

KINGSTON HEALTH SCIENCES CENTRE

CLINICAL POLICY AND PROCEDURE

SUBJECT	Administration of Chemotherapy and Biotherapy Agents for Registered Nurses (RNs) when Administered for Systemic Cancer Treatment	NUMBER	M-1710
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Introduction:

Chemotherapy and/or biotherapy are agents given to children and adults for curative or non-curative intents. Additional treatment interventions may also include: eradication or growth prevent of micrometastasis before (neo-adjuvant intent) or after (adjuvant intent) surgery or radiation, preparation for autologous stem cell transplantation (myeloablation), and to slow the growth of cancer to prolong survival and/or relieve symptoms caused by cancer (palliative intent).

Preparing, handling and administering chemotherapy and biotherapy agents and the handling of patients' body fluids could involve the risk of exposure to hazardous drugs (*see KGH Administrative Policy 02-095 Workplace Safety Management of Hazardous Drugs*). This policy outlines the differences when handling Category 1 or Category 2 Hazardous drugs.

Chemotherapy is considered to be a "high alert" medication by the Institute for Safe Medication Practices Canada (ISMP 2014 Canada) (*see Administrative Policy 14-222 High Alert Medications*).

Definitions:

Antineoplastic agent – any agent/drug that inhibits the maturation and proliferation of malignant cells. The terms chemotherapy, antineoplastic and cytotoxic are often used interchangeably.

Biotherapy – the use of agents derived from biologic sources or agents that affect biologic responses. Treatment with biotherapeutics can boost or restore the immune system, lessen the side effects associated with cancer therapy, or have an anti-tumour effect. Agents of biotherapy include monoclonal antibodies, growth factors and vaccines. Some but not all are considered hazardous drugs.

Extravasation – Leakage of the drug or substance into tissues surrounding the vein where it is being injected.

Hazardous Drug – a hazardous drug is any drug that has the capability of causing toxicity to personnel and others who come in contact with them. Drugs may be classified as hazardous when they possess any one of the following characteristics.

- Genotoxicity, or the ability to cause a change or mutation in genetic material; a mutagen.
- Carcinogenic, or the ability to cause cancer in animal models, humans, or both; a carcinogen.
- Teratogenicity, or the ability to cause birth defects in fetal development or fetal malformation; a teratogen.
- Fertility impairment in both men and women.
- Serious toxicity at low doses in experimental animal models or treated patients.
- Chemical structure and toxicity profile that mimic existing drugs determined to be hazardous by the five previous criteria until properly classified.

Vesicant - Medications that can cause blistering of the skin or mucous membranes.

Policy:

1. Only authorized RNs who successfully complete the defined organizational knowledge and skill evaluation may administer systemic chemotherapy and biotherapy for cancer treatment
 - 1.1. RNs must complete the De Souza Standardized Chemotherapy & Biotherapy course/or KHSC-KGH site approved equivalent prior to administering chemotherapy and biotherapy and maintain annual competency through De Souza Chemotherapy & Biotherapy Competency course/KHSC-KGH site approved equivalent thereafter.
 - 1.2. Registered Nurses that have received Advanced Competency training follow the Chemotherapy & Biotherapy Guidelines and Recommendations for Practice (Oncology Nursing Society & Cancer Care Ontario) and Safe Handling of Hazardous Drugs (Oncology Nursing Society & Cancer Care Ontario) for the nursing assessment, administration and management of chemotherapy and biotherapy agents irrespective of where the patient is in the continuum of care.
 - 1.3. Intraperitoneal administration (IP): Once competency for chemotherapy/biotherapy administration and care for implanted central venous access devices has been established, Registered Nurses:
 - 1.3.1. receive additional IP chemotherapy education;
 - 1.3.2. observe a demonstration;
 - 1.3.3. do one successful return demonstration.
2. The Chemotherapy & Biotherapy guidelines and recommendations are followed for:
 - 2.1 all routes of chemotherapy and biotherapy agent administration;
EXCEPTION: KHSC does not support the guidelines for maximum safe volumes for intramuscular (IM) injections for infants and children (refer to KHSC Parenteral Drug Therapy Manual Appendix F).
 - 2.2 Safe drug handling and disposal of drugs and equipment (also refer to Administrative Policy 02-095)
 - 2.2.1 Occupational Health and Safety Services and the Cancer Program at KHSC conduct training on hazardous drug safe work practices per KHSC Administrative Policy 02-095 Workplace Safety Management of Hazardous Drugs.
 - 2.3 Guidance of nursing education.
3. In all systemic cancer treatment situations, an independent double check is carried out by two RN's authorized in chemotherapy administration (*Administrative Policies 14-222 High Alert Medications* for details).
4. In all situations, regardless of the patient population, a double check of blood return, IV patency and pump programming is carried out by two RN's before intravenous systemic therapy administration, and documented.
 - 4.1 Both RNs observe for blood return and IV patency at the same time.
 - 4.2 Independent double check of pump programming is not required if using the pump library with hard and soft limits.

Procedure

NOTE: In preparation for administration of systemic treatments, the nurse should ensure that administration set-up maximizes drug delivery, protects the patient, and protects the nurse.

There are a variety of routes of administration for chemotherapy and biotherapy administration, safety considerations along with policy and procedures must be performed for all routes. This document describes administration procedures for:

- Oral route (Procedure A)
- Subcutaneous/Intramuscular routes (Procedure B)
- Intraperitoneal route (Procedure C)
- Intravesical route (Procedure D)
- Intravenous route (Procedure E)
- Topical route (Procedure F)
- Aerosolized route (Procedure G) **Separate Procedures for each route**

Reporting and Recording:

1. Report:
 - 1.1. Dose calculations that cannot be verified against patient care order;
 - 1.2. Toxicities patient is experiencing;
 - 1.3. Possible and actual extravasation;
 - 1.4. Infusion or treatment-induced reaction;
 - 1.5. Patient/Substitute decision maker hesitancy or refusal for treatment; and
 - 1.6. Assessment of need for venous access device.
2. Document:
 - 2.1. Independent double check by two RN's as follows;
 - 2.2. Access device assessment;
 - 2.2.1. Patency and blood return;
 - 2.3. Patient's functional status;
 - 2.4. Toxicity symptoms and management;
 - 2.5. Pre and post supportive therapies, including adherence to pre-medication schedule;
 - 2.6. Agent administration;
 - 2.7. Chemotherapy induced reactions;
 - 2.8. Patient education;
 - 2.9. Discharge instructions; and
 - 2.10. Follow-up care.
3. Identify by (*in-patient setting*):
 - 3.1. Documenting "hazardous" and whether it is considered Category 1 or 2 beside the drug on the Medication Administration Record.
 - 3.2. Documenting "hazardous handling precautions until: Date (yyyy/mm/dd) _____" for Category 1 drugs on the front page of the Interprofessional Patient Profile, as applicable.
 - 3.3. Placing a laminated Hazardous Handling Precautions sign by the patient's bedside and place a paper copy on the front of the chart.
 - 3.3.1. A copy of the precautions sign must travel with the patient (in chart or on its own) and be added as a precaution when using the portering system.

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Related Policies and Procedures:

Administrative Policy 02-095 Safe Management of Hazardous Drugs
Administrative Policy 13-010 Patient Identification
Administrative Policy 14-222 High Risk/High Alert Medications

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Director, Professional Practice – Signature

Date

PROCEDURE A
Oral Chemotherapy &/or Biotherapy Administration

Equipment:

Appropriate Personal Protective Equipment (PPE)

- KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing due to liquid oral preparations, NG,G or J Tube*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.

Hazardous Waste bag used for soft waste

Hazardous Drug Patient Information Sheet

Procedure:

1. Assess patient's functional status and drug toxicities by using hospital approved assessment tools.
2. Verify patient care orders and consent for chemotherapy/biotherapy
NOTE: No verbal orders are permitted for chemotherapy in any circumstance.
 - 2.1. Verify written consent has been obtained
3. Verify regimen and doses and compare with last treatment, if applicable.
4. Assess orders for completeness including supportive therapies e.g. antiemetics
 - 4.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 4.1.1. If concerns or discrepancies, consult an Oncology pharmacist and/or Physician/NP.
 - 4.1.2. A dose variance of 10% of the actual ordered dose is acceptable to proceed.
5. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medications*)
 - 5.1. Medication;
 - 5.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*);
 - 5.3. Route;
 - 5.4. Frequency; and
 - 5.5. Time.
6. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 6.1. Determine:
 - 6.1.1. Preferred language for verbal and written instruction;
 - 6.1.2. Assess speaking fluency and reading literacy;
 - 6.1.3. Review patients' goals for education;
 - 6.1.4. Assess level of understanding of the disease and treatment;
 - 6.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
7. Don appropriate PPE when handling hazardous oral agents.
8. Do not crush hazardous oral agents. Pharmacy crushes all cytotoxic oral drugs under an externally vented Biological Safety Cabinet (BSC).
 - 8.1. Young children or if patient has difficulty swallowing/feeding tube may require liquid preparations.
9. Administer agents as per patient care order.

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10. Immediately prior to administering, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 10.1. Patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#)
(also see *Administrative Policy 13-010 Patient Identification*)
11. Before, during and after, monitor vital signs as ordered or as appropriate for the drug, the regimen, reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
 - 11.1. Monitor for treatment-induced reaction as determined by the drug.
12. Dispose of drug packaging and PPE in appropriate waste receptacle.
13. In the out-patient setting: provide patients with the regimen schedule to monitor patients response to therapy.
14. Provide patient's with verbal & written information about the drug(s), dose, schedule, storage, and safe handling.
15. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.

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PROCEDURE B
Subcutaneous/Intramuscular (IM) Administration

Equipment:

Appropriate Personal Protective Equipment(PPE)

- KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.

Alcohol swabs

Disposable plastic-backed absorbent pad

4 x 4 gauze

Chemotherapy spill kit

Hazardous drug deactivation agent (*e.g. Surface Safe*)

Hazardous waste bag used for soft waste

Hazardous waste container (*for needles or breakable items*)

Hazardous Drug Patient Information Sheet

Emergency eye wash equipment (*nearby*)

Procedure:

1. Assess patient's functional status and drug toxicities by using hospital approved assessment tools.
2. Verify patient care orders and consent for chemotherapy/biotherapy.
NOTE: No verbal orders are permitted for chemotherapy in any circumstance.
 - 2.1. Verify written consent has been obtained.
3. Verify regimen and doses and compare with last treatment, if applicable.
 - 3.1. Assess prior treatments, especially any concerns or problems.
4. Assess orders for completeness including supportive therapies e.g. antiemetics
 - 4.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 4.1.1. If in doubt, consult pharmacist and/or physician/NP.
 - 4.1.2. A dose variance of 10% of the actual ordered dose is acceptable to proceed.
5. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medications*)
 - 5.1. Medication
 - 5.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
 - 5.3. Site and/or route
 - 5.4. Frequency
 - 5.5. Time
 - 5.6. Volume
6. Evaluate patient's level of knowledge regarding treatment.

7. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 7.1. Determine:
 - 7.1.1. Preferred language for verbal and written instruction;
 - 7.1.2. Assess speaking fluency and reading literacy;
 - 7.1.3. Review patients' goals for education;
 - 7.1.4. Assess level of understanding of the disease and treatment;
 - 7.1.5. Provide patient and family information regarding: drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
8. Before, during and after, monitor vital signs as ordered or as appropriate for the drug, the regimen, reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
 - 8.1. Monitor for treatment-induced reaction as determined by the drug.
9. Immediately prior to administering, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 9.1. Patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*).
10. Perform hand hygiene and apply appropriate PPE.
11. Select and administer medication in appropriate site.

Specific Concerns: For IM injections in infants and children, Appendix F of the KHSC parenteral drug therapy manual will be followed.

 - 11.1. *Subcutaneous:*
 - 11.1.1. most common site is the abdomen (avoid the umbilicus and scars).
 - 11.1.2. choose smallest needle possible. Some medications are in pre-packaged syringes; follow manufacturer's instructions.
 - 11.2. *Intramuscular:*
 - 11.2.1. Use the proper size needle to ensure that medication is delivered into the muscle and not the SC tissue.
 - 11.2.2. Insert at 90° angle and pull back on syringe to ensure injection is not near blood vessel.
 - 11.3. Avoid massaging the site.
12. Monitor for treatment-induced reaction as determined by drug.
 - 12.1. Closely observe patient for any local or systemic reaction for a minimum of 30 minutes.
 - 12.1.1. Some patients may require 1:1 monitoring.
 - 12.2. Have emergency resources available, including:
 - 12.2.1. Emergency equipment and drugs; and
 - 12.2.2. Chemotherapy & Biotherapy Induced Hypersensitivity Algorithm.
13. Dispose of hazardous waste in appropriate waste receptacle.
14. Provide patient's with verbal & written information about the drug(s), dose, schedule, storage, and safe handling.
15. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.

PROCEDURE C
Intraperitoneal Administration

Introduction:

Intraperitoneal (IP) therapy is a procedure used to facilitate the delivery of intraperitoneal chemotherapy or biotherapy, and/or to allow removal of ascitic fluid for palliation or underlying diagnosis. IP therapy is provided through either a temporary or permanently placed catheter implanted into the peritoneal cavity. An implanted port is a small reservoir with a silicone septum (injection) port and an attached catheter that is implanted subcutaneously.

NOTE:

- Intraperitoneal access device catheters are temporarily (e.g. cathlon), or permanently (e.g. pigtail and Tenckhoff catheters, Port-A-Cath®), implanted into the peritoneal cavity.
- These access devices provide repeated access to the peritoneal cavity for the administration of drugs such as antineoplastic medications or antibiotics, for the drainage of ascites, and for diagnostic testing. IP ports used for chemotherapy **cannot** be used to drain ascites.
- Aseptic technique is required to prevent port device site infection and peritonitis.
- Physicians assess the patient prior to each antineoplastic administration. Included in the physician's assessment will be an assessment for ascites. In the presence of ascites the physician may perform an abdominal paracentesis (see Nursing Procedure P-50 for patient care and management).

Equipment:

Appropriate Personal Protective Equipment (PPE)

- **Sterile** - KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure

Alcohol swabs

Disposable plastic-backed absorbent pad

4 x 4 gauze

Chemotherapy spill kit

Hazardous drug deactivation agent (*e.g. Surface Safe*)

Hazardous waste bag used for soft waste

Hazardous waste Container (*for needles or breakable items*)

Hazardous Drug Patient Information Sheet

Emergency eye wash equipment (*nearby*)

Access Needle - gripper Port-a-Cath Needle (non-coring, 19 gauge, 1 ½ "needle. My require 1 ¼" to 1 ¾" length needles depending on size and location of port device with Extension Tubing).

Sterile adhesive transparent dressing

Syringe 10 mL (x2)

Injection site cap

Threaded lock cannula

Masks (x1) (patient also needs to wear mask if immunosuppressed)

Dressing Tray

Sterile 0.9% sodium chloride (10 mL) (x2) to establish IP line.

Chlorhexidine 2% aqueous solution

Prescribed IV solution and chemotherapy IV tubing

Tape

Heparin 250 units (2.5 mL of heparin 100 units/mL)

Sterile 0.9% sodium chloride (10 mL) to de-access port device

Sterile sodium chloride 0.9% (10 mL) (x2) to access IP port

Slipper bedpan

Points of Emphasis:

1. Encourage to patient to remain on bedrest with minimal movement throughout the IP instillation.
 - 1.1 Patient may use a slipper bedpan to void.
 - 1.1.1 After bedpan use, assure that proper needle positioning is maintained.
2. Instill chemotherapy by gravity as ordered.
 - 2.1 Never use an infusion pump due to the potential incidence of needle dislocation from the high pressure of the pump.
 - 2.2 Expected side effects include bloating, cramping, and cool sensation.
 - 2.3 Unexpected side effects are found in table below.
3. Apply a gauze dressing covered by a transparent dressing to the IP port site after the IP therapy is discontinued as fluid can ooze from the insertion site.

Summary of Potential Complications & Interventions of IP Chemotherapy			
Complication	Etiology	Signs /Symptoms	Guidelines
Patient discomfort. Abdominal distention, bloating/increase in abdominal pressure or abdominal cramping. *Most common complaint.	Large volume of fluid being instilled into the peritoneum. Worse in women of small stature or who have many adhesions.	Abdominal distention. Shortness of breath. Discomfort/pain during instillation. Urinary frequency. Anxiety. Symptoms usually last 24 - 48 hours.	Slow rate of instillation. Analgesia as ordered. Offer small, frequent meals. Loosen clothing. Elevate head of bed 30°. Consult Physician regarding need for oxygen if SOB and decrease O ₂ saturation. Post IP treatment, encourage ambulation. Contact Physician/NP if concerns arise.
Abdominal Pain	Loculation of intraperitoneal fluid.	Discomfort/pain Chemotherapy instillation slows down.	Encourage patient to change position in bed to help distribute the fluid. Analgesia as ordered.
Nausea and Vomiting	Shift in fluid and electrolyte balance. Medication side effects. Large volume of fluid in peritoneum.	Nausea and vomiting just after drugs are instilled. Symptoms may last several hours after treatment.	Offer antiemetics as ordered. Monitor intake and output. Ensure adequate hydration. Frequent small meals. Promote good oral hygiene. Do not lie flat, elevate the head of the bed 30°. Monitor electrolytes (magnesium, potassium and calcium) and replace as ordered.
Respiratory Distress Shortness of breath (SOB) Symptom of Allergic Reaction	Sudden rise in intra-abdominal pressure which restricts the diaphragmatic movement.	S.O.B. (severe). Dyspnea (severe).	During IP instillation raise the head of the bed 30°. If severe SOB develops: Stop chemotherapy Page physician/NP stat. Raise head of bed to 45°. Consider administering oxygen. Assess oxygen saturation. Remain with patient and offer reassurance. Be prepared to administer rescue medications as prescribed by physician/NP.

Summary of Potential Complications & Interventions of IP Chemotherapy			
Complication	Etiology	Signs /Symptoms	Guidelines
Chills (mild) Not to the point of shivering.	IP solution is cooler than body temperature.	Uncomfortable cold feeling. Shivering.	Offer warm blankets. Offer a hot drink. Warm IP solution prior to infusing treatment.
Extravasation at site of administration	Faulty catheter. Incorrect needle placement in implanted port device. Migration of catheter out of the peritoneum. Peritoneum is not intact.	Local pain/erythema. Swelling at the injection site. Leakage of chemotherapy. Inability to aspirate/flush fluid.	Ensure correct needle placement into implanted port. Minimize patient movement during IP infusion. Encourage bedrest. If extravasation occurs-stop the instillation and notify Physician/NP. Consult with pharmacy for recommended treatment (heat/ice).
Peritonitis (bacterial)	Possibly immunocompromised. Infection because of poor aseptic technique when accessing or de-accessing device. Contamination from the skin. Contamination of the catheter (port).	Pain. Fever. Chills. Spasms. Laboured respirations. Cloudy exudate. Nausea & vomiting. Rebound tenderness. Positive cultures. Peritoneal fluid with high WBC count.	Notify physician/NP immediately if symptoms present. Monitor vital signs. Strict aseptic technique with catheter (port) access and de-access. Obtain peritoneal cultures as ordered. Local and systemic antibiotics as ordered. Administer analgesics. Port device may be removed if infection does not resolve or reoccurs with same organism.
Peritonitis (Chemical-Inflammation) *Not common with cisplatin or carboplatin.	Characteristic of certain chemo drugs (doxorubicin, 5-FU and paclitaxel) causing inflammation to the lining of the peritoneum.	Severe abdominal pain during and following treatment. Fever. Chills. Diarrhea. Ileus.	Notify Physician/NP immediately if symptoms present. Monitor vital signs. Double check dosage and dilution. Warm the solution prior to administration. Discontinue infusion if symptoms present and notify Physician/NP. Offer analgesia as ordered.
Catheter Migration	Improper initial surgical placement of implanted port device.	Excruciating pain.	Notify Physician/NP immediately. Stop instillation. X-ray to locate catheter. Remain with patient and offer reassurance.
Catheter Occlusion	Catheter kinks. Blood or fibrin clots in catheter. Tip of catheter against patient organs. Obstruction of catheter by abdominal adhesions or omental blockage. Catheter migration. Tumor progression.	Inability to flush catheter or resistance when infusing solution.	Verify needle placement. Reposition patient. Flush IP port device. Notify Physician/NP. Consult with Physician/NP regarding need for cathetergram under fluoroscopy (IVR flow study) to check catheter position; +/- use of thrombolytic e.g. tPA or heparinized 0.9% sodium chloride. If blocked, Physician/NP to discuss options with patient. May require IP chemo to be given IV.

Summary of Potential Complications & Interventions of IP Chemotherapy			
Complication	Etiology	Signs /Symptoms	Guidelines
Diarrhea	Increase in abdominal pressure. Medication side effect.	Frequent, loose watery bowel movements. Abdominal cramps. Generalized malaise. Electrolyte imbalance.	Encourage oral intake of fluid. Antidiarrheal agents as ordered. Monitor electrolytes and replace as ordered.
Constipation	Medication side effect. Decreased peristalsis secondary to IP solution instillation.	Decreased frequency or absence of bowel movements.	Encourage oral intake of fluids. Fiber diet. Bowel regime. Stool softeners.
Exit site infection	Break in aseptic technique when accessing or de-accessing port device.	Marked erythema and/or discharge from exit site. Local tenderness around exit site.	Culture exudate as ordered. Administer oral or IV antibiotics as ordered. Local measures e.g. exit site dressings.
Electrolyte Imbalance. Hypomagnesemia.	Severe proximal tubular dysfunction. Side effect of IP Cisplatin.	Weakness. Tremors. Muscle twitching. Paresthesias. Ventricular arrhythmias. Refractory hypocalcemia and hypocalcemia. Mental status changes.	Monitor electrolytes and replace as ordered. IV hydration, which include magnesium and potassium, as ordered.

Procedure:

1. Assess patient's functional status and drug toxicities by using hospital approved assessment tools.
2. Verify patient care orders and consent for chemotherapy/biotherapy.
NOTE: No verbal orders are permitted for chemotherapy in any circumstance.
2.1. Verify written consent has been obtained.
3. Review Physician/Nurse Practitioner (NP) assessment.
4. Verify regimen and doses and compare with last treatment, if applicable.
4.1. Assess prior treatments, especially any concerns or problems.
5. Assess orders for completeness including supportive therapies e.g. antiemetics
5.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
5.1.1. If in doubt, consult Pharmacist and/or Physician/NP.
5.1.2. A dose variance within 10% of the actual ordered dose is acceptable to proceed.
6. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medications*)
6.1. Medication
6.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
6.3. Diluent (*if included in order*);
6.4. Site or route
6.5. Frequency
6.6. Duration
6.7. Time
6.8. Rate; and
6.9. Volume

7. Evaluate patient's level of knowledge regarding IP therapy.
 - 7.1. Review "Your Guide to Intraperitoneal Therapy (IP chemo)" patient education booklet with patient.
8. Explain the procedure to the patient and assess for symptoms prior to initiating treatment.
9. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 9.1. Determine:
 - 9.1.1. Preferred Language for verbal and written instruction
 - 9.1.2. Assess speaking fluency and reading literacy
 - 9.1.3. Review patients' goals for education
 - 9.1.4. Assess level of understanding of the disease and treatment
 - 9.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, intimacy and sexual relations, follow-up care and labs, and how to access support services (*as applicable*).
10. Before, during and after the infusions, monitor vital signs as ordered or as appropriate for the drug, the regimen, reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
 - 10.1. At minimum, monitor vital signs every 30 minutes during IP chemotherapy administration.
 - 10.2. Monitor for treatment-induced reaction as determined by the drug.
11. Perform hand hygiene and apply appropriate PPE.
12. Ensure IV access and administer intravenous hydration, medications and intravenous chemotherapy agents as ordered.
13. Prior to accessing IP port, have patient empty bladder. Consider applying Emla® cream as per Physician/NP orders (One hour prior) for patients who experience significant amount of pain during accessing the port.
14. Place patient in a supine or semi-fowler position throughout administration of IP chemotherapy.
 - 14.1. Head of bed must be no higher than 30 degrees to prevent dislocation of IP Huber point needle during instillation.
 - 14.2. A flat position during the instillation may increase pressure on diaphragm causing respiratory compromise/GI upset.
15. Set up equipment needed to access port.
 - 15.1. Prepare sterile tray, adding solutions, gripper needles, syringes, and dressing.
16. Immediately prior to administering, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 16.1. Patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*)
17. Don mask, wash hands and put on sterile KHSC approved chemotherapy gloves.
 - 17.1. Strict sterile technique is used to access ports.
18. While maintaining sterile technique, clean around port site with chlorhexidine 2%, working in a circular motion from the port outward.
 - 18.1. Be careful not to go over the same area twice.
 - 18.2. Repeat the procedure three times.
 - 18.3. Allow the solution to air dry at least one minute.
19. Access intraperitoneal implanted port as per Nursing Policy C-1830.
 - 19.1. Stabilize the dome edges.
 - 19.1.1. A second nurse may be required to stabilize the dome edges.

20. Access IP port with a 19 gauge (1 1/4"-1 3/4") length Gripper point needle by holding the Gripper at right angles (perpendicular) to the portal septum and insert into the septum until you hear a clunk or until you feel that the tip is well situated.
 - 20.1. Do not tilt or rock the needle as this will damage the silicone septum.
 - 20.2. Once the needle has been inserted into the port, aspiration is not required.

NOTE: Variation from Nursing Policy C-1830, IP Port is not implanted in a vein; therefore, no blood return is expected.
 - 20.3. Inject sterile sodium chloride 0.9% 20 mL using 10 mL syringes.
 - 20.3.1. Assess ease of flow and rule out subcutaneous swelling at the port site.
 - 20.3.2. If you meet resistance, place the patient in a flat position, reposition the needle and attempt to flush the port again.
 - 20.3.3. If the second attempt fails, contact the physician/NP to access the port.
21. Secure needle and tubing with dressing and tape.
 - 21.1. Do not apply gauze dressing since the site must be visible at all times to ensure adequate monitoring.
22. Administer intraperitoneal fluids.
 - 22.1. Connect primed continue flow tubing with sodium chloride 0.9% to IP gripper point needle.
 - 22.2. Instill warmed IP sodium chloride 0.9% (up to 500 mL) ordered by gravity as rapidly as possible.
 - 22.3. Monitor site, assessing for local swelling, pain, redness, leakage of fluid or blanching of the skin.
23. Administer warmed IP chemotherapy (usually mixed in 1000 mL) ordered by gravity as rapidly as possible through a secondary line.
 - 23.1. Observe entire abdominal surface for unusual local swelling.
 - 23.2. Monitor for pain, shortness of breath, dyspnea, respiratory distress and cramping.
24. After IP chemotherapy, instill warmed IP sodium chloride 0.9% (up to 500 mL) by gravity as ordered and administer analgesia as needed.
 - 24.1. Stop instillation if patient cannot tolerate pain despite analgesia.
 - 24.2. Anticipate that total infusion time will be 30 to 120 minutes.
 - 24.3. Usually two liters of fluid is required to ensure distribution of drug throughout peritoneal space.
25. Prepare to de-access port.
 - 25.1. Obtain dressing supplies, wash hands and put on clean nitrile gloves.
 - 25.2. Draw 250 units of heparin 100 units per mL (2.5 mL) plus 2.5 mL sodium chloride 0.9% for a total flush volume of 5 mL.
 - 25.3. Prepare two 10 mL syringes with sterile sodium chloride 0.9%.
 - 25.4. Position patient in a supine position for de-access.
 - 25.5. De-access abdominal implanted port as per Nursing Policy and Procedure C-1830.
 - 25.6. Clamp the IV administration set and the extension tubing of the gripper point needle.
 - 25.7. Disconnect the IV administration set from the extension tubing of the gripper point needle.
 - 25.8. Remove the dressing to expose the Gripper point needle.
 - 25.9. Flush IP port with 20 mL of sodium chloride 0.9% using a start/stop injection technique.
 - 25.10. Flush IP port with 5 mL of the heparin flush solution using a turbulent technique.
 - 25.10.1. To ensure positive pressure remains within the system, continue flushing remaining 0.5 mL of flush solution while removing access needle.
 - 25.10.1.1. May require a second nurse since patient may not be in a position to assist.
 - 25.11. Place gauze dressing over the port site to absorb any fluid leakage that may have occurred with the removal of the needle.

- 25.12. Cover IP port site with a gauze dressing and transparent dressing.
 - 25.12.1. If there has been leakage, reapply a new dressing and instruct the patient to remove the dressing after 48 hours.
 - 25.12.1.1. If soiled, dispose of the dressing following safe handling precautions and per Patient Information Sheet — Hazardous Drugs Adult and Pediatrics.
- 25.13. Dispose contaminated supplies in appropriate hazardous waste container
- 26. Assist patient to the bathroom to void.
 - 26.1. Upon return, assist the patient to change positions as follows every 15 minutes for 45 minutes to distribute the chemotherapy throughout the abdominal cavity:
 - 26.1.1. Slight Trendelenburg (important to adequately expose the chemo to the upper abdomen);
 - 26.1.2. Right lateral; and
 - 26.1.3. Left lateral
- 27. At the completion of the 45 minute position changes, instruct the patient to assume a position of comfort while preparing for discharge instructions.
- 28. Out-patients may be discharged home as ordered.

Reporting and Recording:

- 1. Report to Physician/NP:
 - 1.1. Complications
 - 1.2. Unstable vital signs (*e.g. hypotension, fever, tachypnea, tachycardia*)
 - 1.2.1. Hypotension is defined as a 20 mm Hg drop in systolic or diastolic pressure.
- 2. Complete documentation as outlined previously under “Reporting and Recording” section of this policy.

PROCEDURE D
Intravesical Administration

Introduction:

- Intravesical chemotherapy/biotherapy is local cancer treatment in which chemotherapy and/or biotherapy is administered directly into the bladder. The drug is concentrated at the bladder tumor site with the intent of eliminating residual tumour following surgical resection and/or to prevent recurrence.
- Examples of chemotherapy agents include mitomycin, gemcitabine, thiotepa, doxorubicin and epirubicin and common biological agents include bacillus calmette-guerin (BCG) and interferon.
- Common local side effects associated with intravesical chemotherapy are pain with urination, urinary frequency, hematuria and skin rash.
- Employees who handle BCG are not at risk of contracting Tuberculosis, however accidental exposure can result in local reaction. BCG is an attenuated mycobacterium, normally used to induce immunity to tuberculosis. In ambulatory clinics, it is used as a chemotherapeutic agent for bladder installations in patients with bladder cancer.

Equipment:

Urinary catheter tray and urine collection bag.

- Male and female patients usually require a #10 Fr. urinary catheter.
- Some males may require a # 14 Coude catheter.

Exception: patients arriving in Post Anesthesia Care Unit (PACU) will already have a urinary catheter in situ.

Alcohol swabs

Presbyterian Clamps

Personal Protective Equipment (PPE):

- KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.

Absorbent plastic-backed pads (x2)

4 x 4 gauze (x 2 for patients in PACU whose catheter is removed)

Chlorine bleach (*for use if instilling BCG only*)

Chemotherapy spill kit

Hazardous drug deactivation agent (*e.g. Surface Safe*)

Hazardous Waste bag used for soft waste

Hazardous Waste Container (*for needles or breakable items*)

Hazardous Drug Patient Information Sheet

Emergency eye wash equipment (*nearby*)

Chemotherapy/biotherapy agent(s) (in leak proof re-sealable bag)

Procedure:

A. Post Anaesthetic Care Unit (PACU) Patients

1. Assess for:
 - 1.1. signs and symptoms of urinary tract infection (e.g. dysuria, fever, hematuria, back pain) and obtain urinalysis, mid-stream urine and catheter specimen of urine as ordered.
NOTE: Catheterization must not be traumatic. If patient is bleeding from catheterization, the physician must be contacted prior to intravesical administration.
 - 1.2. side effects of the chemotherapy/biotherapy agents from prior administrations.
2. Verify:
 - 2.1. patient care orders for chemotherapy/biotherapy.
 - 2.1.1. Verbal or telephone orders for chemotherapy/biotherapy are not accepted.
 - 2.2. regimen and doses.
 - 2.2.1. Compare with last treatment, if applicable.
3. Assess orders for completeness including supportive therapies e.g. antiemetics
 - 3.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 3.1.1. If in doubt, consult pharmacist and/or physician.
4. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medications*)
 - 4.1. Medication
 - 4.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
 - 4.3. Diluent (*if included in order*);
 - 4.4. Site or route
 - 4.5. Frequency
 - 4.6. Duration
 - 4.7. Time
 - 4.8. Rate; and
 - 4.9. Volume
5. Insert urinary catheter (if not already catheterized).
6. Explain the procedure to the patient.
7. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 7.1. Determine:
 - 7.1.1. Preferred Language for verbal and written instruction
 - 7.1.2. Assess speaking fluency and reading literacy
 - 7.1.3. Review patients' goals for education
 - 7.1.4. Assess level of understanding of the disease and treatment
 - 7.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
8. Before, during and after the infusions, monitor vital signs as ordered or as appropriate for the drug, the regimen, infusion reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
 - 8.1. Monitor for treatment-induced reaction as determined by the drug.
9. Immediately prior to administering, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 9.1. Patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*)

10. Perform hand hygiene and don appropriate PPE for chemotherapy and/or biotherapy handling.
 11. Place absorbent plastic-backed pad under needleless sample port:
 - 11.1. Cross clamp urine collection bag tubing distal to needleless sample port with 2 Presbyterian clamps.
 - 11.2. Cleanse urinary catheter luer-lock with alcohol swab and attach syringe (60 mL) containing chemotherapy/biotherapy agent to urinary catheter luer-lock. Ensure no air is present in syringe (as this can cause bladder spasm).
 - 11.2.1. Wrap 4 x 4 around connection to contain any leakage.
 - 11.3. Instill room temperature chemotherapy/biotherapy agent through urinary catheter into bladder.
 - 11.3.1. Instill slowly over 4 to 5 minutes to prevent bladder spasm.
 - 11.4. Remove syringe and place immediately into re-sealable bag that is marked to identify it as cytotoxic waste.
 - 11.5. Attach blunt plastic catheter cannula into a luer-lock syringe (30 mL) containing 30 mL Normal Saline.
 - 11.5.1. Instill slowly over 4 to 5 minutes to prevent bladder spasm.
 - 11.6. Remove syringe and place immediately into cytotoxic waste container.
 - 11.7. Clamp urinary catheter for specified time and turn patient every 15 minutes, i.e. right side, left side, supine, prone, if ordered.
 - 11.8. Thoroughly wash patient's skin with soap and water if chemotherapy/biotherapy agent leaks onto skin.
 12. Chemotherapy/biotherapy agent removal:
 - 12.1. Wash hands and don appropriate PPE.
 - 12.2. Remove Presbyterian clamps and allow chemotherapy/biotherapy agent to flow into urine collection bag until bladder is empty.
 - 12.2.1. Change urine collection bag when approximately 2/3 full and place in adjacent cytotoxic waste container.

NOTE: Continuous bladder irrigation may be required following mitomycin (see section C).

 - 12.3. Thoroughly wash patient's skin with soap and water if chemotherapy agent leaks onto skin.
 13. For outpatients whose urinary catheter is removed in PACU:
 - 13.1. Place 4 x 4 gauze at urethral meatus to contain any leakage/drips as catheter exits body.
 - 13.2. Remove urinary catheter and place into an adjacent cytotoxic waste container.
 - 13.3. Instruct male patients to sit while voiding for next 7 days to avoid excessive splashing.
 - 13.4. Instruct all patients to thoroughly wash hands and genital area with soap and water immediately after voiding chemotherapy/biotherapy agent for next 7 days.
- B. In-patients: (i.e. with continuous bladder irrigation following mitomycin)**
1. Assess for:
 - 1.1. signs and symptoms of urinary tract infection (e.g. dysuria, fever, hematuria, back pain) and obtain urinalysis, mid-stream urine and catheter specimen of urine as ordered.

NOTE: Catheterization must not be traumatic. If patient is bleeding from catheterization, the physician must be contacted prior to intravesical administration.
 - 1.2. side effects of the chemotherapy/biotherapy agents from prior administrations.
 2. Verify:
 - 2.1. patient care orders for chemotherapy and/or biotherapy.
 - 2.1.1. Verbal or telephone orders for chemotherapy and/or biotherapy are not accepted.
 - 2.2. regimen and doses.
 - 2.2.1. Compare with last treatment, if applicable.

3. Assess orders for completeness including supportive therapies i.e. antiemetics
 - 3.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 3.1.1. If in doubt, consult pharmacist and/or physician.
4. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medication*)
 - 4.1. Medication
 - 4.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
 - 4.3. Diluent (*if included in order*);
 - 4.4. Site or route
 - 4.5. Frequency
 - 4.6. Duration
 - 4.7. Time
 - 4.8. Rate; and
 - 4.9. Volume
5. Explain the procedure to the patient.
6. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 6.1. Determine:
 - 6.1.1. Preferred language for verbal and written instruction
 - 6.1.2. Assess speaking fluency and reading literacy
 - 6.1.3. Review patients' goals for education
 - 6.1.4. Assess level of understanding of the disease and treatment
 - 6.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
7. Perform hand hygiene and don appropriate PPE.
8. Immediately prior to administering, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 8.1. Patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*)
9. In a sterile manner, change urine collection bag when approximately 2/3 full and place in adjacent cytotoxic waste container.
10. Thoroughly wash patient's skin with soap and water if chemotherapy agent leaks onto skin.
11. Dispose of contaminated products and PPE in appropriate waste and linen receptacles.
12. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.

SUBJECT: Administration of Chemotherapy and
Biotherapy Agents for RNs when
Administered for Systemic Cancer
Treatment

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PROCEDURE E
Intravenous Administration

Equipment:

Appropriate Personal Protective Equipment(PPE)

- KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.

Alcohol swabs

Disposable plastic-backed absorbent pad

4 x 4 gauze

Chemotherapy spill kit

Hazardous drug deactivation agent (*e.g. Surface Safe*)

Hazardous waste bag used for soft waste

Hazardous waste Container (*for needles or breakable items*)

Hazardous Drug Patient Information Sheet)

Emergency eye wash equipment (*nearby*)

Ready access to emergency equipment (*e.g. oxygen, crash cart, emergency line with 0.9% sodium chloride*)

Anaphylaxis kit at bedside (*if indicated, available through pharmacy*)

Agent(s) (*in leak proof, clear, sealable Ziploc bag*)

Supportive therapy medications (*e.g. pre- and post- medications*)

Compatible IV solutions

Filter tubing, if required

Closed system transfer device (PhaSeal), if required

Procedure:

NOTE: For specific drug infusion or back flushing instructions, refer to drug label. If the drug requires a filter, ensure filter tubing is attached closest to the patient.

1. Assess patient's functional status and drug toxicities by using approved assessment tools.

2. Verify patient care orders and consent for chemotherapy/biotherapy.

NOTE: No verbal orders are permitted for chemotherapy in any circumstance.

2.1. Verify written consent has been obtained.

3. Verify regimen and doses and compare with last treatment, if applicable.

4. Assess orders for completeness including pre and post supportive therapies, e.g. hydration, antiemetics.

4.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.

4.1.1. If in doubt, consult pharmacist and/or physician.

4.1.2. A dose variance within 10% of the actual ordered dose is acceptable to proceed.

4.2. **Age-specific concerns:** If administering chemotherapy to a child, patient-specific dosing information and emergency equipment must be available. Calculate emergency doses before they are needed.

5. Complete an independent double check of the following by two RN's authorized in chemotherapy administration: (also see Administrative Policy 14-222 High Alert Medications):
 - 5.1. medication
 - 5.2. mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (as appropriate)
 - 5.3. diluent (if included in order)
 - 5.4. site or route
 - 5.5. frequency
 - 5.6. duration
 - 5.7. time
 - 5.8. rate
 - 5.9. volume
6. Determine vesicant and irritant potential(s) of drug(s).
7. Agents are not administered through a central line without blood return until a chest x-ray or line-flow study confirms line placement and patency.
8. Tubing's and syringes with luer lock fittings or other secure-type connections are used for chemotherapy administration.
9. Determine method of infusion (refer to KHSC Parenteral Drug Therapy Manual Appendix P: Cytotoxic Drug Administration Chart).
 - 9.1. Piggy-back (short term): Establish main line with compatible solution and piggyback chemotherapy infusions and those requiring specialized tubing i.e. non-PVC for Taxol or Taxotere to main line through port closest to patient.
EXCEPTION: Due to drug instability, the IV tubing for high-dose Etoposide will be primed with the drug.
 - 9.2. Continuous Infusion (24 hours or more): Continuous infusions most commonly use a Central Venous Access Device (CVAD)-or implanted device because of the concentration of drug being infused e.g. doxorubicin, fluorouracil, cisplatin.
 - 9.2.1. when patients are discharged with a continuous infusion pump for home administration, ensure they are instructed on how to manage problems with the pump and infusion and on how and when infusion will be discontinued (*i.e. in the home or center*).
 - 9.3. Vesicants:
 - 9.3.1. Avoid infusing vesicants greater than 30 – 60 minutes.
 - 9.3.1.1. Administer vesicants infusing for greater than 30 – 60 minutes through central venous catheter (CVC).
 - 9.3.2. DO NOT use peripheral IV site for continuous vesicant administration.
 - 9.4. Low Volume High Concentration Secondary Infusions (if indicated on the label):
 - 9.4.1. Minimum 25 mL backflush into the secondary set required;
 - 9.4.2. Reinfuse backflush at the same (prescribed) rate as the administered drug.
10. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 10.1. Determine:
 - 10.1.1. Preferred Language for verbal and written instruction
 - 10.1.2. Assess speaking fluency and reading literacy
 - 10.1.3. Review patients' goals for education
 - 10.1.4. Assess level of understanding of the disease and treatment
 - 10.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).

11. Before, during and after infusion, monitor vital signs as ordered or as appropriate for drug, regimen, infusion-reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
12. Avoid using an established IV site that is more than 24 hours old when possible.
13. Perform hand hygiene, apply PPE, and use smallest catheter possible to deliver planned therapy.
14. Perform venipuncture or access CVAD as per KGH policies & procedures. If peripheral IV unsuccessful, restart IV using different site on opposite arm or proximal to the previous puncture site.
15. Immediately prior to initiating infusion, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 15.1. patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (also see Administrative Policy 13-010 Patient Identification)
 - 15.2. IV patency
 - 15.2.1. Vein patency and flushing the line is done with a minimum amount of ten (10) mL of a compatible IV solution between the administrations of each new drug.
 - 15.3. blood return (*do not pinch the IV tubing to determine blood return because the vein can rupture. Aspirate with a syringe by the lowest Y-site and clamp off fluid from the bag or use gravity to check by lowering the IV bag below the patient's IV site*)
 - 15.4. pump programming
 - 15.4.1. Independent double check of pump programming is not required if using the pump library with hard and soft limits.
16. Administer agents as per patient care orders.
17. Observe for swelling, burning, tightness, cool skin, skin colour change, and flow rate along with needle dislodgement and leaking of IV fluid.
18. Between administration of each new agent:
 - 18.1. Ensure drug is infused as far down the line as possible (well below the drip chamber at the very least);
 - 18.2. assess vein patency;
 - 18.3. flush with compatible IV solution;
 - 18.3.1. flushing the line is done with a minimum amount of 10-mL of a compatible IV solution between the administrations of each new drug.
19. For vesicant administration:
 - 19.1. Have extravasation resources available, including:
 - 19.1.1. Extravasation kit at bedside
 - 19.1.2. Management of Chemotherapy Vesicant Extravasations (see KHSC Parenteral Therapy Manual Appendix N)
 - 19.2. Inspect non-coring needle insertion sites (implanted venous access device) for:
 - 19.2.1. needle dislodgement
 - 19.2.2. leakage of IV fluid
 - 19.2.3. drainage; and/or
 - 19.2.4. edema
 - 19.3. If able, administer vesicant agent first into new, uncompromised vein.
 - 19.3.1. When multiple vesicants are required, administer agent with smallest volume first unless regimen directs which agent to administer first.
 - 19.4. Monitor for extravasations.
 - 19.4.1. For peripheral infusions, monitor site for signs of extravasation every 5 – 10 minutes.

- 19.4.1.1. Avoid using an IV pump to minimize pressure on vein.
- 19.4.1.2. Remain with the patient during the entire infusion.

20. At completion of infusion:

- 20.1. Infuse the drug as far down the secondary line as possible;
- 20.2. Clamp secondary and flush primary with a minimum of 25 mL.
- 20.3. For High Concentration Low Volume Drugs (if indicated on the label):
 - 20.3.1. Infuse drug as far down the secondary line as possible;
 - 20.3.2. Backflush the secondary bag with at least 25 mL of your primary bag solution by lowering the secondary bag below the pump (if indicated on the label).
 - 20.3.3. Reinfuse secondary at the same (prescribed) rate as the administered drug;
 - 20.3.4. Clamp secondary line, and;
 - 20.3.5. Flush primary line with 25 mL.
- 20.4. Drug Specific Instructions (if indicated on the label):

NOTE: Some drugs may have specific instructions printed on the label to ensure as much of the drug is delivered as possible. If the label indicates pinching the primary line:

 - 20.4.1. Infuse drug as far down the secondary line as possible;
 - 20.4.2. Pinch the primary line and continue to run infusion at the prescribed rate to allow the secondary line to run almost to the end of the line;
 - 20.4.3. Clamp secondary line and flush primary line with a minimum of 25 mL.

21. Monitor for treatment-induced reaction as determined by drug.

- 21.1. Closely observe patient for any local or systemic reaction for minimum of 30 minutes.
 - 21.1.1. Some patients may require 1:1 monitoring.
- 21.2. Have emergency resources available, including:
 - 21.2.1. Emergency equipment and drugs; and
 - 21.2.2. Chemotherapy & Biotherapy Induced Hypersensitivity Flowchart (see KHSC Parenteral Therapy Manual Appendix O).

22. Dispose of contaminated products and PPE in appropriate waste and linen receptacles.

23. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.

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PROCEDURE F
Topical Administration

Equipment:

Appropriate Personal Protective Equipment (PPE)

- KHSC approved Chemotherapy Gloves (Nitrile) –Double gloves are required for topical administration (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.

Plastic-backed absorbent pad

Hazardous waste bag used for soft waste

Hazardous Drug Patient Information Sheet

Procedure:

1. Assess patient's functional status and drug toxicities by using hospital approved assessment tools.
2. Verify patient care orders and consent for chemotherapy/biotherapy.
NOTE: No verbal orders are permitted for chemotherapy in any circumstance.
2.1. Verify written consent has been obtained.
3. Verify regimen and doses and compare with last treatment, if applicable.
4. Assess orders for completeness including supportive therapies i.e. antiemetics
 - 4.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 4.1.1. If in doubt, consult pharmacist and/or physician.
 - 4.1.2. A dose variance within 10% of the actual ordered dose is acceptable to proceed.
5. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 13-030 Independent Double Checks*)
 - 5.1. Medication
 - 5.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
 - 5.3. Route
 - 5.4. Frequency
 - 5.5. Time
 - 5.6. Volume
6. Before, during and after, monitor vital signs as ordered or as appropriate for drug, regimen, treatment-induced reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
7. Immediately prior to initiating treatment, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 7.1. patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*)
8. Perform hand hygiene and don appropriate PPE.
9. Place plastic-backed adsorbent pad under specified area.
10. Administer topical medication as per patient care orders.

11. For isolated lesions, cover with gauze to prevent linen and clothing contamination. Clothing and/or linen that comes into contact with topical medication must be handled with PPE and placed into a cytotoxic linen bag.
12. Dispose of drug packaging and PPE in appropriate waste receptacle.
13. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 13.1. Determine:
 - 13.1.1. Preferred Language for verbal and written instruction
 - 13.1.2. Assess speaking fluency and reading literacy
 - 13.1.3. Review patients' goals for education
 - 13.1.4. Assess level of understanding of the disease and treatment
 - 13.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
14. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.

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PROCEDURE G
Aerosolized Administration

Equipment:

Appropriate Personal Protective Equipment (PPE)

- KHSC approved Chemotherapy Gloves (Nitrile) (*change gloves every 30 minutes, or immediately if a tear, puncture or drug spill occurs*)
- Face shield (*if risk of splashing*)
- Chemoprotectant gown, disposable, lint-free made of low-permeability fabric, solid front, long sleeves, tight cuffs, and back closure.
- National Institute for Occupational Health & Safety(NIOSH) approved N95 Respirator
- Cap

Chemotherapy spill kit

Hazardous drug deactivation agent (e.g. Surface Safe)

Hazardous waste bag used for soft waste

Hazardous waste Container (for needles or breakable items)

Hazardous Drug Patient Information Sheet

Emergency eye wash equipment (nearby)

Ready access to emergency equipment (e.g. oxygen, crash cart, emergency line with 0.9% sodium chloride)

Anaphylaxis kit at bedside (if indicated, available through pharmacy)

Agent(s) (in leak proof, clear, sealable Ziploc bag)

Supportive therapy medications (e.g. pre- and post- medications)

Procedure:

1. Assess patient's functional status and drug toxicities by using hospital approved assessment tools.
2. Verify patient care orders and consent for chemotherapy/biotherapy.
NOTE: No verbal orders are permitted for chemotherapy in any circumstance.
 - 2.1. Verify written consent has been obtained.
3. Verify regimen and doses and compare with last treatment, if applicable.
4. Assess orders for completeness including supportive therapies i.e. antiemetics.
 - 4.1. Verify that dose is appropriate for patient, diagnosis and treatment plan.
 - 4.1.1. If in doubt, consult pharmacist and/or physician.
 - 4.1.2. A dose variance within 10% of the actual ordered dose is acceptable to proceed.
5. Complete an Independent Double Check of the following by two RN's authorized in chemotherapy administration: (*see also Administrative Policy 14-222 High Alert Medications*)
 - 5.1. Medication
 - 5.2. Mathematical calculation of dose, which includes body surface area (BSA), blood work, area under the curve (AUC), dose/m², and mg/kg (*as appropriate*).
 - 5.3. Route
 - 5.4. Frequency
 - 5.5. Duration
 - 5.6. Time
 - 5.7. Volume
6. Inhalation of aerosolized agents must take place in a negative pressure room using a closed inhalation system that isolates the patient in a vinyl enclosure similar to an oxygen tent.

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7. Patient education is the responsibility of the oncology nurse. Identify information and learning needs of patients and family.
 - 7.1. Determine:
 - 7.1.1. Preferred Language for verbal and written instruction
 - 7.1.2. Assess speaking fluency and reading literacy
 - 7.1.3. Review patients' goals for education
 - 7.1.4. Assess level of understanding of the disease and treatment
 - 7.1.5. Provide information regarding: Drugs, side effects, symptom management, when and how to call the nurse/doctor, body fluid precautions post-administration, sexual relations and conception, follow-up care and labs, and how to access support services (*as applicable*).
8. Before, during and after, monitor vital signs as ordered or as appropriate for drug, regimen, treatment-induced-reactions, clinical trials, non-treatment untoward events, e.g. pulmonary embolism.
9. Immediately prior to initiating treatment, 2 RNs authorized in chemotherapy administration carry out independent double check of the following:
 - 9.1. patient's identity using 2 patient-specific identifiers (e.g. name, date of birth, CR#) (*also see Administrative Policy 13-010 Patient Identification*)
10. Perform hand hygiene and don appropriate PPE.
 - 10.1. Don N95 Respirator, performing seal test.
11. Administer aerosolized medication as per patient care orders
12. Dispose of drug packaging and PPE in appropriate waste receptacle.
13. Complete documentation as outlined previously under "Reporting and Recording" section of this policy.