

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, and accountability.

INFORMATION TOPIC: II-4 OR DEMONSTRATION:

MEDICATION TERMINOLOGY AND ABBREVIATIONS
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Match terms to their definitions related to the administration of medications.
2. Record abbreviations related to the administration of medications.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Word games.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 4 prior to class and be prepared to discuss the information presented.

INTRODUCTION

The words used in the health care field may be strange to non-medical persons. It is important that you learn the meaning of the words and symbols used to assure accuracy and to avoid errors in the preparation, administration, and recording of medications. This lesson deals with such words and symbols.

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Terminology Related to Medication Administration

- A. Addiction – emotional or physiological dependence upon a drug which has progressed beyond voluntary control.
- B. Adverse drug affect – a harmful, unintended reaction to a drug administered at normal dosage.
- C. Allergic reaction.
 - 1. Hypersensitivity – unusual sensitivity to a drug such as mild skin rash, swelling, itching, and nasal congestion.
 - 2. Anaphylaxis – severe, life threatening hypersensitivity to a drug such as extreme weakness, nausea and vomiting, cyanosis, dyspnea, hypotension, shock and respiratory or cardiac arrest. Usually occurs within minutes of administering the drug.
- D. Antagonism – condition in which two drugs work against each other, decreasing effectiveness of one or both (e.g., tetracycline and antacid).
- E. Antidote – a drug given to reverse the effects of a previously given drug.
- F. Aural – pertaining to the ear.
- G. Contraindications – existing conditions that the resident may have which are incompatible with the drug (e.g., Inderal given to asthmatic resident).
- H. Controlled drugs/controlled substances – drugs covered by the Federal and State Controlled Substance Acts.
- I. Cumulative effect – buildup of a drug in the body that may occur rapidly or slowly over time.
- J. Disease – pathological or abnormal condition of the body.
- K. Dosage – amount of a medication given at one time.
- L. Drug – a substance taken into or applied to the body to treat or prevent a disease or condition (e.g., Advil).

- M. Enteric coated – tablets that are coated so that they dissolve in the small intestines rather than in the stomach.
- N. Generic name – the common name assigned to a drug; the generic name stays the same from one manufacturer to another; whereas, the trade or brand name changes with each manufacturer.
- O. Idiosyncrasy – an individual's unique hypersensitivity to a particular drug.
- P. Indications – various conditions or symptoms for which the drug may be given.
- Q. Lethal dose – amount of a drug that will cause death.
- R. Ophthalmic – pertaining to the eye.
- S. Overdose – a dose of a drug in an amount that causes an acute reaction such as coma or even death.
- T. Otic – pertaining to the ear.
- U. Parenteral – a medication route other than the digestive system such as intravenous (IV), subcutaneous (Subcut), intramuscular (IM), mucosal.
- V. Physical dependence – a physical state in which the body adapts to a drug and experiences symptoms of withdrawal when the drug is abruptly stopped or the dose is rapidly lowered. Physical dependence is a normal result of the use of certain drugs and rarely leads to addiction.
- W. Placebo – an inactive substance prescribed by a doctor as if it were an effective dose of medication and believed by the resident to be a medication.
- X. Psychological dependence – a compulsion to use a drug, often for its mood altering effects, preoccupation with obtaining and using a drug. Psychological dependence may lead to addiction.
- Y. Side effects – any effect of a drug other than the one for which it is given.
- Z. Spansule – small particles of a drug coated with compounds which require varying amounts of time to dissolve.
- AA. Subcutaneous – injected into the tissues just below the skin, dermis.
- BB. Sublingual – under the tongue, without liquid.
- CC. Synergism – two drugs working together to give an effect greater than their individual effect (e.g., analgesics with antianxiety drugs).

- DD. Therapeutic effect – the desired effect of a drug.
- EE. Tolerance – a condition in which the body becomes increasingly resistant to a drug due to continued exposure; and requiring an increased amount of a drug to produce the same effect a lesser amount previously produced.
- FF. Toxicity – symptoms or effect of poisoning of the body by a drug due to large dose of a drug or a cumulative effect of the drug.
- GG. Trade or brand name – name by which a drug is marketed; commonly recognized name of a drug.

NOTE: In 2004 the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) compiled a list of dangerous abbreviations. These abbreviations should be avoided and the terms written out. Please refer to your facility's Policy and Procedure Manual regarding approved abbreviations for your place of employment.

II. Abbreviations

NOTE: These abbreviations have been listed so that you will be familiar with them; however, some are no longer considered safe to use. Refer to HO 8 for recommended alternatives.

A. Abbreviations related to medication administration.

1. \overline{a} – before.
2. \overline{aa} – of each.
3. \overline{ac} – before meals.
4. ad lib – freely as desired.
5. ASAP/asap – as soon as possible.
6. BID or bid – twice a day.
7. \overline{c} – with.
8. C – Centigrade.
9. c/o – complaints of.
10. cap(s) – capsule(s).
11. cc – cubic centimeter.
12. elix. – elixir.

13. F – Fahrenheit.
14. gr – grain.
15. Gm, gm or g – gram.
16. gtt – drop.
17. h – hour.
18. IM – intramuscular.
19. Inh. – inhalant.
20. IV – intravenous.
21. Kg – kilogram
22. liq. – liquid.
23. mcg – microgram.
24. mEq. – milliequivalent.
25. mg. – milligram.
26. mL – milliliter
27. NPO – nothing by mouth.
28. p. – after.
29. $\overline{\text{pc}}$ – after meals.
30. PO/po – by mouth.
31. PRN/prn – as needed.
32. qh – every hour.
33. q4h – every four hours.
34. QID/qid – four times a day.
35. sl – sublingual.
36. sol. – solution.
37. STAT/Stat/stat – immediately.

38. subcut – subcutaneously.
39. Supp. – suppository.
40. Tab(s) – tablet(s).
41. TID/tid – three times a day.
42. tr. – tincture.

B. Common diagnoses abbreviations.

1. AIDS – autoimmune deficiency syndrome.
2. ARD – acute respiratory distress.
3. ASCVD – arteriosclerotic cardiovascular disease.
4. ASHD – arteriosclerotic heart disease.
5. BPH – benign prostatic hypertrophy.
6. CAD – coronary artery disease.
7. CHD – coronary heart disease or congenital hip dislocation.
8. CHI – closed head injury.
9. CHF – congestive heart failure.
10. COBS – chronic organic brain syndrome.
11. COLD – chronic obstructive lung disease.
12. CVA – cerebrovascular accident.
13. CVD – cardiovascular disease.
14. COPD – chronic obstructive pulmonary disease.
15. DJD – degenerative joint disease.
16. DM – diabetes mellitus.
17. HTN – hypertension.
18. IDDM – insulin dependent diabetes mellitus.
19. LLLI – left lower lobe infiltrate.

20. RLLI – right lower lobe infiltrate.
21. MI – myocardial infarction.
22. NIDDM – non insulin dependent diabetes mellitus.
23. OBS – organic brain syndrome.
24. PVD – peripheral vascular disease.
25. TIA – transient ischemic attack.
26. URI – upper respiratory infection.
27. UTI – urinary tract infection.

C. Laboratory test terminology.

1. BUN – blood urea nitrogen.
2. CBC – complete blood count.
3. C & S – culture and sensitivity.
4. ECG (EKG) – electrocardiogram.
5. FBS – fasting blood sugar.
6. MRSA – methicillin-resistant staphylococcus aureus.
7. RBC – red blood count.
8. VRE – vancomycin resistant enterococci.
9. VRSA – vancomycin resistant staphylococcus aureus.
10. WBC – white blood count.

D. Miscellaneous.

1. ADL – activities of daily living.
2. AKA – above the knee amputation.
3. ASAP – as soon as possible.
4. CC – chief complaint.

5. C.D.C. – Center for Disease Control.
6. CMS – Centers for Medicare and Medicaid Services.
7. DHSS – Department of Health and Senior Services.
8. Dx – diagnosis.
9. H₂O – water.
10. H & P – history and physical.
11. ICF – intermediate care facility.
12. I & O – intake and output.
13. LTC – long term care.
14. MAR – medication administration record.
15. MDS – minimum data set.
16. MSDS – material safety data sheet.
17. NKA – no known allergy.
18. OBRA – Omnibus Budget Reconciliation Act.
19. OSHA – Occupation Safety and Health Administration.
20. OTC – over the counter medications (non-prescription).
21. PDR – physician's desk reference.
22. RCF – residential care facility.
23. SNF – skilled nursing facility.

III. Summary and Conclusion

- A. Terminology related to medication administration.
- B. Abbreviations related to medication administration.

This lesson has introduced you to terms, and abbreviations commonly used by those responsible for accurately and safely preparing, administering, and recording medications. The next lesson deals with dosage, measurement, and drug forms.

ERROR-PRONE ABBREVIATIONS, SYMBOLS, AND DOSE DESIGNATIONS

This list presents abbreviations, symbols, and dose designations that are considered prone to causing medication errors. These items should be considered "dangerous" for handwritten, preprinted, or electronic forms of communication.

Abbreviations	Intended Meaning	Misinterpretation	Correction
µg	Microgram	Mistaken as "mg"	Use "mcg"
AD, AS, AU	Right ear, left ear, each ear	Mistaken as OD, OS, OU (right eye, left eye, each eye)	Use "right ear," "left ear," or "each ear"
OD, OS, OU	Right eye, left eye, each eye	Mistaken as AD, AS, AU (right ear, left ear, each ear)	Use "right eye," "left eye," or "each eye"
BT	Bedtime	Mistaken as "BID" (twice daily)	Use "bedtime"
cc	Cubic centimeters	Mistaken as "u" (units)	Use "mL"
D/C	Discharge or discontinue	Premature discontinuation of medications if D/C (intended to mean "discharge") has been misinterpreted as "discontinued" when followed by a list of discharge medications	Use "discharge" and "discontinue"
IJ	Injection	Mistaken as "IV" or "intrajugular"	Use "injection"
IN	Intranasal	Mistaken as "IM" or "IV"	Use "intranasal" or "NAS"
HS hs	Half-strength At bedtime, hours of sleep	Mistaken as bedtime Mistaken as half-strength	Use "half-strength" or "bedtime"
IU**	International unit	Mistaken as IV (intravenous) or 10 (ten)	Use "units"
o.d. or OD	Once daily	Mistaken as "right eye" (ODS-oculus dexter), leading to oral liquid medications administered in the eye	Use "daily"
OJ	Orange juice	Mistaken as OD or OS (right or left eye); drugs meant to be diluted in orange juice may be given in the eye	Use "orange juice"
Per os	By mouth, orally	The "os" can be mistaken as "left eye" (OS-oculus sinister)	Use "PO," "by mouth," or "orally"
q.d. or QD**	Every day	Mistaken as q.i.d., especially if the period after the "q" or the tail of the "q" is misunderstood as an "l"	Use "daily"
qhs	At bedtime	Mistaken as "qhr" or every hour	Use "at bedtime"
qn	Nightly	Mistaken as "qh" (every hour)	Use "nightly"
q.o.d. or QOD**	Every other day	Mistaken as "q.d." (daily) or "q.i.d." (four times daily) if the "o" is poorly written	Use "every other day"
q1d	Daily	Mistaken as q.i.d. (four times daily)	Use "daily"
q6PM, etc.	Every evening at 6 PM	Mistaken as every 6 hours	Use "6 PM nightly" or "6 PM daily"
SC, SQ, sub q	Subcutaneous	SC mistaken as SL (sublingual); SQ mistaken as "5 every;" the "q" in "sub q" has been mistaken as "every" (e.g., a heparin dose ordered "sub q 2 hours before surgery" misunderstood as every 2 hours before surgery)	Use "subcut" or "subcutaneously"
ss	Sliding scale (insulin) or ½ (apothecary)	Mistaken as "55"	Spell out "sliding scale;" use "one-half" or "1/2"
SSRI	Sliding scale regular insulin	Mistaken as selective-serotonin reuptake inhibitor	Spell out "sliding scale (insulin)"
SSI	Sliding scale insulin	Mistaken as Strong Solution of Iodine (Lugol's)	
1/d	One daily	Mistaken as "tid"	Use "1 daily"
TIW or tiw	3 times a week	Mistaken as "3 times a day" or "twice in a week"	Use "3 times weekly"
U or u**	Unit	Mistaken as the number 0 or 4, causing a 10-fold overdose or greater (e.g., rU seen as "40" or 4u seen as "44"); mistaken as "cc" so dose given in volume instead of units (eg., 4u seen as 4cc)	Use "unit"

Dose Designations And Other Information	Intended Meaning	Misinterpretation	Correction
Trailing zero after decimal point (e.g., 1.0 mg)**	1 mg	Mistaken as 10 mg if the decimal point is not seen	Do not use trailing zeros for doses expressed in whole numbers
No leading zero before a decimal dose (e.g., .5 mg)**	0.5 mg	Mistaken as 5 mg if the decimal point is not seen	Use zero before a decimal point when the dose is less than a whole unit
Drug name and dose run together (especially problematic for drug names that end in "L" such as Inderal40 mg; Tegretol300 mg)	Inderal 40 mg Tegretol 300 mg	Mistaken as Inderal 140 mg Mistaken as Tegretol 1300 mg	Place adequate space between the drug name, dose, and unit of measure
Numerical dose and unit of measure run together (e.g., 10mg, 100mL)	10 mg 100 mL	The "m" is sometimes mistaken as a zero or two zeros, risking a 10- to 100-fold overdose	Place adequate space between the dose and unit of measure
Abbreviations such as mg. or mL. with a period following the abbreviation	mg mL	The period is unnecessary and could be mistaken as the number 1 if written poorly	Use mg, mL, etc. without a terminal period
Large doses without properly placed commas (e.g., 100000 units; 1000000 units)	100,000 units 1,000,000 units	100000 has been mistaken as 10,000 or 1,000,000; 1000000 has been mistaken as 100,000	Use commas for dosing units at or above 1,000, or use words such as 100 "thousand" or 1 "million" to improve readability
Drug Name Abbreviations	Intended Meaning	Misinterpretation	Correction
ARA A	Vidarabine	Mistaken as cytarabine (ARA C)	Use complete drug name
AZT	Zidovudine (Retrovir)	Mistaken as azathioprine or aztreonam	Use complete drug name
CPZ	Compazine (prochlorperazine)	Mistaken as chlorpromazine	Use complete drug name
DPT	Demerol-Phenergan-Thorazine	Mistaken as diphtheria-pertussis-tetanus (vaccine)	Use complete drug name
DTO	Diluted tincture of opium, or deodorized tincture of opium (Paregoric)	Mistaken as tincture of opium	Use complete drug name
HCl	Hydrochloric acid or hydrochloride	Mistaken as potassium chloride (The "H" is misinterpreted as "K")	Use complete drug name unless expressed as a salt of a drug
HCT	hydrocortisone	Mistaken as hydrochlorothiazide	Use complete drug name
HCTZ	hydrochlorothiazide	Mistaken as hydrocortisone (seen as HCT250 mg)	Use complete drug name
MgSO4**	magnesium	Mistaken as morphine sulfate	Use complete drug name
MS, MS04**	morphine sulfate	Mistaken as magnesium sulfate	Use complete drug name
MTX	methotrexate	Mistaken as mitoxantrone	Use complete drug name
PCA	procaïnamide	Mistaken as Patient Controlled Analgesia	Use complete drug name
PTU	propylthiouracil	Mistaken as mercaptopurine	Use complete drug name
T3	Tylenol with codeine No. 3	Mistaken as liothyronine	Use complete drug name
TAC	triamcinolone	Mistaken as tetracaine, Adrenalin, cocaine	Use complete drug name
TNK	TNKase	Mistaken as "TPA"	Use complete drug name
ZnSO4	Zinc sulfate	Mistaken as morphine sulfate	Use complete drug name

Stemmed Drug Names	Intended Meaning	Misinterpretation	Correction
"Nitro" drip	Nitroglycerin infusion	Mistaken as sodium nitroprusside infusion	Use complete drug name
"NorfloX"	NorfloXacin	Mistaken as Norflex	Use complete drug name
"IV Vanc"	Intravenous vancomycin	Mistaken as Invanz	Use complete drug name
Symbols	Intended Meaning	Misinterpretation	Correction
3	Dram	Symbol for dram mistaken as "3"	Use the metric system
℥	Nubun	Symbol for minim mistaken as "mL"	
x3d	For three days	Mistaken as "3 doses"	Use "for three days"
> and <	Greater than and less than	Mistaken as opposite of intended; mistakenly use incorrect symbol; "< 10" mistaken as "40"	Use "greater than" or "less than"
/ (slash mark)	Separates two doses or indicates "per"	Mistaken as the number 1 (e.g., "25 units/10 units" misread as "25 units and 110" units)	Use "per" rather than a slash mark to separate doses
@	At	Mistaken as "2"	Use "at"
&	And	Mistaken as "2"	Use "and"
+	Plus or and	Mistaken as "4"	Use "and"
°	Hour	Mistaken as a zero (e.g., q2° seen as q 20)	Use "hr," "h," or "hour"

** Identified abbreviations above are also included on the JCAHO's "minimum list" of dangerous abbreviations, acronyms, and symbols that must be included on an organization's "Do Not Use" list, effective May 1, 2005. Reprinted with permission © ISMP 2006.

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

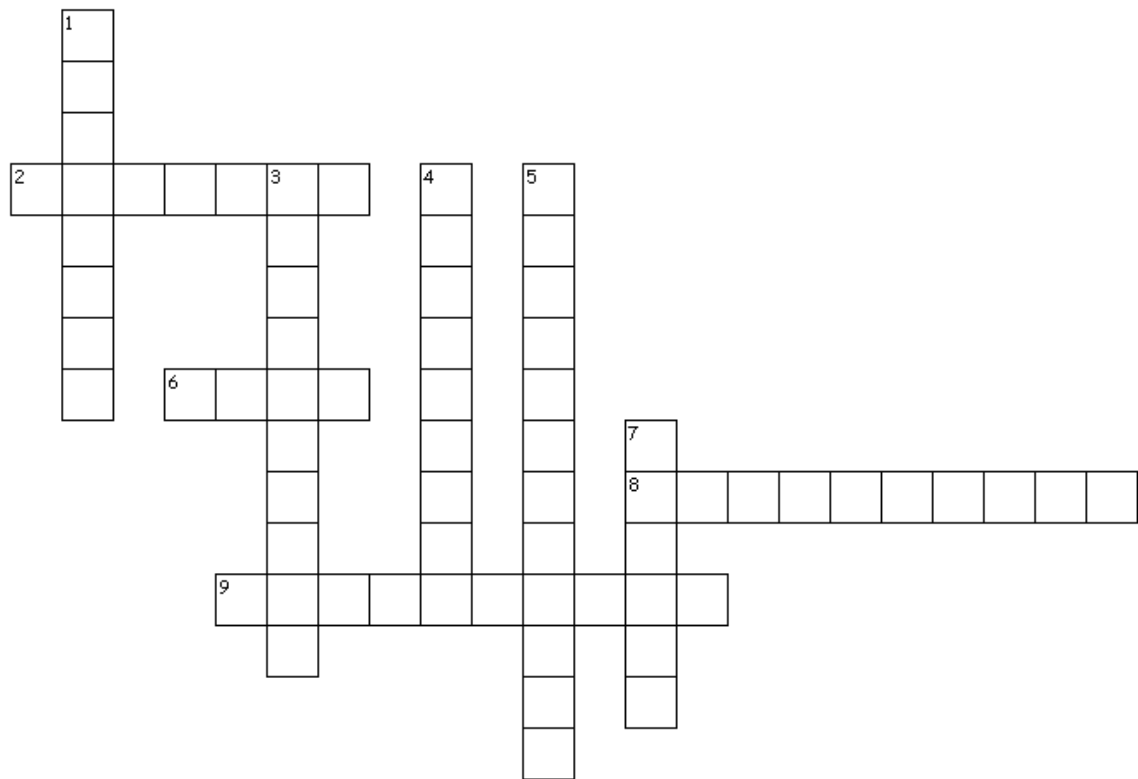
UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

Write the correct abbreviation in the blank.

- | | |
|---|-------------------------------------|
| ____ 1. By mouth | ____ 21. Hour |
| ____ 2. Intramuscular | ____ 22. Complains of |
| ____ 3. Intravenous | ____ 23. Activities of daily living |
| ____ 4. Nothing by mouth | ____ 24. Before meals |
| ____ 5. Capsule | ____ 25. As needed |
| ____ 6. Centigrade | ____ 26. Four times daily |
| ____ 7. Drop | ____ 27. Immediately |
| ____ 8. Fahrenheit | ____ 28. Three times daily |
| ____ 9. Grain | ____ 29. With |
| ____ 10. Gram | ____ 30. Intake and output |
| ____ 11. Liquid | ____ 31. History and physical |
| ____ 12. Milligram | ____ 32. No known allergy |
| ____ 13. Milliliter | ____ 33. Water |
| ____ 14. Suppository | ____ 34. Long-term care |
| ____ 15. Solution | ____ 35. Intermediate care facility |
| ____ 16. Medication administration record | |
| ____ 17. Tablet | |
| ____ 18. After meals | |
| ____ 19. Freely as desired | |
| ____ 20. Twice daily | |

Complete the Crossword Puzzle



Across

2. pathological or abnormal condition of the body
6. pertaining to the ear
8. pertaining to the eye
9. not in or through the digestive system

Down

1. symptoms or effect of poisoning of the body by a drug due to a large dose of a drug or a cumulative effect of the drug
3. under the tongue without liquid
4. emotional or physiological dependence upon a drug which has progressed beyond voluntary control
5. injected into the tissues just below the skin, dermis
7. amount of medication given at one time

LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage and accountability.

INFORMATION TOPIC: II-5 OR DEMONSTRATION: II-5

DOSAGE, MEASUREMENTS, AND DRUG FORMS
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

Information:

1. List the measuring systems.
2. Demonstrate an understanding of equivalents used in different measurement systems.
3. Identify ten (10) drug forms from a drug display.

Demonstration:

4. Measure liquid medication accurately.

NOTE: This procedure is addressed under classroom activities and the written evaluation.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Measuring equipment: oral dose syringes, medication spoons, medicine cups, and oral droppers.
2. Drug sample display.
3. HO 9: Roman Numerals.
4. HO 10: Calibrated Liquid Dose Measuring Devices.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 5 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

The metric system is the international standard of measurement for weight, volume, length, and temperature. It has replaced the apothecary system which is no longer used in formal drug literature or health care applications. The use of roman numerals (HO 9) has also been discontinued in healthcare settings. Household measurements are primarily used in the home. Familiarity with all systems provides another communication system for the health care team. The medication technician must also be able to identify drug forms.

LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Measuring Systems

A. Metric system.

1. Basic units of measure include:
 - a. Meter – the basic unit for length or distance.
 - b. Gram – the basic unit for weight.
 - c. Liter – the basic unit for volume (liquids)
2. Prefixes.
 - a. Kilo – 1,000 (thousands).
 - b. Deci – 0.1 (tenths).
 - c. Centi – 0.01 (hundredths).
 - d. Milli – 0.001 (thousandths).
 - e. Micro – 0.000001 (millionths).
3. Basic units – length.
 - a. m – meter (about 39 inches).
 - b. cm – centimeter (1/100 of a meter). Note: 2.5cm equals 1 inch.
 - c. mm – millimeter (1/1,000 of a meter).
4. Basic units – weight.
 - a. kg – kilogram (equals 2.2 pounds).
 - b. g – gram (1/1,000 of a kilogram).
 - c. mg – milligram (1/1,000 of a gram).
 - d. mcg – microgram (1/1,000,000 of a gram).
 - e. mEq – milliequivalent (1/1,000 equivalent combined weight of atom); used for some drugs, (e.g., potassium)
5. Basic units – volume (liquid).
 - a. L – liter (slightly more than 1 quart).
 - b. mL – milliliter (1/1,000 of a liter)

- c. cc – cubic centimeter; equivalent in use to mL.

B. Household system.

1. Uses.
 - a. Home-bound patient taking liquid prescription medication.
 - b. Intake and output measurement.
 - c. Compresses.
 - d. Therapeutic baths.
2. Common measures and abbreviations.

CAUTION: VOLUME MAY VARY.

- a. Drop – gtt.
- b. Gallon – gal.
- c. Measuring cup – c.
- d. Ounce – oz.
- e. Pint – pt.
- f. Pound – lb.
- g. Quart – qt.
- h. Tablespoon – Tbsp.
- i. Teaspoonful – tsp.

C. Apothecary system - replaced by metric system and listed here for reference only.

1. Basic units – weight.
 - a. gr – grain.
 - b. oz – ounce.
 - c. lb – pound.

2. Basic units – volume (liquid).

- a. gtt – drop.
- b. oz – ounce.

II. Measurement System Approximate Equivalents

METRIC

HOUSEHOLD

Weight:

1 kg	2.2 lbs
30 g	1 oz

Volume:

1,000 mL (1 L)	1 qt (2 pt)
500 mL	1 pt (16 oz)
30 mL	1 oz/2 Tbsp
15 mL	1 Tbsp
5 mL	1 tsp
1 mL	15 drops

CAUTION: use only the dropper provided with the medication for an accurate dose.

III. Drug Dosage Forms

A. Oral solids.

1. Tablets.

- a. Enteric coated – dissolves in the small intestine rather than in the stomach.
- b. Film coated – coated to protect the drug or mask its taste.
- c. Scored – a tablet marked with a groove to assist in breaking it into smaller equal pieces.

- d. Sublingual – formulated to dissolve under the tongue for rapid systemic absorption through the mucous membranes.
 - e. Lozenges or troches – to be dissolved in the mouth for local effect on the mouth or throat.
 - f. Buccal – medication placed between the cheek and gum and allowed to dissolve.
2. Capsules.
- a. Powder or granule filled.
 - b. Liquid filled.
 - c. Gel filled.
3. Oral extended release forms.
- a. Multi-layer tablets – layers dissolve at different rate.
 - b. Diffusion, dissolution or osmotic systems – may have a drug core surrounded by a membrane, may have a wax matrix or may have coatings of various thicknesses (e.g., Plateau Caps, Sequels, Extentabs, Repetabs).
 - c. Spansules – contains beads with various coating thickness.
 - d. Abbreviations (often appear after drug name).
 - (1) TR – Timed release.
 - (2) ER – Extended release.
 - (3) CR – Controlled release.
 - (4) CD – Controlled dose.
 - (5) SR – Sustained release.

B. Oral liquids (HO 10).

- 1. Solution – one or more drugs in a solvent.
- 2. Syrup – drugs dissolved in water, sugar, and flavoring.
- 3. Elixir – drugs dissolved in alcohol and water with sweetening.
- 4. Tincture – drug dissolved in alcohol or alcohol and water.

5. Suspension – liquid preparation containing insoluble substance; must be shaken well prior to administration.
- C. Topical – for skin surface use.
1. Paste – stiff, ointment-like preparation with an oil or water base.
 2. Ointment – soft, water-insoluble with an oil base.
 3. Cream – soft, water soluble.
 4. Gel – very soft, very water soluble.
 5. Lotion – water suspension for external use.
 6. Patch – extended-release formula for system absorption.
 7. Solution – one or more drugs in a solvent.
 8. Aerosol – foam, powder, or solution in a pressurized container or manual pump. Foam may also be used rectally.
- D. Ophthalmic – sterile preparations for use in the eye.
1. Ointment.
 2. Solution.
 3. Suspension
- E. Otic – sterile preparation for use in the ear.
1. Solution.
 2. Suspension
- F. Nasal – preparation for use in the nose or on the nares.
1. Ointment.
 2. Solution – nose drops.
 3. Aerosol – nasal spray, pressurized container, or manual pump. For local use in the nose or system absorption through the nasal membrane; not to be inhaled into the lungs.
- G. Respiratory-administered into the respiratory tract.
1. Metered Dose Inhaler (MDI) pressurized container.

2. Powder inhaler – mechanical system for inhaling very fine powders for local effect in the lungs.
3. Nebulizer- changes liquid medicine into fine droplets (in aerosol or mist form) that are inhaled through a mouthpiece or mask

H. Vaginal

1. Suppository – drug in solid that melts or dissolves in the body.
2. Medicated douche – contains a drug for local effect.
3. Vaginal Ring/Cervical ring – non-biodegradable ring containing drug to be placed in the vagina.

I. Rectal.

1. Suppository – drug in solid that melts or dissolves in the body.
2. Medicated enema – contains a drug for local or systemic effect.

J. Powder/granule – drug in a powdered form for topical use or to be dissolved before oral use.

K. Injectable – drug in a water or oil solution for injection through the skin into the muscle (IM), vein (IV), or subcutaneous tissue.

L. Implant – non-biodegradable drug reservoir implanted beneath the skin for systemic absorption.

IV. Summary and Conclusion.

- A. Measuring systems.
- B. Measurement systems approximate equivalents.
- C. Drug dosage forms.

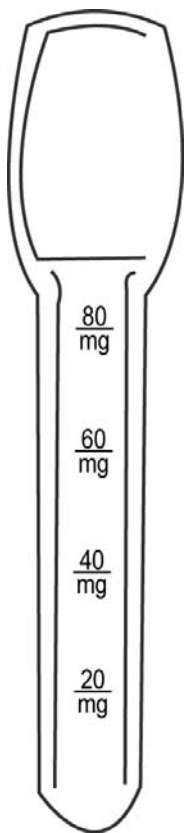
The next lesson is on transcribing physician's orders.

ROMAN NUMERALS

Roman numerals are used for reference only and are not to be used in medication orders.

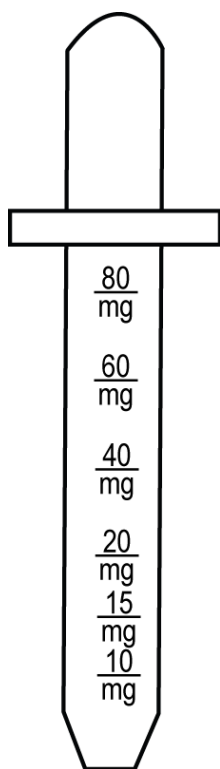
Arabic	Roman Numeral
1	I or i
2	II or ii
3	III or iii
4	IV or iv
5	V or v
6	VI or vi
7	VII or vii
8	VIII or viii
9	IX or ix
10	X or x

CALIBRATED LIQUID DOSE MEASURING DEVICES

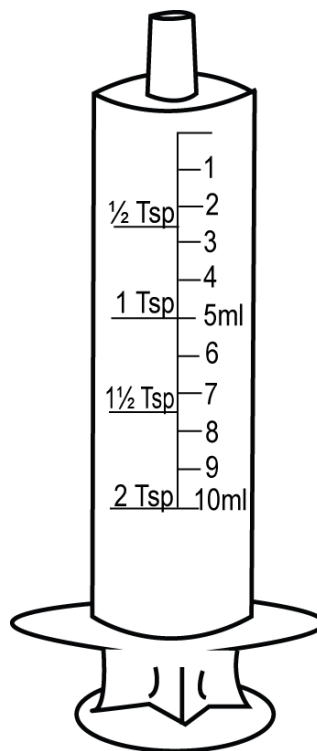


SPOON

Units are in milligrams. These must only be used for the specific product with which they are supplied or a dose error would occur.



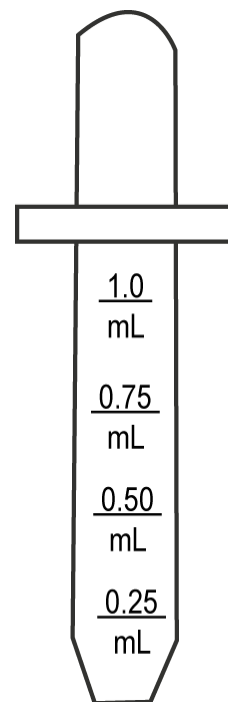
DROPPER



ORAL

SYRINGE

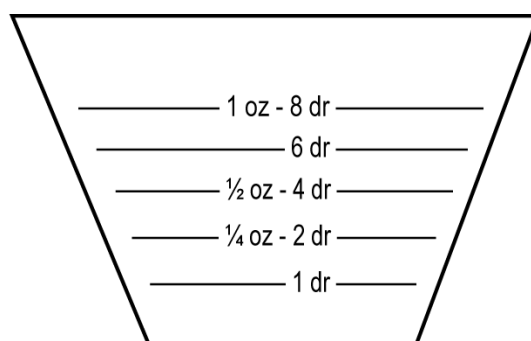
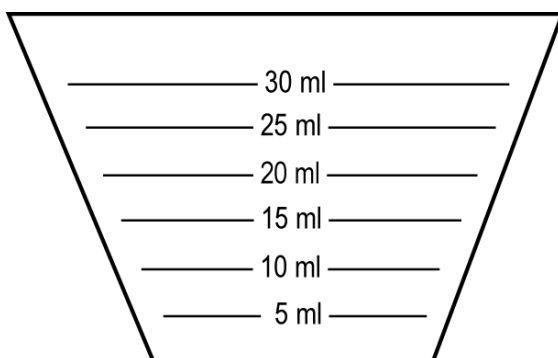
Units are milliliters. This type may be used with any medication provided that you know the volume of the dose to be given.



DROPPER

MEDICINE CUPS

Medicine cups are often graduated in metric, apothecary, and household units.



LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

1. What are the three (3) measuring systems?
 - a.
 - b.
 - c.
2. Write the household equivalent of the following metric measurements.

Metric	Household
30 mL	
500 mL	
15 mL	
5 mL	

Write the metric equivalents to the following drug doses.

3. Milk of Magnesia 2 Tbsp = _____mL
4. Dilantin suspension (125 mg/5 mL) 1 tsp = _____mg
5. From a drug display, identify (10) forms of drugs.
 - A. _____
 - B. _____
 - C. _____
 - D. _____
 - E. _____
 - F. _____
 - G. _____
 - H. _____

I. _____

J. _____

Match the correct dose from the pictures to the following drug orders:

6. Potassium chloride 20 mEq/15 mL, 40 mEq dose = _____

7. Lanoxin elixir 0.05 mg/mL, 5 mL dose = _____

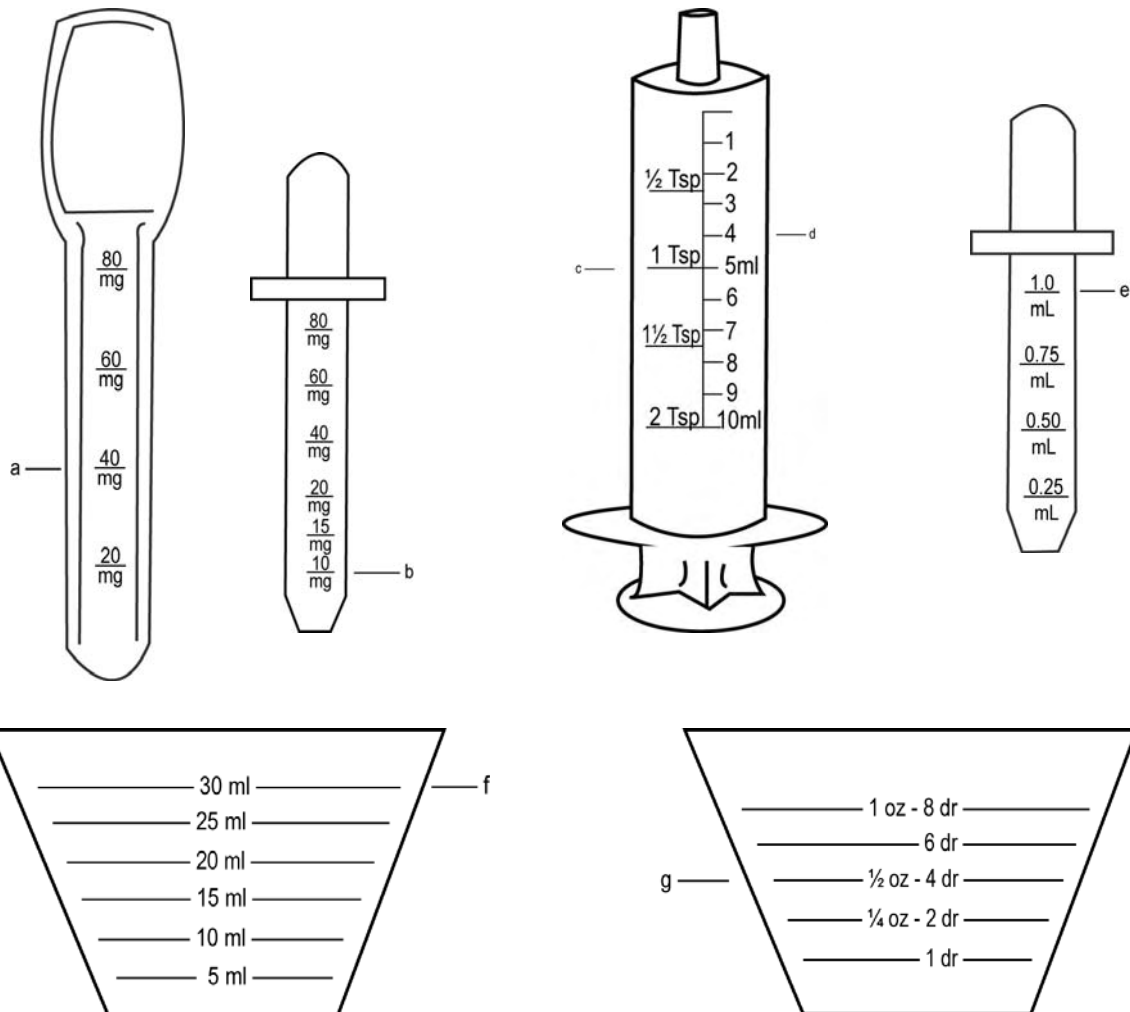
8. Furosemide 10 mg/mL, 40 mg dose = _____

9. Dilantin 125mg/5mL, 125 mg dose = _____

10. Haloperidol 2 mg/mL, 1 mL dose = _____

11. Milk of Magnesia, 1 tbsp dose = _____

12. Lorazepam 2 mg/mL, 2 mg dose = _____



LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, infection control, and accountability.

INFORMATION TOPIC: II-6 OR DEMONSTRATION:

TRANSCRIBING PHYSICIAN'S ORDERS

(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Identify the two types of physician's orders.
2. Match the terms which determine what kind of a verbal or written order the physician has given with their definitions.
3. Identify the general principles used when transcribing orders.
4. List the items to be transcribed on the Medication Administration Record (MAR).
5. List the items to be transcribed on the medication card.
6. List the items found on the prescription label.
7. Record essential information on records.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Sample physician's order sheets, medication records, medication cards, and prescription labels.
2. Abbreviation list for the facility.
3. HO 11: Sample Completed Physician's Order Sheet.
4. HO 12: Sample Completed Physician's Telephone Order Sheet.
5. HO 13: Sample Completed PRN Medication Form.
6. HO 14: Sample Completed Medication Administration Record (MAR).

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 6 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

No medication can be given to a resident without a physician's order, so the administration of medications actually begins with that physician's order. Once the order has been obtained, the task of transcribing the order onto the facility's Medication Administration Record (MAR) may be completed. This lesson will identify the terms and general principles related to transcribing all medication orders and describes the records used in the transcription process.

LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Types of Physician's Orders

A. Written.

1. Directly on the order sheet by the physician or prescriber (HO 11).
2. Indirectly by a prescription (permitted in an RCF when a direct written order is not required by the facility).

B. Verbal.

1. Physician gives the order verbally, either directly or by telephone to another person who is responsible for writing it on the order sheet (HO 12).
2. State regulations determine whether a medication technician may accept verbal orders in a RCF, ICF, or SNF. The verbal order must be reviewed by a nurse or pharmacist prior to administration of the medication.

II. Terms Describing Physician's Orders

- A. Automatic stop orders – policy that puts a limit on the length of time a medication can be given before the physician must be consulted for a continuation of the order.
- B. Discontinue orders – medications are stopped and no longer administered to the resident.
- C. One-time orders – single dose is administered only one time.
- D. PRN orders – meds are administered only as needed according to a designated time frame identified in the order. All prn orders must contain a specific reason for giving the medication such as pain, fever, etc. The licensed nurse assesses the resident and makes the decision when to administer a prn medication.
- E. Renewal orders – continues the medications which were previously prescribed for the resident; usually done once a month.
- F. Routine orders – orders for medications the resident takes on an on-going basis.
- G. Short-Term Orders/Limited Orders – physician determines the number of doses or days the medication is to be administered. The medication is given only for

this prescribed time. For example: Antibiotics that are ordered to be given twice a day for 7 days.

- H. STAT orders – these meds are administered immediately, one-time only such as Nitroglycerine STAT.
- I. Change in order.
 - 1. Original order discontinued.
 - 2. New order written.
 - 3. If a label is to be changed on the medication container to reflect new directions, this must be done by the pharmacist. It is unacceptable for a CMT or nurse to write on the medication label.
 - 4. If no new label is to be used, the medication container should be flagged with a "change in order" sticker to indicate new directions.

III. General Principles in Transcription

- A. All transcription must be error-free. To reduce the chance of errors:
 - 1. Writing should be clear, neat, and legible. Print if necessary.
 - 2. Blue or black ink is preferred by most facilities. Do not use a felt tip pen as the ink can run or bleed through the MAR.
 - 3. Use only abbreviations on the the list of accepted abbreviations established by the facility.
 - 4. Keep distractions to a minimum.
 - 5. Orders should be completely transcribed all at one time. Leaving and coming back to orders may mean something is overlooked or forgotten.
 - 6. Recopy from the original order. The more an order is recopied, the greater the chance an error can occur. The medication technician should take responsibility to find the original order and copy only from it.
 - 7. Review unclear orders with the charge nurse or physician before attempting to transcribe them whenever necessary. The physician's handwriting may not be very legible. Review directly with the physician if he/she is in the facility, or review by phone if the physician is not on the premises.
 - 8. Verify verbal orders by writing them down and reading them back to the physician exactly as given. Say in words the meaning of any abbreviations used.

9. Spell drug names back to physician when pronunciation is unclear. If the physician uses an unapproved abbreviation or term, repeat the order back to the physician using the correct abbreviation or term for clarification.
10. Transcribe all orders onto each document exactly as they appear on the original written order. If an unapproved abbreviation or symbol was used in the original order, clarify the order with the physician.
11. Verify all completed transcriptions with licensed nurse.
12. If an error is made, cross it out and write “mistaken entry” and your name and date above it.
13. When transcribing medication orders onto the MAR, following your facility’s guidelines regarding the timing of medications ordered daily, BID, TID, QID, etc. Pay special attention to medications that must be given before or after meals and assign them the correct time for administration.

CAUTION: Accuracy is essential in transcribing all physicians' orders.

IV. Medication Administration Record (MAR) (HO 13, HO 14)

- A. A Permanent record that is part of a resident's chart. Maybe a paper or an electronic document.
- B. Items found on medication record include:
 1. Name of resident – first name, middle initial and last name.
 2. Allergies to foods and/or medications.
 3. Date medication administered.
 4. Time medication administered.
 5. Name of the drug.
 - a. Written just as given by physician.
 - b. May be provided in generic form.
 - c. Verify that medications sent in generic form are indeed the same medication as the physician ordered.
 6. Strength of the drug.
 - a. Not all medications will have a strength designated. If strength is not specified, confirm there is ONLY one strength available.

- b. Most medication comes in more than one strength.
 - 7. Dosage – amount of medication given.
 - 8. Route of administrations (e.g., oral, rectal, topical, etc.).
 - 9. Signature of person administering drug.
 - a. Small square for initials.
 - b. Official signature (first initial, last name, and title) recorded beside the initials the person is using must appear on the MAR.
- C. Access to an electronic MAR (sometimes referred to as an e-MAR) may require the CMT to use a password to access the computer software program. It is important to be trained on the use of the software prior to administering and documenting medications using this system.

V. Medication Card

- A. Medication cards are used in some facilities to identify medications when it is necessary to remove them from their original container prior to administration. If a medication leaves the original packaging and is not administered at once, it must have a medication card(s) with it at all times.
- B. Items found on the medication card.
 - 1. Full name of the resident.
 - 2. Room number of the resident.
 - 3. Name of the medication.
 - 4. Dosage and strength of the medication.
 - 5. Times of administering the medication.
 - 6. Route of administration.
 - 7. Date the medication was ordered.
 - 8. Physician's name.

VI. Prescription Label

- A. Found on the medication container (bottle, unit dose card or pack).
- B. Check for accuracy.

- C. Information found on prescription label (Missouri Board of Pharmacy requirements).
1. Date prescription was filled.
 2. Prescription number (may be preceded by “C” for controlled substances).
 3. Resident’s full name.
 4. Prescriber’s directions for usage.
 5. Prescribing doctor’s name.
 6. Name and address of the pharmacy.
 7. Exact name and dosage of the drug dispensed including a note if a generic substitution has been made).
 8. Name of drug manufacturer if generic drug dispensed.
 9. Lot control number, expiration date, and manufacturer if single unit dose package (bubble or blister packs, foil packs, etc.).

D. Sample label:

LTC PHARMACY SERVICE	
123 Highway	
Hometown, MO 65432	Ph: (314) 246-8012
Rx# 123456	
Margaret Anderson	Dr. Heart
Take 1 tablet po every morning	5-10-00
generic equiv. for LASIX.	
lot ABC exp 11-10-00	
Furosemide 20 mg (GG)	

VII. Facility Records

- A. Each facility has their own system of record-keeping regarding administering, receiving, destroying, returning, or other disposition of medications. Controlled substance records have specific requirements.
- B. Examine and become familiar with the documents in your facility.
- C. Record pertinent information on the documents.

VIII. Summary and Conclusion

- A. Types of physician's orders.
- B. Terms describing physician's orders.
- C. General principles in transcription.
- D. Medication administration record (MAR).
- E. Medication card.
- F. Prescription label.
- G. Facility records.

Care must be taken when transcribing physician's orders. An error could be deadly for your resident. The next lesson is on packaging, storage, infection control, and accountability.

SAMPLE COMPLETED PHYSICIAN'S ORDER SHEET

HO11

<p>Generic equivalent may be used unless the order is specifically followed by the notation: "Use no substitutes." May send medication while on pass from facility. May leave premises with responsible party. May send medications _____ days. I recertify for _____ level of care. Medications previewed and approved as printed. I approve the overall plan of care.</p> <p>_____ Pharmacist's Signature</p>		PHYSICIANS ORDERS			
		FUNCTIONAL LEVEL: UP AD LIB			
		ACTIVITIES: PRN			
		SOCIAL SERVICES: PRN			
		ROUTINE LABS: SERUM K FEB & JUL			
		RESTRAINTS: NONE			
		CODE STATUS: NO CODE			
MEDICATIONS		Schedule			
Multivitamin tab 1 tab po every morning 12/5/00		800A		D/C Furosemide 20mg	
Digoxin 0.125Mg 1 tab po every morning hold if AP less than 60 or over 110 12/5/00		800A		Furosemide 40mg 1 tab po every AM	
Furosemide 20mg 1 tab po every morning DC 1/11/00		800A		1/11/05 Dr. Watson	
Carbamazepine 200mg 1 tab po every 12 hours 12/5/00		800A			
Captopril 12.5mg 1 tab po 3 times daily 12/5/00		800A 1200N 400P			
Carafate 1mg 1 tab po before meals and at bedtime 12/5/00		700A 1100A 400P 800P			
Acetaminophen 325mg 2 tabs po every 4 hrs prn for pain 12/5/00		PRN			
Lorazepam 0.5mg 1 tab po at bedtime prn for sleep 12/5/00		PRN			
Furosemide 40mg 1 tab po q morning 1/11/00		800A		Attending Physician's Signature _____ Date	
Charting for 01/1/00 Through 01/31/00					
Physician		WATSON		Patient Code	
Phone No.		123-4567		Revised by Supervising Nurse	
Diet	REGULAR, NO ADDED SALT			Weight 120 lb	Date of Birth 1/10/00
Allergies	NKA			Sex F	
Diagnosis	CHF/SEIZURE DISORDER / GASTRIC ULCER			Med Record No. 678	Admission Date 12/5/00
Patient	Edna Long			Habilitative/Rehabilitative Potential FAIR	
	Medicaid No.	Medicare No.	Room No.	Bed	

SAMPLE COMPLETED PHYSICIAN'S TELEPHONE ORDER FORM

Facility Name: <u>WeCare Nursing</u>				PHYSICIAN	
TELEPHONE ORDERS					
Facility Address: <u>123 Oak Street, Anytown, USA</u>					
Patient Name: <u>Edna Long</u>		Room No. <u>1</u>		Physician <u>Watson</u>	
Order Date	Prob	Code	Physician Orders	Sig.	Init.
<i>1/20/00</i>			<i>D/C Furosemide 20mg</i>		
			<i>Furosemide 40mg 1 po every AM</i>		
Nurse Signature Date 1/20/00			Physician's Signature Date 1/23/00		
<i>B. Wilson, C.M.T.</i>			<i>Mark Watson, M.D.</i>		
Physician please sign and return within 7 days					

SAMPLE COMPLETED PRN MEDICATION FORM

PRN Medication								
Name		Initials	Name		Initials	Name		Initials
<i>B. Wilson, CMT</i>		<i>BW</i>						
<i>D. More, CMT</i>		<i>DM</i>						
Date	Time	Medication	Route	Reason Given	Initials	Time	Result	Initials
<i>1/10/00</i>	<i>10AM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>1030P</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/10/00</i>	<i>2PM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>230P</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/10/00</i>	<i>10PM</i>	<i>lorazepam 0.5mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>11P</i>	<i>sleeping</i>	<i>DM</i>
<i>1/11/00</i>	<i>9AM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>930A</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/11/00</i>	<i>9AM</i>	<i>lorazepam 0.5 mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>10P</i>	<i>sleeping</i>	<i>DM</i>
<i>1/12/00</i>	<i>4PM</i>	<i>acetaminophen 325 mg2 tab</i>	<i>po</i>	<i>c/o headache</i>	<i>DM</i>	<i>430P</i>	<i>Denies headache</i>	<i>DM</i>
<i>1/12/00</i>	<i>9PM</i>	<i>lorazepam 0.5mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>930P</i>	<i>sleeping</i>	<i>DM</i>

80

LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

1. What are the two types of medication orders?

a.

b.

Match the terms in Column A with the correct definitions in Column B.

Column A

Column B

- | | |
|--------------------------|--|
| ___ 2. Limited order | a. Medications are cancelled so they are no longer administered. |
| ___ 3. Verbal order | b. Medication the resident takes on an on-going basis. |
| ___ 4. stat order | c. Physician voices order directly or by telephone. |
| ___ 5. Routine order | d. Continues medications previously prescribed. |
| ___ 6. Written order | e. Physician determines number of doses or day the medication is to be administered. |
| ___ 7. PRN order | f. Administered immediately, one-time only. |
| ___ 8. Discontinue order | g. Single dose administered only one time. |
| ___ 9. One-time order | h. Administered only as needed according to a designated time frame. |
| ___ 10. Renewal order | i. Physician puts in writing the medication order. |

Circle the letter of the best answer.

11. Which statement is NOT true regarding the principles of transcription?

- a. Transcription of medication orders must be error-free.
- b. Black ink is preferred for transcribing physician's orders.
- c. Only approved abbreviations may be used when transcribing orders.
- d. When an order is being transcribed the first consideration is speed.

12. Which statement is NOT true regarding the principles of transcription?
- a. Recopying of medication orders should be done from original order.
 - b. When a medication technician has completed transcription of orders, it should be verified by another medication technician.
 - c. If the physician's pronunciation of a drug name is unclear in giving the order, the medication technician should spell the drug name back to him/her for clarification.
 - d. If a medication technician has any doubt about a medication order, he/she should question the licensed nurse about any point of concern.
13. List the items to be transcribed on the medication record.
14. List the items to be transcribed on the medication card.
15. List the items found on a prescription label.

Circle the correct word(s) to complete the following statements.

16. Transcription of medication orders must be (error free) (nearly correct).
17. (Red) (Black) ink is preferred for transcribing physician's orders.
18. (Any) (Only Approved) abbreviations may be used when transcribing orders.
19. When an order is being transcribed the first consideration is (speed) (accuracy).
20. Recopying of medication orders should be done from (original order) (a clear copy).
21. When a CMT has completed transcription of orders, it should be verified by (the licensed nurse) (another CMT).
22. If the physician's pronunciation of a drug name is unclear in giving the order, the CMT should (spell the drug name back to the doctor for clarification) (try to look it up).
23. If a CMT has any doubt about a medication order he/she should (hurry up and give the dose at the prescribed time so there will be time to look up information) (question the charge nurse about any point of concern).
24. There should be (no variances) (only minor discrepancies) in the information on the MAR, physician's order, and prescription label.
25. What is found on the prescription label when there is a change in directions for administering?
26. What is the purpose of the pharmacy's name, address, prescription number, and phone number being on the prescription label?

Demonstrate your understanding of documentation of medication orders in the following scenario.

27. You are on duty at WeCare Nursing Facility and receive a telephone call from Dr. Watson. Today, he orders the following for your resident Edna Long: Zantac 150 mg, 1 tab po at 8 a.m. & 8 p.m., Aspirin EC 325 mg, 1 tab po at 8 a.m., and Milk of Magnesia, 30 mL po daily prn constipation. Fill out the PHYSICIAN'S TELEPHONE ORDERS form, the PHYSICIAN'S ORDERS sheet, and the MEDICATION ADMINISTRATION RECORD. Also document on the forms the administration of all three drugs for today.

Facility Name: _____			PHYSICIAN TELEPHONE ORDERS		
Facility Address: _____					
Patient Name: _____		Room No. _____	Physician _____		
Order Date	Prob	Code	Physician Orders	Sig.	Init.
Nurse Signature Date			Physician's Signature Date		
Physician please sign and return within 7 days					

Question 28: (Continued).

<p>Generic equivalent may be used unless the order is specifically followed by the notation: "Use no substitutes." May send medication while on pass from facility. May leave premises with responsible party. May send medications _____ days. I recertify for _____ level of care. Medications previewed and approved as printed. I approve the overall plan of care.</p> <p>_____ Pharmacist's Signature</p>		PHYSICIANS ORDERS			
MEDICATIONS		Schedule			
		Attending Physician's Signature		Date	
Charting for		Through			
Physician		Patient Code	Revised by Supervising Nurse		
Phone No.					
Diet		Weight	Date of Birth		Sex
Allergies		Med Record No.		Admission Date	
Diagnosis		Habilitative/Rehabilitative Potential			
Patient		Medicaid No.	Medicare No.	Room No.	Bed

Medication	Schedule	•Put initials in appropriate box when med. given •Circle initials when med. refused •Record reason refused •PRN Meds. Record reason given DC=discontinued, O=not given Medication Administration Record R=Refused, V=Vomited																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, infection control, and accountability.

INFORMATION TOPIC: II-7 OR DEMONSTRATION:

PACKAGING, STORAGE, INFECTION CONTROL AND ACCOUNTABILITY
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Identify and compare the three basic types of medication packaging.
2. Identify types of storage and security systems.
3. Identify how different types of drugs should be stored.
4. Select appropriate techniques in maintaining infection control utilized in medication administration.
5. Examine accountability procedures for individual, stock, controlled substances, and emergency drugs.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Handwashing facilities: hot and cold running water, soap, paper towels, waste basket, hand lotion.
2. Samples of bubble cards, unit dose cards from other systems.
3. Sample emergency drug tray.
4. HO 15: Infection Control.
5. HO 16: Sample Completed Controlled Substance Record.
6. HO 17: Sample Controlled Substance Shift Change Count Check Sheet.
7. HO 18: Medication Disposition Form.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 7 prior to class and be prepared to discuss the information presented. Read facility's policies regarding storage, handling, and security of medications.

INTRODUCTION:

Regulations are established for the packaging, storage, and handling of drugs in long-term care facilities. These specify locked areas for all medications, double locked areas for controlled substances, refrigeration of biologicals, and separation of external from internal drugs. Only nonprescription drugs are allowed as stock medications. Good methods of infection control must be established in handling and distributing drugs.

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Medication Packaging

- A. Traditional – doses dispensed in a bottle.
- B. Modified unit dose – doses dispensed on “bubble” or “blister” card.
- C. Unit dose – doses dispensed individually wrapped.
- D. Unit dose and modified unit dose organization.
 - 1. “Time pass” system – doses are organized by time of administration. At least one dose of all meds administered at a particular time is grouped together. For example, in a bubble card system, a medication given at 8AM and 8PM would have one card of doses stored in the “8AM” group and one card in the “8PM” group.
 - 2. “Sectional pass” system – doses are organized by resident name. At least one dose of all meds administered to a particular resident is grouped together. For example, in a bubble card system, a medication given at 8AM and 8 PM would have one card of doses stored in the “section” for that resident and would be used twice a day.

II. Types of Storage and Security Systems

- A. A locked room used for storing medication only. Doors should be self-closing and locking for security purposes.
- B. Medication cabinets with locks.
 - 1. Individual compartments or bins.
 - 2. Shelves without compartments or bins.
- C. Medication carts with locks that have individual bins or trays and a lockable drawer.
- D. Automated dispensing systems.
 - 1. Specially designed cabinets that provide single doses for individual residents.

2. When the cabinet is used only for controlled substances and emergency supplies, it may be controlled by the facility or pharmacy.
 3. When the cabinet is used for all medication it is electronically controlled by the pharmacy. The pharmacy requires a prescription order before releasing doses to facility staff. This procedure eliminates individual prescription containers except for special needs.
 4. The user enters resident information, drug information and a personal access code to obtain a dose.
 5. Two basic cabinet types.
 - a. Unit doses stored in drawers with separate compartments for each drug. The user selects the correct compartment.
 - b. The dose is supplied to the user in a “vending machine” manner and the user does not have access to the storage area.
- E. Refrigerator – the refrigerator should be in a locked medication room. If the refrigerator is not in a secured area, the refrigerator door should be locked or the drugs should be in a locked container permanently attached to the inside of the refrigerator. Drugs should be stored in a separate, sealed container if food is also stored in the same refrigerator. The refrigerator temperature should be maintained between 36° and 46° Fahrenheit.
- F. Controlled substances.
1. Schedule II controlled substances must be stored under double lock and the keys should be different. They may be stored in:
 - a. A locked cabinet or drawer within a locked room. Keys to the cabinet or drawer must be different than the door key.
 - b. A locked compartment in a locked cabinet or drawer with 2 different keys.
 2. On a medication cart, Schedule II controlled substances must be stored in the locked drawer and the cart kept locked or secured behind a locked door. Two different keys for the locks are required.
 3. If Schedule II controlled substances are in single use packaging with minimum quantities, they may be stored with other drugs under a single lock.
 4. Other controlled substances may be double locked as necessary for security.

G. Access control – access should be limited to persons authorized to administer medications.

1. Keys should be controlled to limit access to drugs and limited to the minimum number necessary.
2. All keys should be accounted for at each controlled substance inventory counting.
3. Keys should be carried and never left unattended.
4. When using access codes, they should be protected and never shared with others.

III. Storage for Different Types of Drugs

A. Internal.

1. Tablets and capsules – kept in original container.
2. Liquids are kept in the original container; some may require refrigeration.
3. Eye, ear, or nose – may be stored with rest of the resident's internal medications, but it's important to keep the container clean. Keep in original container. It is safest to separate medications by route to avoid confusion.
4. Inhalers, suppositories are kept in original containers (suppositories may need to be refrigerated).

B. External – store separately from internals to reduce chance of error and contamination.

1. Liquids – keep on different shelf; a different cabinet is even better.
2. Ointments – keep in individual cardboard box or other container.

IV. Infection Control (HO 15)

A. Infection control in equipment and drug storage area.

1. Frequency of cleaning
 - a. Shelves, bins, and refrigerated containers should be cleaned weekly or more often if needed with soap and warm water.



- b. Medication carts and trays should be cleaned after each use with soap and warm water.
 2. Disinfectants – use a disinfectant appropriate for area to be cleaned according to the label on container or package insert.
- B. Infection control during administration of drugs.
 1. Keep paper soufflé cups and plastic medication cups upside down on a clean surface such as a clean paper towel.
 2. When giving the medication cup to the resident, remember that if your hands have contact with the resident your hands must be washed before you give medication to the next resident. Alcohol gel is a good substitute for cleaning your hands if you are not near a sink. Using alcohol gel would NOT be appropriate before the administration of ophthalmic preparations.
 3. When picking up a medication cup that the resident has handled, pick it up by the base – NEVER the top.
 4. When giving medications mixed with applesauce (or any other substance deemed appropriate by the facility), use a separate clean spoon for each resident.
 5. Dispose of used medication cups in the waste basket.
 6. Handling of external drugs.
 7. Internal/external drug separation.
 8. Cart.
 9. Trays.
- C. Standard Precautions.
 1. Hands-Hand hygiene is the most effective method of preventing the spread of infection.
 - a. Perform hand hygiene before and after contact with each resident.
 - b. Always perform hand hygiene before and after the use of gloves.
 - c. If hands come in contact with blood and/or body fluids containing blood, wash immediately with soap and water and report to licensed nurse or follow facility policy.



- d. Always wash hands with soap and water before eating, clocking out and before and after using the bathroom.
- 2. Wear gloves when administering:
 - a. Vaginal medications.
 - b. Rectal medications.
 - c. Ophthalmic Medications-do not use alcohol based handrub prior to administering ophthalmic medications
 - d. Other medications that specify the use of gloves such as topical medications and transdermal patches
 - e. Medications that put the medication technician at risk of having contact with body substances, mucous membranes or non-intact skin.

V. Accountability System

- A. Individual prescription non-controlled substance medications.
 - 1. Administration records.
 - 2. Acquisition procedure.
 - a. New orders.
 - b. Refills.
 - 3. Disposal procedure.
 - a. A single dropped or refused dose is disposed of according to facility policy. Make the nurse aware of the situation so that the medication can be replaced if necessary.
 - b. Medication technicians may not dispose of medications except for a single contaminated or refused dose. Destruction of "bulk" unwanted non-controlled drugs must be done by a nurse and a pharmacist or by two nurses.
- B. Nonprescription – OTC (over-the-counter) medications can be purchased by the facility and do not need state approval.
 - 1. Administration records or MAR.
 - 2. Acquisition procedure – follow facility policy.

3. Disposal procedure – follow facility policy.
- C. Controlled substances.
1. Individual prescription or Emergency Medication Supply.
 2. Administration recorded on Medication Administration Record (MAR) and Individual Controlled Substance Record.
 3. Acquisition procedure.
 - a. New orders.
 - b. Refills.
 4. Receiving records (HO 16).
 - a. May be on a separate receiving record.
 - b. Record on Individual Controlled Substance Record.
 - c. Delivery record for pharmacy.
 5. Reconciling drug count/inventory.
 - a. Frequency – each shift or per facility policy.
 - b. Compare count to individual controlled substances record (HO 16).
 - c. Document completion on Controlled Substance Count Check Sheet (HO 17).
 6. Discrepancies in the count must be reported to the Director of Nursing and others as required.
 7. Waste must be witnessed and documented according to state regulations and facility policy.
 8. Destruction of unused drugs when discontinued is according to state regulations and facility policy.
 9. Theft of controlled substances
 - a. Common methods of theft include:
 - i. Theft of medications left unlocked and unattended.
 - ii. Break-in of locked storage area.

- iii. Falsification of records.
 - iv. Replacement of a controlled substance with another medication.
- D. Emergency drug supply and STAT kit – may consist of life saving type drugs as well as starter doses and OTC Meds.
- 1. Administration records (MAR).
 - 2. Acquisition procedure.
- E. Disposal – according to regulations and facility policies.
- 1. Single doses of contaminated or refused medications.
 - a. Non-controlled substances may be destroyed by the medication technician.
 - b. Controlled substances may be destroyed by the medication technician and a nurse.
 - 2. Medications may be released to the resident or responsible individual upon discharge.
 - 3. Medications may be returned to the pharmacy according to the Board of Pharmacy Regulations.
 - a. Controlled substances and medications that have been in the resident's possession cannot be returned.
 - b. Any medication that is still in the manufacturers original packaging and has not been opened or full cards of medication that have not been altered in anyway (for example, no pills have been popped and the card has not been written on) may be returned to the pharmacy for a refund.
 - c. Regulations allow reuse of only certain unit-dose packages. The pharmacy may refuse to accept other medications.
 - 4. Other medications not in current use must be destroyed by a pharmacist and licensed nurse or two licensed nurses within 30 days.
 - 5. Records of medication(s) released, returned, or destroyed must include resident's name, date, medication name and strength, quantity, prescription number and signature of persons involved.

F. Physical considerations for medications.

1. Expiration dates – medications are assigned an expiration date by the manufacturer and when they are repackaged by the pharmacy.
2. Storage temperatures – storage temperatures affect the shelf life of medications. Consult the pharmacist if a medication has not been stored properly.
 - a. Refrigerator 36°-46°F.
3. Contamination – some medications, such as eye drops, are sterile. Most liquid medications contain preservative to resist bacterial growth. All medications should be handled carefully to prevent contamination.
4. Deterioration – examine all medications and packages for physical signs of deterioration such as discoloration, crumbling, sediment, crystal formation, and cracked or leaking containers.
5. Tampering – many sealed packages can be opened, the medication removed and a substitute put in its place. Examine packages, especially controlled substances packages for signs of tampering.

VI. Summary and Conclusion

- A. Medication packaging.
- B. Types of storage and security systems.
- C. Storage for different types of drugs.
- D. Infection control.
- E. Accountability system.
- F. Physical considerations for medications.

The next lesson is on body systems, related diseases and conditions, drugs and observations.

INFECTION CONTROL

A system of infection prevention and control currently in use is called Standard Precautions or Body Substance Precautions (BSP). This system focuses on keeping all moist body substances (blood, feces, urine, wound drainage, tissues, oral secretions, and other body fluids) from the hands of personnel. This is done primarily by increased glove usage and hand hygiene. Hand hygiene is performed using soap and water or an alcohol based handrub to decontaminate the hands. The Standard Precautions system is consistent with recommendations from the Centers for Disease Control (CDC), the American Hospital Association, and Occupational Safety and Health Administration (OSHA) that point out the need to consider ALL blood and ALL body fluids as potentially contagious regardless of the resident's diagnosis. In order to comply with the CDC policies, the following recommendations should be used. The need to use barriers must focus on the caregivers' routine contact with the residents.

Because a medical history and examination cannot reliably identify all persons with infectious diseases, we treat ALL blood and body substances as potentially infectious rather than to focus precautions only on the residents that are diagnosed with infectious diseases.

Implementing the Standard Precautions System includes the following elements and should be followed by ALL personnel at all times, regardless of the resident's diagnosis.

Standard Precautions

1. Wear gloves when it is likely that hands will be in contact with mucous membranes, non-intact skin and/or ANY moist body substance, (blood, urine, feces, wound drainage, oral secretions, sputum, vomitus, or items/surfaces soiled with these substances). Gloves should be changed and hand hygiene performed between residents. If a glove is torn or a needle stick or other injury occurs, the glove should be removed, discarded in appropriate container, hands washed with soap and water, and a new glove used promptly as patient safety permits (report needle sticks or other injuries per facility policy).

REMEMBER: Gloves are not a cure-all. They reduce the likelihood of contaminating the hands, but hand hygiene should be performed before donning and after removal of the gloves.

- a. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other resident care procedures.
- b. Change gloves and perform hand hygiene between residents.
- c. Do NOT wash or disinfect examination gloves for reuse.
- d. Use general purpose utility gloves (e.g., rubber household gloves) for housekeeping or instrument cleaning involving blood contact. These utility

gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored; or if they have punctures, tears, or other evidence of deterioration.

2. Wash hands often, always between residents' care and after any contact with body substances or contaminated material. Pay particular attention to around and under fingernails and between fingers. Always keep your hands away from your face or you may give yourself the infectious organisms.
3. Wear masks and/or eye protection when it is likely that eyes or mucous membranes will be splashed with body substances (your charge nurse will give you further direction).
4. Protect your clothing with a plastic apron or gown when it is likely that clothing will be soiled with body substances.
5. Health care workers with draining lesions or weeping dermatitis must refrain from all direct resident care and from handling resident care equipment until cleared by a physician. These conditions put the employee and the resident at risk of infections.
6. Discard trash in plastic bags according to facility policy.
7. If the resident has a disease which is transmitted in whole or part by the airborne route, use the "Stop Sign Alert" on the resident's door. This will allow the nurse to give the individuals wishing to enter the room specific instructions regarding the resident (e.g., tuberculosis). The nurse instructs non-immune persons to not enter the room of persons with specific diseases (e.g., chicken pox, measles, and mumps). Precautions for residents with airborne diseases include: private room, "Stop Sign Alert" on door, and door closed.
8. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.

Some Examples of Situations Using Standard Precautions

1. Follow Standard Precautions when caring for residents with bowel and/or bladder incontinence.

It is not possible to clean an incontinent resident without having contact with stool and or urine. Gloves should be worn routinely and for helping residents with toileting activities. A plastic gown or apron may also be needed for cleaning incontinent residents and for changing their clothes and bed linens. Obtain the plastic gown or apron before the tasks are begun.

2. When a care provider is emptying a urinary catheter bag, this should be viewed as a single interaction for a single resident and the tasks for one resident should be completed, including performing hand hygiene before going to the next resident.

Wearing gloves for emptying catheter bags is required due to the risk of contact with urine. It is unacceptable to consider it a single task to empty the catheter bags for several residents in sequence without changing gloves and washing hands between residents.

3. When a resident has a rash or skin lesions on his/her body, it could be due to any number of causes. The lesions may be due to varicella (chicken pox or zoster), herpes simplex, scabies, syphilis, impetigo, a drug reaction, or other causes. Prompt recognition of the rash, identification of the cause, prompt appropriate intervention, and proper usage of gloves and handwashing can prevent transmission of organisms to other residents and care providers.

SAMPLE CONTROLLED SUBSTANCES SHIFT CHANGE COUNT - CHECK - SHEET

<p>Controlled Substances SHIFT CHANGE COUNT – CHECK – SHEET</p>														
MONTH					Year									
FACILITY:										STATION:				
		Nurse (Initials)					Nurse (Initials)					Nurse (Initials)		
Date	Time	# of PKGS	ON	OFF	Date	Time	# of PKGS	ON	OFF	Date	Time	# of PKGS	ON	OFF
1	7				11	7				21	7			
	3					3					3			
	11					11					11			
2	7				12	7				22	7			
	3					3					3			
	11					11					11			
3	7				13	7				23	7			
	3					3					3			
	11					11					11			
4	7				14	7				24	7			
	3					3					3			
	11					11					11			
5	7				15	7				25	7			
	3					3					3			
	11					11					11			
6	7				16	7				26	7			
	3					3					3			
	11					11					11			
7	7				17	7				27	7			
	3					3					3			
	11					11					11			
8	7				18	7				28	7			
	3					3					3			
	11					11					11			
9	7				19	7				29	7			
	3					3					3			
	11					11					11			
10	7				20	7				30	7			
	3					3					3			
	11					11					11			
Note: Time indicates the hour when the shift starts.										31	7			
											3			
											11			
<p>IRREGULARITIES MUST BE REPORTED IMMEDIATELY TO THE DIRECTOR OF NURSES</p>														
NAME		SIGNATURE		INITIALS	NAME		SIGNATURE		INITIALS	NAME		SIGNATURE		INITIALS
1					5					9				
2					6					10				
3					7					11				
4					8					12				
<p>Please return completed form to nursing office at end of month</p>														

MEDICATION DISPOSITION FORM

Driver _____ Date _____

Please Fill In: Facility _____ Division _____ Date: _____

Rx #	Name	Drug	Label	Quantity	Return To Rx	Destroyed	Discharged W/Resident	Comments or Signatures

Signature_____
Date_____
Signature_____
Date

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

Circle the correct word(s) to complete the following statements.

1. Medicine cupboards should be washed (daily) (weekly) (when you see dirt).
2. Food used in the administration of medications may be stored in the same (refrigerator as drugs) (area as ear drops) if both food and medications are covered.
3. Topical ointments may not be stored in the same box as (oral medications) (instructions for administering).
4. Medicine cups (may be) (may not be) saved and reused.
5. Medication trays should be washed after (each use) (each shift).

Circle the letter of the best answer.

6. How are medications packaged in a true unit dose system?
 - a. In bottles and in medication carts.
 - b. In bottles.
 - c. In individually wrapped doses.
 - d. With all medications for resident in one individual package.
7. How should Schedule II controlled substances be stored?
 - a. Behind two different locks.
 - b. Behind two doors.
 - c. In the medication cart.
 - d. In the refrigerator.
8. When are controlled substances counted?
 - a. At change of shift.
 - b. At the beginning of the day.
 - c. At change of pay period.
 - d. At the beginning of the month.