PRACTICE LEVEL/COMPETENCIES

To complete the non-oncology chemotherapy checklist and administer cytotoxic and biotherapy agents to non-oncology patients, the nurse must:

- Possess knowledge of safe handling guidelines for cytotoxic agents and waste products
- Familiarize self with actions, administration guidelines, and side effects of cytotoxic medications and biotherapy agents as outlined in pharmacy manual and other resources
- Be able to provide patient/family teaching in relation to side effects and management of side effects

To complete the oncology chemotherapy checklist and to administer cytotoxic and biotherapy agents to oncology patients, the nurse must:

- Be knowledgeable about pediatric cancer diagnosis and treatment, hematopoeisis and immune response, treatment modalities, and psychosocial issues in pediatric oncology as attained through education and experience.
- Be able to teach patients/families about their diagnosis, treatment and the cancer experience.
- List and describe chemotherapy and biotherapy agents and classifications and their mode of action, administration considerations, toxicity and symptom management, and late effects
- Describe clinical trials and the role of the Children’s Oncology Group

These competencies to be achieved through:

- Attending the APHON Chemotherapy and Biotherapy Provider Course
- Completing the validation process with a Clinical Resource Nurse or Clinical Nurse Educator

NOTE: Oral chemotherapy may be administered by a Registered Nurse to an oncology patient if the nurse has attained the competencies as outlined above for administration of cytotoxic drugs to non-oncology patients, provided a chemotherapy checklist has been completed and verified by 2 chemotherapy competent nurses. Oral chemotherapy must be double checked by 2 RNs prior to administration.

Peripheral Chemotherapy Competencies:

- Non-vesicant: same as above
- Vesicant:
  - Certified to obtain peripheral IV access.
  - Able to identify vesicant agents and describe actions for prevention and management of extravasation as attained through:
    - Completing the Level II Self Learning Guide and Practicum Requirements

PROCEDURE

1. **DETERMINE** if you have the **competencies** to complete the chemotherapy checklist. **SELECT** appropriate checklist to complete:
   a. Oncology patients - Intravenous chemotherapy
   b. Oncology patients - Oral, subcutaneous, intramuscular, intrathecal chemotherapy
   c. Non-Oncology patients - all routes

2. For oncology patients: **OBTAINT** treatment protocol located in outpatient chart. If patient is newly diagnosed and outpatient chart is not yet available, obtain treatment protocol from Childhood Cancer and Blood Research (CCBR) Clinical Research Teamsite (http://our.healthbc.org/sites/onchembmt/SitePages/Home.aspx). For non-oncology patients, the physician order can be used to obtain dosing formula if a study protocol is not used.

3. **REVIEW** pertinent lab data and diagnostic test results (including ECHO, PFT, GFR as appropriate) with knowledge of acceptable parameters, side effects experienced with previous treatment, and previous dose modifications if applicable.

4. **OBTAINT** patient’s most current height and weight from patient’s medical record or from graphic record and compare with previous height and weight. If patient is newly diagnosed or this is first dose of chemotherapy
or there is a significant discrepancy between current and previous height/weight, assess height and weight and have 2nd RN double check measurements.

5. **CALCULATE** the patient’s body surface area (BSA) using the following formula:

\[
m^2 = \frac{\text{height (cm)} \times \text{weight (kg)}}{3600}
\]

6. **DETERMINE** phase/cycle/week/day/hour of treatment and **REVIEW** any dose modifications needed.

7. **CALCULATE** appropriate dose of chemotherapy based on patient’s protocol guidelines (physician order for non-oncology patients if a protocol is not used).

8. **COMPLETE** remainder of chemotherapy checklist.

9. For continuous infusions, **CALCULATE** rate of infusion necessary to ensure infusion is completed by the ordered time. It is important to ensure interruptions are kept at a minimum and only if absolutely necessary. For example: doxorubicin continuous infusion via a single lumen central line, 480 mL to infuse over 24 hours. If the infusion is to be interrupted, subtract length of time infusion will be turned off from the infusion time and calculate the rate based on actual time that the infusion will be running. If infusion will be interrupted for antiemetic administration for a total of 3 hours over the 24 hour period, rate of infusion would be 480 mL/21 hours= 23 mL/hour.

10. **VERIFY** dosages with physician’s order.

    **NOTE:** If a discrepancy greater than 5% is noted, consult physician for clarification.

11. **VERIFY** steps 1-8 with second chemotherapy competent RN. Second RN to perform an independent double check of all calculations and protocol/order review. **An independent double-check is one in which a colleague, with no prior knowledge of the previous calculation results, goes through the same preparatory steps and arrives at his/her calculation. The final calculations of each are compared, and any discrepancies are addressed before the medication is prepared/administered.**

**REFERENCES**


Kline, Nancy (ed). (2004). The Pediatric Chemotherapy and Biotherapy Curriculum. Association of Pediatric Oncology Nurses. USA.


