

The Pharmacist's Role in Chemotherapy Order Set Development

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Learning Objectives

- Discuss elements of a complete chemotherapy order
- Describe how standardized order sets can decrease cost and improve throughput
- Demonstrate how orders can help effectively communicate the plan of care

Chemotherapy Agents

- **Lowest** therapeutic index
- **Small safety margin**
- **Complex** regimens
- **Variable** dosing ranges
 - Disease state
 - Regimen
 - Renal/hepatic function
 - Body Surface Area (BSA)
 - Concomitant radiation



Selection of Correct Agent

- Generic: sound-alikes
 - carboplatin or cisplatin
 - vincristine or vinblastine
- Trade names
 - Taxol or Taxotere
 - Amethopterin, Mexate, Folex
- Abbreviations/Chemical Names
 - CPT-11, VP-16, BCNU

1 x 1 mL vial	NDC 61703-309-06	NDC 61703-310-16
Sterile		
Vincristine Sulfate Injection, USP		Vinblastine Sulfate for Injection, USP
1 mg / 1 mL		10 mg
1 mg/mL		
FATAL IF GIVEN INTRATHECALLY. FOR INTRAVENOUS USE ONLY. SINGLE DOSE VIAL.		FATAL IF GIVEN INTRATHECALLY FOR INTRAVENOUS USE ONLY. WARNING: THIS IS A POTENT DRUG (Formerly Sterile Vinblastine Sulfate, USP)
Rx only	Faulding	Faulding

NDC 63323-270-00 270 10

vinBLASTine SULFATE

INJECTION

1 mg/mL

FATAL IF GIVEN INTRATHECALLY FOR IV USE ONLY

10 mL
Multiple Dose Vial

Rx only

NDC 0703-4412-11 Rx only

Vincristine Sulfate Injection, USP
PRESERVATIVE FREE SOLUTION

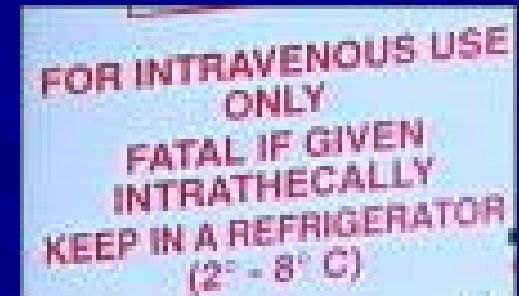
2 mg/2 mL

FATAL IF GIVEN INTRATHECALLY FOR INTRAVENOUS USE ONLY
Single Dose Vial
REFRIGERATE
Protect From Light

GensiaSicor

Routes of Administration

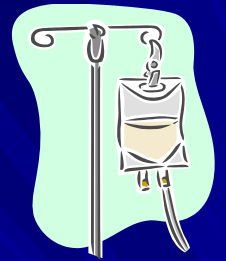
- Administration route: IV, IM, SQ, IT, IVP, CIVI or PO
- Intrathecal (IT)-must be preservative free/isotonic
- IV Push
 - Toxicity of infusion
 - Extravasation risk
 - doxorubicin, vincristine
- Subcutaneous or Intramuscular: small volumes



Stability/Storage Requirements

■ Stability Information

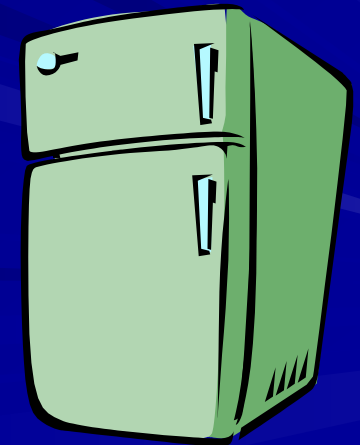
- Compatible solutions (NS or D5W)
- Polyvinyl chloride vs. Non-PVC
- Volume of solution (concentration of final soln)



■ Protect from Light

■ Expiration

■ Refrigeration



Calculations: BSA

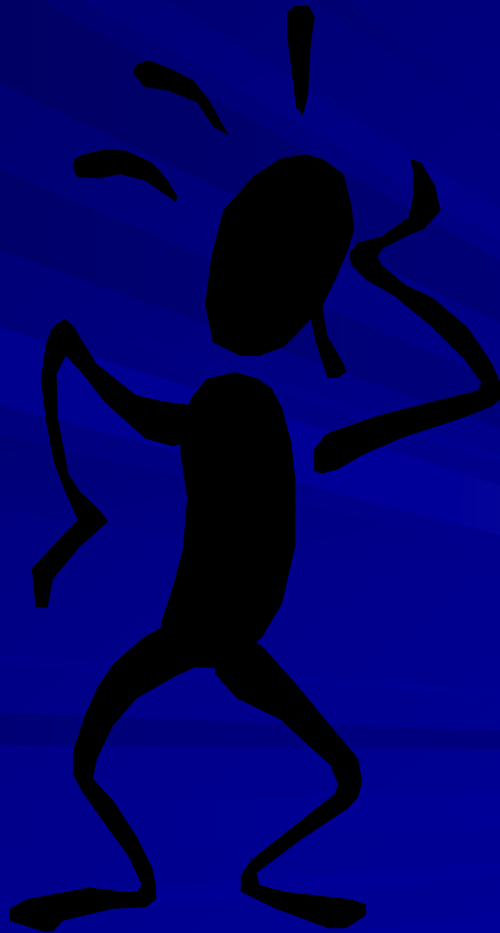


- Nomogram
- BSA Slide Rule
- Manual calculations (Mosteller vs. Dubois)
- BSA calculator (Dubois)
- Pharmacy computer system
- 5% error rule
- Weight to use
 - Actual (ABW), Ideal (IBW), Corrected (CBW)

Types of Med Errors

- Dosage/BSA miscalculations
- Wrong drug/regimen
- Chemo protocol/order misinterpretation
- Changes in organ function (ex: carboplatin)
- Preparation errors
 - Drug (Doxil vs. doxorubicin)
 - Amount (60.5ml vs. 65ml)
 - Wrong IVF, volume
- Administration
 - rate, route, patient, timing

Prevention of Errors



Hospital/Pharmacy Policy

- Goal: Medication error prevention
- Consistency of prescriber habits
- Consistency of pharmacy order processing & product preparation
- Chemotherapy cut-off times
- Training of nurses, pharmacists and technicians

Physician Prescribing Criteria



- Chemotherapy orders
 - Written on standard chemotherapy form
 - Typed as preprinted form
- Computerized Physician Order Entry (CPOE)
- Dose is prescribed as amount/unit (m² or kg)
- Dose must be written per day and per course of therapy

Physician Prescribing Criteria

- Oncology Attendings (credentialing)
- No verbal orders
- No acronyms
 - cisplatin, not CDDP
- No trailing zeros
 - 5.0gm or 50gm
- Unapproved abbreviations
 - units, not u
- Informed consent from patient

CHEMOTHERAPY ORDERS

NOTE: Use Physician Order Sheet (H310) for all other medication/lab orders.

John De
123456789
4-1-57

DIAGNOSIS Non-Hodgkins Lymphoma

IS PATIENT ON PROTOCOL
NO YES - LIST PROTOCOL NAME OR NUMBER:

PATIENT'S HEIGHT: 74 in PATIENT'S WEIGHT: 205 # PATIENT'S B.S.A. (see back): 2.19 M² BEGIN THERAPY (DAY 1) DATE: TIME:

DRUG (Amt/m ² or Amt/kg)	PATIENT'S DOSE	SOLUTION & VOLUME	ROUTE	INFUSION RATE	GIVE ON DAYS
1 <u>Cytarabine 750mg/m²</u>	<u>1642.5mg</u>	<u>---</u>	<u>IVP</u>		<u>1</u>
2 <u>Doxorubicin 50mg/m²</u>	<u>109.5mg</u>	<u>---</u>	<u>IVP</u>		<u>1</u>
3 <u>Vincristine 1.4mg/m²</u>	<u>2mg</u>	<u>---</u>	<u>IVP</u>		<u>1</u>
4 <u>Prednisone 100mg/m²</u>	<u>220mg</u>		<u>PO</u>		<u>1-5</u>
5					

PRECHEMOTHERAPY MEDICATION ORDERS (e.g., antiemetics, hydration)
Ketrol 2mg po x1
Decadron 20mg IV x1

POSTCHEMOTHERAPY MEDICATION ORDERS (e.g., antiemetics, hydration)
Compazine 10mg po q8^h prn - Scent attached.

L. P. Monkey MD
Signature, Ordering Physician

9-22-97 1400
Date Time

Name of Attending Physician: Lucille Parker Monkey MD #1234
Please Print

Pharmacy-Verify Orders for Accuracy

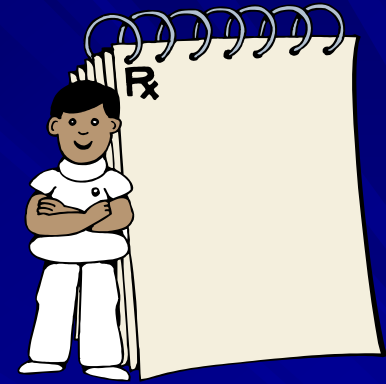
- Correct patient? Need two identifiers
 - Name, birth date, medical record number
- Calculations
 - BSA, unit conversion, patient specific dose
- Is the chemotherapy regimen appropriate for diagnosis?
- Review IVF compatibility (if appropriate)
- Check rate of administration
- Independent check by another pharmacist

Chemo Regimens

- Appropriate dose for regimen?
- Common references for chemo regimens:
 - Drug Information Handbook
 - Chemoregimen.com
 - Pharmacy Practice News (yearly publication) and wall chart (poster).
 - Original protocols/investigational studies (SWOG, ECOG, etc)
 - MicroMedix
 - PubMed

Other Verification Issues

- Lab values
- Adequate hydration
 - Ex: cisplatin
- Tumor Lysis Syndrome prophylaxis
 - allopurinol, sodium bicarbonate in IVF
- Anti-emetic regimen
- Pre-medications/adjunct therapy?



Approval for Chemotherapy

- Before preparation, MD verifies patient okay to receive therapy (labs/toxicity criteria)
- Confirm “Consent for Treatment” signed
- Labs are drawn and evaluated:
 - electrolytes, renal function, hepatic function, blood counts
- Patient weighed prior to each treatment cycle
- Is it the correct date and time to prepare the chemo?
- Expiration must be > administration time

Administration

- Double check pharmacy prep/labels/orders
- Personal Protective Equipment
- Tubing primed by pharmacy with IVF, not chemo
- Limit syringe size for IV push (IVP)
- Flush tubing/buretrol

Summary: What's in it for me?

- Error prevention is the responsibility of all pharmacists
 - hospital, retail, industry
- Systems should be in place to minimize errors in order processing, preparation and administration of chemotherapy
- Peace of mind

Every great mistake has a halfway moment, a split second when it can be recalled and perhaps remedied.

Pearl Buck

US novelist in China (1892 - 1973)

