi, F., Al-Ward, N., Al-Baimani, K., Burney, I. A., Abdullah, E., Al-Azizi, B., Al-Mishaikhi, K., Al-Zakwani, I., & Al-Moundhri, M. (2023). Predictors of hypersensitivity reactions to platinum-based chemotherapy in a tertiary care hospital in Oman: A case control study. *Sultan Qaboos University Medical Journal, 23*(2), 233–238. https://doi.org/10.18295/squmj.1.2023.001
- Barroso, A., Estevinho, F., Hespanhol, V., Teixeira, E., Ramalho-Carvalho, J., & Araújo, A. (2024). Management of infusion-related reactions in cancer therapy: Strategies and challenges. *ESMO Open, 9*(3), 102922. https://doi.org/10.1016/j.esmoop.2024.102922
- Boehringer Ingelheim Canada Ltd. (2019). *COMBIVENT® RESPIMAT® product monograph*. Burlington, Ontario.
- GlaxoSmithKline Inc. (2017). *VENTOLIN® product monograph*. Mississauga, Ontario.
- Boehringer Ingelheim Canada Ltd. (2019). *ATROVENT® product monograph*. Burlington, Ontario.
- BC Cancer. (2024). *Etoposide monograph*. http://www.bccancer.bc.ca/drug-database-site/Drug%20Index/Etoposide_monograph.pdf

APPENDIX I: TERMINOLOGY AND DEFINITION[1, 3, 15]

CTCAE 5.0	Grade 1	Grade 2	Grade 3	Grade 4
Infusion Related Reaction[1]	Mild-transient reaction; infusion interruption not indicated; intervention not indicated	Therapy or infusion interruption indicated but responds promptly to symptomatic treatment (e.g., antihistamines, NSAIDs, narcotics, IV fluids); medications indicated for less than or equal to 24 hours	Prolonged (e.g., not rapidly responsive to symptomatic medication and/or brief interruption of infusion); recurrence of symptoms following initial improvement; hospitalization indicated for clinical sequelae	Life-threatening consequences; urgent intervention indicated

- **Hypersensitivity Reaction**: A subset of IRR that occur by exposure to a defined stimulus at doses normally tolerated by the majority of patients and with objectively reproducible signs or symptoms.
  - **Allergy**: A hypersensitivity reaction initiated by specific immunological mechanisms.
    - **Anaphylaxis:** A severe, life-threatening, generalized or systemic hypersensitivity reaction. Clinical symptoms include dyspnea, dizziness, hypotension, cyanosis, and loss of consciousness.
  - **Types of Hypersensitivity Reactions**:
    - **Immediate**: Symptoms within 1-6 hours after drug administration (usually IgE-mediated).
    - **Non-Immediate**: Symptoms may appear 1 hour to several days after drug administration (T-cell-dependent allergic mechanism).
- **Cytokine Release Syndrome (CRS)**: Non-allergic, acute systemic inflammatory syndrome. Clinical symptoms indicative of CRS are fever, rigors, hypotension, and hypoxemia. Signs and symptoms may include tachycardia, tachypnea, dyspnea, nausea/vomiting, diarrhea, headache, and rash.
- **Restart**: refers to resuming an infusion, usually at a reduced rate after resolution of IRR symptoms.
- **Rechallenge:** refers to subsequent treatment with the same therapeutic class of systemic therapy agents of which an IRR occurred.

APPENDIX II: Platinum Agents and Cross Reactivity Rates[5, 9-15]

If there is a reaction to a platinum agent, alternate non-platinum based treatment options must be considered by providers. However, in some cases, continuation of a platinum-based treatment approach is clinically appropriate. In such cases, switching from one platinum agent to another may be considered, but the multidisciplinary team needs to be aware of the cross-reactivity risk between the platinum agents [11].

Summary of Recommendation:

- **Practice of rechallenging platinum agents after severe reactions (grade 3 to 4) is discouraged.**
- **Avoid** switching between CARBOplatin and oxaliplatin.
- CARBOplatin or oxaliplatin switch to CISplatin is considered safer, although a risk of an anaphylactic reaction remains. If attempted, ensure patient understands risks and consents to treatment.
    - The treatment should be initiated with titration infusion rates and extended infusion duration. If reaction reoccurs and/or worsens, infusion must be stopped with appropriate immediate management per PPO A.
- **There is insufficient evidence that routine prophylaxis pre-medications prevent platinum reactions.**
- Skin testing for drug hypersensitivity is not available in BC.

Platinum IRRs may start with mild symptoms but can escalate to severe, including anaphylaxis, upon rechallenge. It is not known which symptoms are most likely to increase in severity. Providers must be highly vigilant even when initial symptoms appear mild. The timing of occurrence relative to the infusion and onset upon drug re-exposure (see Table 5) should raise the index of suspicion.

Table 5. Platinum Drug Table (Adapted from ESMO and CCO Guidelines)[5, 13-15]

Drug	Incidence of IRRs	Characteristics of IRRs
CARBOplatin	8-16% Highest incidence with 8th or 9th doses. Incidence increase with cumulative dose numbers. 27% ≥7 doses, 46% ≥15 doses	**Onset:** Minutes to hours **Risk Factors** Higher risk with re-exposure following longer than a 6-month break in treatment. Reaction most commonly occurs during 2nd dose after reintroduction.
CISplatin	5-20% Risk increases with cumulative doses (≥6 doses)	**Onset:** Minutes to hours **Risk Factors** Concomitant radiation. May display as fever ≤24 hours of infusion. Perform standard infectious disease evaluation. Reintroduction risk less known due to dose limiting ototoxicity and peripheral neuropathy.
Oxaliplatin	7-24% Risk increases with cumulative doses (≥6 doses)	**Onset:** Within 60 minutes after infusion start **Management** Grade 1/2 Consider extended infusion duration to over 4 hrs to 6 hrs + pre-medications

Table 6. Pharyngo-laryngeal Dysesthesia, Oxaliplatin Infusion Related Reaction Comparison Table – BC Cancer GI Optimization

Clinical Symptoms	**Pharyngo-laryngeal Dysesthesia** Unusual dysesthesia characterized by an uncomfortable persistent sensation in the area of the laryngopharynx without any objective evidence of respiratory distress (i.e. absence of hypoxia, laryngospasm or bronchospasm). This may be exacerbated by exposure to cold air or foods/fluids.	**Oxaliplatin Infusion Related Reaction**
Stop infusion, perform vitals and assessment. Check oxygen saturation level		
Dyspnea	Present	Present
Bronchospasm	Absent	Present
Laryngospasm	Absent	Present
Anxiety	Present	Present
Oxygen Saturation	Normal	Decreased
Difficulty Swallowing	Present (Loss of sensation)	Absent
Pruritus	Absent	Present
Cold Induced Symptoms	Yes	No
Blood Pressure	Normal or Elevated	Normal or Decreased
Treatment	Anxiolytics; Reduce exposure to cold air, foods/fluids. Observation until symptoms resolved.	Oxygen, steroids, epinephrine, bronchodilators. Fluids and vasopressors if appropriate.

APPENDIX III: SCDRUGRX Algorithm

Prior to starting infusion

- Ensure safety equipment and medications are available
- Assess risk of patient based on drug, dose number, and medical history
- Communicate with patient on risk factors and, if applicable, ensure correct administration of pre-medications
- Provide patient education on signs and symptoms of infusion reaction