

NURSING FOUNDATIONS II (N11) STUDY GUIDE

Medication Administration

INTRODUCTION

Hello Everyone !

For nurses who render direct patient care, preparation and administration of medications is a part of their daily routine. Studies done showed that **medication error** is a major cause of preventable patient harm (WHO Patient Safety Manual). *Errors* could occur at any point in the process and these could result in longer hospital stay or could have life and death implications for the patient. Therefore, it is of vital importance that we know how to safely prepare and administer medications.

This session integrates knowledge you have acquired from previous courses and sessions to ensure holistic patient care.

As in the previous sessions, the nursing process will be the primary approach in the understanding of this concept.

Learning Outcomes:

- Explain the basic principles and concepts of pharmacology.
- Describe the nurse's professional, legal and ethical roles and responsibilities in medication preparation and administration.
- Describe the different routes of medication administration.
- Discuss the different types of medication order.
- Demonstrate understanding of how medication orders should be transcribed.
- Define the different systems of measurement used in drug therapy.
- Utilizes the different methods of calculating drug dosages.
- Identifies nursing roles and responsibilities in safe medication preparation and administration.
- Utilizes the nursing process in medication preparation, administration and documentation
- Explain patient safety principles in relation to medication preparation, administration, documentation.

MEDICATIONS

Read : Medications: 35 pp. 777-786 , Berman, A., Snyder, S., & Frandsen, G. (2016). Medications, . Kozi-er's & Erb's Fundamentals of Nursing: Concepts, Process, and Practice. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc.

CHAT TIME

Have you ever taken any medication without appropriate prescription (or what is referred to as **OVER THE COUNTER DRUGS**)? Why did you take it? were you told to take it? do it? Is it a common practice in your home? Please put your answers in the answer bin. (Discussion Forum Bin)

Activity 1

Pre-test (Assessment activity)

Instruction: Check the letter of the correct answer for the following questions .

- 1) it is referred to as the use or application of drugs for the purpose of disease prevention and treatment.....
a. pharmacology b. pharmacotherapy c. pharmacogenetics d. pharmacovigilance
2. Your client came to the ER because of fever and was prescribed Acetaminophen 500mg stat and for temp 38. Acetaminophen is.....
a. brand name b. generic name c. trade name d. product name
3. Drug absorption is rapid when medication is given through this route
a. oral b. parenteral c. nasal d. sublingual
4. Analgesics are prescribed to relieve pain. This effect is referred to as
a. Curative b. restorative c. palliative d. Therapeutic
5. You client was prescribed to receive 30mg Lasix IV stat. Stock: 20mg/2cc/ampule.
a. 2cc b. 3cc c. 4cc d. 5cc

Principles and Concepts of Pharmacology

Definition of Terms:

- Pharmacology
- Pharmacokinetics
- Pharmacodynamics
- Pharmacovigilance

- ◆ Drug Nomenclature : a. chemical name ; b. brand/trade name; c. generic name ; official name
- ◆ Drug Sources : plants, animals, minerals, synthetic, microorganisms
- ◆ Drug Classification
- ◆ Drug standards
- ◆ Common Sources of Drug Information

Drug Standards

- ◆ Properties of medications controlled by standards: a. purity; b. potency; c. bioavailability; d. efficacy; e. safety/toxicity
- ◆ Local agencies that regulate the distribution and sale of drugs and laws that regulate the distribution and administration of drugs
 - a. **Republic Act 6675 - Generics Act of 1988** : an act to promote, require and ensure the production of an adequate supply, distribution, use and acceptance of drugs and medicines identified by their generic names
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwixpYOnzuzrAhWHBKYKHRpAA4AQFj-AOeqQICRAB&url=https%3A%2F%2Fwww.doh.gov.ph%2Fsites%2Fdefault%2Ffiles%2Fpolicies_and_laws%2FRA9502.pdf&usq=AQvVaw269McUdocqX5c_2QnOKKyf b.

Republic Act No. 3720 - "Food, Drug, And Cosmetic Act. : ensure the safety and purity of foods, drugs, and cosmetics being made available to the public.

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjSqPqkuv3rAhWVfXAKHcH3AYUQFjACeg-QIAxAB&url=https%3A%2F%2Fflawphil.net%2Fstatutes%2Frepacts%2Ffra1963%2Ffra_3720_1963.html&usq=AOvVaw3JpVI54y-ScaXKBCRqIBZrx

c. Republic Act 9165 – Comprehensive Dangerous Drugs Act of 2002

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjotv_00OzrAhWq-GEKHUBRCN8QFjAPeg-QIBxAB&url=http%3A%2F%2Fpntr.gov.ph%2Fdata%2Fflaws%2FRA-9165.pdf&usq=AOvVaw05XiNJ1nSb_JucFEZbFFHz

d. Republic Act No. 9173 -"Philippine Nursing Act of 2002

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwis6duvvP3rAhWNHXAKHd4NAXcQF-jABegQICxAE&url=https%3A%2F%2Fwww.officialgazette.gov.ph%2F2002%2F10%2F21%2Fpublic-act-no-9173%2F&usq=AOvVaw3jIVGOh8p37Wm5zfMLiqEH>

Effects of drugs

A.

1. Therapeutic (Desired effect) : a.Palliative, b. supportive, c. curative, d.restorative, e, substitutives, chemotherapeutic
2. Non- Therapeutic : side effect.,drug toxicity; drug allergy adverse effect; drug tolerance

B

1. Drug to Drug interaction
2. Drug to Illness
3. Drug Misuse - improper use of common medications which could result to acute and chronic toxicity

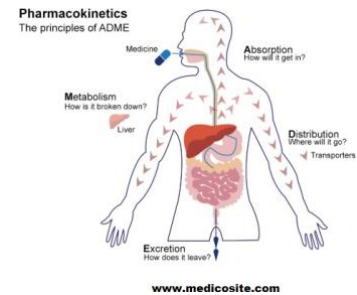
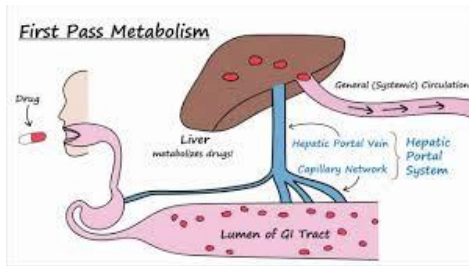
Action of drugs on the body - can be described in terms of half-life

- 1, **Pharmacodynamics** -mechanism of drug action and the relationship between drug concentration and responses in the body
2. **Pharmacokinetics** - study of the absorption, distribution, biotransformation and excretion of drugs.

Factors affecting actions the medication:

1. developmental factors
2. gender
3. genetic factors
4. cultural and ethnic factors
5. environment
6. diets
7. psychological factors
8. illness and disease
9. time of administration

Illustrations:



CALCULATING DRUG DOSAGE

Activity 2: Pre test. Drug computation (show computation)

1. Digoxin 0.125mg p.o daily was ordered for you patient. Available dose dose : Digoxin 0.25 mg t tablet (scored). how many tablets will you administer?

2. Mrs. P was sent back to Ward 2 after an appendectomy. She is conscious coherent and was not complaining of any pain. The surgeon ordered Morphine sulphate 30 mg p.o q 4hrs PRN for severe pain x 24 hrs. stock of Morphine : 30 ml/bottle - 20 mg/ml .

How many ml of morphine sulphate will you administer and how often will you administer it ?

3. You were instructed to take care of the newly admitted patient in Bed 27, Mr. T. The admitting Physician ordered Heparin 5,000 units SQ BID. Available stock of Heparin : 10,000 units /ml.

How many ml of Heparin will you administer? How many times will you administer it win a day

Systems of measurement

3 measurement systems used: **1. metric, 2.apothecaries and 3.household system**

i.e. 500 mg = ? g

Move the decimal point three places to the left: Answer = 0.5 g

METRIC	APOTHECARY	HOUSEHOLD
1ML	15 MINIMS	15 DROPS (GTTS)
5L	1FLUID DRAM	1TEASPOON
15ML	4 FLUID DRAM	1TABLESPOON

**Converting units of weights and measures : refer to UPCN Procedures checklist e-manual*

The basic formula for calculating drug dosages is commonly used and easy to remember:

D = desired dose (i.e., dose ordered by primary care provider)

H = dose on hand (i.e., dose on label of bottle, vial, ampule)

V = vehicle (i.e., form in which the drug comes, such as tablet or liquid).

Formula = $\frac{D \times V}{H}$ = amount to administer

ADMINISTERING MEDICATIONS SAFELY

Read : Medications: 35 pp. 793-850 .Berman, A., Snyder, S., & Frandsen, G. (2016).Medications, . Kozi-er's & Erb's Fundamentals of Nursing: Concepts, Process, and Practice. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc.

Safe medication administration is the goal of all healthcare providers who are responsible in administering medications in the different healthcare settings.To ensure that this is achieved, the nurse uses the nursing process framework.

Medication Dispensing Systems and Medication administration Record vary according to the institution, so nurses should ensure that they are familiar with the system they are using to avoid errors. medication errors are preventable and can occur at all stages of the medication administration process. According to studies made by the Joint Commission on Patient Safety Goals(2013)and the National Coordinating Council for Medication Error Reporting and Prevention estimates that 98,000 people die annually because of medication error that occur in hospitals.

Review our N5 Lecture on medication Safety

(Refer to the WHO Patient safety Manual) for the basic patient safety guidelines in administering medications)

Topic 11 Improving medication safety

[www.who.int > education > curriculum > PSP_mpc_topic-11](http://www.who.int/education/curriculum/PSP_mpc_topic-11)

The Third WHO Global Patient Safety Challenge: *Medication Without Harm*Global campaign - Medication without harm-,WHO

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=video&cd=&ved=2ahUKEwipgZymz-XrAh-WeyosBHT7-CnkQtwlwBnoECAgQAQ&url=https%3A%2F%2Fwww.who.int%2Fpatientsafety%2Fmedication-safety%2Fcampaign%2Fen%2F&usg=AOvVaw3HWOEj8F3kdhVXcxd6KcpG>

10 R's of Medication administration

1. RIGHT MEDICATION
2. RIGHT DOSE
3. RIGHT TIME
4. RIGHT CLIENT
5. RIGHT CLIENT EDUCATION
6. RIGHT DOCUMENTATION
7. RIGHT ASSESSMENT
8. RIGHT ROUTER
9. RIGHT EVALUATION
10. RIGHT TO REFUSE

Medications could be given direct routes and comes in different preparations.

COMMON TYPES OF DRUG PREPARATIONS :

Aqueous solution - one or more drugs dissolved in water

Aerosol spray or foam - a liquid, powder, or foam deposited in a thin layer on the skin by air pressure

Capsule - solid form; soft, gelatinous container to hold a drug in powder, liquid, or oil form ; micro encapsulated

- *sustained - release capsules*

Cream - a nongreasy, semisolid preparation used on the skin

Aqueous suspension - one or more drugs finely divided in a liquid such as water

Elixir - clear hydroalcoholic mixture, usually sweet/pleasant tasting ; ethanol (may exceed 25%), water, glycerin, sorbitol, aspartase, syrup, flavoring agents ; stored at room temperature

Extract - a concentrated form of a drug made from vegetables or animals

Fluid extract - an alcoholic solution of a drug from a vegetable source; the most concentrated of all fluid preparations

Gel or jelly - a clear or translucent semisolid that liquefies when applied to the skin

Liniment - an oily liquid used on the skin

Lotion - an emollient liquid that may be a clear solution, suspension, or emulsion used on the skin

Lozenge/ pastilles (troche) - a flat, round, or oval preparation that dissolves and releases a drug when held in the mouth ; achieve a local effect in the mouth or pharynx

Ointment - a semisolid preparation of one or more drugs used for application to the skin and mucous membranes

Paste - a preparation like an ointment, but thicker and stiffer, that penetrates the skin less than an ointment

Pill - one or more drugs, mixed with a cohesive material, in oval, round, or flattened shapes

Powder - a finely ground drug or drugs; some are used internally, others externally

Spirit - a finely concentrated alcoholic solution of a volatile substance

Suppository - one or several drugs, mixed with a firm base such as gelatin, and shaped for insertion into the body; the base dissolves gradually at body temperature releasing the drug

Syrup - an aqueous solution of sugar often used to disguise unpleasant-tasting drugs (sucrose in water)

Tablet - solid dosage form prepared by compressing/molding drug into a hard, small disc (some are readily broken along a scored line)

Enteric-coated (coating could either be film or sugar) to protect acid-labile drugs from rapidly dissolving in the stomach

Sustained - release (controlled; timed; extended; prolonged - release)

Buccal tablets

Sublingual tablets

Please read: To have a good understanding of the different routes of medication administration please continue reading: Read : Medications: 35 pp. 850-. Berman, A., Snyder, S., & Frandsen, G. (2016). Medications, . Kozier's & Erb's Fundamentals of Nursing: Concepts, Process, and Practice. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc. Also refer to UPCN procedures checklist.

Pls watch videos about medication administration: answer the guide question

Routes of Medication Administration

A. ENTERAL ROUTE : drugs administered along any portion of the gastrointestinal tract *

Oral - swallow

Sublingual - under the tongue

buccal - against the mucous membrane of the cheek

*drugs administered through Nasogastric tube or a gastrostomy tube (or PEG -percutaneous endoscopic Gastrostomy)

PARENTERAL ROUTE - drugs administered other than through the gastrointestinal tract; that is, by a needle

subcutaneous (into the subcutaneous tissue, just below the skin)

intramuscular (into a muscle)

intra dermal (under the epidermis and into the the dermis)

intravenous (into a vein)

intrathecal (into the spinal subarachnoid space)

epidural (into the spinal epidural space)

MEDICATION ORDER

Components of a medication order

Types of medication order

Documentation

Nursing responsibilities

**MEDICATION : PREPARATION , ADMINISTRATION AND DOCUMENTATION
NURSING RESPONSIBILITY**

Please read: To have a good understanding on how to prepare and administer medications s please continue reading:Read : Medications: 35 pp. 850-.Berman, A., Snyder, S., & Frandsen, G. (2016).Medications, . Kozier's & Erb's Fundamentals of Nursing: Concepts, Process, and Practice. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc.Also refer to UPCN procedures checklist.

**Please refer go over the UPCN procedure checklist for a better uunderstanding .
Please take note of the universal abbreviations used in the healthcare setting.**

ACTIVITY 3 : Assignment

- a. carrying out of medication order into the MAR and Medication cards refer to assignment guide submit work in the submission bin*
b. computation : medication dosage ; send answers to submission bin

Activity 3
Assignment 1

November 16, 2020

Pls admit Mrs Juana dela cruz 30y.o female to ward 1 bed 25. Di et as tolerated.

Start her on the following medication:

1. Tenormine 80 mg . p.o. OD.
2. Theophylline 300mg (extended release capsule) p.o. B.I.D
3. Isosorbide Dinitrate 10 mg.p.o.TID

Insert a heparin lock to keep the vein open. Chest X-ray , serum electrolytes to be repeated tomorrow morning.

Josephine E. Cariaso

Josephine E. Cariaso # 123456

This is what you have to do.

A. Carry out the medication orders by:

1. Transcribing them in the Medication Administration Record
2. Transcribing them correctly in the appropriate medication card. It is interactive, so the medication cards can be pulled out from the file. Place each medication card on a tray. appropriately fill up the front and back portions of the medication card.

B Computation of the dosage

**REMEMBER: WHEN ADMINISTERING MEDICATIONS YOU ARE RESPONSIBLE
FOR YOUR ACTIONS**

References

Berman, A., Snyder, S., & Frandsen, G. (2016). *Medication*. Kozier & Erb's Fundamentals of Nursing: Concepts, Process, and Practice. 10th ed. Upper Saddle River, New Jersey: Pearson Education, Inc. Chapter 52, pp. 776-850.

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<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwis6duvvP3rAhWNHX-AKHd4NAXcQFjABegQICxAE&url=https%3A%2F%2Fwww.officialgazette.gov.ph%2F2002%2F10%2F21%2FRepublic-act-no-9173%2F&usg=AOvVaw3jilVGOh8p37Wm5zfMLiqEH>