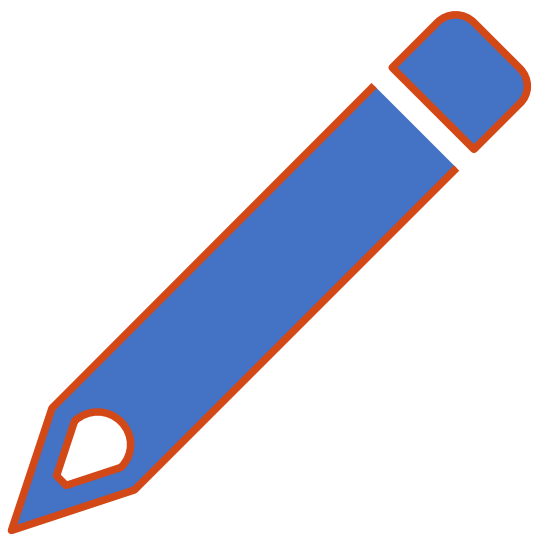


# **ATTENTION: THIS MEETING WILL BE RECORDED!**

- Pursuant to UPMC Policy No. HS-IS0241, no Confidential Information may be discussed during the meeting. Confidential Information includes Protected Health Information; information about specific UPMC patients (de-identified or not), specific UPMC employees (de-identified or not) or specific UPMC Health Plan members (de-identified or not); UPMC's proprietary business information; privileged communications between UPMC counsel and UPMC personnel; and information subject to a UPMC legal or contractual obligation. By attending this meeting, you consent under the governing law to the recording. You will have no obligation to appear, speak, or participate in the meeting. You may mute your microphone and turn off your camera for the entirety of the meeting.





# **HOMEWORK REVIEW**

# COURSE 1: HYPER-CVAD

- Cyclophosphamide 300mg/m<sup>2</sup> over 3 hours every 12 hours for 6 doses on day 1 , day 2, & day 3. Start first dose at 8am.
- Doxorubicin 50mg/m<sup>2</sup> over 48 hours on day 4 at 8am.
- Vincristine 2mg over 15 minutes on day 4 at 8am. Repeat on day 11 at 8am.
- Dexamethasone 40mg/day IV on day 1, day 2, day 3, day 4, day 11, day 12, day 13, and day 14 . Administer 30 minutes prior to chemotherapy.
- Filgrastim 5mcg/Kg subq daily until ANC > 500. Start day 8 at 8am.

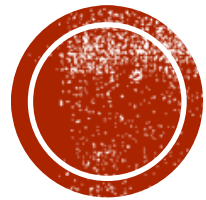


## **COURSE 2: MTX/ARA-C**

- Methotrexate 200mg/m<sup>2</sup> over 2 hours IV on day 1 at 8am
- Methotrexate 800mg/m<sup>2</sup> over 22 hours on day 1 at 10am
- Cytarabine 3,000mg/m<sup>2</sup> IV over two hours every 12 hours for 4 doses on day 2, and day 3. First dose at 8am.
- Leucovorin 50mg IV every 6 hours until MTX level <50nM. Start day 2 at 8pm.
- Filgrastim 5mcg/Kg subq daily until ANC > 500. Start on day 4 at 8 pm.







# **BSA CALCULATIONS**

# BOB TAYLOR METRIC CONVERSIONS

HT = 75 INCHES    WEIGHT = 270 LBS

*height in cm = ht in inches x 2.54*

*weight in kg = weight in lbs ÷ 2.2*

height in cm = 75 x  
2.54

weight in kg = 270 ÷ 2.2

height = 190.5 cm

weight = 122.7 kg



# BOB'S BSA

190.5 CM/122.7 KG OR 6'3"/270 LBS.

Metric

$$\sqrt{\frac{ht \text{ in cm} \times wt \text{ in kg}}{3600}}$$

$$\sqrt{\frac{190.5 \times 122.7}{3600}}$$

$$\sqrt{\frac{23374.35}{3600}}$$

$$\sqrt{6.49}$$

$$BSA = 2.55$$

English

$$\sqrt{\frac{ht \text{ in inches} \times wt \text{ in lbs}}{3131}}$$

$$\sqrt{\frac{75 \times 270}{3131}}$$

$$\sqrt{\frac{20250}{3131}}$$

$$\sqrt{6.47}$$

$$BSA = 2.54$$



# SARAH ADAMS METRIC CONVERSIONS

5'1" AND 90 LBS.

*height in cm = ht in inches x 2.54*

$$\text{height in cm} = 61 \times 2.54$$

$$\text{height} = 154.94 \text{ cm}$$

*weight in kg = weight in lbs ÷ 2.2*

$$\text{weight in kg} = 90 \div 2.2$$

$$\text{weight} = 40.9 \text{ kg}$$





# SARAH'S BSA

154.94 CM/40.9 KG OR 5'1"/90 LBS.

$$\sqrt{\frac{ht \text{ in cm} \times wt \text{ in kg}}{3600}}$$

$$\sqrt{\frac{154.94 \times 40.9}{3600}}$$

$$\sqrt{\frac{6337.05}{3600}}$$

$$\sqrt{1.76}$$

$$\text{BSA} = 1.33$$

$$\sqrt{\frac{ht \text{ in inches} \times wt \text{ in lbs}}{3131}}$$

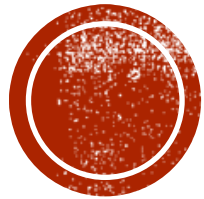
$$\sqrt{\frac{61 \times 90}{3131}}$$

$$\sqrt{\frac{5490}{3131}}$$

$$\sqrt{1.75}$$

$$\text{BSA} = 1.32$$





# **DRUG CALCULATIONS COURSE 1**

# CYCLOPHOSPHAMIDE DOSING

## (300 MG/M<sup>2</sup>)

**Bob (BSA: 2.54)**

**Sarah (BSA:1.32)**

*Total Dose = Ordered Dose x BSA*

$$\text{total dose} = 300 \text{ mg} \times 2.54 \text{ m}^2$$

$$\text{total dose} = 762 \text{ mg}$$

*Total Dose = Ordered Dose x BSA*

$$\text{total dose} = 300 \text{ mg} \times 1.32 \text{ m}^2$$

$$\text{total dose} = 396 \text{ mg}$$



# DOXORUBICIN DOSING (50 MG/M<sup>2</sup>)

**Bob (BSA: 2.54)**

**Sarah (BSA: 1.32)**

*Total Dose = Ordered Dose x BSA*

total dose = 50 mg x 2.54 m<sup>2</sup>

total dose = 127 mg

*Total Dose = Ordered Dose x BSA*

total dose = 50 mg x 1.32 m<sup>2</sup>

total dose = 66 mg



# VINCRIStINE DOSING (2MG)

**Bob**

- 2mg

**Sarah**

- 2mg



# FILGRASTIM DOSING (5 MCG/KG)

**Bob**

**Wt: 122.7 kg**

*Total Dose = Ordered Dose x Wt. in Kg*

total dose = 5 mcg x 122.7 kg

total dose = 613.5 mcg

**Sarah**

**Wt: 40.9 kg**

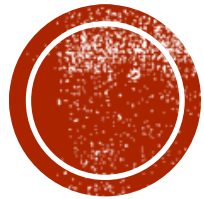
*Total Dose = Ordered Dose x Wt in Kg*

total dose = 5 mcg x 40.9 kg

total dose = 204.5 mcg







# **DRUG CALCULATION COURSE 2**

# METHOTREXATE BOLUS DOSING (200 MG/M<sup>2</sup>)

**Bob (BSA: 2.54)**

*Total Dose = Ordered Dose x BSA*

total dose = 200 mg x 2.54 m<sup>2</sup>

total dose = 508 mg

**Sarah (BSA: 1.32)**

*Total Dose = Ordered Dose x BSA*

total dose = 200 mg x 1.32 m<sup>2</sup>

total dose = 264 mg



# METHOTREXATE INFUSION DOSING (800MG/M<sup>2</sup>)

**Bob (BSA: 2.54)**

**Sarah (BSA: 1.32)**

*Total Dose = Ordered Dose x BSA*

$$\text{total dose} = 800 \text{ mg} \times 2.54 \text{ m}^2$$

$$\text{total dose} = 2032 \text{ mg}$$

*Total Dose = Ordered Dose x BSA*

$$\text{total dose} = 800\text{mg} \times 1.32 \text{ m}^2$$

$$\text{total dose} = 1056 \text{ mg}$$



# LEUCOVORIN

Ordered dose: 50 mg IV every 6 hours until MTX level  $< 0.05$ . Starting day 2 at 8pm

Dose will be the same for both Bob and Sarah: 50 mg every 6 hours starting day 2 at 8 pm



# CYTARABINE DOSING (3,000 MG/M<sup>2</sup>)

**Bob (BSA: 2.54)**

*Dose = Ordered Dose x BSA*

total dose = 3000 mg x 2.54 m<sup>2</sup>

total dose = 7620 mg

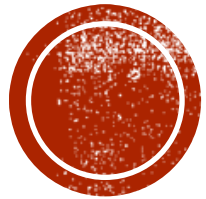
**Sarah (BSA: 1.32)**

*Total Dose = Ordered Dose x BSA*

total dose = 3000mg x 1.32 m<sup>2</sup>

total dose = 3960 mg





# AGENT CHART



# CYCLOPHOSPHAMIDE

## Pretreatment Physical Assessment

- Voiding habits
- Hematuria
- Heart rate and rhythm
- Auscultation of heart and lungs
- Diet

## Labs & Diagnostic Studies

- Urine dipstick analysis
- Baseline urinalysis
- CBC/diff
- Electrolytes
- EKG
- Cardiac enzymes (if toxicity is suspected)



# CYCLOPHOSPHAMIDE

## **Dose Reduction or Held Dose**

- Hematuria
- EKG changes
- Myelosuppression (severe)
- Severe GI toxicity

## **Patient and Family Education**

- Hydration
- Void frequently
- Signs/symptoms of urinary obstruction
- Diet modification for N/V, diarrhea
- Neutropenic precautions
- Thrombocytopenic precautions



# DOXORUBICIN

## Pretreatment Physical Assessment

- Cardiac assessment (S/S of heart failure)
- Heart rate & rhythm
- Auscultation of heart and lungs
- History of radiation therapy

## Labs & Diagnostic Studies

- MUGA or ECHO
- EKG
- LFT
- CBC/diff
- Electrolytes
- Chest X-ray



# DOXORUBICIN

## **Dose Reduction or Held Dose**

- Reduction in Ejection fraction
- EKG changes

## **Patient & Family Education**

- Will turn urine red
- S/S of heart failure
- Management of nausea and vomiting
- S/S of extravasation
- Flare reaction at injection site



# VINCRIStINE

## **Pretreatment Physical Assessment**

- Baseline sensory nerve function
- Baseline motor nerve function
- Changes in motor or nerve function
- Bowel habits

## **Labs & Diagnostic Studies**

- CBC/diff
- Electrolytes
- LFT



# VINCRIStINE

## **Dose Reduction or Held Dose**

- Constipation
- Sensory neuropathy
- Motor neuropathy

## **Patient & Family Education**

- Compliance to bowel regimen
- High fiber diet
- S/S of nerve dysfunction (motor and sensory)
- Management of neuropathies
- S/S of extravasation





# FILGRASTIM

## **Pretreatment Physical Assessment**

- Weight
- Pain

## **Labs & Diagnostic Studies**

- CBC



# FILGRASTIM

## **Dose Reduction or Held Dose**

- N/A

## **Patient & Family Education**

- Bone pain



# METHOTREXATE

## Pretreatment Physical Assessment

- Mouth hygiene & dental habits
- Assessment of oral mucosa
- Mental status
- Heart rate
- Auscultation of lungs
- Palpation of liver
- Prior radiation therapy

## Labs & Diagnostic Studies

- CBC/Diff
- Electrolytes
- LFTs
- MTX level
- Ammonia level
- Urine pH



# METHOTREXATE

## **Dose Reduction or Held Dose**

- Myelosuppression (severe)
- Liver dysfunction
- Severe mucositis

## **Patient & Family Education**

- Mouth care
- Pancytopenic precautions
- Will turn urine bright yellow
- MTX level ( $<0.05$ )
- Management of N/V
- S/S of dehydration
- Hydration
- Sun Protection



# CYTARABINE

## Pretreatment Physical Assessment

- Gait and gross motor coordination
- Mental status
- Auscultation of lungs
- Prior radiation therapy

## Labs & Diagnostic Studies

- CBC/Diff
- Electrolytes
- LFTs
- Chest X-ray



# CYTARABINE

## **Dose Reduction or Held Dose**

- Neurotoxicity
- Severe or complicated myelosuppression

## **Patient & Family Education**

- Hydration
- S/S of dehydration
- S/S of neurotoxicity
- Skin care
- S/S of conjunctivitis



# COMORBID CONDITIONS THAT COULD IMPACT DOSING

- Heart disease
- Lung disease
- Liver disease
- Kidney disease
- Diabetes
- Pain disorders
- Ulcerative colitis
- Crohn's disease
- Urinary retention
- Amputation
- Autoimmune disorders
- Hematologic disorders
- Prior radiation therapy

**The list goes on and on...**



# Course 1 Calendar

## (Cyclophosphamide)

**Cycl. 8a-11a**

**Cycl. 8a-11a**

**Cycl. 8a-11a**

**Cycl. 8p-11p**

**Cycl. 8p-11p**

**Cycl. 8p-11p**

1

2

3

4

5

8

9

10

11

12





# Course 1 Calendar


## (Doxorubicin)

	<b>Cycl. 8a-11a</b> <b>Cycl. 8p-11p</b> 1	<b>Cycl. 8a-11a</b> <b>Cycl. 8p-11p</b> 2	<b>Cycl. 8a-11a</b> <b>Cycl. 8p-11p</b> 3	<b>Dox. 8:15a</b>  4	<b>Dox. 8:15a</b>  5	<b>Dox. 8:15a</b> <b>(end)</b>  6
7	8	9	10	11	12	13
14						




# Course 1 Calendar

## (Vincristine)

	<b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>  1	<b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>  2	<b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>  3	<b>Vinc. 8a</b>  <b>Dox. 8:15a</b>  4	<b>Dox. 8:15a</b>  5	<b>Dox. 8:15a</b> <b>(end)</b>  6
7	8	9	10	<b>Vinc. 8a</b>  11	12	13
14						


# Course 1 Calendar

## (Dexamethasone)


	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Vinc. 8a</b>  <b>Dox. 8:15 a</b>	   <b>Dox. 8:15a</b>	   <b>Dox. 8:15a (end)</b>
	1	2	3	4	5	6
7	8	9	10	<b>Dex. 730a</b>  <b>Vinc. 8a</b>	<b>Dex. 730a</b>	<b>Dex. 730a</b>
				11	12	13
<b>Dex. 730a</b>						
14						

# Course 1 Calendar

## (Filgrastim)

	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Vinc. 8a</b>  <b>Dox. 8:15a</b>	   <b>Dox. 8:15a</b>	   <b>Dox. 8:15 a (end)</b>
	1	2	3	4	5	6
	<b>Filgr. 8a</b>	<b>Filgr. 8a</b>	<b>Filgr. 8a</b>	<b>Dex. 730a</b>  <b>Vinc. 8a</b>	<b>Dex. 730a</b>	<b>Dex. 730a</b>
7	8	9	10	11	12	13
<b>Dex. 8a</b>						
14						

# Complete Course 1 Calendar

	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Cycl. 8a-11a</b>  <b>Cycl. 8p-11p</b>	<b>Dex. 730a</b> <b>Vinc. 8a</b>  <b>Dox. 8:15a</b>	   <b>Dox. 8:15a</b>	   <b>Dox. 8:15a (end)</b>
	1	2	3	4	5	6
	<b>Filgr. 8a</b>	<b>Filgr. 8a</b>	<b>Filgr. 8a</b>	<b>Dex. 730a</b>  <b>Vinc. 8a</b>	<b>Dex. 730a</b>	<b>Dex. 730a</b>
7	8	9	10	11	12	13
<b>Dex. 730a</b>						
14						

# Course 2 Calendar

## (Methotrexate Bolus)

	<b>MTX 8a-10a</b>						
	1	2	3	4	5	6	



# Course 2 Calendar

## (Methotrexate Infusion)

**MTX 8a-10a**

**MTX 10a**

**MTX 8a (end)**

1

2

3

4

5

6



# Course 2 Calendar

## (Cytarabine)

**MTX 8a-10a**

**MTX 10a**

**MTX 8a (end)**

**Cytar. 8a-10a**

**Cytar. 8p-10p**

**Cytar. 8a-10a**

**Cytar. 8p-10p**

1

2

3

4

5

6





# Course 2 Calendar

## (Leucovorin)

	<b>MTX 8a-10a</b>	<b>MTX 8a (end)</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	
		<b>Cytar. 8a-10a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	
	<b>MTX 10a</b>		<b>Cytar. 8a-10a</b>			
			<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	
		<b>Cytar. 8p-10p</b>	<b>Cytar. 8p-10p</b>			
		<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	
	1	2	3	4	5	6



# Course 2 Calendar

## (Filgrastim)

	<b>MTX 8a-10a</b>	<b>MTX 8a (end)</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	
		<b>Cytar. 8a-10a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	
	<b>MTX 10a</b>		<b>Cytar. 8a-10a</b>			
			<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	
		<b>Cytar. 8p-10p</b>	<b>Cytar. 8p-10p</b>			
		<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	
				<b>Filgr. 8p</b>	<b>Filgr. 8p</b>	<b>Filgr. 8p</b>
	1	2	3	4	5	6



# Complete Course 2 Calendar

	<b>MTX 8a-10a</b>	<b>MTX 8a (end)</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	<b>Leuc. 2a</b>	
		<b>Cytar. 8a-10a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	<b>Leuc. 8a</b>	
	<b>MTX 10a</b>		<b>Cytar. 8a-10a</b>			
			<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	<b>Leuc. 2p</b>	
		<b>Cytar. 8p-10p</b>	<b>Cytar. 8p-10p</b>			
		<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	<b>Leuc. 8p</b>	
				<b>Filgr. 8p</b>	<b>Filgr. 8p</b>	<b>Filgr. 8p</b>
	1	2	3	4	5	6





**QUESTIONS?????**