

Pharmacy Student Pre-Rotation Guide to Outpatient Oncology

- When to show up?
 - Please arrive in the pharmacy at 0830
 - The pharmacy is located on the 3rd floor of SECU Cancer Center
 - Michael (Lee) Turpin, RX office phone: 828-213-2364
- What to wear?
 - Scrubs will be provided
 - You may want to bring a bag with you to store your clothes
 - No jewelry, makeup, or fingernail polish are allowed in the IV/Chemo rooms
 - The temperature in the IV/Chemo rooms can get cold so you may wish to wear layers under your scrubs
- What to eat?
 - There is refrigerator and freezer space if you want to bring your lunch
 - A café is located on the 1st floor which sells different items each day
- What you will be doing?
 - One of the goals of this experience is for you to see all aspects of the medication distribution process in the cancer center. To accomplish this you will...
 - Monitor a pharmacist as they obtain a new chemotherapy order, ensure the chemotherapy regimen is appropriate, check calculations, and enter the order
 - Participate in the chemotherapy product checking process
 - Follow a nurse as they administer the chemotherapy to the patient
- What can you do to be better prepared for this learning experience?
 - On subsequent pages of this "guide" are a series of questions to read and attempt to answer prior to your day at the cancer center
 - These are questions for which you may not know some or even the majority of the answers, and that is **OK**
 - It is our goal and responsibility to teach you so that you will be able to answer the questions on subsequent exams, namely the NAPLEX

Cancer Center Homework Questions – PY4 APPE Student

1. Which of these agents is fatal when given intrathecally?
 - A. Cytarabine
 - B. Methotrexate
 - C. Vincristine

2. Which of these agents is a cell cycle nonspecific agent?
 - A. Cyclophosphamide
 - B. Methotrexate
 - C. Paclitaxel
 - D. Vincristine

3. Which of the following is the metabolite of ifosfamide and cyclophosphamide that can cause hemorrhagic cystitis?
 - A. Acrolein
 - B. Aldophosphamide
 - C. Mesna
 - D. Phosphoramidate mustard

4. Toxicities of cisplatin include the following, **except**:
 - A. Hyperkalemia
 - B. Hypomagnesemia
 - C. Nausea and vomiting
 - D. Nephrotoxicity
 - E. Peripheral neuropathies

5. What is the name of the formula/method commonly used to calculate carboplatin dosing?
 - A. Calvert
 - B. Harris-Benedict
 - C. Hartford
 - D. Virchow

6. The mechanism of action of etoposide involves direct inhibition of which enzyme?
- A. Dihydrofolate reductase
 - B. DNA polymerase
 - C. Ribonucleotide reductase
 - D. Topoisomerase II
7. The mechanism of action of methotrexate involves competitive inhibition of which enzyme?
- A. Dihydrofolate reductase
 - B. DNA polymerase
 - C. Ribonucleotide reductase
 - D. Topoisomerase II
8. Irinotecan can cause both early and late onset diarrhea. Atropine is commonly given to prevent/treat which type of diarrhea?
- A. Early
 - B. Late
9. Which of the vinca alkaloids is more commonly associated with neurologic toxicity?
- A. Vinblastine
 - B. Vincristine
 - C. Vinorelbine
10. To reduce the incidence of hypersensitivity reactions associated with paclitaxel, patients receive which of the following classes of medications prior to treatment?
- A. Corticosteroid
 - B. H-1 antagonist
 - C. H-2 antagonist
 - D. All of the above

11. Clinical trials have shown that patients receiving pemetrexed experience less myelosuppression if they take two specific premedications/supplements. What are those two premedications/supplements?

- A. Vitamin B6 and folic acid
- B. Vitamin B6 and vitamin B12
- C. Vitamin B12 and folic acid
- D. Vitamin C and folic acid
- E. Vitamin C and vitamin B12

12. Explain the drug interaction between oral mercaptopurine (6-MP) and allopurinol.

13. Mechanistically, why is leucovorin commonly used with fluorouracil?

- A. To replenish the supply of folate depleted by the fluorouracil
- B. To enhance the inhibiting effect of the fluorouracil on the enzyme thymidylate synthase

14. Which of the following is a chimeric monoclonal antibody?

- A. Bevacizumab
- B. Ipilimumab
- C. Rituximab
- D. Trastuzumab

15. Which receptor is targeted by the monoclonal antibodies trastuzumab and pertuzumab?

- A. Epidermal Growth Factor Receptor (EGFR)
- B. Human Epidermal Growth Factor Receptor 2 (HER2)
- C. Vascular Endothelial Growth Factor Receptor (VEGF)

16. Which of the following is a potential toxicity of bevacizumab?

- A. Hypertension
- B. Increased risk of bleeding
- C. Proteinuria
- D. All of the above

17. Imatinib, dasatinib, nilotinib, bosutinib, and ponatinib all inhibit Bcr-Abl tyrosine kinase. This mutated tyrosine kinase is created by a translocation involving chromosomes 9 and 22. This translocation forms what infamous chromosome seen in every chronic myeloid leukemia patient?

- A. Boston chromosome
- B. Chicago chromosome
- C. Las Vegas chromosome
- D. Philadelphia chromosome

18. Vemurafenib is an oral agent used in the treatment of metastatic melanoma. One of its unique toxicities is that it is known to have upwards of a 25% incidence of developing a secondary malignancy. Which malignancy is vemurafenib known to cause?

- A. Acute myeloid leukemia
- B. Breast cancer
- C. Cutaneous squamous cell cancer
- D. Lung cancer

19. The most common type of infection seen in a neutropenic fever patient is?

- A. Bacterial
- B. Fungal
- C. Viral

20. Choose the correct brand/generic combination(s)

- A. Leukine = sargramostim
- B. Neulasta = filgrastim
- C. Neulasta = pegfilgrastim
- D. Neupogen = filgrastim
- E. Neupogen = pegfilgrastim

21. All of the following are considered vesicants **except**:

- A. Doxorubicin
- B. Methotrexate
- C. Mitomycin
- D. Vincristine

22. Which of the following would be considered highly emetogenic?

- A. 6 mg/kg of trastuzumab
- B. 55 mg/m² of doxorubicin
- C. 60 mg/m² of cisplatin
- D. 1000 mg/m² of cyclophosphamide

23. Which of the following chemotherapy agents are associated with peripheral neurotoxicity?

- A. Bortezomib
- B. Oxaliplatin
- C. Paclitaxel
- D. Vincristine
- E. All of the above

24. All of the following are used for the treatment of hypercalcemia **except**:

- A. Bisphosphonates
- B. Calcitonin
- C. Loop diuretics
- D. Normal saline hydration
- E. Thiazide diuretics

25. Thrombotic complications in the oncology patient population are common. The CLOT TRIAL is a well-known study evaluating warfarin vs. LMWH that was published in 2003. What were the results of this study?

- A. Recurrence rates of thrombosis were similar in both groups
- B. Recurrence rates of thrombosis were twice as high in the LMWH group
- C. Recurrence rates of thrombosis were twice as high in the warfarin group

26. R-CHOP is one of the most common chemotherapy regimens used in the treatment of Non-Hodgkins lymphoma. List the medications that make up R-CHOP.

27. What is the goal of adjuvant chemotherapy is? neoadjuvant chemotherapy?

28. All of the following are aromatase inhibitors **except**:

- A. Anastrozole
- B. Exemestane
- C. Letrozole
- D. Tamoxifen

29. What is it called when a patient with Chronic Lymphocytic Leukemia "transforms" to diffuse large cell lymphoma?

- A. Calvert's transformation
- B. Richter's transformation
- C. Trousseau's transformation

30. A 60 year old patient has smoked 1.5 packs per day for the last 15 years. Calculate this patient's pack-year history.

31. A patient with lung cancer is to receive carboplatin and paclitaxel every 21 days. Which chemotherapy agent should be administered first?

- A. Carboplatin
- B. Paclitaxel

32. Based on the following final doses, what volume of each product should be drawn up in a syringe prior to placing in the appropriate diluent:

- A. Bevacizumab 390 mg _____
- B. Carboplatin 195 mg _____
- C. Cisplatin 94 mg _____
- D. Gemcitabine 66 mg _____
- E. Paclitaxel 133 mg _____
- F. Trastuzumab 395 mg _____
- G. Vincristine 1.8 mg _____

33. Which of the following is currently part of the FDA-approved indication for pembrolizumab:

- A. Continue treatment until disease progression or unacceptable toxicity occurs
- B. Infuse 10 mg/kg intravenously over 30 minutes every three weeks
- C. Prior to treatment with ipilimumab
- D. Unresectable or metastatic breast cancer

34. Carfilzomib can be used for multiple myeloma which has relapsed after at least how many prior therapies?

- A. 0
- B. 1
- C. 2
- D. 3

35. How does rapid rituximab infusion differ from conventional rituximab infusion?

- A. The infusion time is decreased from one hour to thirty minutes.
- B. The infusion time is decreased from two hours to one hour.
- C. The infusion time is decreased from 3.5+ hours to ninety minutes.
- D. The infusion time is decreased from 3.5+ hours to 2.5+ hours.