

STATE OF LOUISIANA

DEPARTMENT OF HEALTH AND HOSPITALS

**OFFICE FOR CITIZENS
WITH
DEVELOPMENTAL DISABILITIES**

MEDICATION ADMINISTRATION COURSE

**INSTRUCTOR'S
CURRICULUM GUIDELINE OF TEACHING TECHNIQUES
AND
SUPPLEMENTAL GUIDE**

**September, 1995
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Instructor's Curriculum Guideline of Teaching Techniques and Supplemental Guide

UNIT 1: INTRODUCTION

Purpose of this Manual

The purpose of the Curriculum Guidelines of Teaching Techniques and Supplemental Guide is two-fold:

- To supplement the Medication Attendant Training Manual.
- To serve as a reference manual when the instructor prepares to teach the Medication Attendant Course.

In developing the techniques to enhance the learning experience, instructors are encouraged to seek materials that provide students an opportunity to gain knowledge and skill based upon activities that simulate the role of the Medication Attendant in the workplace. This manual contains a variety of activities that are effective in simulating the community home and developmental center settings

It is recommended that the instructor assist the student to draw upon his/her existing knowledge so that new skills may be developed by integrating the more complex information presented in the course. The self-test questions allow the students to continually evaluate knowledge gained. The Practical Checklist allows the student to perform skills until competency is demonstrated, and to learn the standards by which they are to be evaluated and the level of skill expected.

The instructor is encouraged to incorporate various concepts of learning. Research supports that adults learn more readily when they clearly understand what is expected. When learning is organized around activities wherein students themselves produce or decide something, the learner grasps the information in a more meaningful fashion

Unit 2 will introduce you to four concepts of learning.

UNIT 2: LEARNING PROCESS

Learning can be defined as a process of change through which people acquire new knowledge, skills or attitudes as a result of some type of study or experience. Learning occurs over time and should be considered a lifelong process or experience. If change of some kind does not occur, the teaching is ineffective. As an instructor you motivate students to acquire new information, remember it, and apply it. But the students' must do the learning, and they learn best by being involved in the learning experience.

CONCEPTS OF LEARNING

Four concepts about learning will help you in teaching this course. They are motivation, association, repetition and use of the senses.

1. MOTIVATION

Students need to be motivated in order to learn effectively. As an instructor, you need to look for ways to enhance or maintain students' motivation to learn.

Knowing each student by name gives the student a feeling of respect. By recognizing the individual, you positively influence their self-esteem and the motivation to learn can take place.

2. ASSOCIATION

By building on information already learned or on previous experience's it is easier to learn.

Association helps students understand that what they already know can help them in learning something new. Examples of association :

- 1) Explain to the students that when charting on an individual they will only chart in an objective manner as opposed to a subjective manner. The **Objective** signs they see are **Obvious**, both begin with the letter **O**. **Subjective** and **Self** both begin with the letter **S**, whenever they are tempted to document what they themselves perceive as the problem, **Stop** and **Observe**. Only draw upon **Observations**.
- 2) When distinguishing between the abbreviations for left eye(os) and right eye (od) an association technique would be: Many years ago people who wrote with their left hand were thought to be **Sinister**, thus **OS** refers to the left eye.

3. REPETITION

Repetition should occur as quickly as possible after any new information is given. Review of material and practice of skill help students learn. Prompt and accurate feedback tells the student whether they have performed correctly and how to improve their performance.

- Consistently require students to repeat key points and concepts throughout the course.
- Continual repetition of the 6 Right's of Medication Administration, The Rule of Three, and the NEVERS and ALWAYS are a few examples of the technique of repetition.

4. USE OF THE SENSES

Learning takes place more readily when several senses are utilized -- *seeing, hearing, smelling, tasting and feeling*. Students' learning styles vary, some are auditory learners, others visual or tactile. Using as many senses as possible reinforces learning and helps the student remember. For example, several senses are employed when performing practicals:

- students see videotapes, overhead transparencies and demonstrations;
- they read the proper procedure in the manual, and they hear the instructor's explanation of the material;
- and, finally, their tactile sense is utilized when they perform the practical tasks.

If students hear, see, and do, they are likely to learn more than if they only use one sense. When we teach, the more senses we use the more we help meet students' different learning styles. Learning occurs best when students are actively involved in the learning process and the information will be retained for a much longer period of time.

UNIT 3: EFFECTIVE INSTRUCTION

Your most important role as an instructor is to facilitate students' learning. To accomplish this encourage students to share the responsibility for learning. Include asking questions, and encouraging discussion in class that requires each student to actively participate in course exercises, practicals and activities. You may find that showing confidence in a student's ability to learn instills confidence, and the student performs better. Students tend to perform at the level that you expect them to perform. Your role is particularly important in the first stages of learning when students may feel unsure of themselves.

At this early stage, students often require more direction. Immediate reinforcement of student participation by the use of praise from the instructor encourages others to share their experiences with peers. With guidance and instructor feedback, this can provide invaluable learning opportunities for the student enabling them to apply newly acquired solutions to problems and situations that they will encounter in the work setting.

The attitude, knowledge and skills of the Instructor are critical to implementation of a successful training program. An "Effective Instructor" is one who is:

- Well Organized
- Knowledgeable of the Curriculum Content
- Supportive of the Participants
- Supportive of the Training Experience

The following are suggestions for organizing and implementing the course curriculum:

- Read the Trainee and Instructor Manual's prior to the course offering.
- Be knowledgeable of your audience. Become familiar with the issues and concerns of the students.
- Discuss standards for successful completion of the course, i.e., minimum test scores on state certification test and return demonstration of practical tasks.
- Present the course in an enthusiastic manner. Maintain good eye contact. Use terms that are easily understood.
- Allow time for questions and comments.
- Paraphrase and summarize the course material.
- Make sure visual aids are **LARGE** and **BOLD** enough to be seen by students in the back of the room.

- Limit the number of participants so that everyone can actively participate. Class size should not exceed 24.
- Obtain feedback from the student's in the form of a written evaluation. Share the results and comments with the provider.
- Arrange and check equipment and supplies prior to the beginning of the session.
 - Chalkboard
 - Flip chart easel and pad
 - Flip chart markers
 - Overhead projector and screen
 - Overhead transparencies (large and bold)
 - Television/VCR
 - Practical Supplies (MAR's, thermometer, med. cup, dropper etc.)

UNIT 4: TEACHING TECHNIQUES

Teaching the Medication Attendant Course demands the use of a variety of teaching techniques. Each lesson can be broken down by using several techniques depending on what is to be accomplished during that part of the lesson.

COMMON TECHNIQUES:

- Lecture
- Discussion
- Task Groups
- Role Playing
- Scenarios
- Explanation, Demonstration
- Guided Student Practice

LECTURE: The instructor's presentation is referred to as a lecture. You should use a number of aids such as a flip chart, chalkboard, overhead projector, or video to provide students with a visual stimulus along with the spoken word.

Advantages:

- Covers a large amount of information
- Can be used with a large group

Disadvantages:

- Does not encourage student participation
- Limits instructor's assessment of students' learning needs
- Offers little or no opportunity for immediate feedback

Tips:

1. Prepare for the presentation.
 - Organize the material carefully. Prepare manual with all desired activities in a systematic manner.
 - Practice and time the delivery.
 - Practice with sound equipment, if needed.
 - Arrange the climate of the room. (Adequate seating, working equipment, thermostat setting).
 - Plan how you will stand, sit, or move about in the room.

2. Provide an overview of the topic to the students.
3. Use instructional aids to reinforce points, making sure everyone in the class can see and hear.
4. Emphasize key points by repeating them.
5. Maintain pace, allowing time for students to take notes
6. Review main points at the end of the lecture.
7. Leave time at the end of each session for students to ask questions.
8. Plan to follow the lecture with an activity that requires participation .

Since merely sitting and listening is a passive experience, students may not remember much of what was said. Use the four concepts of learning--motivating students, associating information, repeating information, and using many of the senses to make the lecture more effective.

DISCUSSION: Class discussion involves both the instructor and the students. Both are involved in the learning process.

Advantages:

- Allows instructor to clarify issues, solve problems, and work out how to apply what was learned.
- Provides opportunity for the instructor to determine how well students understated the material.
- Builds on previous knowledge.
- Helps students maintain interest.

Disadvantages

- Time consuming.
- Requires a skillful instructor to prevent a few students from dominating the discussion.
- Is only as good as the combined thinking of the group.

Tips:

- Encourage participation.
- Don't get upset if their are a few minutes of silence.
- Clarify topic if subject is not adhered to.
- Do not answer your own questions before giving students a chance to respond.
- Do not let a wrong conclusion go uncorrected.

TASK GROUPS: Groups of 4-6 students whose task is to solve problems, to focus discussion on answering a question, to look at alternatives, or to develop ideas.

Advantages:

- Allows students to test ideas more freely.
- Encourages group interaction.
- Promotes equality among group members.
- Allows students to check for understanding.

Disadvantages:

- Time consuming.
- Some students feel under pressure.
- Does not accommodate groups that work at different rates.

Tips:

- Clearly describe the objectives and reinforce them in writing.
- State the time allowed for the task.
- Give time warning.
- Circulate among groups to ensure that the learning objectives are being carried out.
- Summarize key points and learning objectives that were accomplished.

This technique helps to increase individual participation, to build group cohesiveness, and to apply concepts to a particular task.

ROLE PLAYING: The acting out of roles by selected participants. There is no script or set dialogue. Participants react to a specific situation and to one another as the role play progresses.

Advantages:

- Draws out personal feelings about a topic.
- Allows new skills to be tried, with failure carrying little risk.
- Teaches empathy.

Disadvantages:

- May become more entertaining than educational.
- Less effective if before a large group or if the individual is too self conscious to effectively participate.
- Often time consuming.

Tips:

- Explain objectives of the role play.
- Ask for volunteers, if there are none then assign roles.
- Ask players and non players to analyze the experience.
- Thank the players and summarize the activities.

SCENARIOS: Written simulations that imitate lifelike situations in which problems are presented. Members of a small group work together as a team to solve a problem.

Advantages:

- Provides human interaction and understanding that can help students learn from the problems presented.
- Allows student to understand and cope with situations they will encounter in the work setting.
- May provide solutions to problems previously thought unsolvable.

Disadvantages:

- Complex technique of teaching and learning.
- Requires good communication skills between instructor and students for learning to occur.
- Requires a great deal of time.

Tips:

- Divide students into small groups.
- Introduce and explain scenario.
- Stress that the exercise is a TEAM effort, and that there are no winners or losers.
- Follow with discussion of the points learned from the exercise.

EXPLANATION AND DEMONSTRATION: A techniques utilizing motor skills that involves explanation and demonstration which gives a clear definition or description of the skill and shows how it is done (Practical Checklists). These two activities can occur one after the other or simultaneously.

Advantages:

- Communicates the skill quickly.
- Allows for questions and re demonstration of the skill.
- If video is used, the skill is done exactly the same each time promoting a standard of performance.

Disadvantages:

- Does not always allow instructors to know whether students actually understand the demonstration.

Tips:

- Organize and prepare explanation and demonstration prior to instruction.
- Present the skill first outside of the setting in which it will be used (i.e. during the practical sessions, not at the worksite).
- Demonstrate skills at the appropriate angle so the skill can be easily seen.
- Follow the skill presentation by slowly demonstrating and explaining the skill if a video is not used.
- Present the skill exactly the way it is to be practiced.
- Follow with a practice session immediately after the explanation and demonstration.

GUIDED STUDENT PRACTICE: Student practice of motor skills is essential to learning and mastering those skills. Corrective feedback must accompany proactive, so that students can correct their mistakes and continue to improve competency.

Advantages:

- Provides corrective feedback during the early stages of learning.
- Involves the learning concept of using the senses--seeing, hearing, and touching--while actually performing the skill.
- Uses the learning concept of repetition.

Disadvantages:

- May become boring as students master the skill.
- The instructor must make sure that practicing most of the time.
- Students who are waiting to practice, or who have completed the practice are not learning.

Tips:

- Review skills frequently once the student has learned the skill.
- Arrange beforehand skills specific stations.
- During the skills assessment (Practical Sessions) it is best to utilize instructor's assistant

UNIT 5: CURRICULUM DESIGN

In preparing to present the course, the instructor should take into consideration the following factors:

- Course time schedule
- Number of trainees
- Number of excused absences allowed. (It is recommended that if more than 4 hours of theory is missed, the student should be dismissed from the course.)
- Number and extent of acceptable late arrivals. (It is recommended that no more than 3 late arrivals be allowed.)
- Prior to the beginning of the course a Syllabus should be sent to the participants clearly stating the Instructor's requirements.
- During the Introductory class the Instructor's expectations of the participants should be explained.
- The Instructor should make every effort to prepare the participant with the knowledge necessary to successfully complete the course. It should be stressed that all reading and homework assignments should be completed prior to coming to class.
- The participant should be made to understand that all the necessary information to successfully pass the state test and achieve certification will be provided for them. It is the participants responsibility to make proper use of and study the information.

Recommended Instructional Course Timeline

Introduction	Introduction, Law & Responsibilities	1 hour
Lesson 1	Responsibilities & Legal Mandates	1 hour
Lesson 2	Basic Pharmacology	2 hours
Lesson 3	Fundamentals of Medication Therapy	2 hours
Lesson 4	Principles & Fundamentals of Administering Medications	2 hours
Lesson 5	The Medication Cycle	4 hours
Lesson 6	Medication Administration	4 hours
Lesson 7	Documentation	2 hours
Lesson 8	Use of Medication References	2 hours
Lesson 9	Medication Classification - Overview	2 hours
Lesson 10 - Section 1	Vitamins and Minerals	1 hour
Lesson 10 - Section 2	Respiratory System	2 hours
Lesson 10 - Section 3	General and Local Anti-Infectives	2 hours
Lesson 10 - Section 4	Cardiovascular System	2 hours
Lesson 10 - Section 5	Urinary System	2 hours
Lesson 10 - Section 6	Nervous System	2 hours
Lesson 10 - Section 7	Endocrine System	2 hours
Lesson 10 - Section 8	Gastrointestinal System	2 hours
Lesson 10 - Section 9	Skin and Mucous Membranes	1.5 hours
Lesson 10 - Section 10	Eye and Ear	1.5 hours
TOTAL	CLASS THEORY	40 HOURS
Practical Experience	Day 1	5 hours
Practical Experience	Day 2	5 hours
TOTAL *	MATERIAL TO BE TAUGHT IN CLASS	50 HOURS

***NOTE:** A total of 20 hours of Practical Experience is required for this course. 10 hours may be taught in a class setting. The remaining 10 hours must be conducted at the work site.

Medication Attendant Course Sample Curriculum

The course may be taught in the number of weeks that is acceptable to both the provider and instructor.

It is important to remember that most students will be working full time, some may be working the night shift. These conditions should be taken into account when planning the Curriculum time schedule.

Below are recommendations for developing a Course Curriculum:

4 WEEK SCHEDULE 3 Days per week

Week 1		
Monday		4 hours
Wednesday		4 hours
Friday		4 hours
Week 2		
Monday		4 hours
Wednesday		4 hours
Friday		4 hours
Week 3		
Monday		4 hours
Wednesday		4 hours
Friday		4 hours
Week 4		
Monday		4 hours
Wednesday		5 hours (Practical)
Friday		5 hours (Practical)
TOTAL DAYS	12	TOTAL HOURS 50

4 WEEK SCHEDULE

2 Days per week

Week 1			
Monday		8 hours	
Friday		8 hours	
Week 2			
Monday		8 hours	
Friday		8 hours	
Week 3			
Monday		8 hours	
Friday		8 hours	
Week 4			
Monday		6 hours	
Friday		6 hours	
TOTAL DAYS	8	TOTAL HOURS	50

6 WEEK SCHEDULE

2 Days per week

Week 1			
Wednesday		4 hours	
Friday		4 hours	
Week 2			
Wednesday		4 hours	
Friday		4 hours	
Week 3			
Wednesday		4 hours	
Friday		4 hours	
Week 4			
Wednesday		4 hours	
Friday		4 hours	
Week 5			
Wednesday		4 hours	
Friday		4 hours	
Week 6			
Wednesday		5 hours (Practical)	
Friday		5 hours (Practical)	
TOTAL DAYS	12	TOTAL HOURS	50

Medication Attendant Course Curriculum

S - A - M - P - L - E

DATE

Date	Monday
8:30 - 9:30	Introduction - Manual Instructors Expectations The Medication Attendant Law Responsibilities of the CMA and Prohibited Functions
9:30 - 10:30	Responsibilities in the Area of Medication Administration and Prohibited Functions
10:30 - 11:00	PRE - TEST
11:00 - 12:30	Basic Pharmacology
Assignment	Read Lessons 1 - 4 Answer Self Tests 1 & 2
Date	Wednesday
8:30 - 10:30	Fundamentals of Medication Therapy
10:30 - 12:30	Principles and Fundamentals of Administering Medication
Assignment	Answer Self Test 3 & 4 Read Lesson 5 Study Glossary Words A - L
Date	Friday
8:30 - 12:30	The Medication Cycle
Assignment	Answer Self Test 5 Read Lesson 6
Date	Monday
8:30 - 10:30	Medication Administration
10:30 - 12:30	MAR Exercises
Assignment	Answer Self Test 6 Read Lesson 7 & 8 Study Glossary Words M - T Test on Lessons 1 - 6 and Glossary Words A - T <u>(Wednesday)</u>

Date **Wednesday**

8:30 - 10:30 Documentation

10:30 - 12:00 Use of Medication References

12:00 - 12:30 **Test #1**

Assignment **Answer Self Tests 7 & 8**
Read Lesson 9 and Lesson 10 - Section 1 & 2

Date **Friday**

8:30 - 10:00 Medication Classification - Overview

10:00 - 11:00 Vitamins and Minerals

11:00 - 12:30 Medications that Affect the Respiratory System

Assignment **Answer Self Test 9 and 10 Sections 1 & 2**
Read Lesson 10 - Sections 3 & 4

Date **Monday**

8:30 - 10:30 General and Local Anti-Infectives

10:30 - 12:30 Medications that Affect the Cardiovascular System

Assignment **Answer Self Tests Lesson 10 - Sections 3 & 4**
Read Lesson 10 - Sections 5 & 6

Date **Wednesday**

8:30 - 10:00 Medications that Affect the Urinary System

10:00 - 12:00 Medications that Affect the Nervous System

12:00 - 12:30 Study Groups

Assignment **Answer Self Tests Lesson 10 - Sections 5, 6 & 7**
Read Lesson 10 - Sections 7 & 8
Study Glossary Words U - Z

Date **Friday**

8:30 - 10:30 Medications that Affect the Endocrine System

10:30 - 12:30 Medications that Affect the Gastrointestinal System

Assignment **Answer Self Tests Lesson 10 Sections 8, 9, & 10**
Read Lesson 10 - Sections 9 & 10
Study for Test #2 (Monday)

Date *Monday*

8:30 - 10:00 Medications that Affect the Skin and Mucous Membranes

10:00 - 11:30 Medications that Affect the Eye and Ear

11:30 - 12:30 Review

Test #2
Student Evaluation
Course Evaluation
Distribution of Practical Checklists Do not misplace

Date *Wednesday*

8:30 - 1:30 5-hour Practical

Date *Friday*

8:30 - 1:30 5-hour Practical

COMMENTS and RECOMMENDATIONS:

- As you can see, the course can be designed to meet the various needs of the student, instructor and/or provider by offering the course over 4 - 6 weeks.
- It is not recommended to teach the course in a one 40 hour week.
- You may notice that the sample course curriculum has a post-test, Test 1 and Test 2 incorporated in it. These tests should be compiled by you and used as a student/ instructor evaluation tool. You will be able to; see if the students are studying; if the students understand the material; if your method of instruction is clear, and/or as a way to teach the students how to take a test. (See sample test, Unit 6) and (Sample Course Evaluation)
- Review all answers to the Self Tests in class. This will assure the students that they have the correct answers. It is a good idea to have the students complete the Self Tests as homework assignments.
- When the class has completed 20 hours of theory, it is recommended that you evaluate each student individually and privately.
- When planning to teach the course, it is recommended that you combine the Instructor's Manual with this (The Curriculum Guideline of Teaching Techniques and Supplemental Guide) Manual in order to Design your own personalized Curriculum.
- In the Instructor's Manual that there are pages at the end of each lesson that prompt you to insert additional information. It would help to use a different color paper for your insertions. This would allow you to easily pace your lecture material, while highlighting the lesson key points.
- You may want to spend additional time on explaining, for example, the anatomy of the heart; there are pictures of the heart that can be copied to transparencies and placed in YOUR LESSON MANUAL. The next time you teach the course you will not have to fumble through pages of materials to find and copy the material
- The Supplemental Guides can also be used when conducting quarterly in-services.
- You may want to use videotapes to stress certain ~~lectures~~ ~~topics~~ below are a few good videotapes : (You may use any that you may already have that will help your students understand the material.)

Communicating for Health	12 minutes	Shriver Center
Preventing Disease Transmission	19 minutes	American Red Cross
Bloodborne Pathogens Standard	20 minutes	Coastal Health

The following is a list of sources that you may contact for additional information on training materials:

- Sandoz Drug Company, Lorraine Jones, 1-800 -CSP-HAVE
 - Various Topics

- Bethesda Lutheran Home, 700 Hoffman Drive, Watertown, WI, 53094
1-800-367-4636
 - Infection Control Video
 - Medication Side Effects Video

- Epilepsy Foundation of America, 1828 L Street N.W., Washington, DC 20036
 - How to Recognize and Class Seizures
 - Seizure First Aid
 - Understanding Seizure Disorders

- The Shriver Center, Index 200, Trapelo Road, Waltham, MA 02254
 - Communicating for Health

- Mosby, Inc., 11830 Westline Industrial Drive, St. Louis, MO 63146-3318
1-800-325-7680
 - Numerous Videos and Books

- Additional Resources may be found in the RESOURCE Section of this Manual

UNIT 6: SAMPLE TEST AND EVALUATION

Medication Attendant SAMPLE TEST

DIRECTIONS: Circle the best answer

1. The person(s) responsible for administering medication are:
 - A. RN / LPN
 - B. Certified Medication Attendant
 - C. A ONLY
 - D. A & B

2. Your signature on a chart means...
 - A. That you assume responsibility for the entry
 - B. That you administered the medication
 - C. That you supervised the administration of the medication.
 - D. All of the Above

3. Leaving a dependent client unattended in the bathroom is an example of...
 - A. Malpractice
 - B. Negligence
 - C. Betrayal of rights
 - D. Duty of Care

4. If a client has an order for eye drops to be put in his right eye (OD) every (q) morning and you put the drops in both eyes (OU), you could be charged with...
 - A. Malpractice
 - B. Negligence
 - C. Nothing, your supervisor will take responsibility

5. Medication errors often result from...
 - A. Lack of concentration
 - B. Lack of knowledge
 - C. Not following the "six rights" of medication administration
 - D. All of the above

6. Medications should always be checked at least _____ times.
 - A. 1
 - B. 2
 - C. 3
 - D. 4

7. You should chart the administration of a medication...
 - A. Before you administer it
 - B. After you administer it
 - C. Never, let the nurse do it
 - D. At the end of your shift

8. Changes in _____ may result in a change in medication dosage required to produce a desired effect.
 - A. Kidney function
 - B. Body weight
 - C. Age
 - D. All of the above

9. If a medicine label is illegible you should...
 - A. Relabel the container
 - B. Pour the medicine out
 - C. Notify the nurse and/or pharmacist
 - D. Give the medicine since you know what it is

10. You should always tell the client that the medicine tastes good.
 - A. True
 - B. False

11. Medication therapy may be defined as treatment by the use of substances that cure _____, prevent and diagnose disease.
 - A. Stop
 - B. Relieve
 - C. Enhance
 - D. Promote

12. A medication level that is below therapeutic drug range will probably result in...
 - A. No therapeutic effect
 - B. A headache
 - C. Nausea and vomiting
 - D. Toxic effects

13. A medication level that is above therapeutic drug range will probably result in ...
 - A. A coma
 - B. An allergic reaction
 - C. Harm to the body and can be fatal
 - D. No apparent effect

14. The commonly used name for a drug is the ...
 - A. Generic name
 - B. Trade name
 - C. Chemical name
15. Most drugs are metabolized by the ...
 - A. Liver
 - B. Kidney
 - C. Stomach
 - D. Intestines
16. When the effects of a medication affects the entire body, the action is...
 - A. Local
 - B. Systemic
 - C. Topical
 - D. Toxic
17. The medication classification that decreases inflammation is...
 - A. Urinary antiseptics
 - B. Steroids
 - C. Anti emetics
 - D. Oral hypoglycemics
18. Medications that break up mucous, and facilitates its expulsion from the lungs are...
 - A. Antituberculars
 - B. Antitussives
 - C. Expectorants
 - D. Diuretics
19. Which drug treats heart failure by slowing and strengthening the heart rate...
 - A. Dilantin
 - B. Digoxin
 - C. Darvon
 - D. Dalmane
20. Medications that slow and strengthen the heart beat are...
 - A. Antiarrhythmics
 - B. Anticoagulants
 - C. Digitalis preparation
 - D. Antitussives

21. Anthelmintics are medications that...
- A. Destroy trichomona
 - B. Destroys parasites
 - C. Destroys bacteria
 - D. Destroys yeast
22. When giving digitalis you should count the pulse, if the pulse is _____, or below, do not give medication, call the nurse.
- A. 80
 - B. 70
 - C. 60
 - D. 50
23. Signs of potassium depletion are...
- A. Nausea, vomiting and diarrhea
 - B. Muscle weakness, leg cramps, irregular heart beat
 - C. Rash, itching
 - D. Night sweats
24. If a client refuses to take a medication you should...
- A. Tell him he has to take it
 - B. Explain to him why the medication is important and if he still refuses document
 - C. ignore him and report to the nurse
 - D. do nothing
25. Tardive Dyskinesia can be...
- A. Preventable
 - B. Irreversible
 - C. Contagious
 - D. Intended
26. Thioridazine (Mellaril) and haloperidol (Haldol) are examples of...
- A. Anti emetics
 - B. Anti psychotics
 - C. Antiarrhythmics
 - D. Antihypertensives.
27. The side effect of gum overgrowth seen when a client is taking anticonvulsant medication can be prevented by ...
- A. Increasing fluid intake
 - B. Good oral hygiene
 - C. Stopping the medication
 - D. A & B

28. The side effect of puffy face "moonface" comes from the drug classification...
- A. Diuretics
 - B. Adrenergics
 - C. Steroids
 - D. Oral hypoglycemics
29. Desired effect is ...
- A. When the medication is working correctly
 - B. When the medication has ill effects
 - C. When the physician desires you to use the medication
 - D. When the medication is stopped
30. Poor eating habits and emotional stress can cause ...
- A. Hiatal hernia
 - B. Simple diarrhea
 - C. Fecal impaction
 - D. Gallstones
31. Chart what you ...
- A. Are told by on-coming staff
 - B. See, hear, smell or touch
 - C. Think or feel
 - D. Want the individual to do
32. "Rule of Three" means ...
- A. You must count the medications three times before placing on shelf
 - B. For each dose of medication, read the label three times
 - C. Three people must witness the destruction of a medication
33. Cathartics and laxatives should not be given if individual complains of ...
- A. Abdominal cramps, nausea
 - B. Headache, diarrhea
 - C. Dry mouth, dizziness
34. Conversion: 30 cc = _____
- A. 1 tablespoon
 - B. 2 teaspoons
 - C. 1 ounce

35. John Smith has an order to take Tegretol 200 mg BID. The pharmacist sent Tegretol 100 mg tablets. How many tablets to be given should be typed on the medication label?
- A. 2
 - B. 3
 - C. 1/2
36. Medications that relieve itching are ...
- A. Astringents
 - B. Antipruritics
 - C. Antiseptics
37. Diuretics can cause a serious loss of...
- A. Calcium
 - B. Magnesium sulfate
 - C. Potassium
38. The classification of the drug furosemide (Lasix) is...
- A. Antidiarrheal
 - B. Diuretic
 - C. Anti-Parkinson
39. Symptoms of anaphylactic shock (extreme reaction) include ...
- A. Neck and facial swelling
 - B. Low blood pressure
 - C. Restlessness and agitation
 - D. All of the above
40. Define bronchodilator...
- A. Reduce symptoms of allergy
 - B. Relax the constriction of the bronchial tree in the lungs
 - C. Dilates the pupils
41. Antibiotic medications are used to ...
- A. Destroy or control bacteria
 - B. Destroy a virus
 - C. Destroy fungal infections
42. Amphetamines are _____ stimulants
- A. C. N. S.
 - B. U. T. I.
 - C. M. R. I.

43. Define analgesic.
- A. Relieves pain
 - B. Produces sleep
 - C. Causes pain
44. The severe side effects of anti psychotic drugs include...
- A. Tremors of hands and feet
 - B. Shuffling walk
 - C. Body rigidity
 - D. All of the above
45. Anticonvulsants are used to control chronic seizures.
- A. True
 - B. False
46. Antacids are used to neutralize excess stomach acid
- A. True
 - B. False
47. 1 teaspoon is equal to...
- A. 10 cc
 - B. 5 cc
 - C. 5 dr
48. 1 gm is equal to ...
- A. 100 mg
 - B. 1000 mg
 - C. 1 dram
49. The physician orders 250 mg of Ampicillin for John Smiths' strept throat. You look in his medicine bin and discover the physician sent 500 mg tablets. How many tablets to be given should be typed on the medication label.?
- A. 2
 - B. 3
 - C. 1/2

50. Matching

- 1. _____ ac
- 2. _____ bid
- 3. _____ dr
- 4. _____ qid
- 5. _____ gtt
- 6. _____ hs
- 7. _____ NPO
- 8. _____ po
- 9. _____ q
- 10. _____ tid
- 11. _____ OS
- 12. _____ ml
- 13. _____ tsp
- 14. _____ stat
- 15. _____ PRN
- 16. _____ \bar{c}

- A. By mouth
- B. As needed
- C. Hour of sleep - bedtime
- D. Nothing by mouth
- E. Before meals
- F. After meals
- G. Immediately, now
- H. Dram
- I. Drop
- J. Four times a day
- K. Three times a day
- L. With
- M. Left eye
- N. Every
- O. Twice a day
- P. Milliliter

51. List the "Six Rights" of Medication Administration...

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

**MEDICATION ATTENDANT
SAMPLE COURSE EVALUATION**

1. The training room area was ...

- a. excellent
- b. good
- c. adequate
- d. poor

Comments: _____

2. The training course material (manual) was...

- a. excellent
- b. good
- c. adequate
- d. poor

Comments: _____

3. The additional typed hand-out material was...

- a. very beneficial
- b. somewhat beneficial
- c. not beneficial

Comments: _____

4. The course material covered each day was...

- a. too much
- b. too little
- c. just enough

Comments: _____

5. Were you able to clearly hear the instructor?

- a. yes
- b. no
- c. at times

Comments: _____

6. Did the instructor explain the course objectives in a clear and concise manner?

- a. yes
- b. no

Comments: _____

7. Were the written class tests

- a. helpful
- b. not helpful

Comments: _____

8. Were the written class tests....

- a. very difficult
- b. somewhat difficult
- c. easy
- d. very easy

Comments: _____

9. Which area covered was the most interesting to you? Why?

10. What would you like changed in the course presentation? Why?

11. Was the instructor prepared and able to answer your questions?

a. yes

b. no

Comments: _____

12. Did you enjoy the course?

a. yes

b. no

13. Overall, I would rate the course

a. excellent

b. good

c. fair

d. poor

14. I am prepared and ready to take the state certification test.

a. yes

b. no

Comments: _____

SUPPLEMENT #1

PROFESSIONAL AND OCCUPATIONAL STANDARDS FOR PHARMACIST

911. LABELING

An appropriate label shall be affixed to a proper container with the following information:

- A. pharmacy's name;
- B. pharmacy's address and telephone number;
- C. prescription serial number;
- D. authorized prescriber's name;
- E. patient's name;
- F. date dispensed;
- G. directions for use, as indicated;
- H. drug name and strength;
- I. pharmacist's last name and initial; and
- J. cautionary auxiliary labels, if applicable.

913. PHARMACY PREPACKAGING

Prepackaging is the packing of medications in a unit of use container, by a licensed pharmacist, in a Louisiana permitted pharmacy prior to the receipt of a prescription for ultimate prescription dispensing by a pharmacist in Louisiana.

- A. Labeling. The label on the prepackaged container shall contain the following information:
 - 1. drug name;
 - 2. dosage form;
 - 3. strength;
 - 4. quantity;
 - 5. name of manufacturer and/or distributor;
 - 6. manufacturer's lot or batch number;
 - 7. date of preparation;
 - 8. pharmacist's last name and initial;
 - 9. expiration date.

**TITLE 46: PROFESSIONAL AND OCCUPATIONAL STANDARDS
Pharmacists**

Chapter 35. Pharmacy Prescription Drugs

3501. PRESCRIPTION DRUGS

A. Legend Drugs. A legend drug is a medication which must only be dispensed by a pharmacist on the order of a licensed practitioner and shall bear the following notation on the label of a commercial container:

"CAUTION: FEDERAL LAW PROHIBITS DISPENSING WITHOUT A PRESCRIPTION"

(Ref. R.S. 40:1237, et seq. [1982] and U.S.C.A. 21:353(b) [1987]).

1. Dispensing. Legend drugs shall be dispensed only by a licensed Louisiana pharmacist.
2. Maximum Prescription Period. No prescription can be filled or refilled more than one year after date of issue unless otherwise specified by the prescriber.
3. Possession. Legend drugs shall be procured and possessed by a pharmacy permits for legitimate dispensing by a pharmacist in the course of the practice of pharmacy, unless otherwise provided by law.
4. Storage. Legend drugs shall be stored in a licensed pharmacy under the Immediate control and responsibility of a pharmacist.

3503. MISBRANDED DRUGS

Misbranded drugs are those drugs whose labeling is false or misleading in any particular; or the label does not bear the name and address of the manufacturer, packer, or distributor and does not have an accurate statement of the quantities of the active ingredients; or do not show an accurate monograph for legend drugs; or other considerations as noted in the Federal Food, Drug, and Cosmetic Act. It is unlawful to possess or dispense misbranded legend drugs by reference R.S. 40:617 and 636(2)[1986].

3505. ADULTERATED DRUGS

Adulterated drugs are contaminated medicinal substances having deleterious foreign or injurious materials, which fail to meet safety, quality, and purity standards. Adulterated drugs are prohibited from possession or dispensing by reference R.S. 40:616 and 632(2)[1986.].

3507. LEGEND DRUG PRESCRIPTION LABEL

Legend drugs are dispensed pursuant to a written or oral prescription with the following general labeling requirements:

- A. patient's name;
- B. authorized prescriber's name;
- C. pharmacy name and address;
- D. date dispensed;
- E. pharmacist's last name and initial;
- F. prescription serial number;
- G. directions;
- H. drug name and strength.

3509. COMMERCIAL LEGEND DRUG LABELS

Legend drugs manufactured commercially shall have the following labeling requirements:

- A. manufacturer's name and address;
 - 1. if not distributed by the manufacturer, it shall also include name and address of packer or distributor;
- B. active ingredients;
- C. dosage strength with count, weight, or volume;
- D. usual dosage;
- E. expiration date;
- F. if applicable, the label is to be identified with "WARNING: MAY BE HABIT FORMING";
- G. legend drug label, "CAUTION: FEDERAL LAW PROHIBITS DISPENSING WITHOUT PRESCRIPTION";

- H. package insert;
- I. lot or control number;
- J. specification as to the type of dispensing container;
- K. national drug code (NDC) identification number.

3517. DRUG RETURNS

Drugs dispensed on prescription to a patient shall not be accepted for return or exchange by any pharmacist after such drugs have been removed from the pharmacy premises where they were dispensed.

3519. CONTROLLED DANGEROUS SUBSTANCES

The purpose of the board CDS Regulation is to prevent diversion of CDS by prohibiting the dispensing, distributing, administering, or manufacturing schedule drugs not in the usual course of professional practice.

- A. Definition. Controlled Dangerous Substances (CDS) are divided into five schedules, based upon their potential for abuse, that appear in R.S. 40:964[1986].
- B. Classification. Controlled Dangerous Substances are specifically identified by reference as provided in R.S. 40:964[1986] hereof inclusive and future amendable schedule drug inclusion.
- C. Composition. Controlled Dangerous Substances are categorized into schedule components based upon the degrees of potential for abuse, as follows:
 - 1. Schedule I Drugs. Schedule I substances are drugs that have no acceptable medical use and have a high abuse potential that appear by reference in R.S. 40:964[1986].
 - 2. Schedule II Drugs. Schedule II substances are drugs that have a high abuse potential with accepted medical use and possess severe psychic or physical dependence liability. Schedule II controlled substances consist of certain narcotic, stimulant, and depressant drugs that appear by reference in R.S. 40:963[1986].
 - 3. Schedule III Drugs. Schedule III substances are drugs that have an abuse potential and include stimulants and depressants that appear by reference in R.S. 40:964[1986].

4. Schedule IV Drugs. Schedule IV substances are drugs that have an abuse potential and specifically listed schedule drugs that appear by reference in R.S. 40:964[1986].
5. Schedule V Drugs. Schedule V substances or preparations have low abuse potential and contain limited quantities of narcotic drugs that appear by reference in R.S. 40:964[1986].

3531. SCHEDULE DRUG PRESCRIPTION REQUIREMENTS

A schedule drug prescription or order must be issued for a legitimate medical purpose by a licensed medical practitioner in the usual course of professional practice and dispensed by a licensed pharmacist.

A. Schedule Drug Prescription Form. Schedule drug prescriptions/orders shall be written or reduced to writing with ink, or typewritten in compliance with the following form:

1. Patient's:
 - a. full name; and
 - b. address.
2. Schedule drug:
 - a. name;
 - b. strength;
 - c. quantity;
 - d. instructions; and
 - e. dosage form.
3. Authorized prescriber's:
 - a. full name;
 - b. address;
 - c. signature for Schedule II drugs; and
 - d. DEA registration number.

B. Schedule II Drug Prescriptions or Orders. Schedule II prescriptions must be issued and signed by an authorized practitioner.

1. Schedule II Drug Oral Prescriptions/Orders. A pharmacist may dispense an oral Schedule II controlled substance prescription authorized by a medical practitioner, in the case of a bona fide emergency situation, upon a prescribing practitioner's verbal authorization.

C. Schedule Drug Labeling

1. Prescription/Order Label. A schedule prescription label shall be affixed to a suitable container and exhibit the following information:
 - a. pharmacy name;
 - b. pharmacy address;
 - c. date filled or refilled;
 - d. serial number;
 - e. patient's name;
 - f. authorized prescriber's name;
 - g. drug name and strength;
 - h. direction;
 - i. pharmacist's last name and initial; and
 - j. federal transfer caution label.

D. Schedule V Drugs. Schedule V dispensing requires a prescription except for the following:

1. Schedule V Exempt Narcotics. Exempt narcotics are preparations dispensed without a prescription containing limited quantities of certain narcotic drugs dispensed by a licensed pharmacist, generally for antidiarrheal purposes, to a person of majority with suitable identification and the transaction properly recorded in a bound Schedule V Exempt Narcotic Book containing the name and address of purchaser, and name and quantity of exempt narcotic dispensed, with the date of sale and the dispensing pharmacist's name or initials.
2. Schedule V Exempt Preparation. An exempt narcotic transaction shall not exceed 240 cc/ml. (8 fluid ounces), or not more than 48 solid dosage units, which may be dispensed to the same person in any given 48-hour period, containing limited narcotic qualities with non-narcotic active medicinal ingredients in sufficient proportion to confer upon the compound, mixture, or preparation valuable medicinal qualities other than those possessed by the narcotic drug alone.

SUPPLEMENT #2

VITAMINS AND MINERALS

Vitamins are substances that regulate body processes. You probably know them by their letter names: A, B-complex, C, D, E, and K. Vitamins help to build strong teeth and bones, promote growth, aid normal body functioning, and strengthen resistance to disease.

Minerals help build tissues, especially bones and teeth. They also regulate body fluids, such as blood and digestive juices. The minerals we need in our daily diet include calcium, phosphorus, sodium, potassium, iodine, iron and fluoride.

Vitamins and minerals are present in a wide variety of foods. A balanced diet usually provides enough vitamins and minerals and it is not necessary to take additional vitamins. However, there are some periods when it is necessary to take additional vitamins and minerals, such as during times of:

- Poor Nutrition
- Illness
- Pregnancy
- Periods of Growth

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING VITAMINS AND MINERALS

The best solution is to encourage individuals to eat a nutritionally sound diet. However, if a physician orders vitamins and minerals for a individual, your major responsibilities are:

FOLLOW LABEL DIRECTIONS
AND
STORE VITAMINS IN A COOL, DARK PLACE

NUTRITIONAL DEFICIENCIES

A. SOURCES AND FUNCTIONS OF BODY NUTRIENTS

1. Types and best sources of nutrients:
 - a. Carbohydrates--sugars and starches
 - b. Fats--butter, oils, meat, fats, cheeses
 - c. Proteins--meats, milk, eggs
 - d. Vitamins--vegetables, meats, fruits, milk, eggs
 - e. Minerals--milk, cheese, eggs, meats, vegetables
 - f. Water--contained in all food and drink
2. Three major functions of nutrients
 - a. Supply heat and energy to the body (carbohydrates, fats, and proteins).
 - b. Build and repair body tissues (proteins).
 - c. Regulates body processes (vitamins, minerals, and water).
3. If nutrients are lacking in the diet, then either the diet must be changed, or nutrients must be given in the form of medication to prevent the individual from becoming ill.

B. COMMON NUTRITIONAL DISORDERS TREATED BY MEDICATION

1. Pernicious anemia
 - a. Cause--low iron level in the blood due to inability of stomach lining to absorb vitamin B (required for the formation of red blood cells).
 - b. Symptoms--low red blood cell count, fatigue, inflammation of the mouth.
 - c. Treatment--requires lifelong injections of vitamin B.
2. Iron deficiency anemia
 - a. Cause--low iron level in the blood due to inadequate diet or blood loss.
 - b. Symptoms--low hemoglobin level, pallor, fatigue.
 - c. Treatment--oral iron and vitamin supplements
3. Osteoporosis
 - a. Cause--body is deficient in calcium, phosphorus, and vitamin D.
 - b. Symptoms--bowed legs, deformed bones in children, and porous, easily broken bones in adults.
 - c. Treatment--increased intake of vitamin D, calcium, and phosphorus. Deficiencies can usually be treated by adequate diet (milk, fish oils, meats) and sun.
 - d. Special note--Overdoses of vitamin D can be dangerous. Can cause hardening of soft tissues and abnormality of bones.

4. Hypokalemia

- a. Cause--frequently a side effect of diuretics, potassium is not absorbed by the body.
- b. Symptoms--heart irregularity, flu-like symptoms, leg cramps
- c. Treatment--diet (bananas, milk, cereals, meat), often treated with potassium replacement medications.

5. Dehydration

- a. Causes--inadequate fluid intake, diseases such as diabetes, diuretics, vomiting diarrhea, fever
- b. Symptoms--poor skin turgor, constipation, fever, decreased urine output, increased pulse.
- c. Treatment--encourage individual to drink fluids, intravenous fluids may be necessary, water is essential for all body functions, clear liquid diets may be ordered for short periods of time.

C. SELECTED MEDICATIONS BY CLASSIFICATION

1. Iron products

- a. Action--replaces iron
- b. Use--treat iron deficiency anemia
- c. Example--ferrous sulfate (Feosol, Slow-Fe)
- d. Adverse effects
 - (1) Nausea
 - (2) Insomnia
 - (3) Constipation
 - (4) Diarrhea
- e. Special considerations
 - (1) Dilute liquid preparations in juice or water.
 - (2) May cause black, tarry stools. Chart color and amount of stool.
 - (3) Do not crush medications
 - (4) Do not give with antacids.

2. Potassium products

- a. Action--replaces and maintains potassium levels
- b. Use--treat potassium deficiency
- c. Example--potassium chloride (Micro-K, K-Tab, K-Lor, K-Lyte/cl)
- d. Adverse effects
 - (1) Listlessness
 - (2) Mental confusion
 - (3) Cardiac arrhythmias
 - (4) GI irritation
- e. Special considerations
 - (1) Administer during or after meals with a full glass of juice or water.

- (2) Completely dissolve powders before administering.
 - (3) Do not crush solid form of medication.
3. Calcium
- a. Action--reduces acid load in the gastrointestinal tract, replaces calcium
 - b. Use--treat osteoporosis and dyspepsia
 - c. Examples
 - (1) calcium carbonate (Tums)
 - (2) Os-Cal
 - d. Adverse effect--calcium deposits form in joints
 - e. Special considerations--do not give with milk or milk products.

DEFINITIONS OF KEY TERMS

Anaphylactic reaction--Life-threatening allergic reaction caused by an allergin.

Aspiration--The taking of foreign matter (such as food) into the lungs during the respiratory cycle.

Dehydration--Excessive loss of water from the body.

Hypokalemia--An abnormally low level of potassium in the blood.

Iron deficiency anemia--Low iron level in the blood due to inadequate diet or blood loss.

Osteoporosis--Abnormal porousness of the bone by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Parenteral--Introducing medication or food into the body by injection.

Pernicious anemia--Vitamin B₁₂ deficiency.

SUPPLEMENTAL LESSON: NUTRITIONAL DEFICIENCIES

Performance:

1. List three functions of nutrients.
2. Define four key terms selected by the staff nurse.
3. Describe three nutritional disorders, including the cause, symptoms, and treatment of each.
4. If a resident currently is receiving an iron, potassium, or calcium product, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

SUPPLEMENT #3

THE RESPIRATORY SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE RESPIRATORY SYSTEM

1. Structures of the respiratory system:
 - a. Nose
 - b. Throat
 - c. Larynx
 - d. Trachea (windpipe)
 - e. Bronchi
 - f. Lungs
 - g. Diaphragm
 - h. Muscles between the ribs

2. Functions of the respiratory system:
 - a. Bring oxygen into the body which is distributed to every cell via the blood.
 - b. Take carbon dioxide and other wastes out of the body.
 - c. Rate and depth of breathing depends upon the "respiratory center" located in the brain--can be triggered by activity, illness, and medications.

3. Modes of administering respiratory medications:
 - a. Oral--by mouth, most commonly used method
 - b. Inhalation--by breathing in
 - c. Parenteral--by injection
 - d. Rectal--by suppository
 - e. Sublingual--under the tongue
 - f. Nebulization--mist to lining of the nose and/or throat

B. DISORDERS OF RESPIRATORY SYSTEM

1. Abnormal respirations and respiratory arrest
 - a. Causes--obstruction, infections, decrease in the amount of respiratory surface available for exchange of oxygen and carbon dioxide.
 - b. Symptoms--restlessness, confusion, respiratory rate increased or decreased, cyanosis may or may not be present, coughing, increased heart rate, perspiration, coma, death.
 - c. Treatment--stimulate breathing, improve gas exchange, medication to treat symptoms as well as causes.

2. Asthma
 - a. Causes--allergies, infection, emotional tension, or combination of all three.
 - b. Symptoms--mild wheezing to severe dyspnea with particular difficulty exhaling; flaring nostrils, increased pulse, prolonged attack places considerable strain on heart.
 - c. Treatment--medication to dilate bronchioles

3. Bronchitis
 - a. Causes--germs, irritants such as dust, smoke, pollutants, cold weather.
 - b. Symptoms--dry cough followed by thick mucous, productive cough.
 - c. Treatment--antibiotics, medications to relieve bronchospasm (bronchodilator), expectorants.

4. Pulmonary Emphysema
 - a. Causes--smoking, recurrent inflammation, infection
 - b. Symptoms--chronic cough, loss of appetite, barrel chest, pursed lip breathing, cyanosis of extremities and clubbing of fingers, shortness of breath.
 - c. Treatment--antibiotics, bronchodilator, breathing treatments

- 5. COLD (Chronic Obstructive Lung Disease) or COPD (Chronic Obstructive Pulmonary Disease)
 - a. Causes--emphysema, chronic bronchitis, asthma, or a combination of these disorders.
 - b. Symptoms--dyspnea with minimal exertion, productive cough, frequent respiratory infections, barrel chest, severe respiratory failure.
 - c. Treatment--incurable, but condition may improve with breathing exercises, bronchodilator, and expectorants

6. Rhinitis
 - a. Causes--allergies, irritants, germs, pollens (hay fever).
 - b. Symptoms--sneezing, runny nose, congestion
 - c. Treatment--medications to relieve symptoms

7. Common Cold
 - a. Causes--virus
 - b. Symptoms--muscular aches, stuffy nose, congestion
 - c. Treatment--incurable, medications to relieve symptoms

8. Pneumonia
 - a. Causes--primary-virus or bacteria; secondary-complication of other diseases, aspiration of food, fluid, or gastric contents.
 - b. Symptoms--cough, rusty sputum, fever, cyanosis, moist respirations.
 - c. Treatment--bed rest and medication

9. Tuberculosis (TB)
 - a. Causes--inhalation of droplets from an infected person; spread through the air.
 - b. Symptoms--none for 6-8 weeks, then fatigue, weakness, loss of appetite, weight loss, night sweats, low grade fever.

- c. Treatment--medications (drug therapy), isolation till non-contagious, TB skin test for close associates to detect infection, possible chest x-rays.
10. Allergic reactions
- a. Causes--allergens cause body cells to release a substance called histamine. Common allergens are:
 - (1) Foods--eggs, strawberries, shellfish
 - (2) Contact--wool, poison ivy
 - (3) Breathing--rag weed, dust
 - (4) Medications--morphine, sulfa drugs, penicillin
 - (5) Insect bites--bees, spiders (this allergy is an emergency because it can cause anaphylactic shock).
 - b. Symptoms--histamine causes various reactions (swelling, hives, rhinitis, difficulty breathing, nausea, vomiting, diarrhea). An extreme reaction may cause anaphylactic shock and death.
 - c. Treatment--antihistamines

C. SELECTED RESPIRATORY MEDICATIONS BY CLASSIFICATION

- 1. Respiratory Stimulants
 - a. Action--inhalation of drug triggers the respiratory center of the brain; increases the rate and depth of respiration.
 - b. Use--treat fainting
 - c. Example--spirits of ammonia (smelling salts)
 - d. Adverse effects
 - (1) Irritates lining of the nose
 - (2) Nausea
- 2. Cough medications
 - a. Antitussive
 - (1) Action--depress the cough by depressing the activity of the cough center in the brain or by local action.
 - (2) Use--treat coughs
 - (3) Examples
 - (a) Codeine (controlled substance)
 - (b) dextromethorphan (Benlyn-DM, Tussi-Organidin-DM, Robitussin-DM)
 - (c) benzonatate (Tessalon)
 - (4) Adverse effects
 - (a) Drowsiness
 - (b) Nasal congestion
 - (c) Nausea

b. Expectorants

- (1) Action--clear the respiratory tract by liquefying mucous.
- (2) Use--cause productive coughing
- (3) Examples
 - (a) Robitussin
 - (b) terpin hydrate (ETH)
 - (c) Potassium iodide (SSKI)
- (4) Adverse effects
 - (a) Gastric irritation
 - (b) Nausea and vomiting

4. Bronchodilator

- a. Action--relax bronchial muscles and open the breathing passages.
- b. Use--treat asthma, bronchitis, and chronic lung disease
- c. Example
 - (1) Aminophylline
 - (2) theophylline (Elixophyllin)
 - (3) terbutaline sulfate (Brethine)
 - (4) isoetharine HCl 1% (Bronkosol)
 - (5) metaproterenol sulfate (Alupent)
 - (6) beclomethasone dipropionate (Vanceril)
- d. Adverse effects
 - (1) Withdrawal symptoms may occur if medication is discontinued.
 - (2) Restlessness
 - (3) Dizziness
 - (4) Palpitations
 - (5) Nausea
 - (6) Hypertension
- e. Special considerations
 - (1) Individual may become frightened, anxious, manipulative, or demanding while on the medication.
 - (2) Drugs in combinations may cause increased adverse effects.
 - (3) The doctor must be notified if medication is withheld because of nausea.
 - (4) Observe for drug interactions.

5. Nasal Decongestants

- a. Action--shrinks mucous membrane and relieves nasal swelling and congestion.
- b. Use--treat allergies, hay fever, and cold symptoms
- c. Examples
 - (1) naphazoline HCl (Privine)
 - (2) oxymetazoline HCl (Afrin)

- (3) phenylephrine HCL (Neo-Syneprine, Coricidin Nasal Mist)
- (4) pseudoephedrine HCl (Sudafed)
- d. Adverse effects--Prolonged use can:
 - (1) Cause irritation.
 - (2) Perforate the nasal septum.
 - (3) Cause rebound nasal congestion.

6. Combination Products

- a. Action--preparations containing more than one product to produce more than one effect.
- b. Use--treat coughs and allergies, to relieve pain.
- c. Examples
 - (1) Sinutab
 - (2) Actifed
 - (3) Ornade
- d. Adverse effects
 - (1) Drowsiness
 - (2) Dry mouth
- e. Special Considerations
 - (1) May cause elevated blood pressure.
 - (2) Over-the-counter medications are potent; use with caution
 - (3) Rebound symptoms can occur if given more often than indicated.

7. Oxygen Therapy

- a. Action--treat conditions such as COPD, CHF, hypoxia
- b. Use--relieve shortness of breath.
- c. Example--oxygen
 - (1) Stored in three forms:
 - (a) Gas
 - (b) Liquid
 - (c) Concentrator
 - (2) Administered two primary ways:
 - (a) By nasal formula
 - (b) By mask
- d. Adverse effects
 - (1) Hyperventilation
 - (2) Hypoventilation
- e. Special Considerations
 - (1) Individuals with chronic lung disease should use lower liter flow rates.
 - (2) Mask should not be used at less than 5 liters per minute.
 - (3) Dries out the mucous membrane - good mouth care must be given.
 - (4) Individuals, visitors, and staff must not smoke in areas where oxygen is being used.

8. Tuberculin Medications

- a. Action--reduce growth or kill the bacteria that cause TB
- b. Use--treat the active disease.
- c. Examples
 - (1) rifampin (Rifadin)
 - (2) ethambutol HCl (Myambutol)
 - (3) isoniazid [INH] (Rimifon, Rolazid)
- d. Adverse effects
 - (1) Fatigue/drowsiness
 - (2) Numbness in extremities
 - (3) Nausea
 - (4) Confusion
 - (5) Headache
 - (6) Vision problems
 - (7) Anorexia
 - (8) Rash
- e. Special Considerations
 - (1) Can turn urine, feces, sputum, sweat, or tears to a harmless red-orange color.
 - (2) Administer with caution to individuals who have a history of alcoholism and liver disease.
 - (3) Watch for signs of hepatitis (jaundice).
 - (4) Monitor the individual for weight loss.
 - (5) Give with food if the individual complains of nausea.

D. ADDITIONAL CONSIDERATIONS FOR THE RESPIRATORY SYSTEM

1. Individuals with chronic lung problems may be on a comprehensive regime of medication managements, oxygen therapy, nutrition, progressive exercise, and education.
2. Narcotics and barbiturates depress respiration, so these medications are not used with COPD individuals.
3. Individuals with asthma usually exhibit continuous wheezing, dyspnea, and coughing. Fatigue is often associated with chronic lung conditions. Administer medications slowly and monitor individuals closely.
4. Individuals with chronic lung diseases may sometimes be treated with corticosteroid. These individuals are at a higher risk for peptic ulcers. Approximately 25% of COPD individuals will have a peptic ulcer at some time.
5. Avoid giving mucous-producing liquids to individuals who are congested.

DEFINITIONS OF KEY TERMS

Allergen--A substance that causes a hypersensitive reaction (an allergy).

Allergic reaction--Sensitivity to any substance contacted by touch, inhalations, ingestion, or injections such as poison ivy, pollen, insect bites, foods, or medications.

Anaphylactic reaction--Life threatening allergic reaction caused by an allergen. Characterized by respiratory problems, fainting, itching, welts on the skin.

Antihistamines--Drugs used to reduce the effects associated with histamine production in allergies and colds.

Antitussives--Medications that relieve coughing.

Asthma--A chronic respiratory disease, often from allergies, with labored breathing, chest constriction, and coughing.

Bronchitis--Inflammation or swelling of the bronchial tubes.

Chronic Obstructive Lung Disease (COPD)--Chronic airway obstruction.

Common cold--Communicable viral disease.

Emphysema--A condition of the lungs resulting in labored breathing and increased susceptibility to infection.

Expectorant--Medication that assists in liquefying the mucus to make it easier to cough up.

Histamine--A white crystalline compound found in plant and animal tissue. It is a stimulator of gastric secretion, and is used medicinally as a vasodilator which increases the blood supply to the brain.

Pneumonia--An acute or chronic disease marked by inflammation and infection in the lungs.

Rhinitis--Inflammation and swelling of the lining of the nose.

Tuberculosis--Communicable acute or chronic infection caused by mycobacterium tuberculosis.

SUPPLEMENTAL LESSON: THE RESPIRATORY SYSTEM

Performance:

1. List two functions of the respiratory system.
2. List the major structures of the respiratory system. (A diagram of the respiratory system is included. You may use it to point out or label the structures.)
3. Define eight key terms selected by the staff nurse.
4. Describe six conditions of the respiratory system including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a respiratory medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

SUPPLEMENT #4

INFLAMMATION, INFECTION, AND IMMUNITY

The body is equipped to defend itself against injury and disease through the immune system. An important part of this defense is the lymphatic (Lymph) system, which is one part of the system of absorbent vessels which drain the lymph from various body tissues and return the lymph to the blood stream. The lymph system also filters out foreign particles and bacteria, and produces antibodies, which defend the body against disease-producing organisms.

When the body is injured or affected by irritating substances, or is suffering from overuse, it reacts with a protective process called inflammation. Inflammation is characterized by redness, swelling, heat, pain, and sometimes lost of function.

The body has two processes that protect the cells from being destroyed by germs. One process is called infections, the other, immunity. Infection is an invasion of the body by disease-carrying microorganisms. Infections occur depending on how the tissues react to their presence. Immunity refers to the security a body has against any particular disease or poison. Immunity is the power which an individual sometimes acquires (actively or passively) to resist and/or overcome an infection to which most or many other people are susceptible.

When the body cannot rid itself of irritation or germs, medication must be used to help the processes of inflammation, infection, and immunity.

I. Review of the Processes of Inflammations, Infection, and Immunity

A. Inflammation

1. Causes--the body attempting to remove physical, chemical or pathogenic organisms; the healing process
2. Process of inflammation
 - a. Blood vessels dilate, causing the area to redden.
 - b. Increased circulation causes redness, swelling, and heat at the affected site.
 - c. Swelling causes pressure on the nerve endings, resulting in pain.
 - d. White blood cells move to the sites of the injury and ingest bacteria and dead tissue (pus).

B. Infection

1. Predisposing causes--organisms or animal parasites that enter the body through the following ways:
 - a. Skin breaks
 - b. Mucous membranes: mouth, nose, vagina, urethra, and rectum
 - c. Infected food and water
 - d. Suppressed immune system
2. Process of infection
 - a. Bacteria enter the body and multiply spreading from the infected tissue to other parts of the body through the blood, the lymph system, and tissue.
 - b. The body sends specialized white blood cells to fight the bacteria. Sometimes the body fights infection by itself, other times it needs medication.
 - c. Medication is used either to cure an infection or to treat its symptoms.
3. Symptoms of infection
 - a. Inflammation
 - b. Increased body temperature
 - c. Pain, discharge, decrease in function
 - d. Example--upper respiratory infection

C. Immunity

1. Active immunity (long lasting)
 - a. Naturally acquired--by contracting a disease, such as measles, mumps, chicken pox, and producing antibodies to ward off the disease.
 - b. Artificially acquired--by ingesting antibodies from an immunized animal or human to prevent disease in persons who haven't developed their own antibodies.
2. Passive immunity (short term)
 - a. Naturally acquired--by passing antibodies from the mother's blood stream to the baby.
 - b. Artificially acquired--by injecting the body with attenuated disease causing microorganisms, which stimulate the body to produce antibodies.

II. Common Inflammatory, Infectious, or Non-Immune Conditions for Which Medications or Preparations May Be Helpful

A. Inflammatory conditions

1. Arthritis - called Rheumatoid in a younger person and Osteoarthritis in an older person.
 - a. Cause - unknown
 - b. Symptoms - pain, stiffness, swelling in joints, limited movement
 - c. Treatment - analgesics, steroids, and other anti-inflammatory drugs.
2. Bursitis
 - a. Cause - inflammation of the bursa
 - b. Symptoms - bursa become irritated or swollen, mild to severe pain
 - c. Treatment - anti-inflammatory analgesics and/or anti-inflammatory steroids

B. Infectious conditions

1. Strep throat
 - a. Cause - bacteria (streptococcus)
 - b. Symptoms - fever, pain on swallowing, reddened throat; throat may contain whitish pustules or red streaks.
 - c. Treatment - antibiotics, soothing gargles
2. Influenza (flu)
 - a. Cause - airborne virus
 - b. Symptoms - fever, muscular aches, GI disturbances, inflammation of respiratory tract
 - c. Treatment - immunization may help to prevent occurrence, medications given only to relieve symptoms.
3. Athlete's foot
 - a. Cause - Tinea pedis (fungus)
 - b. Symptoms - itching and watery blisters between toes, scaling and cracking of the skin.
 - c. Treatment - antifungal powders, ointments, or oral medications
4. Pneumonia
 - a. Cause - virus, bacteria, aspiration, stasis, or secondary infection
 - b. Symptoms - difficult, painful breathing, sometimes cough or fever, sometimes rust-colored sputum
 - c. Treatment - bedrest, medication

5. Ringworm

- a. Cause - fungus
- b. Symptoms - ringworm of the scalp: small bald areas usually round or oval in shape covered with dry grayish scales. Ringworm of the body: circular or oval areas with tiny bumps around the edges.
- c. Treatment - ointments, antibiotics

C. Immunizations are recommended for the following conditions:

1. Hepatitis B

- a. Cause - virus - fecal or oral route
- b. Symptoms - loss of appetite, nausea, fever, jaundice, loss of weight and strength
- c. Prevention - hepatitis B vaccine, universal precautions

2. Tetanus - "Lockjaw"

- a. Cause - specific bacteria growing at the site of injury, especially around puncture wounds.
- b. Symptoms - stiff jaw, difficulty swallowing, stiff neck, irritability, headache, fever, chills, muscle spasms, convulsions, and possibly death.
- c. Prevention - active acquired immunity with periodic booster shots.

3. Rubella - "German Measles"

- a. Cause - virus
- b. Symptoms - flat pink spots that start behind the ears and spread to the forehead and then over the body, merging, often in a few hours, so that the skin merely looks flushed. Swollen glands high up on the back of the neck which may stay swollen for weeks. Incubation period is 14-21 days.
- c. Prevention - active acquired immunity
- d. Complication - can cause birth defects in unborn children if mother contracts virus during the first three months of pregnancy. Warn anyone who is in the early stages of pregnancy who might have contact with the individual.

4. Polio

- a. Cause - virus
- b. Symptoms - fever, sore throat, headache, vomiting, stiff neck, paralysis
- c. Treatment - medication
- d. Prevention - active acquired immunity

5. Measles

- a. Cause - virus
- b. Symptoms - runny nose; reddened, water eyes; cough; fever which

gradually rises; spots which look like grains of salt appear on the inside of cheeks about day 3 or 4; rash appears day 4 or 5 as small dark red spots starting behind the ears and spreading and becoming blotchy over the face and body.

- c. Treatment - antibiotics, eye medication
- d. Prevention - active acquired immunity
- e. complications - acute conjunctivitis, sore throat, bronchitis, pneumonia, inflammation of the brain leading to encephalitis.

6. Mumps

- a. Cause - virus
- b. Symptoms - swollen, painful gland(s) running from behind the ear to beneath the jaw bone; dry mouth; acute stinging pain on swallowing anything acidic; increasing swelling, changing the whole shape of the face. Incubation period is 14-28 days.
- c. Treatment - rest, pain relievers, fluids
- d. Complications - deafness, mumps, meningitis
- e. Prevention - active acquired immunity

7. Tuberculin Testing

- a. Action - produce an allergic reaction to tuberculin bacteria
- b. Use - check for contact with tuberculin bacteria
 - i. Negative result means lung tissue has not been in contact with TB bacteria.
 - ii. Positive result means lung tissue has been exposed to the TB bacteria, but it does not necessarily mean the person has tuberculosis.
- c. Examples
 - i. Tine
 - aa. Used in schools, but not accepted in health care facilities because it gives too many false=positive readings.
 - bb. Give a purified protein derivative (PPD) as a follow-up test if the individual tests positive with the Tine.
 - ii. Mantoux or purified protein derivative (PPD)
 - aa. Accepted test for health care workers and individuals in long-term care.
 - bb. Give by nurse-injection just under the skin.
 - cc. Required annually, unless the test has been positive in the past.
 - dd. Follow up a positive test with a chest X-ray.
 - iii. Chest X-ray (CXR)
 - aa. Used for persons with a positive PPD to diagnose the disease

8. Persons with positive serologic tests within 72 hours of exposure should be considered to have been seropositive prior to the reported exposure.
9. Persons whose blood or body fluids were the source of exposure shall be informed if HIV serologic testing is part of institutional policy and must consent before testing is performed.
10. All persons should be informed of their test results and should receive appropriate counseling; seropositive persons should be referred for further medical assistance according to institutional policy.
11. If a person is exposed to blood or body fluids of an employee, that person should be informed of the exposure (without identification of the employee) and procedures similar to those outlined above should be followed.

SUPPLEMENT #5

CARDIOVASCULAR SYSTEM

STRUCTURE AND FUNCTION

The system is made up of the heart (central pumping station), blood vessels, and the blood itself. It is a continuous network. The heart is a muscular organ. It is hollow inside and divided into four chambers (cavities): the right atrium, the left atrium, the right ventricle, and the left ventricle. It is separated into right and left sides by a wall (septum). Nerve impulses make the heart beat regularly according to body needs. When you run, the cells need more oxygen, and so the heart beats faster.

CARDIAC CYCLE

The heart pumps blood through the body by a series of movements known as the cardiac cycle. The upper chambers of the heart (atria) relax and fill with blood as the lower chambers (ventricles) contract, forcing blood out of the heart through the pulmonary arteries. The lower chambers then relax, allowing blood to flow into them from the upper chambers.

MAJOR VESSELS

Arteries are vessels which carry blood away from the heart and eventually join the veins. Veins are lined with one way valves which help transport blood back to the heart. Thus, the major vessels are a continuous network through which the blood completes a round trip from the heart to the rest of the body and back to the heart. Blood pressure is the measurement of how hard the heart has to work to pump blood into the arteries and the amount of resistance in the blood vessels. The blood pressure is also affected by rest, activity, weight, stress, and illness. Pulse, respiration, and blood pressure may also be called the vital signs.

THE CARDIOVASCULAR SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE CARDIOVASCULAR SYSTEM

1. Structures of the cardiovascular system:
 - a. heart
 - b. blood vessels
 - c. blood
 - d. arteries and veins
2. Functions of the cardiovascular system:
 - a. Pump the blood (heart)
 - b. Provide a pathway for the blood (blood vessels)
 - c. Carry essentials to body cells via blood
 - d. Carry wastes away from body cells via blood
3. Effectiveness of the circulatory systems depends on:
 - a. Rate, rhythm, and force of heart
 - b. Elasticity of blood vessels

B. MAJOR CIRCULATORY DISORDERS

1. Myocardial Ischemia
 - a. Cause--lack of adequate oxygen supply to the heart.
 - b. Symptoms--shortness of breath, chest pains
 - c. Treatment--medications and rest
2. Angina Pectoris
 - a. Cause--myocardial ischemia
 - b. Symptoms--pain in chest and left arm, flushing and perspiration, sudden attack of vertigo, can be aggravated by smoking
 - c. Treatment--usually relieved by vasodilator drugs
3. Coronary Occlusion (heart attack, M.I.)
 - a. Cause--blockage in any artery that supplies blood to the heart muscle. Destroys heart and can cause death (myocardial infarction). Severity depends on size and location of blocked heart vessel.
 - b. Symptoms--crushing chest pain, shortness of breath, anxiety, indigestion, shock, collapse.
 - c. Treatment--medication, rest, hospitalization
4. Congestive Heart Failure
 - a. Causes--heart muscle weakness, hypertension, changes in heart valves due to disease, heart contractions are inadequate to pump blood to all body parts.
 - b. Symptoms--edema (swelling) in feet and legs, cough and shortness of breath, fatigue, tachycardia.
 - c. Treatment--cardiotonics and diuretics.
5. Heart Arrhythmias
 - a. Causes--inability of impulse center to function properly, sometimes follows coronary occlusion, toxic effect of other drugs (digitalis).
 - b. Symptoms--irregularity in rate and rhythm of heart, syncope, may exhibit tachycardia (rapid heart rate) or bradycardia (heart rate below 60).
 - c. Treatment--medication, rest

6. Shock
 - a. Causes--collapse of the blood vessels resulting in poor blood supply to entire body, dilation of the blood vessels, blood loss (hemorrhage).
 - b. Symptoms--rapid heart beat, pallor, perspiration, light headiness, chills, fainting, hypotension.
 - c. Treatment--medications, keep the individual warm, move the individual to the Trendelenburg position. Shock is a medical emergency, the physician may place the individual in the hospital.
7. Arteriosclerosis/Atherosclerosis
 - a. Cause--build up of plaque deposits in blood vessels which causes narrowing of the vessel.
 - b. Symptoms--pale or blue skin color, muscle cramping, decreased circulation which may result in pain in the extremities or ulcers (sores) to develop on legs and feet.
 - c. Treatment--medication, exercise, monitor diet
8. Hypertension (high blood pressure)
 - a. Causes--kidney disease, adrenal gland tumors, brain disease, heart disease, aggravated by obesity and smoking, usually cause is unknown.
 - b. Symptoms--dizziness, headache, palpitations, fatigue, tinnitus, systolic pressure above 140, diastolic pressure above 90.
 - c. Treatment--medication, exercise, weight control
9. Cerebral Vascular Accident (CVA)--stroke
 - a. Causes--blood clot, ruptured blood vessel in the brain, hypertension.
 - b. Symptoms--depend on which area of the brain is affected, weakness or paralysis, inability to speak or read, loss of memory, unconsciousness.
 - c. Treatment--medications, physical/speech therapy
10. Thrombophlebitis
 - a. Causes--injury, surgery, abnormal blood clotting
 - b. Symptoms--pain, redness, tenderness, swelling of the affected limb.
 - c. Treatment--medication, rest

C. SELECTED MEDICATIONS BY CLASSIFICATION

1. Cardiotonics
 - a. Action--slows and strengthens the heart action.
 - b. Use--as maintenance therapy in congestive heart failure, atrial fibrillation, atrial flutter.
 - c. Examples
 - (1) digitoxin (Crystodigin)
 - (2) digoxin (Lanoxin)
 - d. Adverse effects
 - (1) Fatigue and loss of appetite
 - (2) Dizziness, agitation
 - (3) Irregular heart beat
 - e. Special considerations
 - (1) Take pulse before administering cardiotonic drugs.
 - (2) Precaution: If pulse is below 60, hold medication and contact staff nurse immediately

2. Antiarrhythmics

- a. Action--regulate heart rate and rhythm.
- b. Use--angina and arrhythmias
- c. Examples
 - (1) propranolol (Inderal)
 - (2) quinidine (CinQuin, Cardioquin)
 - (3) procainamide HCl (Pronestyl)
- d. Adverse effects
 - (1) Nausea and vomiting
 - (2) Confusion
 - (3) Hypotension
- e. Special consideration--administer one hour before or two hours after meals with a full glass of water.

3. Vasodilators

- a. Action--dilate blood vessels and improve blood supply to the heart.
- b. Use--treat angina pectoris and decreased circulation to the brain and extremities.
- c. Examples
 - (1) nitroglycerin (Nitro-Bid)
 - (2) nicotinic acid
 - (3) papaverine (Cerespan, Pavacen)
 - (4) isoxsuprine HCl (Vasodilan)
 - (5) cyclandelate (Cylcospasmol)
- d. Adverse effects
 - (1) perspiration
 - (2) flushed face
 - (3) hypotension
 - (4) headache
- e. Special considerations--do not get the nitroglycerin on your skin.

4. Anticoagulants

- a. Action--decrease blood clot formation
- b. Use--thrombophlebitis, abnormal clot formation
- c. Examples
 - (1) aspirin (A.S.A.)
 - (2) heparin (Coumadin)
- d. Adverse effects
 - (1) Gastrointestinal bleeding
 - (2) Blood in stool or urine

DEFINITIONS OF KEY TERMS

Angina--Any disease in which spasmodic and painful suffocation or spasms occur.

Arrhythmia--A change in the time or force of the rhythm of the heartbeat.

Arteriosclerosis--A deposit or degenerative accumulation of cholesterol and lipoid material in the arteries.

Fibrillation--Very rapid irregular contractions of the muscle fibers of the heart resulting in the heartbeat and the pulse not beating simultaneously.

Flutter--Very rapid rhythmic contractions of the heart muscles.

Hematemesis--Vomiting blood.

Hemoptysis--Coughing up blood.

Hypertension--High blood pressure.

Hypotension--Low blood pressure.

Ischemia--Temporary decrease in the amount of blood being delivered to a part of the body; mainly due to the contraction of a blood vessel.

Phlebitis--Inflammation of a vein.

Syncope--A brief loss of consciousness.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 beats per minute.

Thrombophlebitis--Inflammation of a vein which results in the formation of a clot.

Trendelenburg Position--Lying on the back with the pelvis higher than the head, inclined at a 45 degree angle.

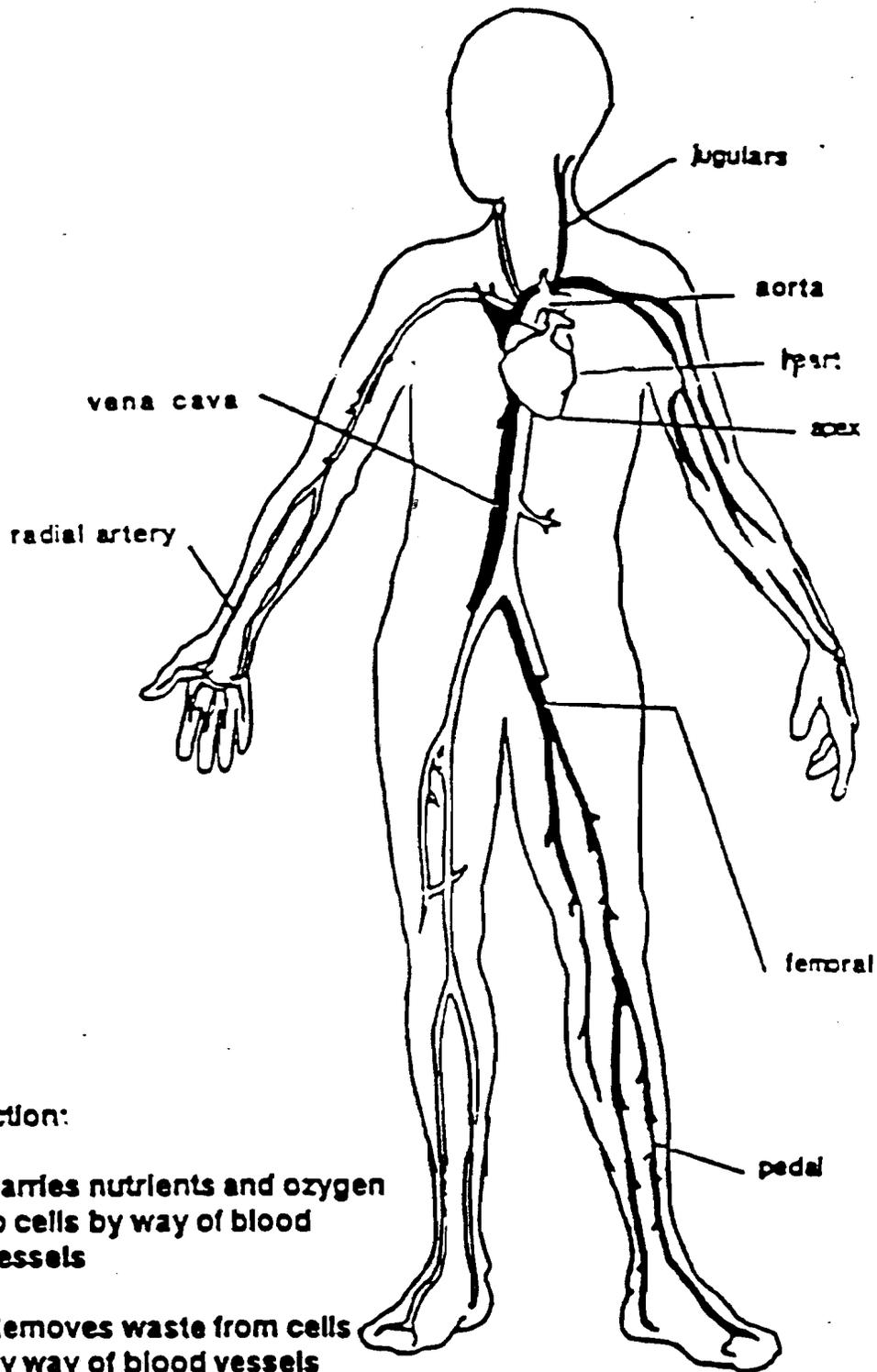
SUPPLEMENTAL LESSON: THE CARDIOVASCULAR SYSTEM

PERFORMANCE:

1. List two functions of the cardiovascular system.
2. List the major structures of the cardiovascular system and the heart. (Diagram of the cardiovascular system and the heart are included). You may use them to point out or label the structures.
3. Define eight key terms selected by the staff nurse.
4. Describe five conditions of the cardiovascular system including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a cardiovascular medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

The Cardiovascular System

KEY

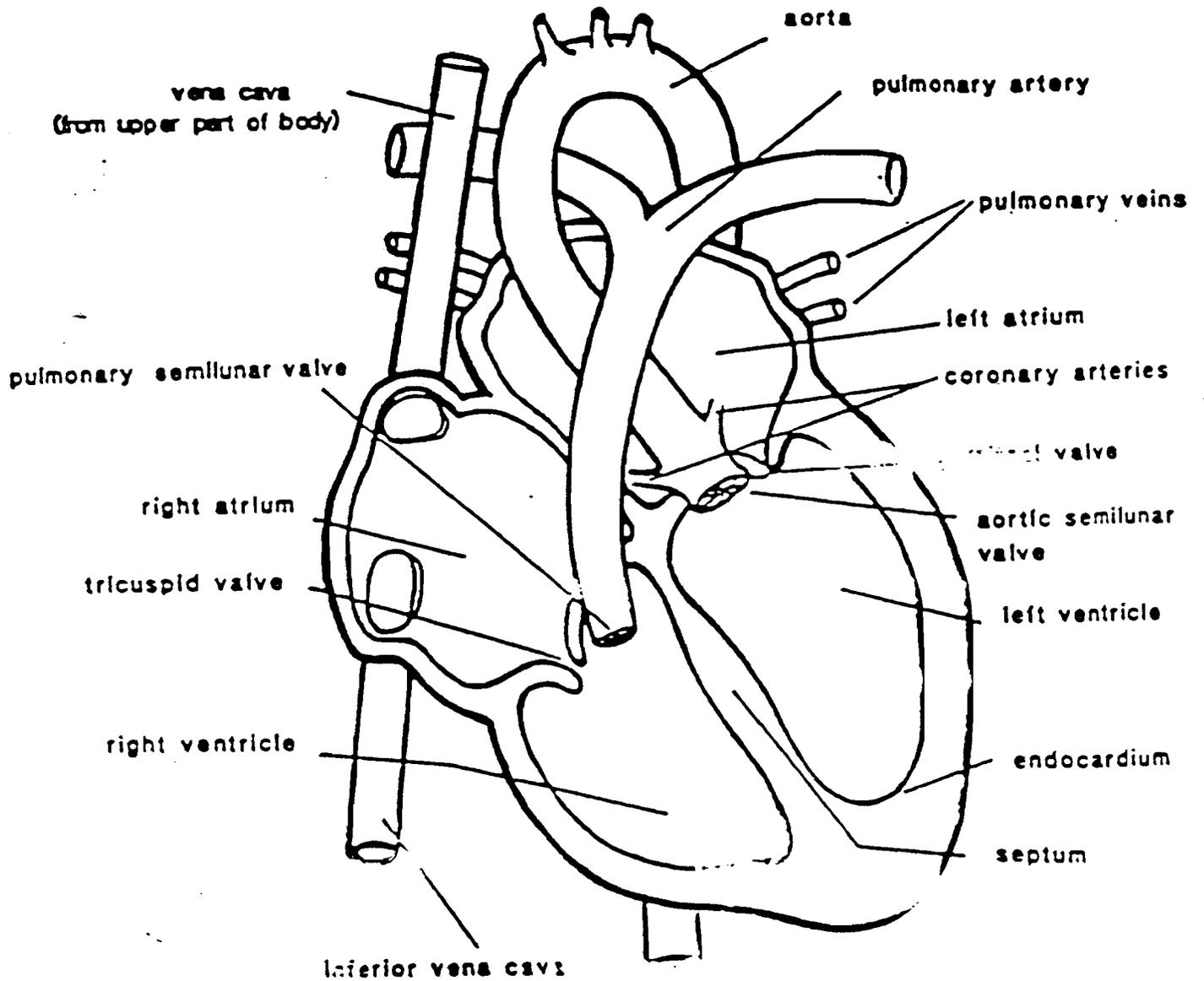


Function:

1. Carries nutrients and oxygen to cells by way of blood vessels
2. Removes waste from cells by way of blood vessels

The Heart

KEY



Function: 1. pumps blood through the blood vessels

SUPPLEMENT #6

URINARY SYSTEM

STRUCTURE AND FUNCTION

THE KIDNEYS

The two bean-shaped kidneys are located behind the ribs and are held in place by capsules of fat. The outer portion of the kidney is where urine is produced. The blood circulates through the kidneys to be filtered. Water and waste products are removed. The average urine output is 1 to 2 quarts per 24 hours.

THE URETERS

The two ureters extend from the kidneys to the urinary bladder and act as passageways for the urine.

THE URINARY BLADDER

The urinary bladder, found within the pelvic cavity, is a reservoir for the urine until it is expelled from the body. The muscular walls of the bladder are able to contract and force urine out. The urge to urinate (micturate or void) occurs when there are 6 to 10 ounces of urine in the bladder. The bladder is capable of holding much more urine than this amount.

THE URETHRA

During urination the urine passes out of the body by way of the urethra. The urethra in the female is about 1 1/2 inches long and in the male about 8 inches long.

THE URINARY AND MALE REPRODUCTIVE SYSTEMS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE URINARY AND MALE REPRODUCTIVE SYSTEMS

1. Urinary system is composed of two kidneys, two ureters, a urinary bladder, and the urethra.
2. The urinary system performs two major functions:
 - a. Filter (clean) blood through the kidneys.
 - b. Eliminate excess fluids and unused substances in the fluid.
3. Structures of the male urinary/reproductive system:
 - a. Testicles
 - b. Scrotum
 - c. Epididymis
 - d. Vas deferens
 - e. Seminal vesicles
 - f. Prostate gland
 - g. Bulbourethral glands
 - h. Penis
4. Functions of the male reproductive system:
 - A. Produce hormone (testosterone) necessary to have male secondary sex characteristics, begins in puberty, slows down with aging process.
 - b. Produce sperm necessary for reproduction.

B. COMMON DISORDERS OF THE URINARY TRACT AND MALE REPRODUCTIVE SYSTEMS

1. Cystitis
 - a. Cause--bacteria
 - b. Symptoms--cloudy urine, frequent urination, burning and painful urination, sometimes fever and chills if severe, voiding small amount, feeling of urgency to void.
 - c. Treatment--antibiotics, urinary antiseptics, cranberry juice, Vitamin C, increase fluid intake.
2. Pyelonephritis
 - a. Cause--may result from infection elsewhere in the body; frequently responsible for renal failure.
 - b. Symptoms--chills, fever, nausea, cloudy urine, back pain, decreased urine output, more pronounced in acute phase.
 - c. Treatments--medication, possible kidney dialysis in chronic or severe acute stage.

and after an initial positive reaction to rule out an active disease.

- bb. After two negative CXR's and a doctor's statement, a repeat CXR is needed only if symptoms occur.

D. Antibiotics

1. Action - kill or prevent growth of specific germs
2. Use - treatment of various infections
3. Examples
 - a. Penicillin V (Veetid, Pen-Vee-K)
 - b. ampicillin (Ampicin)
 - c. amoxicillin trihydrate (Amoxil)
 - d. cephalexin monohydrate (Kelfex)
 - e. cefaclor (Ceclor)
 - f. doxycycline hyclate (Vibramycin)
 - g. oxytetracycline (Terramycin)
 - h. tetracycline HCl (Achromycin)
 - i. erythromycin base E-Mycin, Eryc)
 - j. Erythromycin estolate (Ilosone)
 - k. erythromycin ethylsuccinate (E.E.S.)
4. Adverse effects
 - a. Nausea and vomiting
 - b. Hives
 - c. Rash
 - d. Anaphylactic reaction
 - e. Sensitivity to the sun
5. Special considerations
 - a. Must be administered at the exact time ordered to maintain adequate amount in the blood at all times.
 - b. Most effective if given one to two hours after eating.
 - c. Do not give tetracycline with antacids or milk products.

E. Vaccines and toxoids

1. Action - stimulate the body to produce its own immunity (antibodies).
2. Use - prevention of disease.
3. Examples
 - a. tetanus toxoid
 - b. measles, mumps, and rubella vaccine (MMR)
 - c. pneumococcal (Pneumovax-23)
 - d. influenza virus (Fluogen)

4. Adverse effects

- a. Allergic reaction
- b. Pain and swelling at the site of the injection
- c. Rash
- d. Fever
- e. Flu-like symptoms
- f. Convulsions

5. Special consideration - care giver should receive immunization if exposed to hepatitis B.

III. Acquired Immune Deficiency Syndrome (AIDS)

- A. AIDS is caused by the virus HTLV-III or HIV (human immunodeficiency virus). AIDS breaks down a part of the body's immune system, leaving the person vulnerable to a variety of unusual, life-threatening illnesses. The virus may also affect the brain, causing a variety of neurologic problems.

B. Transmission

1. Sexual intercourse (vaginal, anal, and oral).
2. Shared use of needles for IV drug use.
3. Infected mothers passing the virus on to the fetus.
4. Transfusion of infected blood or blood products.

- C. Symptoms - the following symptoms are also symptoms of many different diseases. Some people infected with the virus may not show any of these symptoms, but they can still transmit the virus. Only a qualified health professional can diagnose the disease.

1. Skin changes - purplish blotches, bumps, rashes.
2. Swollen glands
3. Diarrhea
4. Fatigue
5. Fever
6. Loss of appetite
7. Persistent dry cough
8. Night sweats
9. Weight loss

D. Treatment - medication, diet

E. Prevention

1. Abstinence from sex and IV drug use.
2. Practice safe sex by using condoms.

3. Auto-transfusions.

F. Care of the individual with AIDS

1. Avoid direct skin contact with mucous membranes, bodily fluids, secretions, excretions, and wounds.
2. Wear protective gloves and gown when you are likely to have contact with blood, body fluids, or objects that could be contaminated with blood, such as razors or toothbrushes.
3. In addition to the gloves and gown, wear protective eye covering and a surgical mask when there is the risk of spraying or splashing infectious materials, such as blood or urine.
4. AIDS individuals frequently carry the cytomegalovirus (CMV) which causes congenital infections. Therefore, pregnant women should avoid contact with AIDS individuals.
5. Individuals with AIDS are highly susceptible for infection. If you have a minor infection, such as a cold, avoid contact with the individual. Almost any infection can become a life-threatening illness.
6. Disposable items should be put in plastic bags, sealed and removed with other garbage.
7. Soiled linen should be laundered using detergent and the hot wash cycle, then dried in the dryer.
8. Dishes should be washed in hot soapy water and rinsed in hot water.
9. Disinfectants containing a 0.1% concentration of sodium hypochlorite or a 0.01% concentration of glutaraldehyde destroy the virus quickly.
10. A 1:10 solution of bleach and water can also be used for disinfecting surfaces.

GUIDELINES FOR DEVELOPING POLICIES AND TRAINING PROGRAMS IN UNIVERSAL PRECAUTIONS AND INFECTION CONTROL (EMPLOYER'S GUIDE)

The following guidelines are intended to be consistent with those of the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control (CDC) and are recommendations to protect against transmission of communicable disease. This guideline contains the necessary elements for developing a training program. Because institutional needs vary, it is assumed that institutions will make necessary and appropriate modifications. The guidelines are divided into two primary areas: (A) Assessing risk and preventing exposure, and (B) What to do if exposure occurs.

A. HOW TO ACCESS RISK AND PREVENT EXPOSURE:

1. Employers should become familiar with CDC and OSHA guidelines and should be alert to changes that may occur in these guidelines.
2. Employers should make a needs assessment in each area of their institution. This assessment should include an evaluation of tasks or procedures in each area to determine the degree, frequency, and extent of employees' potential exposure to blood or body fluids in each area.

Not all employees are at equal risk of exposure and not all facilities perform all tasks or procedures.

Appropriate questions include: What procedures or tasks are performed? By which employees? Into which OSHA category do these procedures or tasks fall?

- **Category I.** Blood or body fluid exposure is regular and expected, i.e., emergency medical technician, surgeon, medical laboratory technician.
 - **Category II.** Blood or body fluid exposure is not routinely expected but may occur on an unplanned basis, i.e., teacher, nurses aide, janitorial staff.
 - **Category III.** No occupational exposure to blood or body fluids, i.e., administrative secretary, food handler, institutional record keeper. Handling of implements or utensils, use of public bathrooms or telephones, personal contacts such as handshaking are all considered Category III tasks (No exposure). Persons with Category III jobs are not expected to provide first aid or emergency medical care as part of their employment.
3. Policies and procedures should be developed for all Category I and Category II tasks and be made available with protective equipment to appropriate employees. Locations for placement of the equipment should be prescribed because convenience is very important for compliance. In general, appropriate protective equipment should be donned before beginning any Category I task. Because exposure may be unplanned in Category II tasks, proper equipment should be readily available.

4. An educational program to teach these policies, procedures and the use of protective equipment should be developed for all Category I and II employees. This program should include:
 - a. Modes of transmission (and non transmission) of HIV.
 - b. Recognition and distinction between Category I and II tasks.
 - c. Policies and procedures and barrier precautions for all Category I or II tasks: appropriate types of barrier precautions and the reasons for their selection. This is important because overuse of barrier precautions is expensive, time-consuming, and wasteful; underuse may lead to unnecessary exposures and risks.
 - d. Location, use, and disposal of protective equipment.
 - e. Policies and procedures for handling unplanned or emergency situations where exposure to blood or body fluids could occur. Proper reporting of exposures to emergency medical care providers must be done under IC 16-1-45.
 - f. Policies and procedures to handle blood or body fluid spills; provide counseling and other interventions considered necessary for employees with accidental exposures during performance of their duties; and document both the occurrence and correction of failures in using universal precautions.
 - g. Limitations of precautions -- i.e, gloves do not protect from needle sticks; good technical skills are still necessary.

Education should be ongoing and updated as necessary.

5. All Category I and II employees should be expected to:
 - a. Know the degree, frequency, and extent of their occupational risk of exposure to blood or body fluids.
 - b. Know which tasks or circumstances are likely to expose them to blood or body fluids.
 - c. Be knowledgeable in appropriate barrier precautions and correct techniques, and application before providing professional services where contact with blood or body fluids is likely.
 - d. Take appropriate and correct precautions to protect themselves from direct skin or mucous membrane contact with blood or body fluids.
 - e. Act responsibly to avoid exposure of co-workers to blood or body fluids.
 - f. Report all accidental exposures to blood or body fluids to supervisor or to other designated persons according to institutional policy.
6. It is also recommended that policies and procedures be developed concerning:
 - a. IV testing of patients, individuals, students, or employees.
 - b. HIV seropositive employees.
 - c. Pregnant employees performing Category I or II tasks.
 - d. Confidentiality.
7. Education for all staff, whether or not they have occupational risk, about HIV infection and the concepts behind universal precautions is recommended. Depending upon the institution, it may be important to include clergy, volunteers, spouses or families of

employees, and even the community in these programs. These educational interventions are important because they decrease fear, increase acceptance, and promote a positive institutional image.

8. The following information is intended to further assist in developing policies and procedures, particularly for institutions with known HIV seropositive persons.
 - a. Solution of 5.25% sodium hydrochloride (household bleach) at a 1:10 dilution is recommended but not required as the agent of choice for cleaning hard surfaces after all spills of blood or body fluids. These solutions should be prepared daily. It is not recommended to use sodium hydrochloride solutions on carpets or rugs, however sanitary absorbent cleansers may be used on these items.
 - b. Agents labeled as "hospital disinfectants" are acceptable cleaning agents and will eliminate HIV.

It should be recognized that the mechanics of scrubbing are far more important in eliminating organisms than the selected cleansing agent. The end result of scrubbing and rinsing should be the thorough removal of all contaminated materials.

HIV is not resistant to commonly used agents. Common agents that eradicate HIV include, but are not limited to, Lysol, hydrogen peroxide, betadine, glutaraldehyde, isopropyl alcohol, Np-40 detergent. Chemical germicides registered with the Environmental Protection Agency (EPA) as sterilants are recommended for high-level disinfection.

- c. Reusable equipment and instruments should be cleaned by trained personnel and receive high-level disinfection or sterilization by steam-autoclave or ethylene oxide.

Bronchoscopes, gastroscopes, and other lensed instruments should be sterilized with ethylene oxide or receive high-level disinfection with an agent that is also mycobactericidal, a 2% glutaraldehyde soak for 45 minutes, for example.
- d. Disposable utensils and dishes are not necessary for use by HIV seropositive persons. Glassware, dishes, and utensils may be handled and washed according to ordinary institutional policies.
- e. Children known or suspected of HIV seropositivity may use the school water fountain.
- f. Private rooms are unnecessary for HIV seropositive patients unless they have an infection or condition that would ordinarily require a single room.
- g. Separate toilet and shower facilities are not necessary for HIV seropositive persons unless they have an infection or condition which would ordinarily require the use of private bathroom facilities.

- h. Curtains, walls, blinds, etc. do not require special cleaning after a room is occupied by an HIV seropositive person, unless contamination with blood or body fluids has occurred.
- i. Linen and clothing used by HIV seropositive persons may be washed according to ordinary institutional policies.

B. WHAT TO DO IF EXPOSURE OCCURS

1. The employee should wash the affected area immediately and thoroughly. If an eye or mucous membrane (mouth) is contaminated, rinse with water for fifteen minutes.
2. The incident should be reported to the supervisor or designated person. While vomitus, saliva, urine, tears, and feces have not been implicated in the transmission of HIV infection, other communicable diseases may be transmitted by these fluids and reporting of the incident to the supervisor or designated person is recommended.
3. An incident report should be completed according to institutional policy and state law. The report should include the circumstances of the incident, the blood or body fluid source's name, institutional number (if appropriate), and what protective equipment and precautions were used at the time of the exposure.
4. The employer should perform an evaluation and follow-up of the employee according to institutional policy. At a minimum, exposed employees should be counseled about risk of acquisition of HIV and other relevant communicable diseases, receive information about prevention of transmission, and be offered voluntary serologic testing.
5. IN assessing the need for serologic testing, the employer should be aware that at this time, only direct exposure to blood is considered a potential risk for HIV transmission. The risk of transmission of HIV by direct contact of blood with intact skin or mucous membranes is very low (less than 0.5%); puncture exposures (breaking the skin) constitute a risk, but this risk is still a much lower risk than for other diseases such as hepatitis B.
6. If an employee or emergency medical care provider elects to undergo serologic testing, blood should be obtained as soon as possible (within 72 hours) after exposure, and again at six, twelve, and twenty-four weeks after exposure. Individuals may become seropositive as long as twelve months after exposure, but this is very unlikely. Persons who are seronegative at twenty-four weeks should consider themselves seronegative. Further testing is not necessary unless medically warranted.
7. Serologic testing should consist of a screening test, such as the ELISA, that should be repeated if positive. A repeatedly positive ELISA should be confirmed by another test using a different method, such as the Western Blot test. A person should only be considered seropositive if the screening test is repeatedly positive and the confirming test is also positive.

8. Persons with positive serologic tests within 72 hours of exposure should be considered to have been seropositive prior to the reported exposure.
9. Persons whose blood or body fluids were the source of exposure shall be informed if HIV serologic testing is part of institutional policy and must consent before testing is performed.
10. All persons should be informed of their test results and should receive appropriate counseling; seropositive persons should be referred for further medical assistance according to institutional policy.
11. If a person is exposed to blood or body fluids of an employee, that person should be informed of the exposure (without identification of the employee) and procedures similar to those outlined above should be followed.

SUPPLEMENT #5

CARDIOVASCULAR SYSTEM

STRUCTURE AND FUNCTION

The system is made up of the heart (central pumping station), blood vessels, and the blood itself. It is a continuous network. The heart is a muscular organ. It is hollow inside and divided into four chambers (cavities): the right atrium, the left atrium, the right ventricle, and the left ventricle. It is separated into right and left sides by a wall (septum). Nerve impulses make the heart beat regularly according to body needs. When you run, the cells need more oxygen, and so the heart beats faster.

CARDIAC CYCLE

The heart pumps blood through the body by a series of movements known as the cardiac cycle. The upper chambers of the heart (atria) relax and fill with blood as the lower chambers (ventricles) contract, forcing blood out of the heart through the pulmonary arteries. The lower chambers then relax, allowing blood to flow into them from the upper chambers.

MAJOR VESSELS

Arteries are vessels which carry blood away from the heart and eventually join the veins. Veins are lined with one way valves which help transport blood back to the heart. Thus, the major vessels are a continuous network through which the blood completes a round trip from the heart to the rest of the body and back to the heart. Blood pressure is the measurement of how hard the heart has to work to pump blood into the arteries and the amount of resistance in the blood vessels. The blood pressure is also affected by rest, activity, weight, stress, and illness. Pulse, respiration, and blood pressure may also be called the vital signs.

THE CARDIOVASCULAR SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE CARDIOVASCULAR SYSTEM

1. Structures of the cardiovascular system:
 - a. heart
 - b. blood vessels
 - c. blood
 - d. arteries and veins
2. Functions of the cardiovascular system:
 - a. Pump the blood (heart)
 - b. Provide a pathway for the blood (blood vessels)
 - c. Carry essentials to body cells via blood
 - d. Carry wastes away from body cells via blood
3. Effectiveness of the circulatory systems depends on:
 - a. Rate, rhythm, and force of heart
 - b. Elasticity of blood vessels

B. MAJOR CIRCULATORY DISORDERS

1. Myocardial Ischemia
 - a. Cause--lack of adequate oxygen supply to the heart.
 - b. Symptoms--shortness of breath, chest pains
 - c. Treatment--medications and rest
2. Angina Pectoris
 - a. Cause--myocardial ischemia
 - b. Symptoms--pain in chest and left arm, flushing and perspiration, sudden attack of vertigo, can be aggravated by smoking
 - c. Treatment--usually relieved by vasodilator drugs
3. Coronary Occlusion (heart attack, M.I.)
 - a. Cause--blockage in any artery that supplies blood to the heart muscle. Destroys heart and can cause death (myocardial infarction). Severity depends on size and location of blocked heart vessel.
 - b. Symptoms--crushing chest pain, shortness of breath, anxiety, indigestion, shock, collapse.
 - c. Treatment--medication, rest, hospitalization
4. Congestive Heart Failure
 - a. Causes--heart muscle weakness, hypertension, changes in heart valves due to disease, heart contractions are inadequate to pump blood to all body parts.
 - b. Symptoms--edema (swelling) in feet and legs, cough and shortness of breath, fatigue, tachycardia.
 - c. Treatment--cardiotonics and diuretics.
5. Heart Arrhythmias
 - a. Causes--inability of impulse center to function properly, sometimes follows coronary occlusion, toxic effect of other drugs (digitalis).
 - b. Symptoms--irregularity in rate and rhythm of heart, syncope, may exhibit tachycardia (rapid heart rate) or bradycardia (heart rate below 60).
 - c. Treatment--medication, rest

6. Shock
 - a. Causes--collapse of the blood vessels resulting in poor blood supply to entire body, dilation of the blood vessels, blood loss (hemorrhage).
 - b. Symptoms--rapid heart beat, pallor, perspiration, light headedness, chills, fainting, hypotension.
 - c. Treatment--medications, keep the individual warm, move the individual to the Trendelenburg position. Shock is a medical emergency, the physician may place the individual in the hospital.
7. Arteriosclerosis/Atherosclerosis
 - a. Cause--build up of plaque deposits in blood vessels which causes narrowing of the vessel.
 - b. Symptoms--pale or blue skin color, muscle cramping, decreased circulation which may result in pain in the extremities or ulcers (sores) to develop on legs and feet.
 - c. Treatment--medication, exercise, monitor diet
8. Hypertension (high blood pressure)
 - a. Causes--kidney disease, adrenal gland tumors, brain disease, heart disease, aggravated by obesity and smoking, usually cause is unknown.
 - b. Symptoms--dizziness, headache, palpitations, fatigue, tinnitus, systolic pressure above 140, diastolic pressure above 90.
 - c. Treatment--medication, exercise, weight control
9. Cerebral Vascular Accident (CVA)--stroke
 - a. Causes--blood clot, ruptured blood vessel in the brain, hypertension.
 - b. Symptoms--depend on which area of the brain is affected, weakness or paralysis, inability to speak or read, loss of memory, unconsciousness.
 - c. Treatment--medications, physical/speech therapy
10. Thrombophlebitis
 - a. Causes--injury, surgery, abnormal blood clotting
 - b. Symptoms--pain, redness, tenderness, swelling of the affected limb.
 - c. Treatment--medication, rest

C. SELECTED MEDICATIONS BY CLASSIFICATION

1. Cardiotonics
 - a. Action--slows and strengthens the heart action.
 - b. Use--as maintenance therapy in congestive heart failure, atrial fibrillation, atrial flutter.
 - c. Examples
 - (1) digitoxin (Crystodigin)
 - (2) digoxin (Lanoxin)
 - d. Adverse effects
 - (1) Fatigue and loss of appetite
 - (2) Dizziness, agitation
 - (3) Irregular heart beat
 - e. Special considerations
 - (1) Take pulse before administering cardiotonic drugs.
 - (2) Precaution: If pulse is below 60, hold medication and contact staff nurse immediately

2. Antiarrhythmics

- a. Action--regulate heart rate and rhythm.
- b. Use--angina and arrhythmias
- c. Examples
 - (1) propranolol (Inderal)
 - (2) quinidine (CinQuin, Cardioquin)
 - (3) procainamide HCl (Pronestyl)
- d. Adverse effects
 - (1) Nausea and vomiting
 - (2) Confusion
 - (3) Hypotension
- e. Special consideration--administer one hour before or two hours after meals with a full glass of water.

3. Vasodilators

- a. Action--dilate blood vessels and improve blood supply to the heart.
- b. Use--treat angina pectoris and decreased circulation to the brain and extremities.
- c. Examples
 - (1) nitroglycerin (Nitro-Bid)
 - (2) nicotinic acid
 - (3) papaverine (Cerespan, Pavacen)
 - (4) isoxsuprine HCl (Vasodilan)
 - (5) cyclandelate (Cylcospasmol)
- d. Adverse effects
 - (1) perspiration
 - (2) flushed face
 - (3) hypotension
 - (4) headache
- e. Special considerations--do not get the nitroglycerin on your skin.

4. Anticoagulants

- a. Action--decrease blood clot formation
- b. Use--thrombophlebitis, abnormal clot formation
- c. Examples
 - (1) aspirin (A.S.A.)
 - (2) heparin (Coumadin)
- d. Adverse effects
 - (1) Gastrointestinal bleeding
 - (2) Blood in stool or urine

DEFINITIONS OF KEY TERMS

Angina--Any disease in which spasmodic and painful suffocation or spasms occur.

Arrhythmia--A change in the time or force of the rhythm of the heartbeat.

Arteriosclerosis--A deposit or degenerative accumulation of cholesterol and lipid material in the arteries.

Fibrillation--Very rapid irregular contractions of the muscle fibers of the heart resulting in the heartbeat and the pulse not beating simultaneously.

Flutter--Very rapid rhythmic contractions of the heart muscles.

Hematemesis--Vomiting blood.

Hemoptysis--Coughing up blood.

Hypertension--High blood pressure.

Hypotension--Low blood pressure.

Ischemia--Temporary decrease in the amount of blood being delivered to a part of the body; mainly due to the contraction of a blood vessel.

Phlebitis--Inflammation of a vein.

Syncope--A brief loss of consciousness.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 beats per minute.

Thrombophlebitis--Inflammation of a vein which results in the formation of a clot.

Trendelenburg Position--Lying on the back with the pelvis higher than the head, inclined at a 45 degree angle.

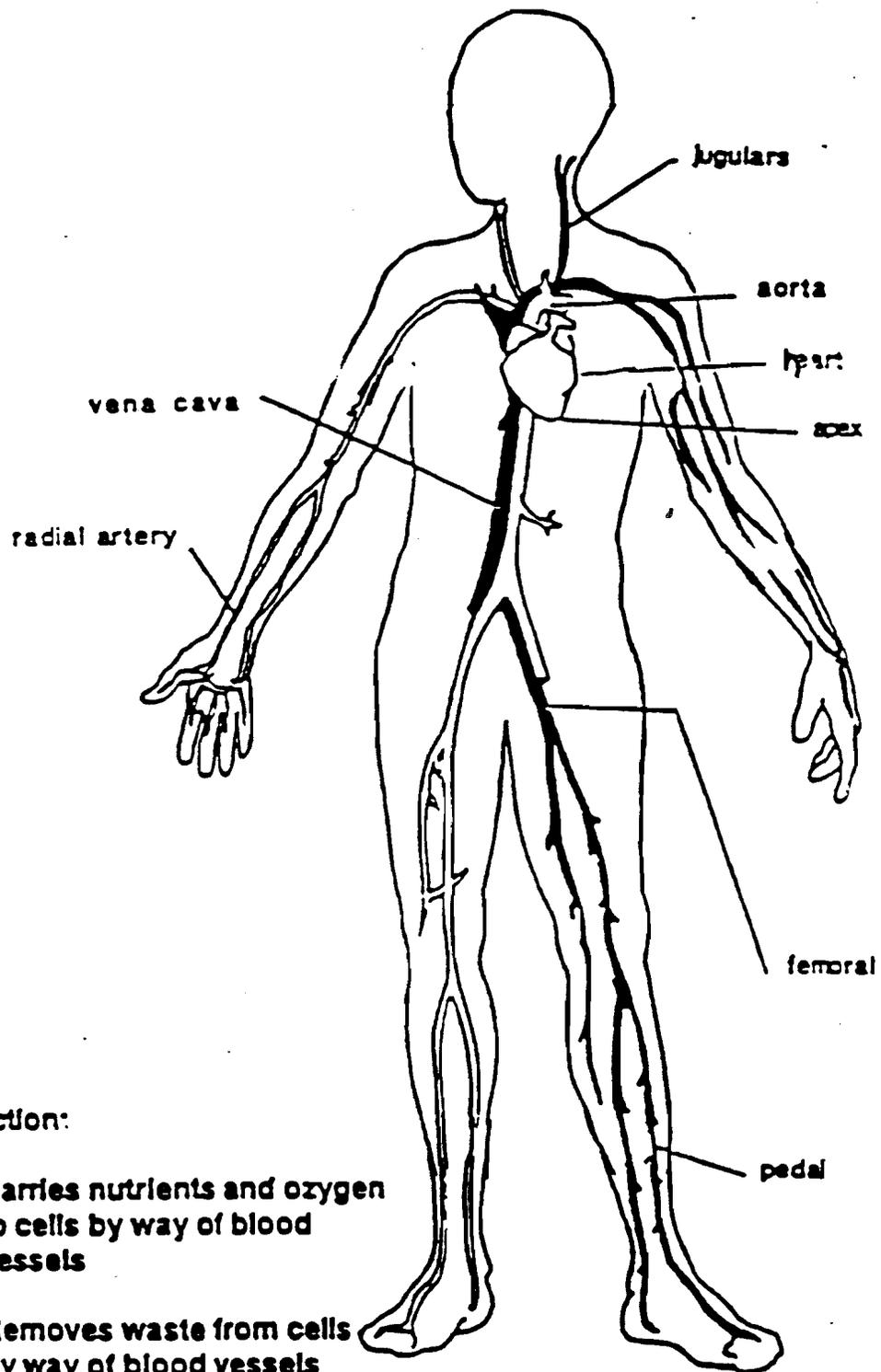
SUPPLEMENTAL LESSON: THE CARDIOVASCULAR SYSTEM

PERFORMANCE:

1. List two functions of the cardiovascular system.
2. List the major structures of the cardiovascular system and the heart. (Diagram of the cardiovascular system and the heart are included). You may use them to point out or label the structures.
3. Define eight key terms selected by the staff nurse.
4. Describe five conditions of the cardiovascular system including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a cardiovascular medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

The Cardiovascular System

KEY

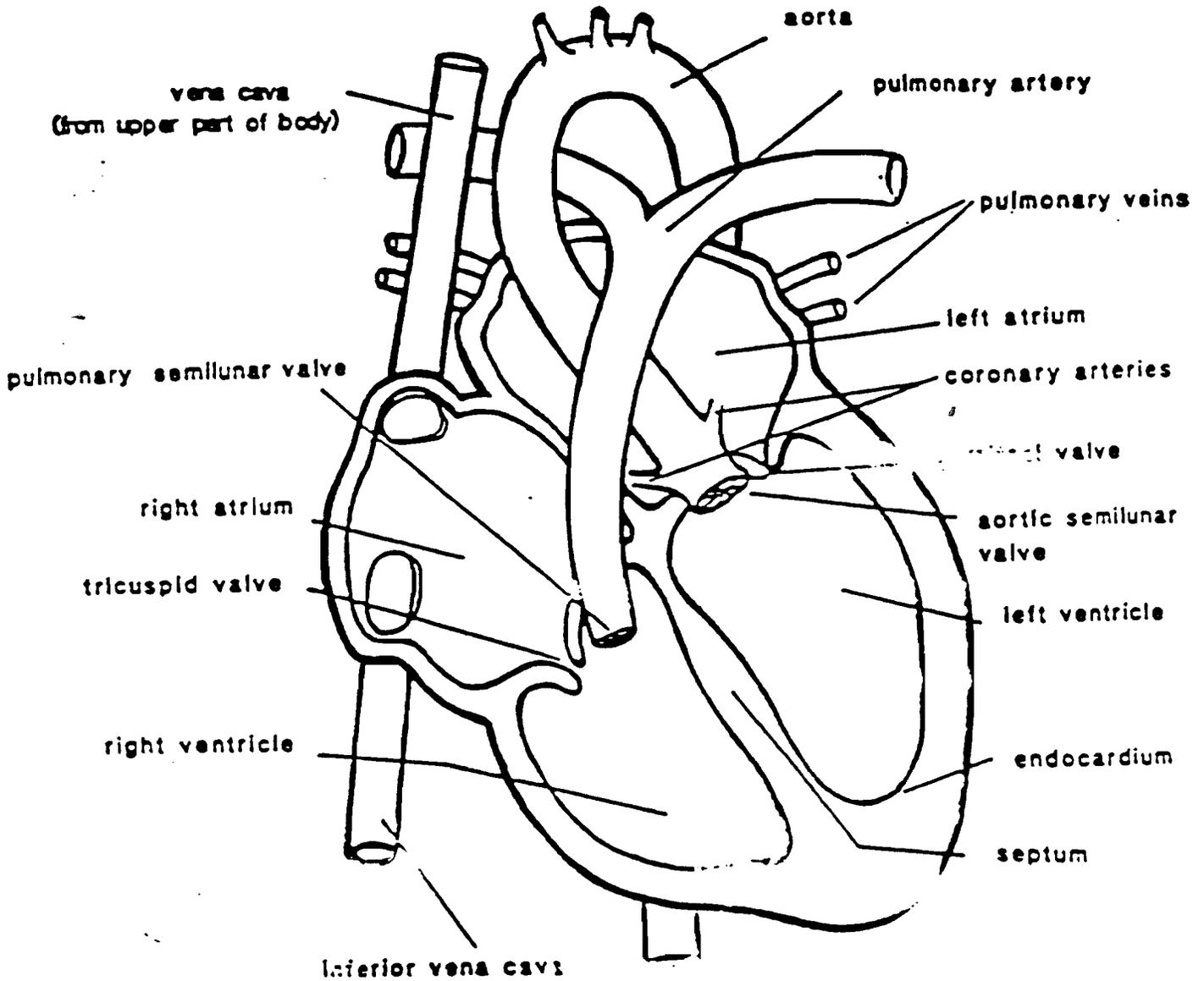


Function:

1. Carries nutrients and oxygen to cells by way of blood vessels
2. Removes waste from cells by way of blood vessels

The Heart

KEY



Function: 1. Pumps blood through the blood vessels

SUPPLEMENT #6

URINARY SYSTEM

STRUCTURE AND FUNCTION

THE KIDNEYS

The two bean-shaped kidneys are located behind the ribs and are held in place by capsules of fat. The outer portion of the kidney is where urine is produced. The blood circulates through the kidneys to be filtered. Water and waste products are removed. The average urine output is 1 to 2 quarts per 24 hours.

THE URETERS

The two ureters extend from the kidneys to the urinary bladder and act as passageways for the urine.

THE URINARY BLADDER

The urinary bladder, found within the pelvic cavity, is a reservoir for the urine until it is expelled from the body. The muscular walls of the bladder are able to contract and force urine out. The urge to urinate (micturate or void) occurs when there are 6 to 10 ounces of urine in the bladder. The bladder is capable of holding much more urine than this amount.

THE URETHRA

During urination the urine passes out of the body by way of the urethra. The urethra in the female is about 1 1/2 inches long and in the male about 8 inches long.

THE URINARY AND MALE REPRODUCTIVE SYSTEMS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE URINARY AND MALE REPRODUCTIVE SYSTEMS

1. Urinary system is composed of two kidneys, two ureters, a urinary bladder, and the urethra.
2. The urinary system performs two major functions:
 - a. Filter (clean) blood through the kidneys.
 - b. Eliminate excess fluids and unused substances in the fluid.
3. Structures of the male urinary/reproductive system:
 - a. Testicles
 - b. Scrotum
 - c. Epididymis
 - d. Vas deferens
 - e. Seminal vesicles
 - f. Prostate gland
 - g. Bulbourethral glands
 - h. Penis
4. Functions of the male reproductive system:
 - A. Produce hormone (testosterone) necessary to have male secondary sex characteristics, begins in puberty, slows down with aging process.
 - b. Produce sperm necessary for reproduction.

B. COMMON DISORDERS OF THE URINARY TRACT AND MALE REPRODUCTIVE SYSTEMS

1. Cystitis
 - a. Cause--bacteria
 - b. Symptoms--cloudy urine, frequent urination, burning and painful urination, sometimes fever and chills if severe, voiding small amount, feeling of urgency to void.
 - c. Treatment--antibiotics, urinary antiseptics, cranberry juice, Vitamin C, increase fluid intake.
2. Pyelonephritis
 - a. Cause--may result from infection elsewhere in the body; frequently responsible for renal failure.
 - b. Symptoms--chills, fever, nausea, cloudy urine, back pain, decreased urine output, more pronounced in acute phase.
 - c. Treatments--medication, possible kidney dialysis in chronic or severe acute stage.

3. Edema
 - a. Cause--inability of the body to rid itself of fluid due to kidney or heart failure.
 - b. Symptoms--swelling of hands, feet, legs; inability to breathe with exertion or when lying down.
 - c. Treatment--diuretic drugs.

C. SELECTED URINARY SYSTEM MEDICATIONS BY CLASSIFICATION

1. Diuretics
 - a. Action--congestive heart failure, hypertension, severe edema
 - b. Use--to decrease blood pressure and increase urinary output
 - c. Examples
 - (1) chlorothiazide (Diuril)
 - (2) furosemide (Lasix)
 - (3) hydrochlorothiazide (Hydro Diuril)
 - (4) spironolactone (Aldactone)
 - (5) methyclothiazide (Enduron)
 - (6) Aldactazide and Dyazide (combinations which contain hydrochlorothiazide)
 - d. Adverse effects
 - (1) Hypotension
 - (2) Weakness
 - (3) Nausea and vomiting
 - (4) Dizziness
2. Androgens
 - a. Action--replacement of male hormones
 - b. Uses--promote weight gain, treat an enlarged prostate gland due to malignancy, and treat breast cancer.
 - c. Example--testosterone (Androgen, Oreton-Methyl)
 - d. Adverse effects
 - (1) Edema
 - (2) Change in appetite
 - (3) Increased serum cholesterol
 - (4) Male characteristics appear in females
3. Urinary Tract Analgesics
 - a. Action--decrease pain from urinary tract infections.
 - b. Uses--treat urinary tract infections (UTI), cystitis, and relieve pain, urgency, frequency, and burning associated with urination.
 - c. Examples
 - (1) phenazopyridine HCL (Pyridium)
 - (2) Azo Gantanol
 - d. Adverse effects
 - (1) Produces a harmless reddish-orange discoloration of the urine.
 - (2) Nausea and vomiting
 - (3) May alter urine glucose results in some tests.
 - e. Special considerations--use Glucometer for more accurate urine glucose test

results.

4. Urinary Muscle Relaxants

- a. Action--directly affects the smooth muscles of the urinary tract.
- b. Uses--prevent urinary retention, neurogenic bladder.
- c. Examples
 - (1) flavoxate HCl (Urispas)
 - (2) bethanechol chloride (Urecholine)
 - (3) Pyridium Plus
- d. Adverse effects
 - (1) Dysuria
 - (2) Tachycardia
 - (3) Dry mouth
 - (4) Blurred vision
 - (5) Frequency
 - (6) Urgency
 - (7) Incontinence
 - (8) Diarrhea
 - (9) Abdominal cramps
- e. Special considerations
 - (1) Do not give with food - give only on an empty stomach.
 - (2) Given only for retention that is NOT due to an obstruction.

5. Systemic Anti-infective (Sulfa-drugs), which are often used to treat UTI, are discussed in Lesson 6.

D. ADDITIONAL INFORMATION FOR THE URINARY SYSTEM

- 1. Incontinent individuals must be kept clean and dry.
- 2. Individuals with catheters must be given frequent and/or additional perineal care.
- 3. Cleanse the head of the penis thoroughly with water after catheter care and do not leave foreskin retracted.
- 4. Cleanse female individuals from front to back for perineal care and following elimination.
- 5. Encourage fluids for individuals with urinary tract infections (UTI) unless otherwise ordered.
- 6. Provide bladder training according to agency policy.
- 7. Observe and chart the color and amount of urine.
- 8. Observe for reddened areas on perineal area.
- 9. Treat the individual with respect.

DEFINITIONS OF KEY TERMS

Bulbourethral glands--Small structures about halfway between the bladder and the end of the penis that secrete sperm protectant.

Chronic kidney failure--Reduction in kidney function.

Cystitis--Inflammation of the urinary bladder.

Edema--Swelling caused by large amounts of fluid in the tissues.

Epididymis--Coiled structure that stores and matures sperm cells.

Incontinence--Loss of bladder and/or bowel control.

Penis--Cylinder-shaped vascular structure on the outside of the male body. Houses external portion of urethra, and is the male organ of copulation.

Perineal--The area between the thighs that includes the anus and vulva in the female and the anus and penis in the male.

Prostate--Doughnut-shaped gland, in the male, composed of muscular and glandular tissue that surrounds the urethra at the bladder and adds alkaline substance to sperm.

Pyelonephritis--Inflammation of both the kidney and the lining of the pelvis.

Scrotum--Sac-like structure located behind the penis which holds the testicles.

Seminal vesicles--Pouch-like structures behind the bladder where sperm is stored.

Testicles--Also called testes, produce testosterone and sperm cells for reproduction.

Vas deferens (ductus deferens)--Tube that carries sperm to seminal vesicles.

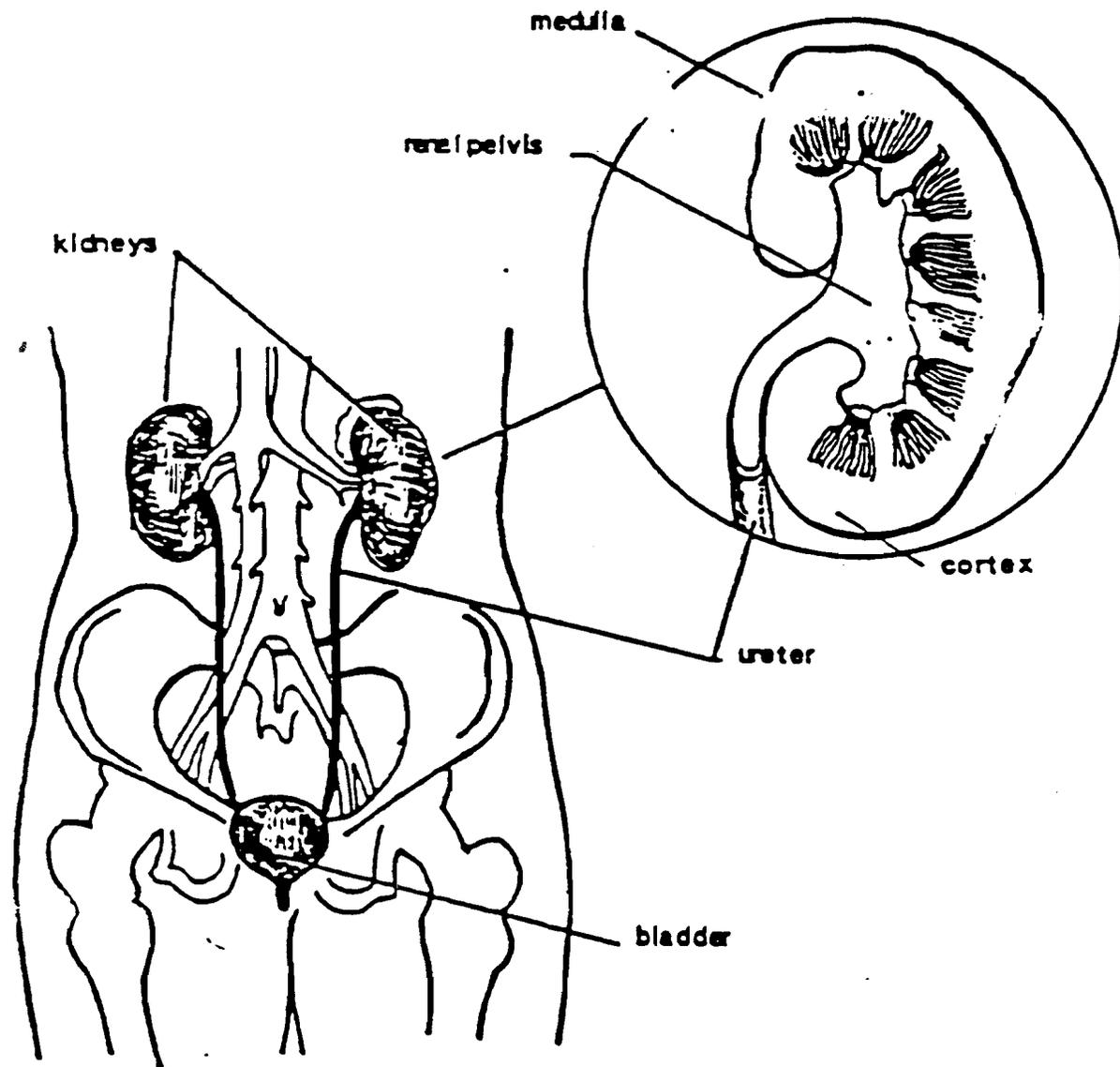
SUPPLEMENTAL LESSON: THE URINARY AND MALE REPRODUCTIVE SYSTEMS

PERFORMANCE:

1. List two functions of the urinary system.
2. List the major structures of the urinary and male reproductive systems. (Diagrams of the urinary and male reproductive systems are included. You may use them to point out or label the structures.)
3. Define seven key terms selected by the staff nurse.
4. Describe two conditions of the urinary and male reproductive systems including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a urinary system medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

The Urinary System

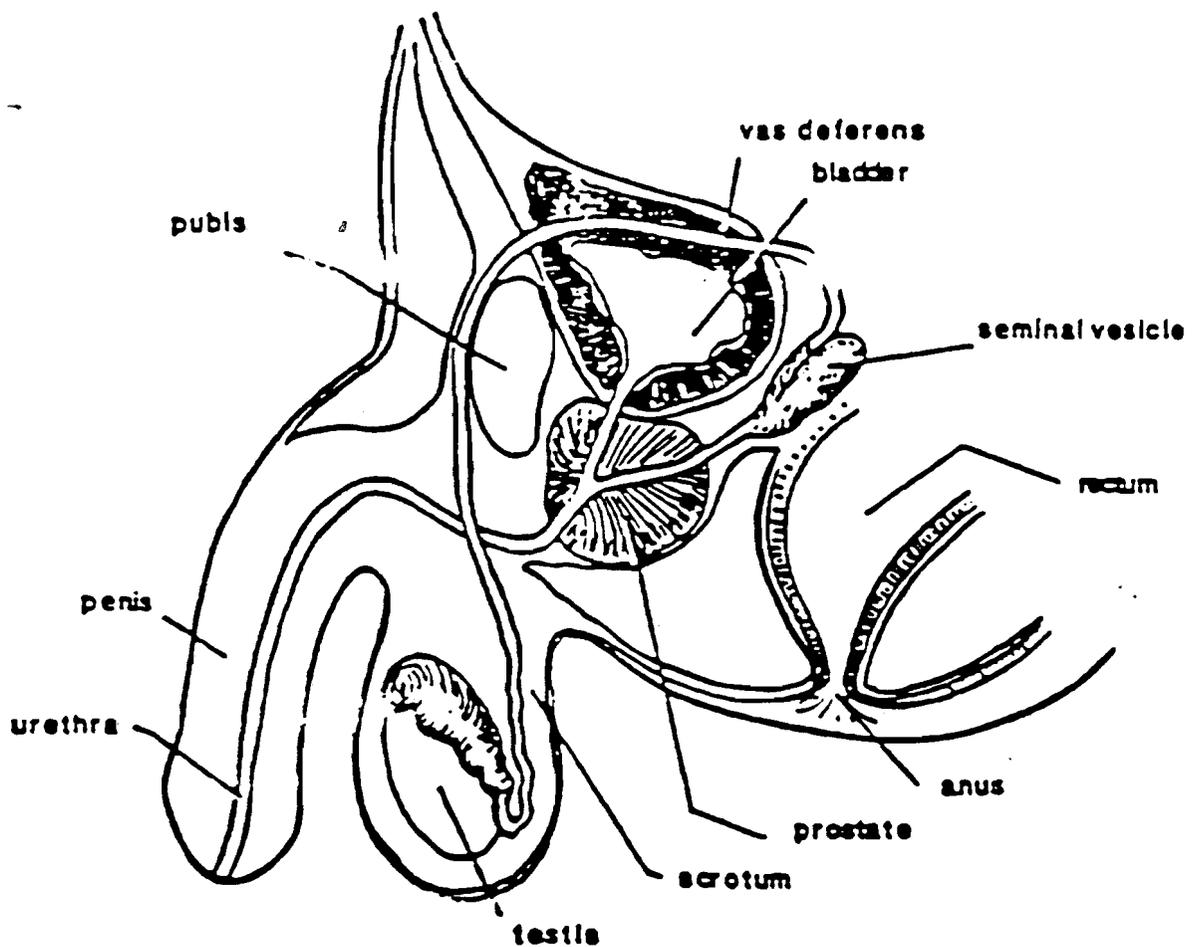
KEY



Function:

1. Produces urine
2. Removes wastes from blood

The Male Reproductive System



Function:

1. Produce male hormones
2. Produce male sex cells

SUPPLEMENT #7

PSYCHOTHERAPEUTIC MEDICATIONS

I. REVIEW OF MENTAL AND/OR EMOTIONAL STRESS PATTERN

- A. Stress--any physical or mental circumstance that causes strain or tension. A certain amount of stress is stimulating and healthy. The average person is able to cope with stress and soon returns to normal. Continued stress pushes a person beyond limits, ending in physical and/or mental reaction.
- B. Causes of stress--change often causes stress, whether it's due to happy occurrences or due to fears of feelings of inadequacy. Examples of change include: starting school, entering adolescence, dating, first job, outstanding personal achievement, graduation, changes in personal habits, vacation, minor law violations, changing jobs, adjusting to in-laws, pregnancy, new family member, Christmas, troubles with the boss, change in residence, death of a friend, etc.
- C. Change affects the developmentally disabled and mentally ill population significantly. It is important to prepare the individuals for any changes that might occur.

II. PATTERNS OF EMOTIONAL DEVELOPMENT

A. Adjusting to changing conditions and life situations:

- 1. A person is "well adjusted" when he or she is able to deal effectively with personal problems.
- 2. A poorly adjusted person feels restless, unhappy, and unable to control life.
- 3. Threats to physical or mental well-being produce stress. Example of threats include illness, job change, death of a friend or family member, school circumstances, and divorce.

B. Reactions to stress

- 1. May be physical--elevated pulse rate and blood pressure, change in appetite, increased susceptibility to illness.
- 2. May be emotional
 - a. Some stress is stimulating and healthy.
 - b. Prolonged stress produces anxiety, fear, hostility, and frustration.
- 3. Response to stress depends on extent of stress and person's ability to cope effectively.

C. Coping mechanisms--ways of handling stress

1. Constructive coping mechanisms

- a. Openly facing and analyzing problems.
- b. Working out ways to deal with the problem.
- c. Taking responsibility for own actions.

2. Non-constructive coping mechanisms

a. Defense mechanisms

- i. Rationalization
- ii. Projection
- iii. Daydreaming
- iv. Regression
- v. Withdrawal

b. Neurosis--an emotional reaction that interferes with leading a normal life.

- i. Anxiety neurosis
- ii. Phobias
- iii. Depression

c. Psychosis--a major mental disorder in which a person's personality is deranged causing a loss of contact with reality.

- i. Schizophrenia
- ii. Paranoia
- iii. Affective psychosis

D. Organic brain syndrome

1. Emotional disorders that are caused by some physical agent or condition, such as arteriosclerosis, Alzheimer's disease, brain tumors, alcohol and other drugs, infections, or nutritional deficiencies.
2. Normal functioning of the brain is changed.
3. May be short-term or long lasting; symptoms include irritability, confusion, delirium, disorientation, and changes in behavior.
4. Drugs are used frequently in treatment.

E. Emotional reactions to illness, death and life stresses

1. Facing illness and death produces great stress, fear, and anxiety.
2. Expect behavior changes such as hostility and regression.
3. People who are under great stress may require temporary drug therapy to reduce their symptoms.

F. Psychotherapeutic drug therapy is used to influence the chemicals in the brain that are called neurotransmitters.

THE MUSCULOSKELETAL SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE MUSCULOSKELETAL SYSTEM

1. Structure of the musculoskeletal system
 - a. Consists of 206 bones.
 - b. Muscles are attached to bones by tendons and to other muscles by tendons.
 - c. Muscles are able to stretch and contract and are controlled by nerves.
 - d. Bones are joined together with a joint.
 - (1) Some joints move freely (elbow, hip).
 - (2) Other joints move only slightly or not at all (pelvis, skull).
2. Bones and muscles provide movement, support, and protection of internal organs and body shape.

B. MAJOR MUSCULOSKELETAL CONDITIONS

1. Fractures
 - a. Cause--accidental injure or disease conditions such as cancer or osteoporosis
 - b. Symptoms--pain, swelling, discoloration, abnormal position or movement
 - c. Treatment--casting or surgery.
2. Osteoporosis
 - a. Cause--inadequate calcium absorption
 - b. Symptoms--bones are brittle and are easily broken, sometimes with less than normal amount of stress on bones
 - c. Treatment--medication, treatment of fractures if necessary
3. Arthritis
 - a. Causes
 - (1) Rheumatoid--occurs in younger population, cause unknown
 - (2) Osteoarthritis--occurs in older population, also known as degenerative arthritis
 - b. Symptoms--pain and swelling in joints, decreased mobility
 - c. Treatments--medication, exercise, heat to joints, surgery
4. Muscle spasm
 - a. Cause--irritation of muscle
 - b. Symptoms--sudden pain and knotting of muscles
 - c. Treatment--massage, heat, medication
5. Muscle strain
 - a. Cause--injury
 - b. Symptoms--pain, swelling
 - c. Treatment--rest, medication, elevation of injured limb

6. Gout

- a. Cause--increased uric acid levels, usually caused by diet
- b. Symptoms--pain and swelling in joints, can be acute or chronic
- c. Treatment--medication, diet

C. SELECTED MUSCULOSKELETAL MEDICATIONS BY CLASSIFICATION

1. Analgesics

- a. Action--alter both perception of and often emotional response to pain
- b. Uses--treat muscle spasm and strain, arthritis, gout
- c. Examples
 - (1) acetaminophen (Tylenol)
 - (2) propoxyphene HCl (Darvon)
 - (3) meperidine (Demerol)
 - (4) morphine (Duramorph, Epimorph)
 - (5) Aspercreme
 - (6) aspirin (A.S.A.)
 - (7) codeine
 - (8) ibuprofen (Motrin)
 - (9) Bromptoms
- d. Adverse effects
 - (1) Gastritis, ulcers
 - (2) Dizziness
 - (3) Headache
 - (4) Sedation
 - (5) Constipation
 - (6) Rashes
 - (7) Respiratory depression
 - (8) Tinnitus (with A.S.A.)
 - (9) Nausea and vomiting
 - (10) Increased bleeding tendencies (with A.S.A.)
- e. Special considerations
 - (1) Possible gastrointestinal bleeding.
 - (2) Observe individual for bloody stools.
 - (3) Possibly addictive.
 - (4) Check respiratory rate before administering potent analgesics and contact staff nurse if rate is less than 12 per minute.

2. Muscle relaxants

- a. Action--reduce transmission of impulses from the spinal cord to the skeletal muscles.
- b. Use--to treat acute, painful musculoskeletal conditions.
- c. Examples
 - (1) carisoprodol (Soma)
 - (2) methocarbamol (Robaxin, Delaxin)
 - (3) Parafon Forte--combination muscle relaxant and analgesic
 - (4) cyclobenzaprine (Flexeril)

- d. Adverse effects
 - (1) Drowsiness
 - (2) Headache
 - (3) Weakness
 - (4) Nausea
 - (5) Anorexia
 - (6) Gastrointestinal upset
- e. Special considerations
 - (1) Caution individual not to use alcohol.
 - (2) Withdrawal symptoms may occur if the drug is stopped abruptly.
 - (3) Weakness may cause increased incidence of falls.

D. ADDITIONAL INFORMATION ABOUT THE MUSCULOSKELETAL SYSTEM

- 1. Observe the individual's body alignment while in bed, in a chair, or while standing.
- 2. Observe the individual for any skin breakdowns.
- 3. Promote comfort and prevent contractions by proper turning and ambulation, and by ensuring correct posture in wheelchairs.
- 4. Help the individual do range of motion (ROM) exercises when necessary. Contact your staff nurse for instructions on these exercises.
- 5. Observe the individual's nonverbal signs of musculoskeletal pain:
 - a. Facial gestures
 - b. Tightening of the muscles
 - c. Favoring an area of the body
 - d. Limping
 - e. Tentative movement
- 6. Observe the individual for swollen, reddened, hot joints.
- 7. Good body posture, ROM, and proper medication will help keep the individual comfortable and mobile.
- 8. Exercise is necessary to maintain mobility, although it may be painful, especially in the morning. The individual's mobility will improve with movement.
- 9. Analgesics and anti-inflammatory drugs are sometimes given for months or years.
- 10. Adverse effects can be severe--watch the individual closely.

DEFINITIONS OF KEY TERMS

Analgesics--Medications that relieve muscle, joint and bone pain.

Anti-inflammatory--Medications used to reduce swelling, pain, and tenderness caused by inflammation.

Arthritis--Inflammation of a joint.

Fracture--Broken bone.

Muscle relaxant--Medications that help muscle tissue relax and be less tense and painful.

Muscle spasm--Condition of the muscles in which there is a sudden and violent tightening of the muscle.

Muscle strain--Condition in which the muscle is stretched.

Nonsteroidal anti-inflammatory agents (NSAIA)--Medications used to reduce symptoms of inflammation.

Osteoporosis--Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Range of motion--Moving a joint its full range in an attempt to prevent muscle contractures and joint deformity.

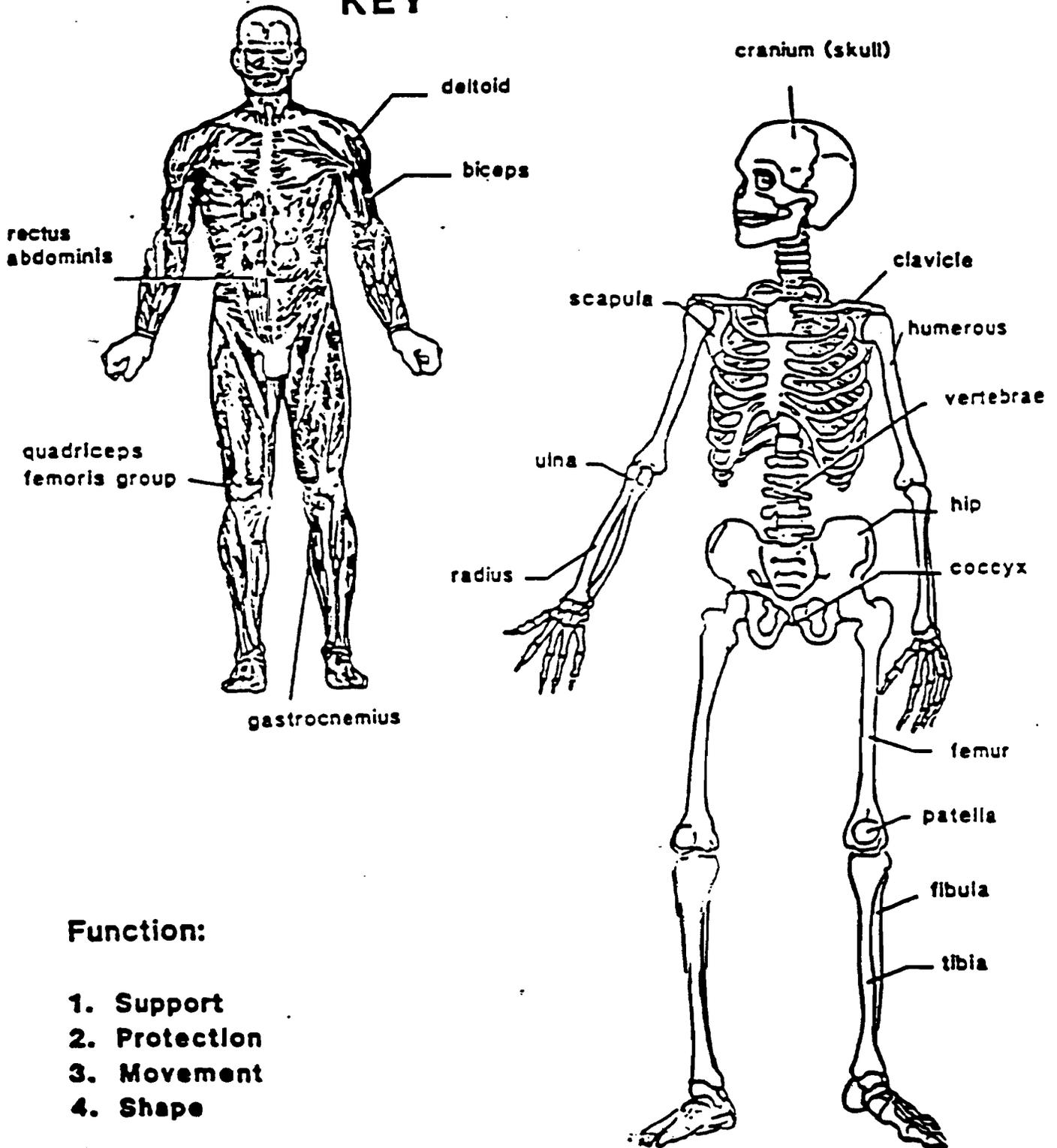
Sprain--Wrenching of a joint, with partial rupture of its ligaments. More severe than a strain and requires longer recuperation.

MUSCULOSKELETAL SYSTEM

1. List four functions of the musculoskeletal system.
2. List the major structures of the musculoskeletal system. (A diagram of the musculoskeletal system is included. You may use it to point out or label the structures.)
3. Define five key terms selected by the staff nurse.
4. Describe four conditions of the musculoskeletal system including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a musculoskeletal medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects

The Musculoskeletal System

KEY



Function:

1. Support
2. Protection
3. Movement
4. Shape

SUPPLEMENT #8

MAJOR TRANQUILIZERS

INSTRUCTIONS

It is a tranquilizing medication used for the treatment of anxiety, tension and other mental or emotional problems. It is intended as an aid to reduce troublesome symptoms. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescription tells you to. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medicine and contact your therapist.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you take without prescription). Other depressant drugs including alcohol, certain high blood pressure medicines (quanethidine for example), narcotics and barbiturates may have serious addictive effects. If you have a heart disorder, are receiving medicine for convulsions, have known allergies, or are taking anticoagulants, be sure your therapist knows before you start taking this medication.

This medication can cause changes in the breasts of men, changes in the blood, skin rashes, increased sensitivity to sunlight, increased pigmentation of the skin, opacities of the cornea of the eye, increased cholesterol levels in the blood, changes in liver function and sometimes a drop in blood pressure. Do not give any of this medicine to anyone else. If you are pregnant, or think you might be pregnant, tell your therapist before you start taking the medications.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that this medication may cause drowsiness, uncontrollable muscle movements in the face or body, rigidity, stiff neck, confusion, hyperactivity, lethargy, restlessness, tremors, headache, dryness of the mouth, blurred vision, stomach upsets, changes in menstruation, skin disorders, fever, asthma, jaundice, blood changes, urinary retention, lowered blood pressure, etc. If you should develop any of these symptoms to an uncomfortable degree or if you think that the medicine is bothering you in some other way stop taking it temporarily and notify your therapist. Your dosage schedule may need to be changed or the medication may need to be discontinued.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other

medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator do not let it freeze. Do not save leftover medication, discard it on the expiration date shown on the container but do so in a way that will protect children or pets, for example, flush down the toilet.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local emergency medical service, then give first aid. If no professional help can be found, do not wait, take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #9

MINOR TRANQUILIZERS

INSTRUCTIONS

It is a tranquilizing medication used for the treatment of anxiety, tension and other mental or emotional problems. It is intended as an aid to reduce troublesome symptoms. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescribed dosage. This medicine should not be used in children under six months of age or in any patient who is severely depressed. In many cases it will not be necessary or desirable for you to take all of this medicine. Follow the instructions exactly. If the symptoms for which the medicine was prescribed improve or if you have any adverse reaction that you think may be caused by the medicine, stop taking it and contact your therapist for further instructions.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you take without prescription). You should not take alcohol, barbiturates or narcotics with this medicine. These and other drugs such as phenothiazines and anti-depressants may have significant additive effects. Do not stop taking it abruptly if you have been taking this medicine for a prolonged time. Do not give any of this medicine to anyone else. If you are pregnant or think you might be pregnant tell your doctor before you start taking this medicine. All tranquilizers have effects which can lead to tolerance (more and more medicine required to produce the same results), habituation and emotional dependence. Moreover, withdrawal symptoms can happen when you stop taking the drug.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time after you stop using the medicine or when your body adjusts to it. It is possible that this medication may cause drowsiness, fatigue, confusion, depression, unsteady walking gait, constipation, double vision, headache, changes in sex drive, nausea, skin rash, menstrual irregularities, excitement, hallucinations, insomnia and sleep disturbances. If you should develop any of these symptoms to an uncomfortable degree or if you think that the medicine is bothering you in some other way, stop taking it temporarily and notify your therapist. He/she may decide to change your dosage schedule or discontinue the medication.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator do not let it freeze. Do not save leftover medication. Discard it on the expiration date shown on the container, but do so in a way that will protect children or pets; for example, flush down the toilet.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local emergency medical services, then give first aid. If no professional help can be found do not wait, take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

INDIVIDUAL NAME _____ RATER _____ DATE _____

		(circle one)		
FACIAL AND ORAL MOVEMENTS:	1.	MUSCLES OF FACIAL EXPRESSION. e.g., movement of forehead, eyebrows, periorbital area, cheeks; include frowning, blinking, smiling, grimacing	0	1 2 3 4 5
	2.	LIPS AND PERIORAL AREA. e.g., puckering, pouting, smacking	0	1 2 3 4 5
	3.	JAW. e.g., biting, clenching, chewing, mouth opening, lateral movement	0	1 2 3 4 5
	4.	TONGUE. Rate only increase in movement both in and out of mouth, NOT ability to sustain movement	0	1 2 3 4 5
EXTREMITY MOVEMENTS:	5.	UPPER (arms, wrists, hands, fingers) include chronic movements (i.e., rapid, objectively purposeless, irregular, spontaneous), athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT include tremor (i.e., repetitive, regular, rhythmic).	0	1 2 3 4 5
	6.	LOWER (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot	0	1 2 3 4 5
TRUNK MOVEMENTS:	7.	NECK, SHOULDERS, HIPS. e.g., rocking, twisting, squirming, pelvic gyrations.	0	1 2 3 4 5
GLOBAL JUDGEMENTS	8.	SEVERITY OF ABNORMAL MOVEMENTS	0	1 2 3 4 5
	9.	INCAPACITATION DUE TO ABNORMAL MOVEMENTS	0	1 2 3 4 5
	10.	INDIVIDUALS AWARENESS OF ABNORMAL MOVEMENTS - RATE ONLY INDIVIDUAL'S REPORT	No awareness	0
			Aware, no distress	1
			Aware, mild distress	2
			Aware, moderate distress	3
			Aware, severe distress	4
DENTAL STATUS:	11.	CURRENT PROBLEMS WITH TEETH AND/OR DENTURES	No	0
			Yes	1
	12.	DOES INDIVIDUAL USUALLY WEAR DENTURES?	No	0
			Yes	1

EXAMINATION PROCEDURE

Either before or after completing the Examination Procedure, observe the individual unobtrusively, at rest (e.g., in the living room).

The chair to be used in this examination should be hard, firm, and without arms.

1. Ask individual whether there is anything in his/her mouth (i.e., gum, candy, etc.) and if there is, to remove it.
2. Ask individual about the current condition of his/her teeth. Ask individual if he/she wears dentures. Do teeth or dentures bother individual now?
3. Ask individual whether he/she notices any movements in mouth, face, hands, or feet. If yes, ask to describe and to what extent they currently bother individual or interfere with his/her activities.
4. Have individual sit in chair with hands on knees, legs slightly apart, and feet flat on floor. (Look at entire body for movements while in this position.)
5. Ask individual to sit with hands hanging unsupported. If male, between legs, if female and wearing a dress, hanging over knees. (Observe hands and other body areas).
6. Ask individual to open mouth. Observe abnormalities of tongue movement. Do this twice.
7. Ask individual to protrude tongue. Observe abnormalities of tongue movement. Do this twice.
8. Ask individual to tap thumb, with each finger, as rapidly as possible for 10-15 seconds; separately with right hand, then with left hand. Observe facial and leg movements.
9. Flex and extend individual's left and right arms (one at a time). Note any rigidity.
10. Ask individual to stand up. Observe in profile. Observe all body areas again, hips included.
11. Ask individual to extend both arms outstretched in front with palms down. Observe trunk, legs, and mouth.
12. Have individual walk a few paces, turn, and walk back to chair. Observe hand and gait. Do this twice.

SUPPLEMENT #10

ANTI-DEPRESSANTS

INTRODUCTION

It is used for the treatment of depression. It is intended as an aid to reduce troublesome symptoms.

All anti-depressants may take at least three weeks to become effective, so you must be patient in awaiting improvement. If you are not seriously depressed and take this medication, there is a very good chance that you will become unhappy and unpleasant. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescribed dosage. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medication and contact your therapist.

PRECAUTION

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you buy without prescription). Alcohol, pain medicine, thyroid medicines. Ritalin, narcotics, antihistamines, medicines used to treat high blood pressure, sedatives or anti-anxiety medicines, may all have their effects increased while you are taking this medication. You should not take other medicines for depression, particularly MAO inhibiting drugs, while you are taking this medication. Do not give any of this medication to anyone else. If you take medicine for high blood pressure, have glaucoma, seizures, urinary retention, thyroid disease, a recent heart attack or if you are pregnant or think you might be pregnant, tell your therapist before you start taking this medication.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder, or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that this medication might cause agitation, rapid pulse, confusion, dry mouth, blurred vision, skin rash, edema, nausea, vomiting headache, constipation, increased sweating, muscle tremors, stomach upsets, faintness on arising from bed or chair, hallucinations, jaundice, impotence, drowsiness, dizziness, and possible other disorders. If you should develop any of these symptoms to an uncomfortable degree or think the medicine is bothering you in some other way, stop taking it temporarily and notify your therapist. It may be decided to change your dosage schedule or discontinue the medication.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medicine affects you do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator, do not let it freeze. Do not save leftover medicine to use later. Discard it on the expiration date shown on the container but do so in a way that will protect children or pets. Flush down the toilet, for example.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local life squad, then give first aid. If no professional help can be found do not wait. Take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #11

LITHIUM CARBONATE

INSTRUCTIONS

It is a medication used for the treatment of mania and depression, to reduce troublesome symptoms and to decrease reoccurrences. Follow the instructions on the prescription exactly, do not take larger or smaller doses of the medication than the prescribed dosage. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medicine and contact your therapist.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions so tell your therapist about any medicine you are taking not (including drugs you take without prescription). Any diuretics or water pills may cause serious complications and should not be taken in conjunction with the Lithium Carbonate. This medication must be used with caution if you have kidney trouble, thyroid trouble, high blood pressure or heart trouble. It is important to maintain an adequate salt intake and fluid intake. Laboratory tests will be done regularly as one of the ways of determining your necessary dose of this medicine. The blood should be drawn in the morning before you take your first dose of Lithium. However, it is not necessary to miss breakfast. If you are pregnant or think you might be pregnant, tell your therapist before you start taking the medication. Breast feeding by mothers on Lithium is not recommended. Do not give any of this medication to anyone else.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that medication may cause drowsiness, nausea, tiredness, increased output of urine, feeling of weakness, diarrhea, slight shaking of hands, thirst or sluggishness.

POSSIBLE TOXIC EFFECTS

Toxic effects or serious side effects may require re-evaluation of the dose or possible discontinuance of the treatment with this medication. Warning signs of toxicity are confusion, sleepiness, muscle tremor, vomiting, diarrhea, slurred speech, unsteady gait, ringing in the ears and giddiness. Stop the medication immediately and contact your therapist at once if you experience any of these symptoms.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you, do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator, do not let it freeze. Do not save leftover medication. Discard it on the expiration date shown on the container, but do so in a way that will protect children or pets. For example, flush down the toilet.

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OVERDOSE AND TREATMENT

Call your doctor or your local life squad, then give first aid. If no professional help can be found do not wait. Take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #12

THE NERVOUS SYSTEM AND SEIZURE DISORDERS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE NERVOUS SYSTEM

1. Structures of the nervous system

- a. Brain
- b. Spinal cord
- c. Nerves
- d. Autonomic Nervous System

2. Functions of the nervous system

- a. Carries and coordinates impulses from the outside world (external) and the body (internal) to the brain.
- b. Carries the brain's responses (reactions) to the body in reaction to impulses.

B. MAJOR NERVOUS SYSTEM DISORDERS

1. Slow or non-functioning nerves or brain cells

- a. Cause--unknown
- b. Symptoms--poor respiration, poor heartbeat

2. Over-functioning nerves or brain cells

- a. Cause--a sudden, abnormally excessive, electrical discharge within the brain.
- b. Symptoms--twitching, irregular movements, improper thought patterns, convulsions.
Can last from a few seconds to several minutes.
- c. Example--epilepsy
 - (1) Grand mal (tonic-clonic seizures)
 - (2) Petit mal (absence seizures)
 - (3) Psychomotor or temporal lobe epilepsy (complex partial seizures)
- d. Treatment
 - (1) Grand mal
 - (a) phenytoin (Dilantin)
 - (b) phenobarbital (Luminal)
 - (c) carbamazepine (Tegretol)

- (2) Petit mal
 - (a) ethosuximide (Zarontin)
 - (b) valproic acid (Depakene)
- (3) Psychomotor, temporal lobe
 - (a) carbamazepine (Tegretol)
 - (b) phenytoin (Dilantin)

3. Interference of impulse on nerve pathway

- a. Cause--unknown
- b. Symptoms--loss of motion, uncontrollable movements
- c. Examples--Huntington's Disease, Myasthenia Gravis, Parkinson's Diseases
- d. Treatment--medications help temporarily

4. Inflamed nerves or brain cells

- a. Cause--varied
- b. Symptoms--nerves or brain cells irritated and swollen, may be constant or intermittent condition, almost always accompanied by pain.
- c. Examples--neuritis, neuralgia, Tic Douloureux, sciatica

5. Infections of nerves or brain cells

- a. Cause--infections from other parts of body or germs that attack nerve cells and interfere with nervous system structures.
- b. Use--weight reduction, control hyperactivity
- c. Examples--Meningitis, Encephalitis, Poliomyelitis, Guillain-Barre Syndrome
- d. Treatment--medication

C. SELECTED MEDICATIONS BY CLASSIFICATION

1. Stimulants--Amphetamines

- a. Action--increase mental and physical alertness and activity.
- b. Use--weight reduction, control hyperactivity

c. Examples

- (1) amphetamine sulfate
- (2) dextroamphetamine sulfate (Dexedrine)
- (3) methylphenidate HCl (Ritalin)

d. Adverse effects

- (1) Restlessness
- (2) Palpitations
- (3) Tachycardia
- (4) Hyperactivity

e. Special considerations

- (1) Do not give within six hours of going to sleep.
- (2) Individual should avoid drinks with caffeine.
- (3) Some amphetamines are controlled substances and can become habit-forming.

2. Depressants

a. Sedatives

- (1) Action--decrease sensitivity of nervous system.
- (2) Use--reduce physical and mental activity, control convulsions.
- (3) Example--phenobarbital (Luminal)
- (4) Adverse effects
 - (a) Rash
 - (b) Nausea
 - (c) Dependence

b. Hypnotics

- (1) Action--decrease sensitivity of nervous system
- (2) Use--produce sleep
- (3) Example
 - (a) temazepam (Restoril)
 - (b) ethchlorvynol (Placidyl)
 - (c) flurazepam HCl (Dalmane)
 - (d) triazolam (Halcion)
- (4) Adverse effects
 - (a) Morning-after drowsiness
 - (b) Stomach upset
- (5) Special considerations
 - (a) Individual may become dependent on the drug.
 - (b) Drug may have a cumulative effect.

c. Anesthetics

- (1) Action--decrease sensitivity of nervous system.
- (2) Use--to cause loss of sensation, treat burns.
- (3) Examples
 - (a) dibucaine HCl (Nupercainal Cream)
 - (b) lidocaine HCl (Xylocaine)
- (4) Adverse effects
 - (a) Drowsiness
 - (b) Palpitations

d. Anticonvulsants

- (1) Action--decrease sensitivity of nervous system
- (2) Use--stop or prevent convulsions or seizures.
- (3) Examples
 - (a) phenytoin sodium (Dilantin)
 - (b) primidone (Mysoline, Sertin)
 - (c) haloperidol (Haldol)
 - (d) carbamazepine (Tegretol)
 - (e) valproic acid (Depakene, Depakote)
- (4) Adverse effects
 - (a) Swelling and redness of gums
 - (b) Drowsiness
 - (c) Dizziness
 - (d) Double vision
 - (e) Tremors
 - (f) Confusion
- (5) Special consideration--some of the drugs in this category may also be given parenterally by licensed personnel during a seizure.

D. ADDITIONAL INFORMATION CONCERNING COMMONLY ORDERED MEDICATIONS

1. phenobarbital (Luminal) - sedative

- a. Action--not completely known. Drug selectively blocks transmission of nerve impulses by impeding the transfer of sodium and potassium across cell membranes. This produces a sedative effect and suppresses the spread of nerve impulses that are responsible for epileptic seizures.
- b. Uses--a mild sedative to relieve anxiety or nervous tension and as an anticonvulsant to control grand mal epilepsy and all types of partial seizures.

- c. Adult dosage range
 - (1) As a sedative--15 to 30 mg 2-4 times per day
 - (2) As an anticonvulsant--100 to 200 mg given as a single dose at bedtime
 - (3) Total daily dose should not exceed 600 mg.
 - (4) Actual dosage and administration schedule must be determined individually by the individual's physician.

- d. Adverse effects

- (1) Expected-- drowsiness, impaired concentration, mental and physical sluggishness.
 - (2) Unexpected--allergic reactions (skin rash, hives), dizziness, unsteadiness, impaired vision, double vision, nausea, vomiting, diarrhea.

- e. Special consideration--if used as an anticonvulsant, drug should not be discontinued abruptly. Sudden withdrawal can cause repetitive seizures. Gradual reduction in dosage should be made over a period of time.

- 2. temazepam (Restoril) - hypnotic

- a. Action--produces a calming effect by enhancing the action of a nerve transmitter.

- b. Use--a sedative used to induce sleep.

- c. Adult dosage

- (1) 15 - 30 mg at bedtime
 - (2) Total dosage should not exceed 90 mg.

- d. Adverse effects

- (1) Expected--drowsiness, lethargy, and unsteadiness
 - (2) Unexpected--allergic reactions, dizziness, slurred speech, nausea, indigestion

- e. Special considerations

- (1) Do not discontinue abruptly if taken continually for more than 4 weeks.
 - (2) Using some over-the-counter drugs containing antihistamines (allergy and cold preparation, sleep aids) can cause excessive sedation in some persons.
 - (3) Avoid regular nightly use of any hypnotic.
 - (4) Restoril can produce psychological and/or physical dependence if used in large doses for extended periods of time.

- 3. phenytoin (Dilantin) - anticonvulsant

- a. Action--not completely known but thought to promote loss of sodium from nerve fibers to lower and stabilize their excitability and thereby inhibit the spread of electrical impulses along nerve pathways.

- b. Uses--as an antiepileptic drug to control seizures, available in combination with phenobarbital as some seizure disorders require the combined actions of both drugs for effective control.
- c. Adult dosage
 - (1) Initial dose 100 mg three times per day
 - (2) Increase dose with caution by 100 mg/week as needed and tolerated
 - (3) Once optimal maintenance dose is established, total daily dose may be taken once per day if capsules are used.
 - (4) Total daily dosage should not exceed 600 mg.
- d. Adverse effects
 - (1) Expected--dry mouth and throat, constipation, impaired urination.
 - (2) Unexpected--allergic reactions (skin rash, hives, itching), headache, dizziness, drowsiness, unsteadiness, fatigue, blurred vision, confusion, ringing in ears, loss of appetite, nausea, vomiting, indigestion, diarrhea, hair loss, water retention, frequent urination.
- e. Special considerations
 - (1) Prompt action capsules and extended action capsules should not be substituted for each other; consult a physician.
 - (2) Must not be stopped abruptly.
 - (3) Dosage schedule must be individualized.
 - (4) Drug must be taken at the same time each day for successful management of seizure disorders.

4. carbamazepine (Tegretol) - anticonvulsant

- a. Action--not completely known but thought to reduce excitability of certain nerve fibers in the brain.
- b. Use--for control of several types of epilepsy.
- c. Adult dosage
 - (1) Initially--200 mg/12 hours
 - (2) Total daily dosage should not exceed 1200 mg and must be determined by the physician for each individual.

d. Adverse effects

- (1) Expected--dry mouth and throat, constipation, impaired urination.
- (2) Unexpected--allergic reaction (skin rash, hives, itching), headache, dizziness, drowsiness, unsteadiness, fatigue, blurred vision, confusion, ringing in ears, loss of appetite, nausea, vomiting, indigestion, diarrhea, hair loss, water retention, frequent urination.

e. Special considerations

- (1) Can cause serious adverse effects, therefore should be used only after less hazardous drugs have proven ineffective.
- (2) Drug should not be discontinued suddenly.
- (3) Should be taken at the same time every day.

5. valproic acid (Depakene, Depakote) - anticonvulsants

- a. Action--not completely known. Thought to suppress spread of abnormal electrical discharges that cause seizures by increasing the availability of a nerve impulse transmitter.
- b. Use--effective management of epilepsy (petit mal, grand mal, myoclonic), sometimes used in combination with other anticonvulsants.

c. Dosage

- (1) Initially--15 mg/kg/24 hours and is increased cautiously by 5-10 mg/kg/24 hours every seven days as needed and tolerated.
- (2) Usual dose is 1000 mg - 16000 mg in divided doses.
- (3) Note: Preferably taken one hour before meals. May be taken with or after food if needed to prevent stomach irritation.

d. Adverse effects

- (1) Expected--drowsiness and lethargy
- (2) Unexpected--allergic reaction, headache, dizziness, confusion, unsteadiness, slurred speech, nausea, indigestion, stomach cramps, diarrhea.

e. Special considerations

- (1) Valproic acid can impair blood clotting mechanisms. If injured or having surgery or dental work, inform physician or dentist that individual is taking this drug.
- (2) Avoid aspirin.

- (3) Over-the-counter medications containing antihistamines (allergy and cold medications, sleep aids) can enhance sedative effects of the drug.
- (4) Avoid concurrent use with Klonopin (could result in continuous petit mal episodes).
- (5) To avoid mouth and throat irritation the tablet should not be crushed and the capsule should not be opened.
- (6) Syrup can be diluted in water or milk.

E. ADDITIONAL INFORMATION CONCERNING THE NERVOUS SYSTEM

1. When working with an individual who is receiving medication for nervous system disorders, follow these guidelines:
 - a. Speak in short, simple sentences.
 - b. Be prepared to give frequent explanations.
 - c. Approach the individual in a calm, unhurried manner.
 - d. Listen to the individual's fears and concerns.
2. There are five major special considerations that the residential staff must follow for individuals taking nervous system medications:
 - a. Safety
 - b. Activity
 - c. Respite
 - d. Structured environment
 - e. Support
3. When working with an individual who has seizures it is important to:
 - a. Help the individual maintain a healthy self concept.
 - b. Help the individual maintain independence.
4. Individuals with seizure disorders should carry an ID card and medication information with them at all times.
5. Individuals should always go swimming with a buddy.

6. Individuals should avoid:

- a. Working at great heights.
- b. Working around moving machinery.
- c. Large amounts of caffeine.
- d. Alcohol.
- e. Becoming overly tired.
- f. Activities that require a great deal of spinning.

7. Encourage the individual to brush and floss their teeth after every meal and snack. If circumstances during the day do not permit brushing after the noon meal, encourage the individual to floss. A disclosing agent may be used which will leave a mild stain on all the places where plaque remain. A water pick, or dental stimulators may also be used. Poor dental care will increase the chances of gum tissue overgrowth that is frequently painful, embarrassing, and must sometimes be corrected with oral surgery.

EPILEPSY: RECOGNITION AND FIRST AID SEIZURE TYPE

SEIZURE TYPE	WHAT HAPPENS	WHAT TO DO	WHAT NOT TO DO
<p>Convulsive Generalized Tonic-clonic (Grand Mal)</p>	<p>Seizure lasting one to three minutes; beginning suddenly with an involuntary cry, loss of consciousness and falling, violent convulsive movement of the head, trunk and extremities, and excessive salivation. May have loss of bladder and/or bowel control. Person awakens spontaneously, is dazed and confused. Person usually falls into a deep sleep that lasts several hours. Does not remember the episode</p>	<p>Look for medical identification. Protect from nearby hazards. Loosen ties or shirt collars. Place folded jacket under head. Turn on side to keep airway clear. Reassure when consciousness returns. If single seizure lasted less than 10 minutes, ask if hospital evaluation is needed. If multiple seizures, or if on seizure lasts longer than 3-5 minutes, contact nurse.</p>	<p>Don't put any object in the mouth. Don't try to hold the tongue. It can't be swallowed. Don't try to give liquids during or just after a seizure. Don't use oxygen unless there are symptoms of a heart attack. Don't use artificial respiration unless breathing is absent after muscle jerks subside, or unless water has been inhaled. Don't restrain.</p>
<p>Nonconvulsive Absence seizure (Petit Mal)</p>	<p>Seizure lasting several seconds, consisting of sudden momentary lapse of consciousness. During the seizure, person will have a blank stare and is unaware of surroundings, but does not actually lose consciousness, fall or convulse. May have a minor twitching of eyelid or facial muscle. Petit mals may occur more than 100 times a day. Person resumes normal functioning after each seizure and does not remember attack.</p>	<p>No first aid necessary.</p>	<p>Don't restrain.</p>
<p>Complex Partial (Psychomotor or Temporal Lobe)</p>	<p>Seizure consisting of sudden alternations in behavior. Person may walk about aimlessly, talk in an irrational manner, laugh, engage in purposeless or inappropriate action. Begins with an "aura." When seizure ends, person is completely aware of the environment.</p>	<p>Speak calmly and reassuringly to individual and others. Guide gently away from obvious hazards. Stay with the individual until completely aware of the environment.</p>	<p>Don't grab hold unless sudden danger threatens. Don't try to restrain. Don't shout. Don't expect verbal instructions to be obeyed.</p>

DEFINITIONS OF KEY TERMS

Analgesics--Medications that relieve muscle, joint, and bone pain.

Anesthetics--Medications that cause a loss of sensation.

Anticonvulsants--Medications used to stop or prevent convulsions or seizures.

Autonomic Nervous System (ANS)--The division of the vertebrate nervous system that regulates involuntary action (intestines, heart, and glands) and makes up the sympathetic and parasympathetic nervous systems.

Depressants--Medications used to decrease mental and physical activity.

Epilepsy--Chronic disorder characterized by recurring seizures that last from a few seconds to several minutes and require specific medication for prevention and control.

Extrapyramidal--Outside of the pyramidal tracts.

Hypnotics--Medications used to produce sleep.

Neuron--A nerve cell.

Pyramidal Tracts--Four columns of motor fibers that run in pairs on each side of the spinal cord.

Sedatives--Medications used to reduce physical and mental activity.

Stimulants--Medications used to increase mental and physical activity.

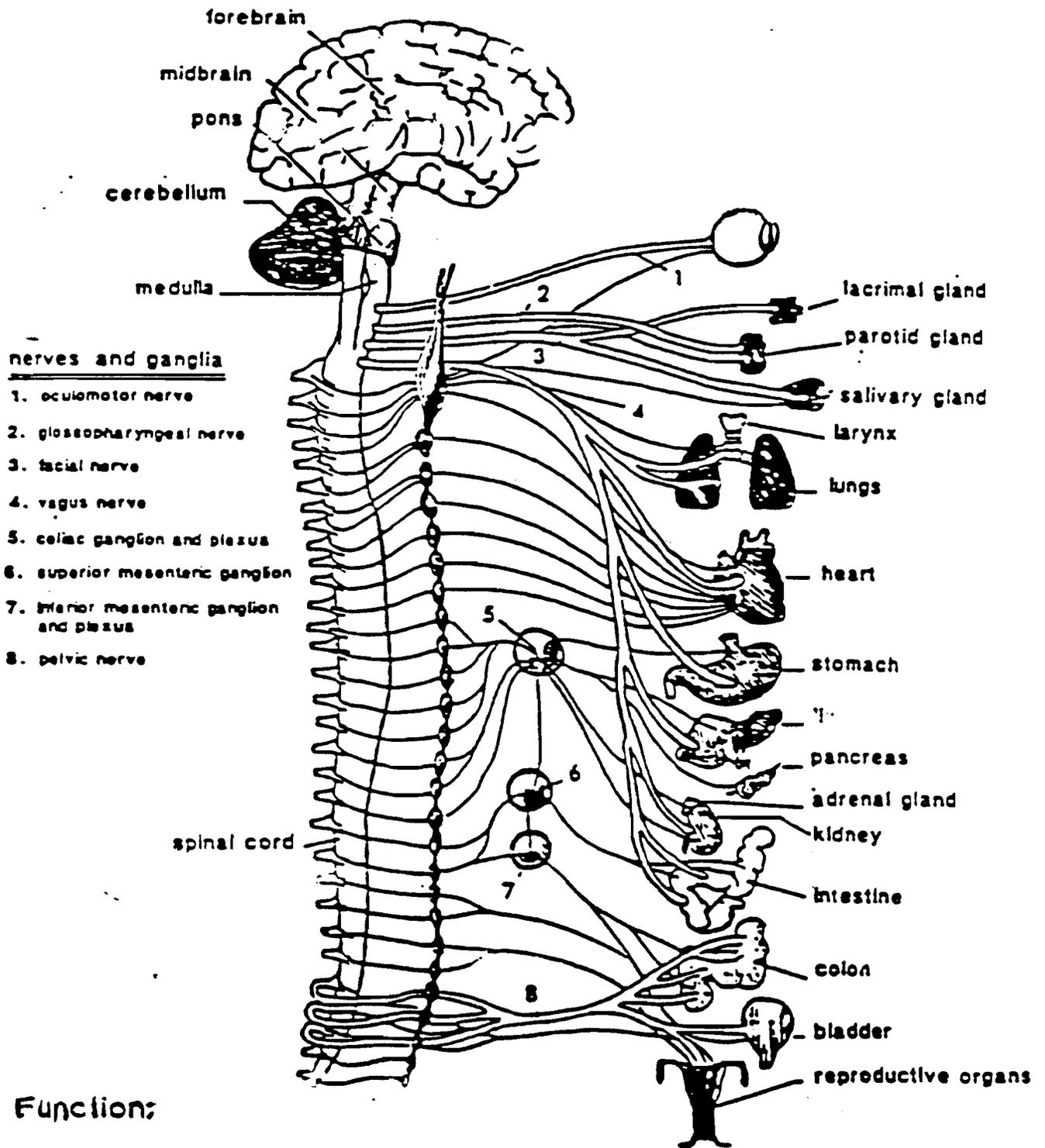
Tic Douloureux--Spasm of a nerve in the face.

SUPPLEMENTAL LESSON: THE NERVOUS SYSTEM -- SEIZURE DISORDERS

PERFORMANCE

1. List three functions of the nervous system.
2. List the major structures of the nervous system. (A diagram of the nervous system is included. You may use it to point out or label the structures.)
3. Define six key terms selected by the staff nurse.
4. Describe three conditions of the nervous system including the cause, symptoms, and treatment of each.
5. If a resident currently is receiving a nervous system medication, describe the following for the medication:
 - a. brand name
 - b. trade name
 - c. uses
 - d. actions
 - e. side effects
6. Name one anti-convalescent drug, its effects and uses.
7. Describe grand mal and petit mal seizures. Include a description of what happens, what you should do, and what you should not do.

The Nervous System



Functions:

1. Controls body activities
2. Coordinates body activities
3. Carries impulses to and away from brain

SUPPLEMENT #13

SUBSTANCE ABUSE

Individuals who are taking over-the-counter and/or prescribed medications must be aware of the interactions that can occur between those medications and alcohol, marijuana, cocaine, and caffeine. Residential staff must also be aware of these interactions. A chart listing the interacting effects of alcohol and other drugs is included

If you suspect an individual is under the influence of alcohol or an illegal substance and it is time for the individual to receive medication, do not administer the medication to the individual. Contact the staff nurse immediately for further instructions.

A. ALCOHOL

1. Alcohol is a drug.
2. ^s Alcohol can produce feelings of well-being, sedation, intoxication, unconsciousness, and death.
3. Metabolic process and alcohol:
 - a. When drugs are forced to compete with alcohol for processing by the body, one or both are metabolized more slowly.
 - b. The effect of alcohol and/or the drug is exaggerated because it remains active in the blood for an extended period of time.
4. Adverse effects
 - a. Liver damage resulting from prolonged drinking can reduce the metabolism of many drugs, causing a normal dose to be unexpectedly potent.
 - b. Barbiturates or sedatives will have less effect in heavy drinkers during periods of sobriety.
 - (1) Excessive drinking has increased the body's ability to metabolize these drugs.
 - (2) Heavy drinkers will begin to take larger doses of these drugs, because the usual dose will have little effect.
 - (3) Results of taking the large dose and then drinking can be fatal.
 - c. Combination of downers, alcohol and diazepam (Valium) to combat a cocaine crash, can cause delay withdrawal of up to ten days. This may lead to the possible onset of delayed or "unexpected" seizures and improper diagnosis because of the delay.

B. MARIJUANA

1. Physical effects--faster heartbeat and pulse rate, bloodshot eyes, and a dry mouth and throat.
2. Mental effects--impair or reduce short-term memory, alter sense of time, and reduce ability to do things which require concentration.

3. Marijuana and the body systems
 - a. Reproductive system
 - (1) Influences levels of some hormones relating to sexuality.
 - (2) Irregular menstrual cycles.
 - (3) Temporary loss of fertility.
 - b. Cardiovascular system
 - (1) Increase the heart rate as much as 50 percent.
 - (2) Can cause chest pain.
 - c. Respiratory system
 - (1) Irritates the lungs and damages the way they work.
 - (2) Combined with nicotine, can cause cancer and emphysema.

C. COCAINE

1. Addictive
2. Immediate effects
 - a. Dilated pupils and increases in blood pressure, heart rate, breathing rate, and body temperature.
 - b. Effects begin within a few minutes and peak in about 15 to 20 minutes and disappear within an hour.
3. Long-term effects
 - a. Depression
 - b. Hallucinations
 - c. Signs of psychosis
 - d. Early signs of trouble--increased irritability, short temper, and paranoia.
4. Cardiovascular system--moderate doses can overtax the heart and may be fatal. Regular use can cause heart palpitations, angina, arrhythmia, and even a heart attack.
5. Effects on the brain--overstimulate the neurotransmitters.
6. Combining cocaine with other drugs
 - a. Combining with depressants such as heroin, barbiturates, or sedatives may result in the build-up of either drug to seriously toxic levels.
 - b. Combining it with other stimulants (cocaine is a stimulant) can be especially dangerous.
 - c. Local anesthetics and cocaine are also hazardous.

D. CAFFEINE

1. Immediate effects
 - a. Increase in heart rate and breathing.
 - b. Increase in blood pressure.
 - c. Increase in body temperature.
 - d. Quickening of overall body processes.
 - e. Increase in the speed in which you react to stimuli.
 - f. Increase in stomach acids.
 - g. Decrease in the body's ability to burn sugar.
 - h. Increase in urine production.
 - i. Increase of sensitivity to sensory stimuli.

2. Caffeine is included in many over-the-counter and prescription drugs because it is a mild stimulant; it offsets the drowsiness other ingredients in the medicine cause, and it gives you a lift and helps you feel better.
3. Caffeinism--reaction of the body to too much caffeine.
 - a. Physical problems
 - (1) Headaches
 - (2) Loss of appetite
 - (3) Loss of weight
 - (4) Diarrhea
 - (5) Frequent loose stools
 - (6) Stomach upset
 - (7) Muscle tremors
 - (8) Heart palpitations
 - (9) Rapid breathing
 - (10) Ringing in ears
 - (11) Sleeping problems
 - b. Emotional problems
 - (1) Mood changes
 - (2) Emotional upset
 - (3) Feelings of nervousness
 - (4) Agitation
 - (5) Anxiety or depression
 - (6) Exaggerated or unnecessary concern

DEFINITIONS OF KEY TERMS

Alcohol--Any beverage that contains ethyl alcohol (ethanol), the intoxicating sedative-hypnotic in fermented and distilled liquors. A CNS depressant, depending on the amount consumed, alcohol acts as an analgesic, tranquilizer, sedative-hypnotic, soporific, intoxicant, anesthetic, or narcotic.

Caffeine--A white, bitter, crystalline substance that has stimulant effects and constricts blood vessels in the brain.

Caffeinism--Excessive ingestion of large amounts of caffeine, usually in coffee or tea, for prolonged periods.

Cocaine--From the coca plant, a short-acting but very powerful stimulant. Heavy usage can lead to "paranoid syndrome" in which the user is highly suspicious or nervous.

Marijuana--The dried leaves and flowering tops of the pistillate hemp plant that yield THC and is usually smoked.

INTERACTIONS BETWEEN ALCOHOL AND OTHER DRUGS

TYPE OF DRUG	GENERIC NAME	INTERACTION EFFECT WITH ALCOHOL
Analgesics	Salicylates	Heavy concurrent use of alcohol with analgesics can increase the potential for gastrointestinal bleeding. Special caution should be exercised by individuals with ulcers. Buffering of salicylates reduces possibility of this interaction.
Narcotic	Codeine Morphine Oxycodone Propaxphene Pentazocine Meperdine	The combination of narcotic analgesics and alcohol interact to reduce functioning of the CNS and can lead to loss of effective breathing function or respiratory arrest; death may result.
Antianginal	Nitroglycerine Isosobide Dinatrite	Alcohol in combination with antiangual drugs will cause the blood pressure to lower--creating a potentially dangerous situation.
Antibiotics, Anti-infective agents	Furazolidone Metronidazole Nitrofurantoin	Certain antibiotics, especially those taken for urinary tract infections have been known to produce disulfiram-like reactions (nausea, vomiting, headaches, hypotension) when combined with alcohol.
Anticoagulants	Sodium Warfarin Acenocoumarol Cournarin Derivatives	Chronic heavy drinking can reduce the effectiveness of anticonvulsant drugs to the extent that seizures previously controlled by these drugs can reoccur if the dosage is not adjusted appropriately. Enhanced CNS depression may occur with concurrent use of alcohol.
Anticonvulsants	Phenytoin	The interaction of alcohol and either insulin or oral antidiabetic agents may be severe and unpredictable. The interaction may induce hypoglycemia or hyperglycemia. Also disulfiram-like reactions may occur.
Antidiabetic agents, Hypoglycemics	Chlorpropanide Acetohexamide Tolbutamide Tolazamide Insulin	Enhanced CNS depression may occur with concurrent use of alcohol and antidepressant drugs.
Antidepressants	Nortriptyline Amitriptyline Desipramine Doxepin Imipramine	Enhanced CNS depression may occur with concurrent use of alcohol and antidepressant drugs.

Continued on next page

TYPE OF DRUG	GENERIC NAME	INTERACTION EFFECT WITH ALCOHOL
Antihistamines	(one example) Chlorpheniramine	The interaction of alcohol and these drugs enhances CNS depression.
Antihypertensive	Rauwolfia Preparations Reserpine Guanethidine Hydralazine Pargyline Metholdopa	Alcohol in moderate dosage will in-Agents increase the blood pressure lowering effects of these drugs, and can produce postural hypotension. Additionally, an increased CNS depressant effect may be seen with the rauwolfia alkaloids and methyldopa.
CNS Depressants	Phenobarbital Pentobarbital Scobarbital Butobarbital Amobarbital	Since alcohol is a depressant, the combination of alcohol and other depressants interact to further reduce CNS functioning. It is extremely dangerous to mix these drugs, since it can cause coma or fatal respiratory arrest.
Non-barbiturate hypnotics	Methaqualone Glutethimide Bromides Flurazepam Chloral Hydrate	Many accidental deaths of this nature have been reported. A similar danger exists in mixing the non-barbiturate hypnotics with alcohol.
Tranquilizers (MAJOR)	Thoridazine Chlorpromazine Tifluoperazine Haloperidol	The major tranquilizers interact with alcohol to enhance CNS depression, resulting in impairment of voluntary movement such as walking or hand coordination; larger doses can be fatal.
Tranquilizers (MINOR)	Diazepam Meprobarnate Chlordiazepoxide HCl Oxazepam	The minor tranquilizers depress CNS functioning. Serious interactions can occur when using these drugs and alcohol.
CNS Stimulants	Caffeine Amphetamines Dextroamphetamine Methamphetamine	The stimulant effect of these drugs can reverse the depressant effect of alcohol on the CNS, resulting in a false sense of security. They do not help the intoxicated person gain control over coordination or psychomotor activity.
Disulfiram (anti-alcohol preparation)	Disulfiram	Severe CNS toxicity follows ingestion of even small amounts of alcohol. Effects can include headache, nausea, vomiting, convulsions, rapid fall in blood pressure, unconsciousness--and with sufficiently high doses--death.
Diuretics (also anti-hypertension)	Hydrochlorthiazide Chlorothiazide Furosemide Quinethazone	Interaction of diuretics and alcohol enhances the blood pressure--lowering effects of the diuretic; and could possibly precipitate postural hypotension.
Monomaine Oxidase Inhibitors (MAO)	Pargyline Isocarboxazide Phenazine	Alcoholic beverages (such as beer and wines) contain tyramine, which will interact with an MAO to produce a hypertensive, hyperpyrexia crisis.

SUPPLEMENTAL LESSON: SUBSTANCE ABUSE

PERFORMANCE

- 1. Describe the adverse effects of alcohol, marijuana, cocaine, and caffeine.**
- 2. Define three of the key terms selected by the staff nurse.**
- 3. Describe the interaction effect alcohol has with the following types of drugs:**
 - a. non-narcotic analgesics**
 - b. narcotic analgesics**
 - c. antibiotics**
 - d. antidepressants**
 - e. antidiabetic agents**
 - f. major tranquilizers**
 - g. minor tranquilizers**
 - h. barbiturate hypnotics**

SUPPLEMENT #14

ENDOCRINE SYSTEM

STRUCTURE AND FUNCTION

PITUITARY GLAND. This gland is located under the brain. The hormones secreted by this gland control growth, urine production, contractions of involuntary muscles, and influence the activity of all the other glands. Because it controls other glands, the pituitary is called the "master gland".

THE PINEAL BODY. This is a small gland also located in the skull beneath the brain. Very little is known about this gland. It is thought to be somehow related to sexual growth since it tends to disappear with maturity.

THE ADRENAL GLANDS. There are two adrenal glands, one located on each of the two kidneys. They secrete adrenaline and cortisone which are widely used as medications. In general, the adrenal hormones control the water/salt balance in the body and the release of energy to meet emergencies.

REPRODUCTIVE GLANDS (GONADS). The term "gonads" refers to the male and female sex glands. The female glands are the two ovaries located on either side of the uterus. When stimulated by the pituitary gland, they produce two hormones: estrogen and progesterone. These hormones are responsible for the development of female characteristics, such as the development of the breasts, the appearance of pubic and axillary hair, the onset and regulation of menstruation, and pregnancy.

The male gonads, the two testes, are located outside the body in a pouch called the scrotum. They produce the hormone, testosterone, which is responsible for secondary male characteristics. These characteristics include muscular development, deepening voice, and hair growth. The male and female gonads also produce the special cells (sperm and egg) which unite to form a new person.

THE THYROID GLAND. This gland is found in the neck. Thyroxin is the main hormone secreted by this gland which helps to regulate the production of heat and energy by the body. In order for the thyroid gland to produce thyroxin, sufficient iodine must be present in the diet.

THE PARATHYROIDS. These are tiny glands embedded in the thyroid gland in the neck. The hormone they manufacture controls the use of two minerals, calcium and phosphorus, by the body.

THE ISLETS OF LANGERHANS. The islets of langerhans are small groups of cells found within the pancreas. These cells produce the hormone insulin. Insulin must be present in order for the body to utilize sugar.

There is a wide variety of medications which affect the endocrine system. The medications are prepared to duplicate the actions of hormones or to interfere with the

hormonal activity. People who have some type of hormonal deficiency may require medication therapy. For example, the child who is born with a deficiency of growth hormones (produced by pituitary) may stay small in stature unless the hormone is replaced.

Medications which duplicate hormone activity may also be given to treat various body disorders. For example, a person who has arthritis may benefit from medications called steroids. The actions of steroids resemble actions of the hormone, cortisone, which is produced by the pituitary gland.

The chart on page 116 presents a brief description of some of the glands' activities, specific medications, therapeutic use and side effects.

THE ENDOCRINE AND FEMALE REPRODUCTIVE SYSTEMS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE ENDOCRINE SYSTEM

1. Structures of the endocrine system (for further information refer to the chart Common Disorders of the Endocrine Glands located at the end of this lesson on page 116).
 - a. Pineal gland
 - b. Pituitary gland (master gland)
 - c. Thyroid gland
 - d. Parathyroid glands
 - e. Thymus gland
 - f. Adrenal glands
 - g. Pancreas
 - h. Testes (male gonads)
 - i. Ovaries (female gonads)
2. Functions of the endocrine system:
 - a. the endocrine glands secrete hormones that are the chemical regulators of all cell activity.
 - b. Hormones can either excite or inhibit physiological processes.

B. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE FEMALE REPRODUCTIVE SYSTEM

1. Internal structures:
 - a. Two ovaries
 - b. Two fallopian tubes
 - c. Uterus
 - d. vagina
2. External structures:
 - a. Genital area
 - (1) Mons-ubis
 - (2) Labia
 - (3) Clitoris
 - (4) Vestibule area
 - b. Chest area
 - (1) Breasts
 - (2) Mammary glands
3. Functions of the female reproductive system:
 - a. Hormones stabilize the female physically and emotionally.
 - b. Provide a place for conception (fertilization).
 - c. House and nourish a developing baby.

C. COMMON DISORDERS OF THE ENDOCRINE AND FEMALE REPRODUCTIVE SYSTEM

1. Disorders of the endocrine glands

a. Hypothyroidism

- (1) Cause--underproduction of the thyroid gland
- (2) Symptoms--fatigue, unexplained weight gain, dry skin, sensitivity to cold
- (3) Treatment--medication, thyroid hormone replacement

b. Hyperinsulinism

- (1) Cause--overproduction of the pancreas
- (2) Symptoms--low blood sugar, fatigue, headaches, hunger, confusion
- (3) Treatment--diet

2. Common disorders of the female reproductive system

a. Vaginitis

- (1) Causes--poor hygiene, changes in vaginal lining after menopause.
- (2) Symptoms--whitish vaginal discharge, foul odor, burning and itching of genital area, especially around the vaginal opening.
- (3) Treatment--keep area clean and dry, use medicated vaginal creams, jellies, suppositories and douches.
- (4) Special consideration--can be resistant to treatment.

b. Breast cancer

- (1) Causes--unknown, estrogen suspected, many victims began menses early, menopause late, and experience constant stress.
- (2) Symptoms--lump, dimpling, or indented areas in breast tissue, fluid oozing from nipples, orange peel appearance of skin, change in breast size or shape.
- (3) Treatment--surgery, x-ray radiation, chemotherapy.

c. Menopause

- (1) Causes--usually occurs between age 45 and 52, age of onset influenced by nutritional, cultural or genetic factors. The physiologic mechanisms that trigger onset are unknown.
- (2) Symptoms--mucous membranes become dry, pubic hair thins turning gray or white and may disappear, pelvic muscles atrophy, breasts become pendulous and decrease in size and firmness, sexual activity may increase in some women as the need for contraceptives disappears, some women experience "hot flashes" - sweating and occasional chills.
- (3) Treatment--low-dose estrogen therapy, vaginal creams, counseling to assist the woman in coming to terms with the changes that are occurring.

D. SELECTED MEDICATIONS BY CLASSIFICATION

1. Adrenal cortex hormones

a. Action--decreases inflammation

b. Uses--treat allergies, arthritis, dermatitis

c. Examples

- (1) prednisone (Deltasone)
- (2) dexamethasone (Decadron)
- (3) methylprednisolone (Medrol)

- d. Adverse effects
 - (1) Moon face
 - (2) Fluid retention
 - (3) Depression
 - (4) Increased blood sugar
 - (5) Hair loss
 - (6) Night sweats
 - (7) Thin, shiny skin
 - d. Special considerations
 - (1) May mask infection.
 - (2) Serious reactions such as decreased blood pressure, fatigue, depression, anorexia, and rebound inflammation, may occur if the medication is stopped suddenly.
2. Thyroid hormones
- a. Action--affect how the body cells use food substances, also affect growth and development.
 - b. Use--replacement therapy for when thyroid is not producing enough hormones.
 - c. Examples
 - (1) levothyroxine sodium (Synthroid)
 - (2) liotrix (Euthroid)
 - d. Adverse effects
 - (1) Nervousness
 - (2) Insomnia
 - (3) Palpitations
 - (4) Sweating
 - (5) Tremors
 - (6) Chest pains
 - e. Special consideration--report chest pains immediately.
3. Gonadal hormones
- a. Estrogen
 - (1) Action--maintain normal menstrual cycle and secondary sex characteristics.
 - (2) Uses--replacement therapy for symptoms of menopause and treat symptoms of prostate and breast cancer.
 - (3) Examples
 - a. diethylstilbestrol (DES)
 - b. Premarin
 - (4) Adverse effects
 - a. Depression
 - b. Hair loss
 - c. Thrombophlebitis
 - d. Breast tenderness
 - e. Increase in blood pressure
 - b. Androgens
 - (1) Action--maintain male secondary sex characteristics and stimulate repair of body tissues.
 - (2) Uses--treat symptoms of several types of cancers.

- (3) Example--testosterone (Histerone, Malogen, Oreton)
- (4) Adverse effects
 - a. Headache
 - b. Depression
 - c. Growth of facial hair
 - d. Edema
 - e. Weight gain
- (5) Special considerations
 - a. Watch a diabetic individual for symptoms of hypoglycemia.
 - b. Bedridden individuals should be given range of motion exercises to prevent the loss of calcium from the bone.

DEFINITIONS OF KEY TERMS

Androgens--Male hormones.

Estrogen--Female hormones.

Hormone--A chemical substance secreted into the body fluids by an endocrine gland, which has a specific effect on the activities of other organs.

Hyperglycemia--An abnormally high level of sugar in the blood. **Hypoglycemia**--An abnormally low level of sugar in the blood.

Labia--Folds of skin or mucus membrane that surround the vagina. **Mons pubis**--Soft fatty tissue covering the joint of the pubic bones. **Vestibule area**--Contains the opening to the urethra.

Mons pubis--Soft fatty tissue covering the joint of the pubic bones.

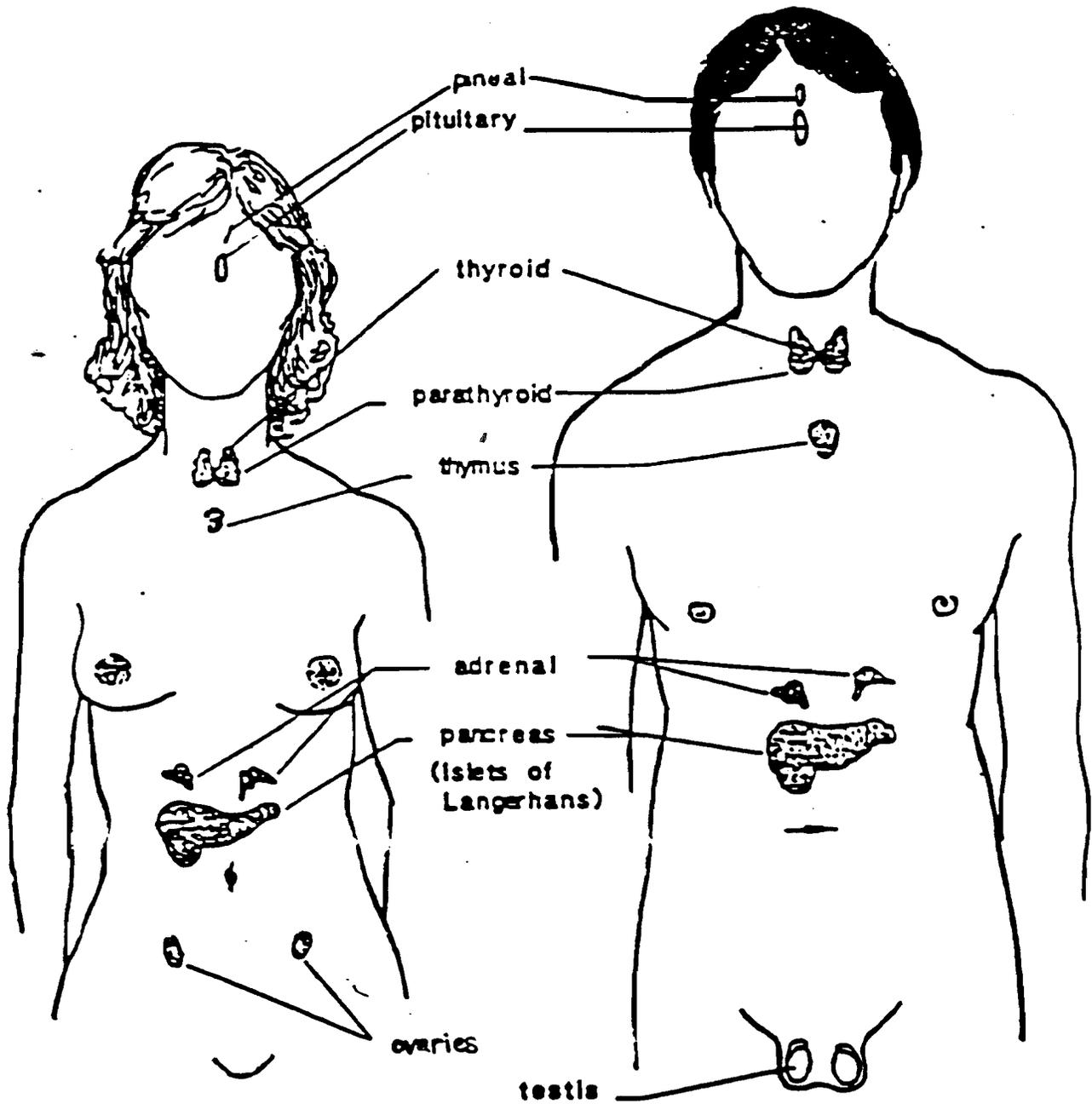
Vestibule area--Contains the opening to the urethra.

COMMON DISORDERS OF THE ENDOCRINE GLANDS

GLAND	HORMONE	FUNCTION	OVERPRODUCTION	TREATMENT	UNDERPRODUCTION	TREATMENT
pituitary	contains 6 hormones	stimulate other hormones responsible for growth	Hyperpituitarism, skeletal overgrowth (gigantism), formation of bone	curb production of hormone, surgery, replacement of needed hormones	Hypopituitarism, (dwarfism, pubertal delay, diabetes insipidus)	replacement of hormones
thyroid	thyroid	energy, metabolism	Hyperthyroidism, enlarged thyroid gland (goiter), nervousness, weight loss, sweating, diarrhea	surgery, antithyroid medications	Hypothyroidism, fatigue, forgetfulness, sensitivity to cold, unexplained weight gain, dry skin, puffy face, hands and feet	thyroid hormone replacement, iodine, potassium
pancreas (islets of Langerhans)	insulin	transport sugar into cell for use as energy	Hyperinsulinism, low blood sugar (hypoglycemia), fatigue, nervousness, irritability, trembling, headaches, hunger, confusion	diet high in protein and carbohydrates	Hypoinsulinism (hypoglycemia), diabetes mellitus, increased urination, thirst, visual disturbances, weight loss, hunger	oral hypoglycemic medications, insulin, diet
adrenal	ACTH, corticosteroids, catecholamines	regulation of sugar, salt, sex, B/P, CNS activity and energy metabolism	Cushing's Syndrome, moon face, stretch marks on skin, buffalo hump, sugar in urine, protruding abdomen, edema upper legs	radiation, drug therapy, surgery	Addison's Disease, anemia, weight loss, dehydration, thinning of hair, tremors, bronze coloring of skin	corticosteroid replacement
parathyroids	parathyroid hormone (PTH)	maintain adequate level of calcium in body fluids	kidney failure, kidney stones, bone tenderness, bones easily broken, muscle weakness, skeletal deformities	surgery, medications, peritoneal dialysis	tetany, convulsions, muscle spasms, paralysis, difficult breathing, death from exhaustion	large doses of calcium IV, large doses of vitamins
testes (male gonads)	testosterone and progesterone	stimulate development of male sex characteristics at puberty, maintain sperm production, influence other hormonal activities	before puberty, early maturation of secondary sex characteristics before age 9	depends on cause: medication, surgery to remove tumor	hypogonadism, before puberty, no maturation of secondary sex characteristics in adulthood, slow regression of secondary sex characteristics	hormonal replacement
ovaries (female gonads)	estrogen and progesterone	development of secondary sex characteristics, stimulates other hormones, menstruation	early development of secondary sex characteristics before age 10	depends on cause	menopause (cessation of menstruation)	hormonal replacement
pineal	none known	no known function	no known function	no known function	no known function	no known function

The Endocrine System

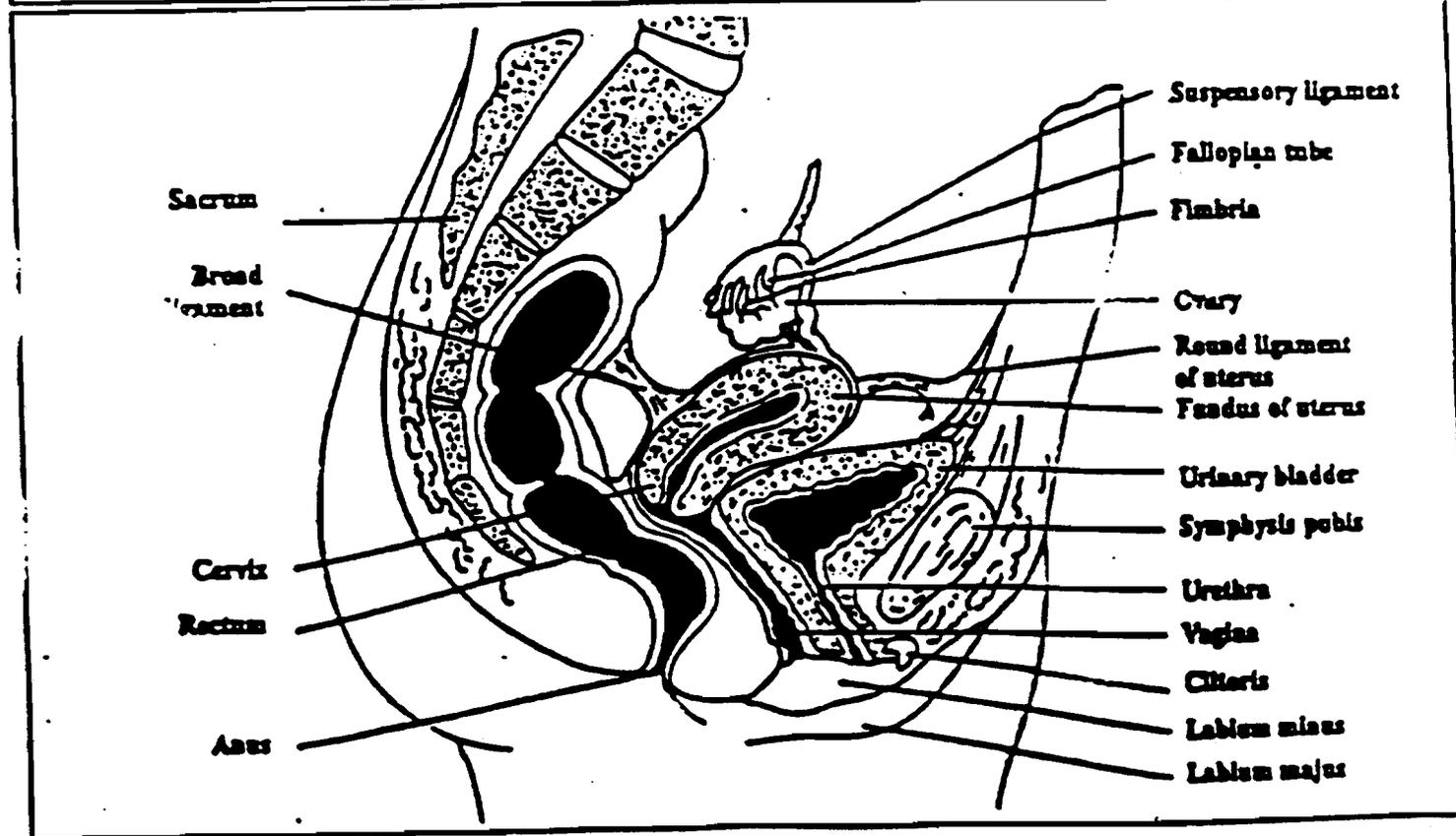
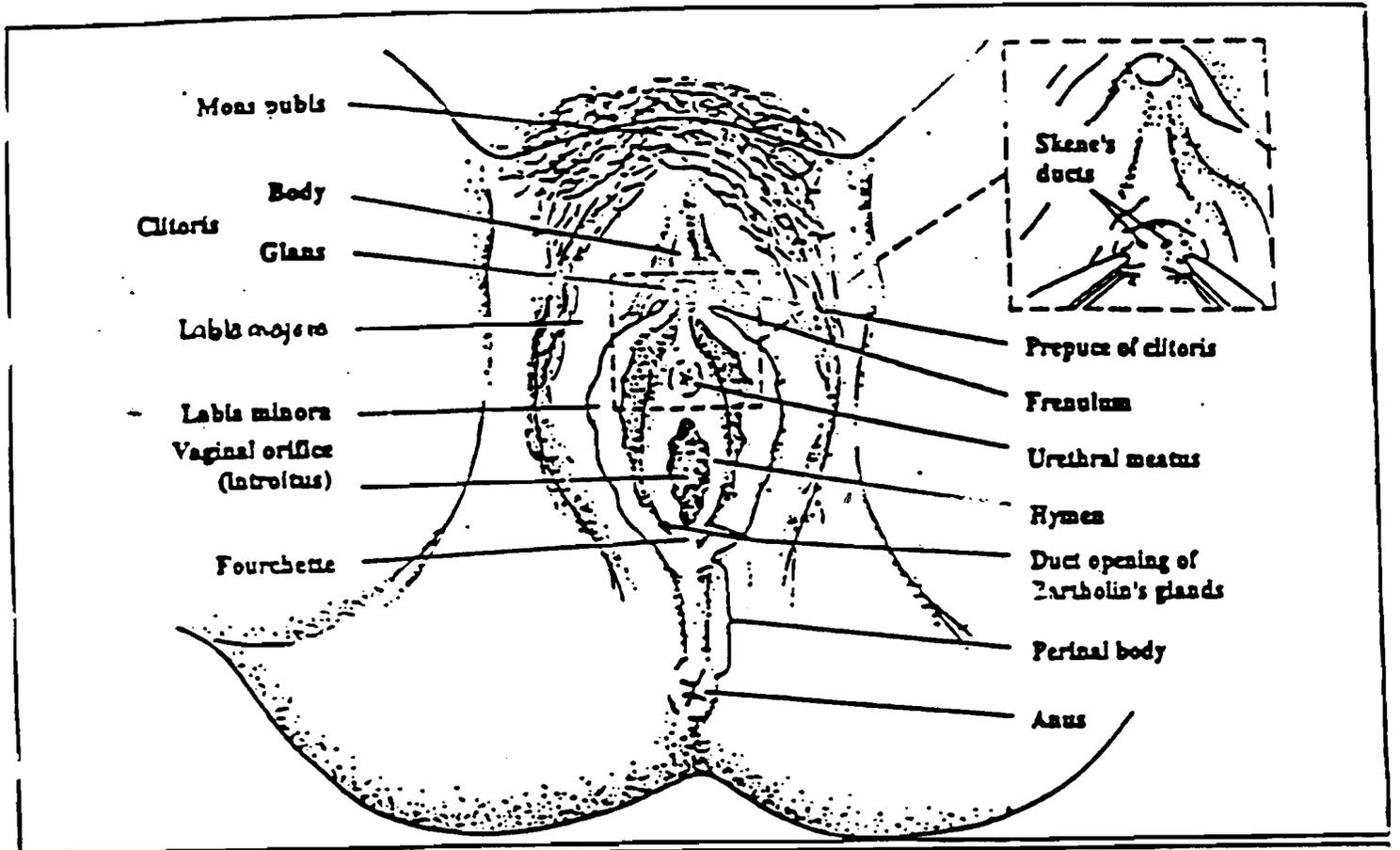
KEY



Function:

1. Secrete hormones to regulate body processes of growth and development
2. Regulates body functions, metabolism, and reproduction

FEMALE ANATOMY



SUPPLEMENT #15

DIABETES

A. MANAGEMENT OF DIABETES

1. Cause--partial or complete failure of the islets of Langerhans to produce insulin which results in abnormally large amounts of sugar (glucose) collecting in the bloodstream. The glucose does not enter the cells of the body and so is not used as fuel.
2. Symptoms--increased appetite, weight loss, development of diabetic ketoacidosis, frequent urination, increased amounts of urine, thirst.
3. Types of diabetes
 - a. Insulin Dependent Diabetes Mellitus (IDDM) Type I--usually occurs in younger people.
 - (1) Causes--cells in pancreas fail to produce and release insulin, diet is low in sugar and high in protein and carbohydrates.
 - (2) Treatment--injectable insulin, carbohydrates must be replenished by medication if lacking in the diet.
 - b. Non-Insulin Dependent Diabetes Mellitus (NIDDM) Type II--usually occurs after age thirty-five.
 - (1) Cause--cells in the pancreas fail to produce enough insulin or the insulin produced is ineffective.
 - (2) Treatment--can often be controlled by a carefully balanced diet, may receive oral hypoglycemic medication and/or insulin.

B. ANTIDIABETIC AGENTS

1. Insulin
 - a. Action--replace insulin in the body when it is not produced by the islets of Langerhans.
 - b. Use--treat diabetes
 - c. Examples
 - (1) insulin zinc suspension (Lente Insulin)
 - (2) protamine zinc insulin suspension (Iletin PZI)
 - (3) isophane insulin suspension [NPH] (Humulin, Iletin NPH)
 - (4) regular insulin concentrated (Regular Iletin)
 - (5) prompt insulin zinc suspension (Semilente)
 - d. Adverse effects
 - (1) Perspiration
 - (2) Irritability
 - (3) Drowsiness
 - (4) Skin irritation at site of injection
 - (5) Urticaria
 - (6) Hypoglycemia

2. Oral hypoglycemics (antidiabetic agents)

Action--stimulate islets of Langerhans cells to produce insulin and lower blood sugar.

b. Use--treat type II diabetes, sometimes given along with insulin in type I.

c. Examples

- (1) acetohexamide (Dymelor)
- (2) chlorpropamide (Diabinese)
- (3) tolbutamide (Orinase)
- (4) glyburide (Diabeta, Micronase)
- (5) tolazamide (Tolinase)
- (6) glipizide (Glucotrol)

d. Adverse effects

- (1) Renal impairment
- (2) Sulfonamide sensitivity
- (3) Liver dysfunction
- (4) Skin rash
- (5) Nausea and vomiting
- (6) Heartburn
- (7) Hypoglycemia

e. Special considerations

- (1) These drugs interact with many others. Be aware of what other medications the individual is taking and watch for signs and symptoms of drug interactions.
- (2) Watch the individual for hypoglycemia.
- (3) Report any change in the urine test to the staff nurse.
- (4) Administer hypoglycemics 1/2 hour before a meal.

C. DRAWING INSULIN (ONLY DONE BY NURSE)

1. Assemble all supplies:

- a. Bottle of insulin
- b. Alcohol swabs
- c. Insulin syringe

2. Wash your hands.

3. Mix the insulin:

- a. Slowly roll the bottle between your hands.
- b. NEVER shake the bottle

4. Inspect the bottle of insulin:

- a. Insulin should appear uniformly cloudy after mixing. (This is for NPH and other cloudy longlasting insulins).
- b. Do not use if the insulin material remains at the bottom of the bottle after mixing.
- c. Do not use if clumps are floating in the mixture.
- d. Do not use if particles on the bottom or sides give the bottle a frosted appearance.

5. Clean the rubber stopper on the insulin bottle with an alcohol swab.

6. Draw air into the syringe by pulling out on the plunger to the approximate dose.
7. Insert the needle into the rubber stopper on the upright bottle and push the plunger down.
8. Turn the bottle and syringe upside down.
9. Slowly pull the plunger down above five units past the dose.
 - a. If there are not bubbles—push the top of the plunger tip up to the line which marks the exact dose.
 - b. If there are air bubbles:
 - (1) Flick or tap the syringe at the bubble with your finger.
 - (2) When the bubble goes to the top of the syringe, push the plunger tip up to the exact dose.
- 10. Remove the syringe from the bottle, place cap over needle, and place on a flat surface.

D. INJECTING INSULIN (ONLY DONE BY NURSE)

1. Site selection
 - a. Insulin should be injected into the subcutaneous tissue—the tissue between the fat layer under the skin and the muscles which lie below that.
 - (1) the upper, outer area of the arms.
 - (2) The front and side of areas of the thighs.
 - (3) The buttocks
 - (4) Just above the waist on the back.
 - (5) The abdomen, except the area around the navel and at the waistline.
 - b. If the individual is going to be running, jogging, or exercising during the day, the legs should not be used as an injection site.
 - c. If the individual is going to be performing tasks that require heavy lifting, the arms should not be used as an injection site that day.
 - d. If an injection site has developed unusual bumps and dimples, it should not be used for two weeks. If after two weeks the bumps are still there, the site cannot be used again. The fats have atrophied.
2. Site rotation
 - a. System of choosing a pattern of injection sites that will help the individual choose different sites for each injection.
 - b. Rotation of sites will help to avoid a spot that might still be tender from a recent injection.
3. Injecting insulin
 - a. Clean the injection site with an alcohol swab.
 - b. Pinch up a large area of skin.
 - c. Insert the needle into the skin at a 90 degree angle making sure the needle is all the way in.

- d. Quickly push the plunger all the way down.
- e. Hold the alcohol swab near the needle tip and pull the needle straight out of the skin.
- f. Dispose of all supplies according to agency policy.
- g. Chart injection and rotation site used.

E. DIABETIC REACTIONS

1. Hypoglycemia (low blood sugar)
 - a. Cause—insulin reaction from too much insulin, increase in exercise and/or a decrease in food intake, low blood sugar.
 - b. Symptoms
 - (1) early symptoms—headache, nervousness, paleness, irritability, moody, profuse perspiration, blurred vision, numbness of extremities, giddiness, hunger, drowsiness, confusion.
 - (2) Late symptoms—Kussmaul breathing (deep and fast), unconsciousness, coma, death.

F. MONITORING MEDICATION RESPONSE

1. Urine tests detect:
 - a. Ketones
 - (1) Katostix—test urine for ketones.
 - (2) Dia-stix—test urine for sugar and ketones.
 - b. Sugar
 - (1) Tes-tape—strip of tape dipped into urine; if glucose is present, the tape will turn green or blue.
 - (2) Clinitest—ten drops of water are placed in the test tube with five drops of urine and clinitest tablet. The color of the solution is compared to a chart to determine the amount of sugar in the urine.
 - (3) Clinistix—plastic strips that are dipped into urine and compared to a color chart.
 - (4) Diastix—similar to Clinistix.
 - c. Regular urine testing before meals and at bedtime provides necessary information for proper adjustment of insulin dosage.
 - d. Accuracy is improved if bladder is emptied first and then urine to be tested is collected 30 minutes later. The sugar content of the second collection is more representative of the current blood sugar level.
2. Blood tests
 - a. Fasting blood sugar (FBS)—blood drawn in morning after eight hours without food.
 - b. Postprandial glucose—blood tested for sugar after two hours without food.
 - c. Monitoring of blood for sugar levels is the method of choice for managing diabetes. Blood sugar strips such as Chemstrip bG and Visidex II may be used for this purpose; or a Glucometer.

3. Observe, chart, and record the individual's dietary intake. Some individuals need replacement of carbohydrates. Report uneaten items to staff nurse.

G. INTERACTIONS WITH OVER-THE-COUNTER MEDICATIONS

1. Avoid:
 - a. Products containing sugar--sugar adds calories.
 - b. Products containing alcohol.
 - c. Liquid medications--choose tablets or capsules instead.
 - d. Oral decongestants--these can raise blood sugar.
 - e. Aspirin in large doses.

2. Examples of products which can be used: (The following list contains a few examples of medications that might be used and is not all inclusive).
 - a. Cough medications
 - (1) Colrex expectorant
 - (2) Hytuss tablets
 - b. Sore throat products
 - (1) Chloraseptic spray
 - (2) Salt water gargles
 - c. Decongestants
 - (1) Afrin
 - (2) Neo-Synephrine
 - d. Fever reducers/pain relievers
 - (1) Tylenol
 - (2) Datril
 - e. Cold and Allergy medications
 - (1) Chlor-Trimetron
 - (2) Use face masks
 - f. Antidiarrheals
 - (1) Pepto-Bismol
 - (2) Keopectate
 - g. Laxative
 - (1) Konsyl
 - (2) Agoral
 - h. Vitamins
 - (1) Thera-Gran Liquid
 - (2) Tri-Vi-Sol Drops
 - i. Antacids
 - (1) Di-Gel
 - (2) Mylanta
 - j. Nausea/Vomiting
 - (1) Bonine
 - (2) Dramamine

H. INTERACTIONS WITH PRESCRIPTION MEDICATIONS

1. Examples of drugs that can raise blood glucose:
 - a. Lithium
 - b. Estrogens
 - c. Caffeine
 - d. Morphine
 - e. Nicotine
 - f. Corticosteroids
 - g. Epinephrine-like drugs
 - h. Phenytoin

2. Examples of drugs that can decrease blood glucose:
 - a. Ethyl alcohol
 - b. Insulin
 - c. Sulfonylureas
 - d. Anabolic steroids
 - e. Fenfluramine salicylates in large doses

I. HEALTH CARE

1. Skin care
 - a. Avoid scratches, punctures and other injuries.
 - b. Individuals should wear gloves if participating in an activity that might injure their hands.
 - c. Avoid getting sunburned.
 - d. Treat all injuries promptly. If injuries do not start to heal within 24 hours, or if they become infected, contact the staff nurse.

2. Foot care
 - a. check feet daily for sores, changes in color, temperature, or shape, and signs of infections.
 - b. Clip toenails straight across.
 - c. Contact the staff nurse concerning removal of corns and calluses.
 - d. Avoid going barefoot.
 - e. Do not use hot water bottles, heating pads, etc., on the individual's feet.

3. Sick days
 - a. Individual should have a sick-day plan. Check with the staff nurse.
 - b. Individual should always take the medication.
 - c. Encourage the individual to drink fluids.
 - d. Monitor blood glucose as necessary.

J. ADDITIONAL INFORMATION CONCERNING DIABETES

1. Know which individuals are on insulin so that you can observe dietary intake and reactions to the medication.

2. Oral hypoglycemic agents are primarily used in adult onset diabetics.

3. Use all of your senses to observe and monitor these high-risk individuals. Observe their skin condition closely.
4. Diabetic medications along with cardiovascular medications should have priority in administration if important medications need to be given before others.

5. Goals of drug treatment:

- a. Normalize carbohydrate, protein and fat metabolism.
- b. Control blood sugar.
- c. Eliminate acidosis.
- d. Prevent hypoglycemia (insulin shock).
- e. Promote normal growth

DEFINITION OF KEY TERMS

Diabetes--A disorder of carbohydrate, protein, and fat metabolism that prevents the body from properly converting foods into energy for carrying out vital functions.

Insulin--A preparation derived from the pancreas of the pig, ox, or developed from semi-synthetic human insulin that is used in the medical treatment of diabetes.

Ketoacidosis--Result of fat being used for energy resulting in an acidotic state. Form of acidosis in which sodium, potassium, and ketone bodies are lost in the urine; found in individuals who have diabetes mellitus.

Oral-hypoglycemics--Stimulate specialized cells in the pancreas to produce insulin.

ACTION OF INSULINS

NAME	TYPE OF INSULIN	ACTION ONSET	ACTION PEAK	DURATION
Regular	Short-Acting	1/2 hour	2-4 hours	5-7 hours
Semi-Lente	"	1/2-1 hour	2-4 hours	6-12 hours
Actrapid	"	1/2 hour	2 1/2-5 hours	8 hours
Velosulin	"	1/2 hour	1-3 hours	8 hours
Humulin R.	"	1/2 hour	2-5 hours	6-8 hours
Human Actrapid	"	1/2 hour	2 1/2-5 hours	6-8 hours
Mixtard	Short/ Intermediate Acting	1/2 hour	4-8 hours	24 hours
NPH	Intermediate	1 1/2 hour	6-12 hours	18-24 hours
Lente	Acting	1 1/2 hour	6-12 hours	24-48 hours
Montard	"	2 1/2 hours	7-15 hours	22 hours
Lentard	"	2 1/2 hours	7-15 hours	24 hours
Insulatard	"	1 1/2 hour	4-12 hours	24 hours
Semitard	"	1 1/2 hour	5-10 hours	16 hours
Humulin N	"	1-2 hours	6-12 hours	14-24 hours
Human Monotard	"	2 1/2 hours	7-15 hours	22 hours
Ultralente	Long Acting	6-10 hours	18-24 hours	36+ hours
Ultratard	"	4 hours	10-30 hours	36 hours

ORAL HYPOGLYCEMIC MEDICATIONS

NAME	ACTION	ACTION ONSET	ACTION PEAK	DURATION
tolbutamide	Short-Acting	1/2 hour	3-5 hours	6-12 hours
Orinase	"	1/2 hour	3-5 hours	6-12 hours
acetoexamide	Intermediate	1 1/2-6 hours	3-8 hours	16-20 hours
Dymelor	Acting	"	"	"
glipizide	"	"	"	"
Glucotrol	"	"	"	"
glyburide	"	"	"	"
DiaBeta	"	"	"	"
Micronase	"	"	"	"
tolazamide	"	"	"	"
Tolinase	"	"	"	"
chlorpropamide	Long Acting	1 hour	3-6 hours	60 hours
Diabinese	"	"	"	"

CHARTING PROBLEMS FOR DIABETICS

PROBLEM	SYMPTOMS	WHAT TO DOCUMENT	WHEN TO CALL THE DOCTOR
Hyperglycemia	Excessive thirst Excessive hunger Excessive Urination	Date, frequency, specific symptoms	Two or more fasting blood sugars more than 240 mg/dl Urine glucose tests 3+ or 4+ three times in a row If ill and unable to eat
	Ketones in Urine	Time, date, results of ketone tests	Moderate to large amounts of ketones if ill
Hypoglycemia	Hunger Headaches Confusion Shakiness Sweating Nervousness	Time, date, frequency, specific symptoms	Low blood sugar if on oral agents More than two low blood sugars weekly if on insulin
	Convulsions	Time, date, dietary intake,	Any episode of unconsciousness
Visual Change	Pain Blurriness for 1-2 days Black spots "Cobwebs" Flashing lights Loss of Vision	Time, date, specific	Call and make an appointment as soon as possible
		Date, frequency, symptoms	Call immediately
Feet and Legs	Pain in legs and feet	Date, frequency, specific symptoms	Report at next visit
	Burning and numbness or cramps in legs at rest		
	Cramps while walking Change of temperature Open sore	Date, frequency, specific symptoms Date, treatment, appearance of sore	Call and make an appointment as soon as possible Call immediately
Elimination and Digestion	Nausea Vomiting Abdominal discomfort Painful or difficult Diarrhea after meals or at bedtime Constipation	Date, time, frequency	Call if symptoms persist more than one day
		Date, frequency	Call immediately Call immediately if severe, otherwise, mention at next visit
Cardiovascular	Shortness of breath Chest pains Dizziness sudden, severe headaches	Date, time, specific symptoms Activity at time symptoms occurred	Call immediately

SUPPLEMENTAL LESSON: DIABETES

Performance:

1. Demonstrate the procedure for drawing insulin.
2. Demonstrate the procedure for injecting insulin.
3. Distinguish between Insulin Dependent Diabetes Mellitus (IDDM) or type I and Non-Insulin Dependent Diabetes Mellitus (NIDDM) or type II diabetes.
4. Distinguish between hypoglycemia and hyperglycemia and describe the symptoms of each.
5. Demonstrate the procedure for testing urine using the procedure used in your facility or with your resident (i.e., Ketostix, clinitest, etc.)
6. List two foods and three over-the-counter medications the individual with diabetes should avoid.
7. Define three of the key terms selected by the staff nurse.

SUPPLEMENT #16

GASTROINTESTINAL SYSTEM

STRUCTURE AND FUNCTION

THE MOUTH. Food is chewed by the teeth so that it can be swallowed and digested easily.

THE STOMACH. After the food has been chewed and swallowed, it passes to the stomach. The stomach is a hollow, muscular organ where food is mixed with and acted upon by stomach enzymes. In addition to enzymes, the cells of the stomach lining produce hydrochloric acid (HCl), which assist in digestion.

THE INTESTINES. When food leaves the stomach it enters the small intestine where any undigested nutrients are broken down by intestinal and pancreatic enzymes and bile from the liver. Materials are moved through the intestines by waves of rhythmic contractions in the intestinal walls. The rhythmic contractions are called peristalsis. Most of the nutrients and food the body needs are absorbed into the bloodstream through the walls of the small intestine.

The small intestine connects to the large intestine (colon). Water is absorbed through the walls of the large intestine, changing wastes to a more solid form. In this way the large intestine helps to maintain water balance of the body. Peristalsis moves waste through the large intestine until it reaches the rectum. When a certain amount has been collected in the rectum, it is eliminated as feces through the anus.

THE LIVER AND GALL BLADDER. The liver is a large gland located just beneath the ribs. It helps to control the amount of proteins and sugar in the blood. The liver manufactures bile, which is used for digestion and is stored in the gallbladder. When needed, bile is sent from the gallbladder to the small intestines. Bile gives stools their brown color.

THE PANCREAS. This glandular organ extends from behind the stomach into a curve of the small intestine. It manufactures pancreatic juice which is sent to the intestines to aid in the digestion of food. Remember, too, that special cells in the pancreas produce insulin.

Many of the medications discussed in this section can be obtained without a prescription, however, this does not mean that they are harmless. Caution should be used with all medications (see Section 11, over-the-counter medications - OTC) particularly, because OTC's can interact with prescribed medications.

THE GASTROINTESTINAL SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE GASTROINTESTINAL SYSTEM

1. The digestive system changes food into a form the body can use for maintenance, repair, energy, and growth.
2. The gastrointestinal system is divided into two parts:
 - a. Alimentary canal or tract
 - (1) Mouth (oral cavity)
 - (2) Throat (pharynx)
 - (3) Esophagus
 - (4) Stomach
 - (5) Small intestine
 - (6) Large intestine
 - b. Accessory organs
 - (1) Teeth
 - (2) Tongue
 - (3) Salivary glands
 - (4) Pancreas
 - (5) Liver
 - (6) Gallbladder

B. DISORDERS OF THE GASTROINTESTINAL SYSTEM

1. Disorders of the mouth
 - a. tooth decay
 - (1) Cause—poor oral hygiene
 - (2) Symptoms—loss of appetite, inability to eat meat which can cause anemia, abscesses which can cause systemic infection.
 - (3) Treatment—daily mouth care, dental work
 - b. Pyorrhea
 - (1) Cause—poor oral hygiene
 - (2) Symptoms—loss of teeth due to bone infection
 - (3) Treatment—special mouthwash and mouth care
2. Disorders of the stomach
 - a. Nausea and vomiting
 - (1) Causes—infectious disease, allergy, reactions to medications
 - (2) Symptoms of many diseases
 - (3) Treatment—antiemetics are sometimes used
 - b. Dyspepsia
 - (1) Cause—changes in the lining of the stomach, change in the amount of gastric secretions.
 - (2) Symptoms—heartburn, feeling of fullness in the stomach, irritability.
 - (3) Treatment—medications

- c. Ulcer—found in stomach or small intestine (duodenum area)
 - (1) Cause—repeated irritations of the stomach lining or duodenum until a sore (ulcer) forms.
 - (2) Symptoms—intolerance to certain foods, dyspepsia, bleeding may occur if the ulcer is near a blood vessel, perforation (a hole) may occur and the stomach contents may leak into the area outside the stomach.
 - (3) Treatment—Medications.
- d. Motion Sickness
 - (1) Cause—irregular motion, especially up and down motion
 - (2) Symptoms—nausea and vomiting, loss of balance, often experienced while on a moving boat, train airplane, or car.
 - (3) Treatment—antiemetics and antihistamines

3. Disorders of the intestines

- a. Diarrhea
 - (1) Cause—infection, allergy, medication, tumor
 - (2) Symptoms—cramping, gas formation, body fluids are lost rapidly, dehydration
 - (3) Treatment—antidiarrheal medications
- b. Constipation
 - (1) Cause—inactivity, poor diet, change in diet, medications
 - (2) Symptoms—stool may become hard, making elimination painful, impaction may occur with diarrhea leaking around the impaction.
 - (3) Treatment—medications, increase fiber in diet according to physician's order.

4. Disorders of the liver

- a. Viral hepatitis
 - (1) Types
 - a. Type A - infectious
 - b. Type B - serum
 - c. Type non-A, non-B - post transfusion
 - (2) Causes—ingestion of contaminated food, contaminated needles, contact with infected human blood, serum, feces, semen, or secretions, or blood transfusions
 - (3) Symptoms—generalized, fever usually present
 - (4) Treatments—medication, fluids, rest
 - (5) Prevention—gamma globulin B given to persons who have been exposed to disease to prevent type B hepatitis, follow universal precaution procedures.
- b. Chemical hepatitis
 - (1) Cause—exposure to toxic chemical or drugs
 - (2) Symptoms—occur within 24-48 hours for chemical toxicity, of 2-5 weeks for drug toxicity. Symptoms resemble those of viral hepatitis.
 - (3) Treatment—remove the chemical or drug from the body

- c. Cirrhosis
 - (1) Cause--alcoholism, previous liver disease
 - (2) Symptoms--loss of appetite, fatigue, weight loss, fever, jaundice
 - (3) Treatment--includes vitamins, good diet, no alcohol

C. SELECTED GASTROINTESTINAL MEDICATIONS BY CLASSIFICATION

1. Antiflatulants

- a. Action--decreases gas formation
- b. Use--treat indigestion
- c. Example--simethicone (Mylanta, Mylicon)
- d. Adverse effects--belching, flatus

2. Digestants

- a. Action--replace digestive enzymes
- b. Use--assist with digestion
- c. Example--pancrelipase (Pancreas)
- d. Adverse effects
 - (1) Nausea
 - (2) Diarrhea, which occurs with increased doses

3. Antiemetics

- a. Action--inhibit nausea and vomiting
- b. Uses--treat nausea, vomiting
- c. Examples
 - (1) prochlorperazine maleate (Compazine)
 - (2) trimethobenzamide HCl (Tigan)
 - (3) scopolamine (Transderm-Scop)
 - (4) metoclopramide HCl (Reglan)
 - (5) dimenhydrinate (Dramamine, Travamine)
 - (6) meclizine HCl (Antivert, bonamine, Bonine)
- d. Adverse effects
 - (1) Drowsiness
 - (2) Dizziness
 - (3) Dry mouth
- e. Special consideration--monitor blood pressure for hypotension

4. Anticholinergics (Antimuscarinics)

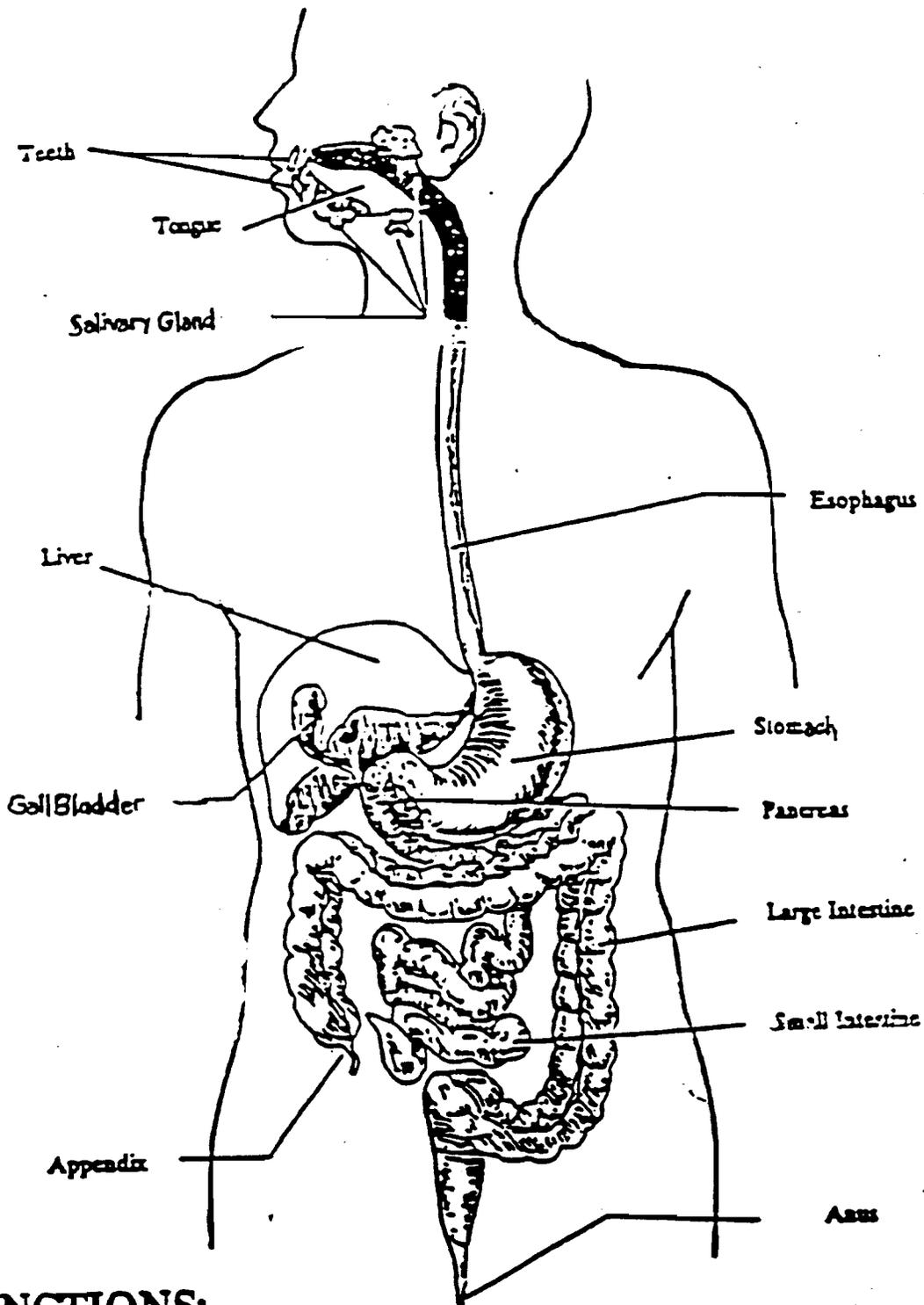
- a. Action--decrease the secretion of digestive juices and peristaltic action. May act on other systems.
- b. Uses--treat dyspepsia, ulcers, irritable bowel
- c. Examples
 - (1) methantheline (Banthine)
 - (2) clidinium bromide and chlordiazepoxide HCl (Librax Capsules)
 - (3) belladonna leaf (Belladonna)
 - (4) methscopolamine bromide (Pamine)

- d. Adverse effects
 - (1) Headache
 - (2) Drowsiness
 - (3) Confusion and agitation
 - (4) Urinary retention
 - (5) Blurred vision
- 5. Miscellaneous Gastrointestinal
 - a. Action—lessen production of gastric juice
 - b. Use—prevent duodenal ulcers or ulcer
 - c. Examples
 - (1) cimetidine (Tagamet)
 - (2) ranitidine (Zantac)
 - (3) famotidine (Pepcid)
 - d. Adverse effects
 - (1) Mental confusion
 - (2) Dizziness
 - (3) Headaches
 - (4) Constipation
 - e. Special consideration—dissolve the tablet in water

D. ADDITIONAL INFORMATION ABOUT THE GASTROINTESTINAL SYSTEM

1. Fluid intake is important to facilitate proper bowel movement.
2. Bulk producing or forming laxatives can cause obstructions if not given with enough liquids.
3. When giving gastrointestinal medication, monitor for any change in mouth odor. Monitor for signs of stomach cramps, decrease in appetite, and enlarged abdomen.

GASTROINTESTINAL SYSTEM



FUNCTIONS:

1. Ingests food
2. Prepares food for use by the body
3. Excretes wastes

SUPPLEMENT #17

FUNCTIONS OF THE SKIN

FUNCTIONS OF THE SKIN INCLUDE:

Protection: The intact skin is a mechanical barrier to injury and disease.

Heat Regulation: Many small blood vessels are present in the deeper part of the skin (dermis). When they dilate with blood, heat is brought to the surface where it escapes from the body. When heat needs to be conserved, these vessels constrict, thereby preserving heat within the body.

Storage: Energy in the form of fat as well as some vitamins are stored in this vital area.

Eliminations: Some waste products as well as excess water are cast off (excreted) as perspiration through the activities of the sweat glands.

Sensory perception: Many nerve endings are found in the skin. They tell us much about our environment. They respond to heat, cold, pain, and pressure. These nerve endings provide us with our sense of touch.

THE SKIN AND SENSORY SYSTEMS

I. THE SKIN

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE SKIN

1. Structures of the skin
 - a. Epidermis—outer layer—protects the inner layer. Old cells are constantly rubbed off of this layer.
 - b. Dermis—inner layer—sometimes called the "true skin." The dermis is composed of live cells, nerve endings, blood vessels, sweat glands, hair sacs with hairs, oil glands, some fat cells, and pigment for the skin.
 - c. Directly beneath the skin "subcutaneous" is a thick area of fat cells.
2. Functions of the skin
 - a. Protects all underlying structures.
 - b. Receptor of sensations of heat, cold, pain, and texture (through nerves connected to the skin).
 - c. Absorbs substances.
 - d. Excretes waste products (through perspiration).
 - e. Helps control temperature of the body.
 - f. Defends against disease-producing organisms.

B. COMMON SKIN DISORDERS

1. Dermatitis
 - a. Cause—allergic response to food, drugs, insect stings, inhalants, plants.
 - b. Symptoms—rash that causes itching.
 - c. Treatment—medications for symptoms
2. Acne
 - a. Cause—poor personal hygiene, use of oil-based cosmetics, excessive heat, changes associated with puberty.
 - b. Symptoms—blackheads, skin ruptures
 - c. Treatment—topical and systemic medications
3. Scabies
 - a. Cause—mites that burrow under the skin. Contamination occurs from infested bed clothing, undergarments, or close body contact with an infested person.
 - b. Symptoms—itching that gets worse at night, tiny thread-like blisters which generally appear between fingers, on wrist, and inside elbows; lesions may occur under arms, around the waist.
 - c. Treatment—cream or lotion topical medications.

4. **Pediculosis**
 - a. Cause—lice which infest different body areas, usually spread by direct body contact by using contaminated personal articles, such as hats, combs, or bedding.
 - b. Symptoms—itching of scalp or body, small red bumps on shoulders, trunk, or buttocks.
 - c. Treatment—medicated shampoo, ointment or lotion containing a pediculicide. Clothes, sheets, and other personal articles must be laundered to prevent reinfestation.

5. **Athlete's foot**
 - a. Cause—highly contagious fungus found in warm damp places such as shower rooms and public baths.
 - b. Symptoms—scaling and blistering between toes, burning and itching.
 - c. Treatment—antifungal powder, ointment, or spray.

6. **Psoriasis**
 - a. Cause—genetic tendency, possible effect of trauma, onset influenced by environmental factors, such as stress, may be accompanied by arthritic symptoms. Common in individuals who have Parkinson's Disease.
 - b. Symptoms—skin has red patches covered with silvery scales that have a tendency to shed. Skin surfaces may have pinpoint bleeding.
 - c. Treatment—topical medications, ointments to soften and remove the scales, oral medications may be ordered if symptoms are severe.

7. **Eczema**
 - a. Cause—allergic reaction, may flare up in response to extremes in humidity or temperature, sweating, or psychological stress.
 - b. Symptoms—itching, crusting of broken vesicles on the skin.
 - c. Treatment—remove cause of irritation, topical medications to control itching.

8. **Burns**
 - a. Cause—accidental injury
 - b. Symptoms
 - (1) First degree burn—skin area is red.
 - (2) Second degree burn—skin is blistered.
 - (3) Third degree burn—skin may appear charred or pearly white.
 - c. Treatment—dependent upon degree and type of burn.

9. Decubitus ulcer
 - a. Cause—continuous pressure on body areas, which leads to decreased blood circulation to tissues.
 - b. Symptoms
 - (1) Stage I—reddened areas.
 - (2) Stage II—blistered area or break in the skin.
 - (3) Stage III—tissue invasion and necrosis.
 - (4) Stage IV—muscle and bone involvement.
 - c. Treatment—the best treatment is prevention: turn individuals at least every two hours, according to agency policy.

C. SELECTED SKIN MEDICATIONS BY CLASSIFICATION

1. Local Anti-infectives
 - a. Action—destroy bacteria or fungus
 - b. Use—treat athlete's foot, infection
 - c. Examples
 - (1) tolnaftate (Aftate, Tinactin)
 - (2) neomycin (Neocin)
 - (3) clotrimazole (Lotrimin)
 - d. Adverse effects
 - (1) Itching
 - (2) Rashes
2. Scabicides and Pediculicides
 - a. Action—destroy parasites
 - b. Use—kill scabies, mites, and lice
 - c. Examples
 - (1) lindane (Kwell)
 - (2) pyrethrins (A-200 Pynate)
 - d. Adverse effect—skin irritation
3. Anti-inflammatory Steroids
 - a. Action—reduce inflammation
 - b. Use—treat dermatitis
 - c. Examples
 - (1) betamethasone valerate (Valisone)
 - (2) flurandrenolide (Cordran)
 - (3) triamcinolone acetonide (Aristocort, Kenalog)
 - d. Adverse effects—burning, itching, and dry skin
 - e. Special considerations
 - (1) Watch diabetic individuals for change in urine glucose or fasting blood sugar.
 - (2) Withdrawal symptoms occur if stopped abruptly.

4. Antipruritics and local anesthetics
 - a. Action—relieve localized itching and pain
 - b. Use—treat hemorrhoids, sunburn, and poison ivy
 - c. Examples
 - (1) benzocaine (Solarcaine, Americaine)
 - (2) dibucaine (Nupercainal)
 - (3) Caladryl lotion
 - d. Adverse effect—sensitization to medication

5. Protectants
 - a. Action—cover and protect the skin
 - b. Use—reduce irritation and friction, irritation from urine and stool, provide sunburn protection
 - c. Examples
 - (1) petrolatum (Vaseline)
 - (2) talc
 - (3) vitamins A and D ointment (Desitin)
 - (4) para-aminobenzoic acid (PreSun, RV Paba Lipstick)
 - d. No adverse effects

6. Debridement medications
 - a. Action—enzymatic destruction of necrotic tissue
 - b. use—treat decubitus ulcers
 - c. Examples
 - (1) lytic enzymes (Elastase, Travase)
 - (2) collagenase (Santyl)
 - (3) hydrogen peroxide
 - d. Adverse effect—hypersensitivity to the medication
 - e. Special consideration—can be applied only by licensed personnel.

II. THE SENSORY SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE SENSORY SYSTEM

1. Structures of the sensory system
 - a. Eyes
 - b. Ears
 - c. Nose
 - d. Tongue
 - e. Skin

2. Function of the sensory system—connects outside sensations to the proper nerves, producing visual images, sound, odors, tastes, temperature, pain, textures.

B. SENSORY SYSTEM DISORDERS

1. Eye disorders
 - a. Conjunctivitis
 - (1) Cause—irritation, allergies, bacteria
 - (2) Symptoms—redness, itching, swelling, tearing
 - (3) Treatment—systemic or local medication
 - b. Glaucoma
 - (1) Cause—an obstruction, or overproduction of fluid in the eye
 - (2) Symptoms—mild aching in the eye, loss of peripheral vision, perception of halos around lights, inability to see well at night
 - (3) Treatment—use of medications to decrease intraocular pressure
 - c. Cataracts
 - (1) Cause—secondary infection, congenital disorder, reaction to drugs, or chemical toxicity
 - (2) Symptoms—gradual blurring of vision, milky white pupil
 - (3) Treatment—surgery, lens implantation or corrective glasses
2. Ear disorders
 - a. Impacted ear canal
 - (1) Cause—wax build-up in the ear canal, or foreign object
 - (2) Symptoms—pain, hearing loss
 - (3) Treatment—medication, irrigation, or extraction of foreign object by physician
 - b. Ear infections
 - (1) Swimmer's ear
 - a. Cause—bacteria, fungus
 - b. Symptoms—pain, fever, itching, partial hearing loss, possible discharge
 - c. Treatment—medication
 - (2) Otitis media
 - a. Cause—respiratory, viral, or throat infections
 - b. Symptoms—pain, fever, dizziness, nausea, vomiting, drainage
 - b. Treatment—antibiotics
 - (3) Meniere's Syndrome
 - a. Cause—chronic disturbance of inner ear
 - b. Symptoms—dizziness, ringing in the ears, nausea, and vomiting. Loss of hearing as disease progresses.
 - c. Treatment—medication to relieve symptoms

C. SELECTED SENSORY SYSTEM MEDICATIONS BY CLASSIFICATION

1. Eye medications

a. Miotics

- (1) Action--decrease eye pressure
- (2) Use--to treat glaucoma
- (3) Example--pilocarpine HCl (Pilocar)
- (4) Adverse effects
 - a. Headache
 - b. perspiration
 - c. Salivation
 - d. Night blindness
 - e. Blurred vision
- (5) Special consideration--place inside the lower lid, not directly in the eye.

b. Mydriatics

- (1) Action--dilate pupil
- (2) Use--facilitates eye examination
- (3) Example--atropine sulfate
- (4) Adverse effects
 - a. Dry mouth
 - b. Blurred vision
- (5) Special consideration--place inside the lower lid, not directly on the eye.

c. Beta blocker

- (1) Action--lower intraocular pressure
- (2) Use--to treat glaucoma
- (3) Example--timolol maleate (Timoptic Solution)
- (4) Adverse effects
 - a. Eye irritations
 - b. Blurred vision

2. Ear medications

a. Wax control agents

- (1) Action--soften and dissolve ear wax
- (2) Use--prevent wax build-up
- (3) Example--carbamide peroxide (Debrox)
- (4) Adverse effects
 - a. Pruritus
 - b. Erythema
- (5) Special considerations
 - a. do not use if the ear is draining.
 - b. Do not use for more than four days in a row.
 - c. The ear often requires irrigation to facilitate removal of the wax.

- b. Antibiotics and steroids may be given to treat ear inflammation and infection. Refer to those lessons for more information.

DEFINITIONS OF KEY TERMS

Acne--A disorder of the hair follicles and oil-producing glands of the skin.

Athlete's Foot--A contagious fungus infection of the feet.

Burns--Injury to the skin by strong chemicals, electricity, high temperatures, or radiation.

Cataracts--The lens or capsule of the eye loses its transparency or translucency causing partial or total blindness.

Conjunctivitis--Inflammation of the mucous membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball.

Decubitus ulcer--An open wound that is caused by the pressure of lying or sitting in one position for a long period of time. Also called a pressure sore or bedsore.

Dermis--A layer of skin.

Eczema--A noncontagious inflammation of the skin, marked mainly by redness, itching, and the outbreak of lesions that discharge fluid and become encrusted and scaly.

Epidermis--The outer protective layer of skin.

Glaucoma--A disease of the eye characterized by high intraocular pressure, damaged optic disk, hardening of the eyeball, and partial or complete loss of vision.

Miotics--An agent that causes contraction of the pupil of the eye.

Mydriatics--A drug that produces dilation of the pupils.

Pediculosis--A contagious infestation of the hair, body, and pubic area caused by lice.

Psoriasis--A chronic, noncontagious disease characterized by inflammation, reddened lesions, and white, scaly patches.

Scabies--A contagious skin condition caused by mites that burrow under the skin; characterized by tiny, thread-like blisters that itch.

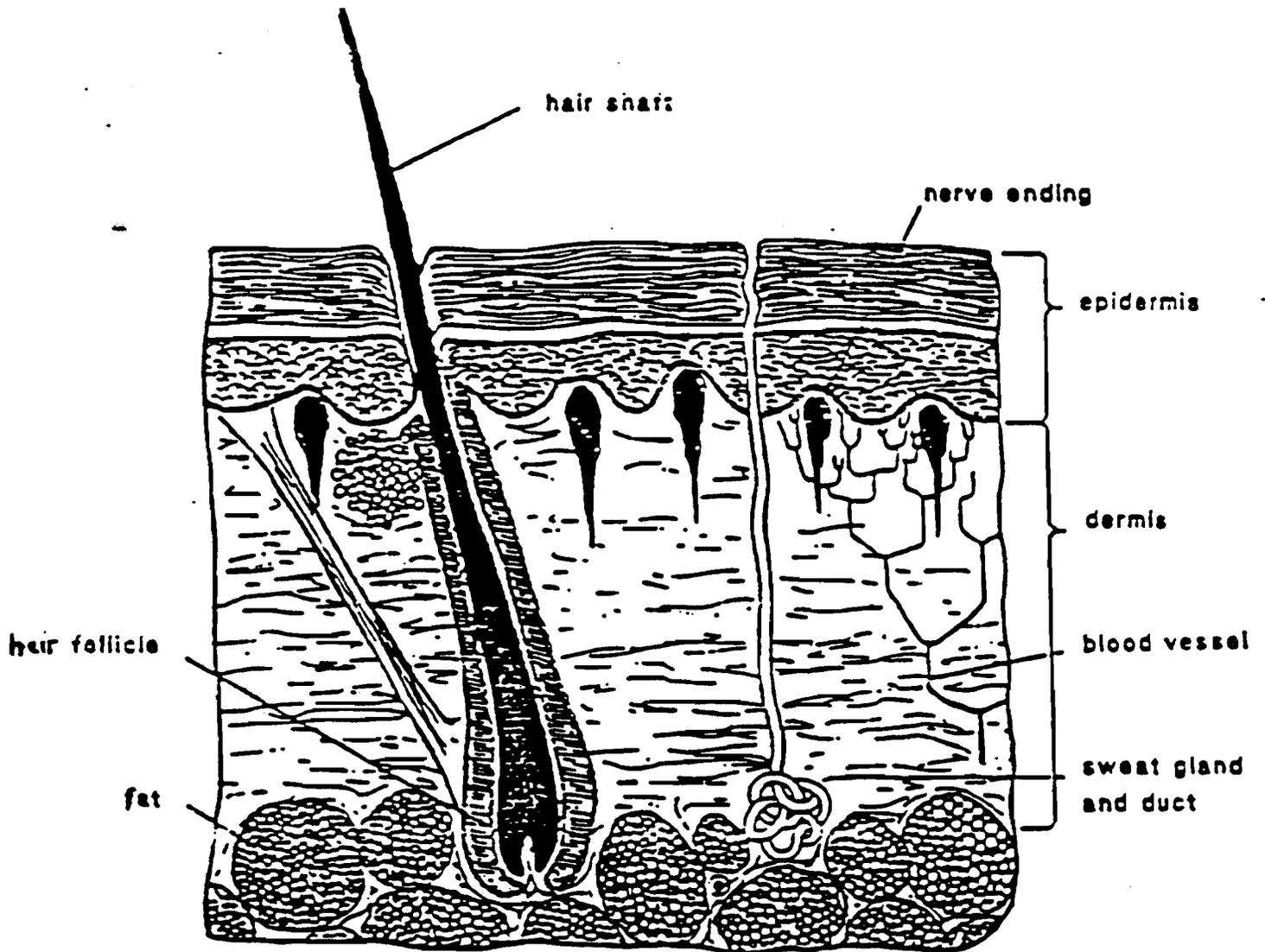
Sensory system--Receives outside sensations and relates these sensations to the proper nerves.

SUPPLEMENTAL LESSON: THE SKIN AND SENSORY SYSTEM

Performance:

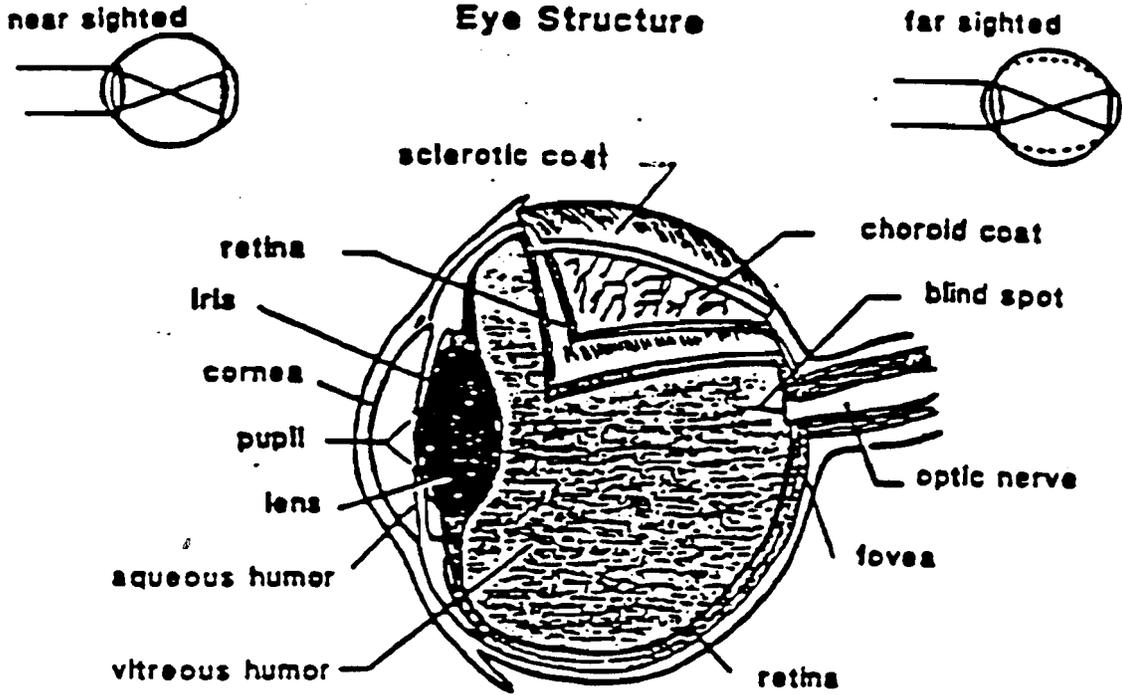
- 1. List five functions of the skin.**
- 2. Describe four skin disorders including the cause, symptoms, and treatment of each.**
- 3. What is a decubitus ulcer? Describe the stages of the decubitus ulcer.**
- 4. If a resident currently is receiving a skin medication, describe the following for the medication:**
 - a. brand name**
 - b. trade name**
 - c. uses**
 - d. actions**
 - e. side effects**
- 5. List the structures of the sensory system.**
- 6. Describe the function of the sensory system.**
- 7. Describe one eye and one ear disorder, including the cause, symptoms, and treatment of each.**
- 8. If a resident currently is receiving a skin medication, describe the following for the medication:**
 - a. brand name**
 - b. trade name**
 - c. uses**
 - d. actions**
 - e. side effects**
- 9. Define eight key terms selected by the staff nurse.**
- 10. Use the performance checklists included earlier in this manual to demonstrate proper procedures for administering medications for the skin and sensory systems.**

The Integumentary System

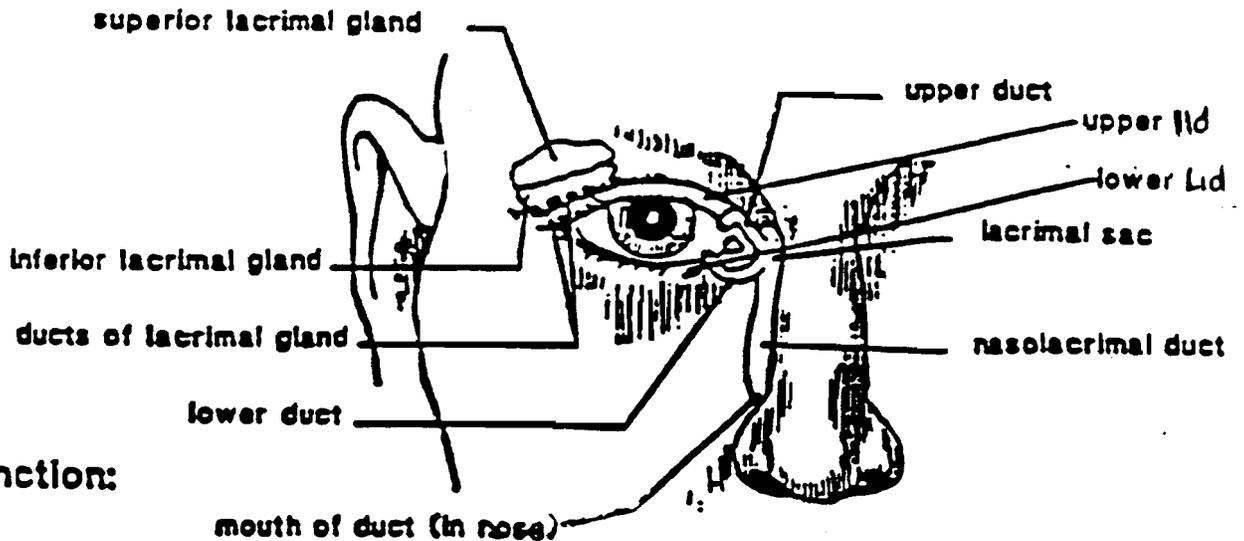


- Function:**
- 1. Protects the body**
 - 2. Regulates temperature**
 - 3. Discharges waste**
 - 4. Manufactures vitamin D**
 - 5. Makes human appearance presentable**

The Sensory System



Lacrimal Apparatus



Function:

1. Vision

SUPPLEMENT #18

THE STRUCTURE OF THE EAR

The ear has three parts: the outer ear, the middle ear and the inner ear. The outer ear consists of the part we see, the lobe (pinna), and a canal which directs sound waves to the middle ear. At the end of the canal is the eardrum (tympanic membrane). Sound waves cause the eardrum to vibrate. Three tiny bones, called ossicles, form a chain across the middle ear from the tympanic membrane to an opening in the inner ear. These bones carry the sound waves across the middle ear. A small tube, the eustachian tube, leads from the throat into the middle ear. Air carried through this tube helps to keep pressure equal on both sides of the eardrum.

The inner ear is a complex structure having two main parts. One looks somewhat like a coiled snail shell and is called the cochlea. Within the cochlea is the auditory (hearing) nerve which carries sound to the brain to let us know that we are hearing. The second part consists of small canals (semicircular) that contain liquid and nerve endings. The fluid in the canals help us maintain our sense of balance.

THE STRUCTURE OF THE EYE

The eye is a hollow ball filled with a semi liquid. The ball of the eye is made up of three layers. A tough, white, fibrous, outer coat (the sclera) has a transparent (see-through) portion in the front called the cornea. Beneath the sclera is a vascular layer called the choroid.

Light enters the eye through the cornea. The amount of light entering the eye is controlled by the colored portion of the eye, the iris, found behind the cornea. Fluid between the cornea and iris helps to bend the light rays and bring them to focus on the retina. The opening in the iris is the pupil. The pupil appears black because there is not light behind it. Directly behind the iris is the lens. Small muscles pull on either side of the lens to change its shape. The changing shape of the lens make it possible for us to adjust the range of our vision from far to near or from near to far.

The eye is held within the bony socket by muscles which can change its position. A mucous membrane (conjunctival) lines the eyelids and covers the eye. Conjunctivitis is an inflammation of this membrane. The eyelids, eyelashes and tears protect the delicate eye. Tears are manufactured by a gland in the upper lid.

SUPPLEMENT #19
INFORMATION FOR THE PHYSICIAN

Five types of information which should be provided to the physician are:

1. **The individual's complete medical records if he/she is seeing the physician for the first time.** The individual's past medical history gives the doctor "baseline data" from which to work. It is impossible to select the information needed. Therefore, it is best to take all medical information for physician to reference.
2. **History of drug allergies:** Medication allergies can be fatal. A individual's allergy to one medication may mean he or she is allergic to others. Without this information, the individual's life may be jeopardized.
3. **Current medications being administered and for what purpose (including non-prescription over-the-counter (OTC) medications.** Mixing medications can produce a variety of side effects. The more medications a individual is receiving, the greater the possibility for unwanted medication interactions.
4. **Current medical and dental conditions not being treated by medications.** Any condition that is not under medication therapy might not be known to the physician. Some pre-existing conditions may greatly influence the physician's choice of treatment.
5. **Written observations of recent changes in physical symptoms or behavioral signs.** Many staff members work with the same individual during the day. Without written information, you might not able to fully explain the circumstances which lead to the visit.

Most agencies make a practice of keeping the above information in a single place or file. However, agency policies differ. You should know the forms used and the location of the records needed to provide all the above information to the physician. However, such records cannot be left over to the physician.

SUPPLEMENT #20

SELF-MEDICATION

Teaching an individual to self-medicate must be an individualized process based on the individual's functioning level. The process used to teach an individual to self-medicate will vary between the homes that serve the developmentally disabled and the homes that serve the mentally ill.

When teaching an individual to self-medicate, the individual's learning style and abilities must be considered. The individual may be able to remember drug names and match the written name to the name on the bottle. Some individuals may need cues concerning shape or color of the drug to be able to locate the correct drug. It is important to encourage each individual, no matter what his/her functioning level, to participate in learning about his/her medication.

- I. Steps to Self-Administration—the following steps are only suggestions and should be adapted to meet the needs of the individual.

- A. Level 1

1. Staff nurse or designated staff member will fill the individual's weekly medication box or pill counter with the week's medication. The medication box must be labeled with the name of each medication, who ordered it, when it was ordered, the dosage required, and the time when the medication should be taken.
2. Individual will be informed of the times to report for medication and reminded as necessary.
3. staff member will supervise individual taking medication out of container.
4. Staff member will question the individual as to the name of the medication being taken.
5. Staff member will question the individual why the medication is being taken.
6. Staff member will observe the individual taking the medication and chart observation.

- B. Level 2

1. Staff nurse or designated staff member will fill the individual's weekly medication box or pill counter with the week's medication. Medication box must be labeled with the name of each medication, who ordered it, when it was ordered, the dosage required, and the time when the medication should be taken.
2. Individual will report to staff member at assigned times, will be given medication container and medication sheet and will be expected to take medication as prescribed.

3. Individual will initial medication sheet.
4. Staff member will check medication containers and medication sheet. Late and missed medication will be noted on the sheet.

C. Level 3

1. Staff nurse or designated staff member will fill individual's weekly medication box or pill counter with the week's medication. Medication box must be labeled with the name of each medication, who ordered it, when it was ordered, dosage required, and the time when the medication should be taken.
2. Individual will keep medication in own room.
3. Individual will initial medication sheet.
4. Individual will report to staff when medication has been taken.
5. Staff will chart that individual reported taking medication.
6. Staff will count pills weekly, or as needed, to check accuracy of individual reporting.

D. Additional Information

1. If the individual is in a day program, the medication counter will be checked daily.
2. The nurse or designated staff member will fill the medication counter weekly. Eventually, the individual will be responsible for handling the bottle of medication and filling own medication counter.
3. Depending on the individual's ability, the medication counter may be filled on a daily basis until the individual is ready to be responsible for a week's medication.

II. Steps to Learning Medication

A. Choosing the correct medication:

1. Memorization—individual will memorize the name of the drug and the dosage. This will take repeated practice and as the individual's medication changes, will have to be re-taught.
2. Color code the top or back of the prescription bottle. The individual can look at the medication sheet which will also be color coded and match the name of the medication to the correct bottle.
3. Place a picture of the medicine on the back of the bottle and on the medication sheet. The individual can look at the medication sheet and match the picture to the bottle.
4. Number the bottle and the medication sheet. The individual can match the numbers.

B. Selecting the correct amount of medication:

1. memorization--individual will memorize the name of the drug and the dosage. This will taken repeated practice and as the individual's medication changes, will have to be re-taught.
2. Use a pill counter or medication box.
3. Place the number needed on the back of the bottle and the individual can match to the medication sheet.

C. Encouraging participation:

1. Include medication information on communication books and boards so that the individual can interact with the staff at medication time.
2. Develop a calendar, daily schedule, or weekly schedule for the individuals to keep track of whether or not they took their medication. Develop a non-food reward system to encourage 100% participation.

III. Teaching Self-Administration--The following task analyses are geared toward the lower functioning individual who will need supervision while handling medication. Sample #1 is for the individual who is just learning how to self-medicate. Sample #2 is for the individual who is more advanced in the technique. Sample #3 is for the individual who is independent. These are just samples and should be adapted to meet the individual needs.

A. Sample #1

The individual will:

Come to the medication area when asked.

Locate a drinking glass.

Fill the drinking glass with water.

Listen to the name of the first medication to be taken.

Repeat the name of the medication.

Listen to the amount of medication to be taken.

Repeat the amount of medication to be taken.

Listen to a description of the medication.

a. Color

b. Shape

State reason for taking medication.

Take the medication.

B. Sample #2

Inform the individual it is time to take his/her medication.
Ask the individual to come to the medication storage area.

The individual will:

Locate a drinking glass.
Fill the drinking glass with water.
Locate personal medication storage container.
Open the container.
Locate medication sheet.
Match the time on the medication sheet with the clock.
Listen to the name of the first medication to be taken.
Repeat the name of the first medication to be taken.
Listen to the amount of medication to be taken.
Repeat the amount of medication to be taken.
Listen to a description of the medication.
a. Color
b. Shape
State reason for taking the medication.
Locate the medication according to the name and description
Match the name on the medication to the medication sheet.
Open the medication.
State the name of the medication.
State the amount of medication to be taken.
Remove the correct dosage.
Place correct dosage on the tray.
Close the medication container.
State the name of the medication.
State the amount of medication to be taken.
Take the medication.
Locate the medication sheet.
Find the correct medication.
Find the correct time.
Initial the medication sheet.
Place medication into medication storage container.
Return the medication sheet to storage area.

C. Sample #3

The individual will:

Locate a drinking glass.

Fill the drinking glass with water.

Locate personal medication storage container.

Open container.

Locate medication sheet.

Match the time on the medication sheet with the clock.

Locate the name of the medication to be taken on the medication sheet.

State the name of the medication.

State the amount of medication to be taken.

Locate the medication.

Match the name on the medication to the medication sheet.

Open the medication.

State the name of the medication.

State the amount of medication to be taken.

Remove the correct dosage.

Place correct dosage on the tray.

Close the medication container.

State the name of the medication.

State the amount of medication to be taken.

Take the medication.

Locate the medication sheet.

Find the correct medication.

Find the correct time.

Initial the medication sheet.

Place medication into medication storage container.

Return the medication sheet to storage area.

RELATED INFORMATION

Over the counter medications (OTC) agents, and related health care items represent a multi-million dollar industry whose main goal is to make money. It is often as confusing to you as it is to many of the individuals to pick or choose a correct product for relief from minor discomforts.

This section is included primarily to be informative as well as to help you to provide guidelines for those individuals who live and/or work in the community setting. The individuals need to know what over-the-counter medications might work and which are a complete waste of money, which are safe remedies and those which might provoke dangerous interactions or have undesirable side effects.

Because an individual has the rights of a citizens, he/she may not be legally stopped from purchasing any product of his/her choice. On the other hand, as care givers, we have an ethical responsibility to provide and promote a safe situation which helps protect the individual from unwise decisions.

People tend to think that, because OTC medications may be purchased without a prescription, they are harmless. This is not true. OTC's can and do have side effects. Some agencies have specific policies relating to the use of OTC's. Inquire as to what your agency policy is. Policy will vary from agency to agency, but in general OTC medications are handled in the same manner as prescription medications and are included in the individual's program planning. OTC medications have directions for use and these directions should always be read prior to administration.

In order to provide you with information that may be utilized in a teaching program with individuals, the following arbitrary classification system has been constructed to give the most common groups of agents.

AGENTS THAT AFFECT THE GASTROINTESTINAL TRACT

It is not unusual to have an occasional sore throat, upset stomach or other gastrointestinal disorder which is temporary and does not on occasion need a call to the physician. Short-term use of antacids, laxatives or antidiarrheal medications may be helpful to control a temporary condition. On the other hand, everyone must be aware that these preparations may also mask a more serious health problem. It becomes important to decide when it is time to see the doctor. In this section, we will discuss the more common over-the-counter and home remedies for gastrointestinal disorders.

MOUTHWASHES

A normal, healthy mouth should not have an offensive odor. Bacteria normally reside in the mouth and serve many useful functions. The use of mouthwashes is simply to cover bad breath that can be more harmful than good because the use of mouthwashes will upset the normal bacterial balance in the mouth.

Halitosis usually results from poor dental hygiene. Regular tooth brushing and flossing cure many cases of halitosis. If halitosis continues, the cause could be something more severe, such as an infection of the mouth or throat or a decayed or abscessed tooth. These conditions must be diagnosed and treated by a physician.

INDIGESTION

Indigestion is a term used to mean many things. Common symptoms of indigestion include: stomach ache, nausea, heartburn, gas pain and belching.

An occasional case of indigestion which can be related to dietary indiscretion can safely be treated with over-the-counter preparations. However, if indigestion persists or is accompanied by: Labored breathing, profuse perspiration and vomiting, medical attention should be sought as symptoms of serious heart problems sometimes appear as symptoms of indigestion.

Many OTC preparations used for indigestion have baking soda as the major ingredient. Some examples are: Alka-Seltzer, Bromo-Seltzer and Soda Mint.

Most OTC preparations, such as Alka-Seltzer, also have other ingredients in them, like aspirin, which would be unnecessary for simple acid indigestion, and if anything, might increase gastric distress. The aspirin in these products may be dangerous for people who also have other stomach problems. It is, therefore, important to: **Read All Labels Carefully For Contents.**

Another group of antacids contain aluminum hydroxide, a very effective antacid which has an advantage over baking soda because it is not absorbed into the blood-stream. Aluminum products can be constipating and are sometimes combined with magnesium preparations to lessen the constipating effect. Examples are: Maalox, Gelusil and Amphogel.

NAUSEA AND VOMITING

There are several different conditions which can cause nausea. Motion, stomach irritation and mental stress are just a few. The medication which is used to treat nausea should be chosen with the cause of nausea in mind. Some OTC preparations commonly used are: Maalox, Gelusil and Pepto-Bismol.

Motion sickness may be helped by Dramamine or Bonine. Home remedies include dry, dark toast and cola syrup. Most of the other nausea medications are obtainable only on physician's prescription and work by acting on the nervous system.

DIARRHEA

Diarrhea can be a symptom of many disorders. Often diarrhea is nothing more than a self-limiting natural defense reaction by which the body rids itself of a toxic or irritating substance. However, diarrhea which lasts for more than 1-2 days should be reported.

Antidiarrheal medications work directly on the bowel and are moderately successful in the treatment of diarrhea. Antidiarrheal agents consist of kaloin, charcoal or bismuth. The medications work by absorbing fluid and toxic substances and, therefore, bowel movements become more solid. Some agents are also soothing to inflamed bowels. Examples of these preparations include: Kaopectate and Parepectolin.

Many of the more effective antidiarrheal medications are available by prescription only. However, some household remedies are dry toast and warm tea.

LAXATIVES

A regular bowel movement should not be laxative dependent. In order to promote regular bowel movements, consideration should be given to a diet high in roughage and bran, fluid, and adequate exercise. Laxatives should never be given to anyone who has nausea, vomiting, abdominal pain or cramps. Some common examples of laxatives are: Castor Oil, Bran and Metamucil.

The regular use of laxatives can cause dependence and the later development of other gastrointestinal disorders. If continued constipation is a problem, the safest thing to do is have a physician examine the individual and determine the cause of the constipation.

HEMORRHOIDS

Hemorrhoids are inflamed, dilated blood vessels in the rectum. As the veins dilate and swell, they tend to itch or become painful. Many times hemorrhoids are associated with being overweight, straining at stool, and prolonged standing or sitting.

Corrective measures should be aimed at the cause of the hemorrhoids. Diet should be high in roughage and prolonged straining or sitting on the toilet should be avoided.

OTC preparations claim to shrink hemorrhoids and to reduce inflammation, itching and pain. Although some sources claim that most OTC hemorrhoidal preparations do not, in fact, help very much, some people do find these OTC preparations helpful. Preparations come in both ointment and suppository form. Some agents are: Preparation H, Anusol and A&D Suppositories.

AGENTS THAT AFFECT THE RESPIRATORY TRACT

Other than specific diseases that affect the respiratory tract (such as tuberculosis, infections, emphysema, cancer, etc.), there are many non-specific ailments that produce uncomfortable symptoms. In general, these ailments are not life threatening and the OTC agents which are billed as "aids" or "cures" are not always that successful. These ailments include the effects of chronic smoking, chronic sinus conditions, asthma, allergic responses (hay fever, dust, etc.) or the symptoms of colds and flu.

THE "SNIFFLING, SNEEZING GROUP"

These are agents that affect the nose and nasal passages and consist of an assortment of preparations. As you may recall from your study of medications which affect the respiratory system, whenever the body is attacked by a foreign substance (such as dust, pollen or bacterial), its response is to engorge the tissue with fluids, thus producing swelling, raising the temperature and perhaps causing pain to make you aware of the invasion. If this attack is in the nose and nasal passage, then antihistamine medications are used to dry the tissue, stop the allergic response and reduce the sense of stuffiness. Some agents are: Contact, Allerest, Chlortrimeton and Coricidin.

Cautions and warnings should be given with this group of medications as they make one sleepy and less attentive. These effects can be enhanced by alcohol, so alcohol should be avoided.

THE "COUGHING GROUP"

The cough is a useful protective reflex by which the body attempts to clear the respiratory tract of excess materials. Coughing usually accompanies most respiratory diseases.

Most coughing, such as from chronic smoking, irritations, chronic sinus dripping, or from yelling too much at a sporting event, usually clears up within a few days and is not significant. However, prolonged coughing may also be a symptom of more serious disease and medical attention may be necessary.

Coughing, when treated as a symptom rather than as a disease, usually responds to many over-the-counter agents. There are two common types of coughs: productive (wet cough) and non-productive (dry cough). Both can be irritating and even prevent sleep or become forceful enough to cause vomiting. Agents that suppress the cough reflex include: Sucrets, Vicks 44 and Nyquil.

One should always have second thoughts about these agents. Suppressing the cough may do more damage than good. Cough drops do nothing to control or cure coughs. They only keep the throat area moist and cause you to swallow more often, thereby, soothing the condition. A piece of hard candy will have the same effect.

THE "SORE THROAT GROUP"

As with most of the cold symptoms, you must eliminate the cause, but there are some agents that help you feel better until the cause is corrected. Most aids to correct "sore throats" are in this category. These aids may make you feel better but do nothing to help you get better. They are available as gargles, sprays, lozenges and cough drops. These agents include: Sucrets, Halls and Lavoris.

Most mouthwashes are not effective. Probably the most effective gargle is salt in warm water. Sucking on hard candy is almost as effective as most lozenges.

THE "WHEEZING, TIGHT CHEST GROUP"

Most wheezing and tight chest symptoms come from difficulty in breathing due to bronchial constriction or physical obstruction due to mucous or disease process. Those agents used to relieve bronchial constriction are ephedrine-based, such as: Bronlaid, Tedral and Primatine Mist.

CAUTION: Some of these medications may cause: An increase in the heart rate and irregular heart rhythms.

AGENTS THAT AFFECT THE EYE AND EAR

Since both the eyes and ears are very sensitive organs and are very delicate, almost all agents are prescriptive and should be administered under a physician's direction. However, there are a few that need to be mentioned.

THE EYE

The most common drops are Murine and Visine. These are used to constrict the vessels of the eyeball and reduce minor irritation due to pollen or dust. Prolonged or constant use is not recommended. The best treatment for local eye irritation is to cleanse with plain water.

THE EAR

The most common agents used in the ear soften wax build up or clean out the outer ear. These drops are usually a hydrogen peroxide mixture. Cerumenex is the best example. Agents used for minor ear irritation due to swimming (swimmer's ear) are Ear Dry and Swim Ear.

ACHES AND PAINS

At one time or another everyone has an ache or pain. Analgesics (pain relievers) and related agents are the most often purchased medication in the United States. Pain is a warning that something is wrong in the body and should not be overlooked. In this section, we will examine the more common aches and pains which can be temporarily or actually relieved with OTC medications.

HEADACHE AND FEVER

The number one OTC for headache is aspirin. However, aspirin can cause an upset stomach. To offset the upset stomach, give aspirin with milk or use a preparation of aspirin that is combined with Maalox called Ascriptin. Bufferin is a preparation which is less irritating to the stomach.

Sometimes aspirin comes combined with other agents, such as phenacetin and caffeine. Some examples are: APC Tablets, Excedrin, and Vanquish.

Usually, the difference between products is insignificant and it is senseless to spend the extra money for a fancy trade name.

Other popular headache remedies are Tylenol and Datril. These preparations differ from aspirin in that they are not anti-inflammatory and are not as likely to cause upset stomach. Because these agents lack anti-inflammatory properties, they are not usually indicated in the treatment of conditions such as arthritis.

Aspirin can cause allergic response in some people and overdose is the single greatest cause of death by medication in young children in the United States.

For fever control, aspirin products are probably the best OTC preparation to use. A slightly elevated body temperature is nature's way to help us control mild infections. Recent literature advocates not treating a slightly elevated body temperature, but to instead let the fever run its course.

Regardless, a very high temperature can be dangerous and should be treated by a physician.

MUSCLE, BONE AND JOINT PAIN

There are a group of medications called counter-irritants, which when spread upon the skin, will cause an increase of blood flow to the area. This will create a feeling of warmth and the sensation of pain in the area will be diminished. These agents may be of comfort to people who have strained muscles or an occasional bone pain. Examples of counter-irritants include: Deep-Heet and Ben Gay.

TOOTHACHE

Usually, a toothache is a sign of underlying dental problems and the individual should be examined by a dentist. Until you can get to the dentist, the discomfort might be relieved by aspirin or a topical application of Ambesol.

FOOTCARE

A callus is an overgrowth of tissue at a site of constant pressure. A corn is basically the same thing, but is located over the joints and between the toes. Prevention by elimination of undue pressure is very important. Pressure reduction methods include wearing softer and better fitting shoes, foam rubber pad or arch inserts.

Treatment to remove the tissue is sometimes necessary. Most of the over-the-counter preparations have salicylic acid as a base. When applying commercial agents, it is important to avoid the surrounding skin as it may cause a burn.

If corns and callouses are a chronic problem, it is best to seek the services of a physician. Some people, especially diabetics and those with impaired circulation, should always have this problem treated by a physician. OTC preparations include: Derma-Soft, Mosco, and Dr. Scholls' Drop.

Athlete's foot is a superficial fungus infection. Good foot hygiene is an essential part of the treatment. Special care must be taken to keep the spaces between the toes clean and dry. OTC preparations which may help athlete's foot including: Tinactin, Desenex, and Cruex.

SKIN PRODUCTS

Many minor problems affecting the skin may be treated with OTC preparations. Many medications that you have already studied come in preparations intended for skin. What follows is a brief discussion of common problems which can effectively be treated at home.

SKIN ABRASIONS

An agent which is intended to kill germs on the skin is called an antiseptic. Many times the only treatment needed for a cut or scratch is to wash the area carefully with plenty of mild soap and water. Skin antiseptics which can be purchased include: Mercurochrome, Merthiolate and Unguentine.

If a cut or scratch shows signs of infection, it is best to seek medical attention. However, there are some non-prescription antibiotic creams available for minor infections. Some examples are: Achromycin and Bacitracin.

SUNBURN

Sunburn should be prevented. The most effective ingredient to prevent sunburn is PABA, which is contained in many sun screens. Always read the contents to determine if PABA is present. Many medications you have already studied (tranquilizers) may cause an increased sensitivity to the sun and these people should avoid the sun when possible.

In the event sunburn occurs, some OTC preparations will temporarily bring some relief. Examples are: Americaine, Solarcaine, and Unguentine Spray.

INSECT BITES AND ITCHING

To alleviate itching after the bites have occurred, hot water is probably the cheapest and most effective treatment. Corn starch baths (1 cup to 4 cups water mixed thoroughly, then added to bath water) are also effective for generalize itching. Another agent is a topical liquid - Calamine Lotion. It is possible to purchase a skin cream containing a small dose of cortisone. This preparation may also be helpful for other skin problems. One trade name available is Cortaid. Be sure to follow the directions on the label.

BEE STINGS

A home remedy for bee stings is to wet the area of the sting and apply an aspirin over the site. The aspirin tends to neutralize the bee venom.

ACNE

Acne sufferers have a wide range of OTC preparations from which to choose. Since pimples or acne-like conditions result from a variety of causes including foods and medications, it is best to have a physician try to determine the cause of the problem and take his/her advice as to the safe products to purchase.

In summary, the main responsibilities when administering any non-prescription medications include:

Read label for route, dosage, side effects and contra-indications

Always compare this information with information of other medications the individual may be taking. Careful checking will help prevent medication interactions.

Last, but not least, always treat over-the-counter medications with the same cautions that you use when administering prescription medications.

MEDICATION ADMINISTRATION

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American Diabetes Association
South Texas Affiliate, Inc.
P. O. Box 14926
Austin, TX 78761

Association for Epilepsy Awareness
Epilepsy Clinic
IU Medical Center
P. O. Box 44186
Indianapolis, IN 46204
(317) 274-4974

Bethesda Lutheran Home
Resource and Outreach Services
700 Hoffmann Dr.
Watertown, WI 53094

Community Health Education Center
Anaheim Memorial Hospital
1111 West LA Palma Ave.
Anaheim, CA 92803

Department of Community Health Education
100 Madison Ave.
Morristown Memorial Hospital
Morristown, MH 07960

Epilepsy Foundation of America
National Epilepsy Library and Resource Center
4351 Garden City Dr., Suite 406
Landover, MD 20785

International Diabetes Center
5000 West 39th St.
Minneapolis, MN 55416

Lincoln Memorial Education Foundation
Hospital Educators Resource Catalogs
P. O. Box 390090
Lincoln, NE 68503

Merck, Sharp, and Dohme
2010 Swift Drive P. O. Box 7933
Chicago, Illinois 60680
(A directory of medical informational films)

Pharmaceutical Manufacturers Association
1155 Fifteenth Street N.W.
Washington, D.C. 20005
(*Health Care and the Consumer:
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