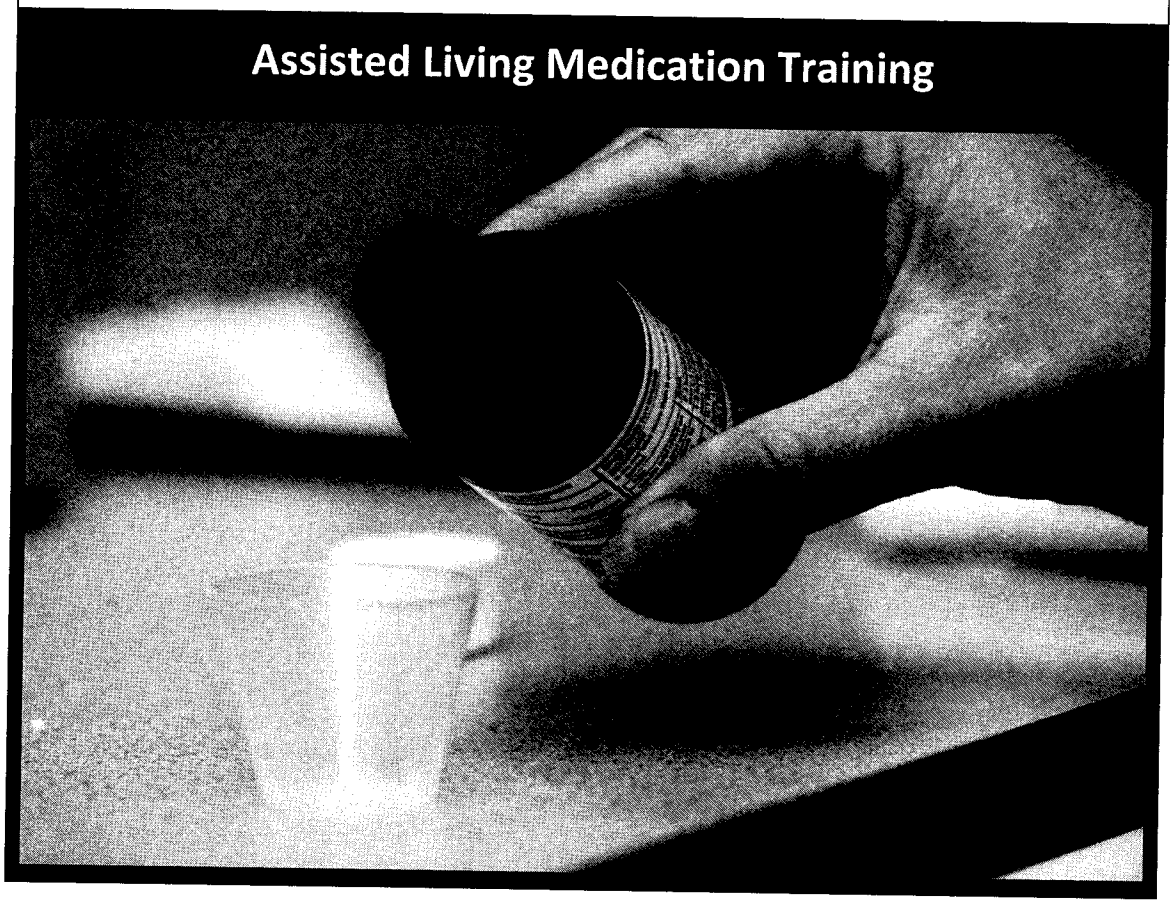
Module 3:
Understanding Medications

Introduction
Medication Form and Names
Routes of Administration



INTRODUCTION

As a Med Aide, you are not expected to know everything about medications, but you should have basic knowledge required to protect your residents from dangerous medication-related adverse effects and to provide the necessary assistance your residents require.

This module will introduce you to some basic fundamentals about medications, including potential benefits, medication names, and routes of administration. Modules 4-6 will review the medication management process, and adverse reactions will be discussed in Module 7.

The Role of Medications in Providing Care

Incredible advances of modern medicine have allowed us to live longer, healthier, and happier lives. Many of these advances take the form of medications—drugs—that can cure diseases, treat chronic conditions, and ease painful symptoms. Consider the diabetic that without insulin injections could not survive, or the resident with arthritis who eases the pain in her hands by taking non-steroidal anti-inflammatory drugs. Without medications our lives would be very different and much shorter.

Medications are an important part of quality resident care, but they are not the solution to every problem. It is vital that we provide the necessary (and allowable) assistance with medications that our residents require, but we must understand that medications have their limitations, and that medications can carry powerful adverse reactions and side effects.

Medications and the Aging Body

Older adults respond differently to medications due age-related changes in their body. The American Society of Consultant Pharmacists (ASCP) says, "How the senior's body handles a medicine through absorption, distribution, metabolism, and excretion, and how the senior's body responds to a medicine are influenced by changes in cardiac, liver, and kidney function and changes in composition of body fat and water."

To put it simply, older adults tend to be more sensitive to both the beneficial effects of medications and potential adverse reactions or side effects.

In addition to age-related physical changes, assisted living residents are more prone to problems with medications due to the large volume of medications they often use. According to ASCP assisted living residents take an average of 6.2 different medications, and 25% of those residents take 9 or more medications. This leads to a higher likelihood of drug interactions, as well as medication errors that can lead to adverse effects.

Keeping Medications Safe: Doing Your Part

Medications are powerful agents with a tremendous ability to alleviate symptoms and cure disease. However, medications can also cause significant harm to the resident. Side effects, adverse reactions, allergies, and drug interactions are possible results of medications in addition to their benefits. The Med Aide has an exciting opportunity to ensure the resident receives the maximum possible benefit from his/her medications, while monitoring for the potential adverse effects of drug therapy. For maximum benefit and safety with medications, the following minimum criteria must be met:

1. **The physician has enough information to choose the best medication to treat the problem.**
   A prescription must be obtained for all medications taken by the resident in your community. However, for the physician to choose the best medication for the resident, the physician must have accurate information about the resident's condition/problem. The Med Aide is the resident's lifeline, reporting problems and concerns to the supervisor and to the physician. With accurate reporting, the physician can choose the best medication for the resident's problem.

2. **The medication prescribed is administered correctly.**
   All medications must be given according to the physician's order. When assisting the resident with a medication the physician's order should be referenced each time to ensure no errors are made.

3. **The reason the medication is being given is clear to all facility personnel, and the target symptoms (i.e. behaviors, seizures, high blood pressure, etc.) are clearly defined and monitored to determine medication effectiveness.**
   The Med Aide does not necessarily need to know exactly how a medication works (referred to as the mechanism of action). However, you must know why the resident is taking the medication. For example, that the Med Aide should know that his/her seventy-five year old resident with congestive heart failure (CHF) is taking Lasix to prevent edema, fluid buildup in her lungs, and to reduce her blood pressure.

4. **The resident is monitored for adverse reactions, or side effects, by all personnel providing care and supervision.**
   Although it is not a requirement for staff to know all the side effects of a specific medication, all staff should watch the resident for problems and symptoms that may be related to side effects. Additionally, being familiar with common side effects can ensure better monitoring and safer medication therapy.

5. **Concerns and questions related to the resident's medications are immediately referred to the prescribing physician.**
   If a side effect presents that has not caused sudden distress in the resident, the physician must be contacted. Side effects may be an indication that the resident is taking too much of a drug, or that the dose of medication needs to be changed. Informing the physician immediately of side effects can allowing the physician to make adjustments in the resident's prescription.

   In addition to reporting side effects, the caregiver can speak with the physician about questions related to the medication. Questions such as, "Why is she taking the drug, what side effects should staff watch for, and what time of day should it be given?"

6. **Strictly adhere to regulations related to medications.**
   Medications and related issues are one of the most common causes of regulatory violations. There are specific guidelines that must be followed in your community. These guidelines ensure safe handling, assistance with, and documentation of medication.

7. **Medication policy and procedures are followed.**
   In addition to the requirements from state regulations, your community has medication policies and procedures to be followed. All caregivers should become familiar with these guidelines.

Resources for Obtaining Information About Medications

You will likely have questions about medications as you encounter them. Questions like: what is a normal dose? Are there any dangerous side effects with this drug? Is it okay to take these different medications at the same time? Should this be taken with food? You should prepare resources for medication information before the questions arise. There are many available resources; the following are the most accessible and useful:

Medication Handbook
These books contain information related to every medication currently approved by the Food and Drug Administration (FDA). They usually include information about how the medication works, normal doses, side effects, drug interactions, and other administration recommendations. The books are often written to be used by nurses however they contain valuable information that can be used in the assisted living community as well.

Prescribing Physician
The physician who prescribed the medication is a good resource for some information as well. He or she can usually tell you when the drug should be taken, whether or not it should be taken with food, why the resident is taking the drug, etc.

Pharmacists
The pharmacist is often the most helpful and accessible resource for medication information. Pharmacists devote their study and practice to medications, so obviously they can tell you virtually everything about a particular drug. In addition to the information from the medication handbook and the physician, pharmacists can provide you with printouts that give information about each drug. If you are ever concerned about a particular medication a resident is taking, the pharmacist can usually answer your questions.

Nurses
Registered Nurses (RN) are trained in pharmacological therapy. Most RNs have a thorough working knowledge of general medication information, such as side effects, and special considerations.

The Internet
The Internet, and more specifically the World Wide Web, is an excellent resource for obtaining information. However, be cautious that you are obtaining information from a reputable web site. Keep in mind that anyone can put up a website and make dramatic (and possibly dishonest or misleading) claims about medications and "natural" remedies.

MEDICATIONS FORMS, NAMES, AND ROUTES

Medication Forms

Medications can be manufactured in many different forms based on the type of medication, intended use, route of administration, and other factors. The form of medication may impact how it is stored, handled, and administered. Here are some of the common forms you may see in your community:

Capsule:	Hard or soft, soluble containers of a suitable substance for enclosing a dose of medicine, usually for oral administration.
Cream:	A water-soluble preparation that is typically applied to the skin. An ointment differs from a cream in that it has an oil base.
Elixir:	Medication dissolved in alcohol and flavored with sugar.
Enteric Coated Tablet:	Tablet with a special coating that does not breakdown until it reaches the small intestine.
Fast-Dissolving Tablets:	Tablets that disintegrate and/or dissolve rapidly in the saliva without the need for water.
Gelcap:	A capsule formed of a gel material, sometimes gelatin but commonly a synthetic polymer.
Inhaler:	A device used to provide medication by inhalation.
Ointment:	A medication preparation that is applied topically. An ointment has an oil base whereas a cream is water-soluble.
Solution:	Liquid medication in which a drug is evenly dissolved and appears clear.
Suspension:	Liquid medication that requires shaking because settling of drug particles occurs.

Tablet:	A medication, usually mixed with a binder powder, molded and pressed into the form of a tablet, traditionally circular or disk-shaped, but more recently also oblong or differently shaped.
Transdermal Patch:	Medication applied to the skin and absorbed over a long period of time.

Drug Names

Medications typically have at least two names: a generic name and a trade (or brand) name.

Generic Name	A generic name is given to a drug by the original manufacturer, before it even has FDA approval. Generic names are usually not capitalized when written (e.g., furosemide).
Trade Name	A trade or brand name is the name under which a manufacturer markets a drug. When a trade name is written, it will begin with a capital letter (e.g., Lasix).

Whether a resident receives a generic or trade version of a medication depends on several factors including how the physician wrote the prescription, the resident's insurance coverage, and the pharmacy dispensing the medication.

Most pharmacies will indicate both the generic and trade names for the medication on the medication label, but nevertheless, multiple drug names can make identifying medications confusing. Never guess about a generic or trade name. If you are ever unsure refer to your drug handbook or contact your pharmacist for clarification.

A drug handbook will list both the generic and trade name of all FDA-approved medications, and most pharmacies will label a medication with both the generic and trade name. If you are unsure, the pharmacy may be contacted for verification.

Listed below are trade and generic names of some common medications that you may encounter in an assisted living community.

Generic Name	Trade Name(s)
acetaminophen	Tylenol
acetaminophen/hydrocodone	Vicodin
acetaminophen/oxycodone	Percocet
alprazolam	Xanax
amlodipine	Norvasc
atenolol	Tenormin
atorvastatin calcium	Lipitor
bupropion	Wellbutrin, Zyban
digoxin	Digitek, Lanoxin
duloxetine	Cymbalta
escitalopram	Lexapro
fluoxetine	Prozac
furosemide	Lasix
gabapentin	Neurontin
lisinopril	Prinivil, Zestril
lorazepam	Ativan
naproxen	Aleve, Anaprox, Naprosyn
oxycodone	Oxyir, Percolone, Roxicodone
paroxetine	Paxil
prednisone	Meticorten, Sterapred
quetiapine	Seroquel
risperidone	Risperdal
sertraline	Zoloft
topiramate	Topamax
tramadol	Ultram
venlafaxine	Effexor

Learning Exercise:
Drug Names

The drugs listed below are the generic or trade names for several common drugs. Draw a line to match the correct generic name with the trade name.

Trade Names	Generic Names
Meticorten	furosemide
Lasix	lorazepam
Paxil	paroxetine
Ativan	prednisone
Risperdal	acetaminophen
Tylenol	risperidone

ROUTES OF ADMINISTRATION

In order to be effective medications must be applied into or onto the body. There are several ways that this can be accomplished, known as "routes of administration."

Local or Systemic

Some routes of administration will allow a medication to have a local effect, such as a cream applied to a skin rash, whereas other medications have a systemic effect, for example, a Lasix tablet taken by mouth is absorbed through the gastrointestinal tract, and ultimately has its effect in the kidneys.

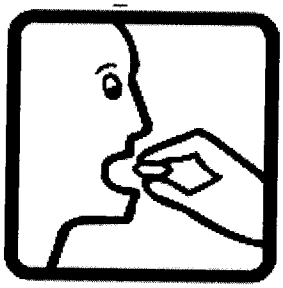
Classification

Medications are introduced into the body by several routes depending on the desired action of the medication. Routes of administration can be classified in many different ways, but include oral, injection, ocular, and others.

Keep in mind that state regulations and the policies of your community will effect which routes a Med Aide may assist with; some routes will require an appropriately licensed medical professional.

The table on the following pages summarizes routes of administration commonly encountered in the assisted living community. This is not a complete list of all possible routes of administration, but rather a sampling of common routes you are likely to see in your workplace.

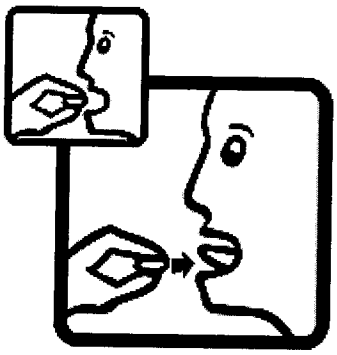
ROUTES OF ADMINISTRATION



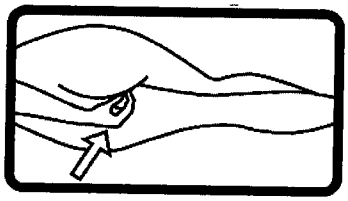
Oral Route (tablets, capsules, liquids, etc.)
The oral route (sometimes referred to as "by mouth" or "PO") is the most convenient and usually the safest route of administration. The oral route is the most common route of administration.

After swallowing the medication it is absorbed through the gastrointestinal tract (usually the stomach or small intestines). Because of this, food, fluids, and other drugs in the digestive tract may affect how well and how fast the medication is absorbed. Sometimes the physician or pharmacist will make dietary recommendations related to taking the medication such as "take with food" or "take on an empty stomach."

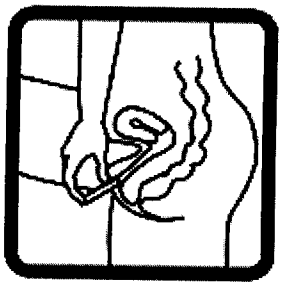
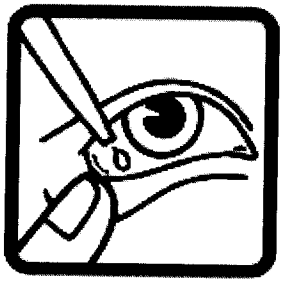
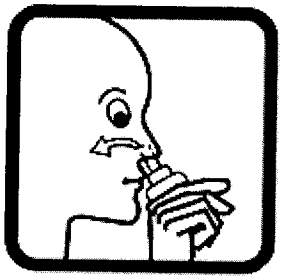
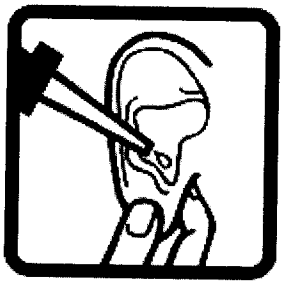
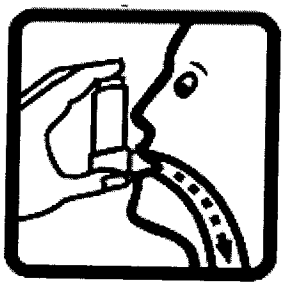
Injection (subcutaneous, intramuscular, etc.)
The injection route (also called parenteral) allows medications to be prepared in ways that allow for control over how medications are absorbed into the blood stream. Some injectable medications (such as intravenous) can also go to work in the body much faster than if they were taken orally.

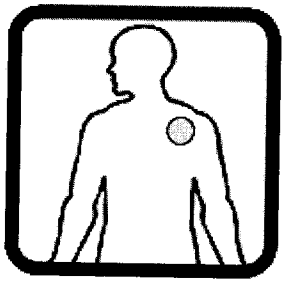


Sublingual (under the tongue)
Sublingual medications are placed under the tongue and allowed to dissolve. These drugs ARE NOT swallowed. There are only a few medications that are administered sublingually; nitroglycerin to relieve angina (chest pain) is one of the most common examples. The sublingual route allows a drug to be absorbed rapidly and enter the bloodstream immediately.



Rectal (suppositories)
Because the rectum's wall is thin and has a rich blood supply, drugs taken rectally are absorbed quickly. Suppositories are typically prescribed for residents who cannot take a drug orally due to nausea, swallowing difficulties, or eating restrictions.

	**Vaginal** Vaginal medications can be tablets, gels, suppositories, or rings. The medication is slowly absorbed through the vaginal wall. The route is typically used to have a local effect, such as estrogen for women at menopause.
	**Ocular (drops, gels, ointments)** Drugs used to treat disorders of the eye are often administered directly to the eye as drops, gels, or ointments. This route is typically used for a local effect; such as artificial tears to treat dry eyes.
	**Nasal (drops, sprays)** Drugs administered via the nasal route usually work quickly.
	**Ear Drops** Similar to the nasal route, ear drops are typically used for the local effect.
	**Inhalation** These medications are designed to pass through the trachea (windpipe) and into the lungs. Proper administration technique is extremely important and will be discussed later in this Workbook.

	**Cutaneous (applied to the skin)** Cutaneous medications can be in the form of an ointment, cream, lotion, solutions, powder, or gel. These medications are usually used for their local effect on superficial skin disorders, such as psoriasis, infections, and eczema.
	**Transdermal (patches)** Transdermal medications are patches applied to the skin, but unlike cutaneous medications, the effect is systemic. The medication is absorbed through the skin to the bloodstream. The primary benefit of transdermal medication is that they can be delivered slowly and continuously for hours or days.