HELPING CLIENTS WITH SELF-ADMINISTRATION OF MEDICATIONS

INTRODUCTION

Certified nursing assistants (CNAs) work in hospitals, long-term facilities, and other health care settings. They also work with clients who live at home but need professional help to maintain their health and independence. One aspect of home care is helping clients with self-administration of medications.

Many clients who live at home but need the assistance of a CNA are often taking multiple prescription medications. Some of these medications have serious side effects. Some can be dangerous if the dose is too high or too low, or if an extra dose is taken. Most people can safely self-administer their medications but if a mistake is made there is potential for harm and damage.

The practice laws that govern the CNA profession in your area may require CNAs who supervise clients’ medication self-administration to have special training, pass a test, and obtain certification. This module contains the basic information about how to properly self-administer medications and also the information you need to evaluate whether or not your clients are capable of self-administering their medications and that they are doing so safely and accurately.

OBJECTIVES

When the student has finished this module, he/she will be able to:

1. Correctly identify the definition of a medication.

2. Identify the six rights of medication administration.

3. Identify the correct definition of a medication error.

4. Identify the correct definition of a side effect.

5. Identify resources for clients who self-administer medications.
MEDICATION SELF-ADMINISTRATION: INTRODUCTION

Self-administration of medications is typically not complicated. There is potential for mistakes and harm. But most clients can learn to self-administer medications effectively and safely is they are properly educated and they have support. This module will cover the following principles of self-administration of medications that clients should know.

1. The definition of a medication.
2. The six rights of medication administration.
3. Medication errors.
4. Side effects
5. Medication interactions
6. Basic principles of self-administration of medications.
7. Resources for the client who self-administers medications.

If these are learned and retained and if clients are periodically evaluated for their knowledge virtually anyone can take medications by themselves.

THE DEFINITION OF A MEDICATION

Many people think that the term medication refers only to a prescription medication, a drug that has been ordered by a physician or other healthcare professional and dispensed by a pharmacy. But the definition of a medication is more complex and it cannot be explained in a few words. A medication is defined as:

1. A substance that is used to cure, diagnose, prevent, or treat a disease.
2. A substance that is intended to enhance mental or physical well-being.
3. A substance that has a **measurable effect** on human physiology or a measurable effect on the signs and symptoms of a disease or illness.

4. A substance that can cause **side effects**, some minor and some very serious.

It is not necessary for clients to memorize this information, but this definition, particularly point # 3, does contain an important teaching point for anyone who self-administers medication.

*Over-the-counter drugs, vitamins, and supplements should all be considered medications.*

There is a common perception that these substances are essentially harmless because they are available without a prescription. But available without prescription does not mean that adverse effects are not possible nor does it mean that something that can be bought in a grocery store or from the shelf at a pharmacy is completely safe.

There are many, many potentially harmful effects that can be caused by over-the-counter medications, vitamins, and supplements that are marketed as herbal or natural. The same cautions and considerations should be used when taking and over-the-counter medication, a vitamin, or a supplement as when taking a prescription medication.

**Definition of a Medication: Implications for Proper Self-Administration of Medications**

Over-the-counter drugs, vitamins, and supplements are generally safer than prescription medications. But safer does not mean free from potential harm and
each of these should be considered to be a medication; they can have a measurable effect on human physiology and they can cause side effects. To put it more plainly, an over-the-counter drug, a vitamin, or a supplement can affect your health in many ways and clients who self-administer medications should understand this.

1. Over-the-counter medications: There multiple ways in which over-the-counter medications can potentially be harmful. Three of the most common are drug interactions, incorrect usage, and duplicate ingredients.

   a. Drug interactions: Over-the-counter cough and cold relief products often contain a cough suppressant called dextromethorphan and/or a decongestant such as phenylephrine or pseudoephedrine. Dextromethorphan should not be used by someone who is taking an MAO inhibitor anti-depressant (e.g., phenelzine, trade name Nardil) or by someone who is taking one of the more commonly used anti-depressants like Lexapro, Paxil, or Prozac. The combination can cause a very serious drug interaction. The decongestants that were mentioned, phenylephrine and pseudoephedrine, should be avoided by people who have cardiac disease or hypertension as these drugs can increase heart and elevate the blood pressure. Both aspirin and ibuprofen may interfere with the effects of warfarin (Coumadin®), a very commonly prescribed medication that is used to prevent blood clots, and both aspirin and ibuprofen can cause serious gastrointestinal bleeding in certain people.
b. **Incorrect usage**: Acetaminophen (Tylenol) is one of the most popular over-the-counter pain medications. The maximum amount of acetaminophen that should be taken in a 24 hour period is 4000 mg. If someone who has dental pain or flu-like symptoms does not get relief with the standard dose, it is easy to decide that if two tablets taken four times a day isn't working, four tablets six times a day is the solution. Acetaminophen may be perceived as harmless but inadvertent overdose with acetaminophen is one of the most common causes of liver failure and the need for a liver transplant.

c. **Duplicate ingredients**: Many of the over-the-counter cough and cold medications and other products as well have similar ingredients and/or identical ingredients. Failing to read the labels can result in duplicate medications being taken. For example, acetaminophen is commonly combined with prescription analgesics like Vicodin but a client may not realize that acetaminophen and Tylenol are the same drug.

2. **Vitamins**: Vitamins are natural substances that we need for optimal health. Because of that some people believe that any amount of vitamin is safe and that large doses of vitamins are beneficial. However, more is not always better and excessive dosing of vitamins can be harmful. Serious cases of vitamin A and vitamin D poisoning have been reported when people take large amounts these vitamins on a daily basis and there is no evidence that exceeding the recommended daily amount (RDA) of any vitamin will improve health or cure a disease. In addition Vitamin D and
vitamin E may interfere with the therapeutic action of medications such as digoxin, diuretics, and warfarin.

3. Supplements: Supplements are not tested in the same way as prescription drugs. This makes it difficult to determine if a supplement is safe for any particular person or to know if a supplement will interact with a prescription or over-the-counter medication. Supplements may be perceived as safe and “natural” but they can also be a source of harm. St John’s wort is an herbal supplement that is often marketed as a natural anti-depressant. St John’s wort may work for this purpose but it can cause serious drug interactions with many commonly prescribed medications. Weight loss supplements typically contain caffeine or substances such as guarana that act like caffeine, and caffeine is potentially dangerous for people with cardiac disease or hypertension. Yohimbine is recommended for treating erectile dysfunction and kava is recommended for the treatment of anxiety, but cases of serious liver damage have been reported after the use of these products.

There are many, many other potentially harmful effects that can be caused by over-the-counter medications, vitamins, and supplements that are marketed as herbal or natural. These examples clearly show why over-the-counter medications, vitamins, and supplements marketed as herbal or natural should be treated with respect.

Medication-food interactions are uncommon but there are some that are important. People who take warfarin should avoid foods that contain a lot of
vitamin K such as kale and spinach. The MAO inhibitor anti-depressants can interact with certain types of cheeses and with liver. Grapefruit juice can significantly interfere with cholesterol-lowering medications such as Lipitor and Mevacor. If alcohol is ingested along with an anti-depressants or a sedative such as Valium excessive drowsiness can occur. And some medications must be taken with food while others must be taken on an empty stomach.

THE SIX RIGHTS OF MEDICATION ADMINISTRATION

The six rights of medication administration are guidelines that will ensure safe and effective use of medications. These guidelines should be reviewed with clients who self-administer medications.

Table 1: Six Rights of Medication Administration

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<td>Right dose</td>
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The **right drug** means that the correct medication should be used and given to the right person. In hospitals and other healthcare facilities CNAs, nurses, and physicians are taught to be sure they are administering the correct drug to the patient who needs it. The physician’s order will be reviewed and the label on the container or bottle will be matched against the order. Clients who self-administer medications cannot do this but they can inspect medications and read labels to
ensure that the proper drug was dispensed or purchased and that they are using the right drug.

The right dose is obviously a crucial part of medication administration: the client should use the correct number and/or amount of the medication. This advice seems simple but numerous medication errors occur because an incorrect dosage was taken. Prescription drugs and over-the-counter medications have dosage instructions on the label. Example: Take one tablet by mouth, three times a day.

The right route is a very important part of medication self-administration. Medications can be taken orally; by injection; intravenously; intra-nasally; rectally; vaginally; topically; by the otic route, or; by the ophthalmic route. Over-the-counter and prescription medications have instructions on their labels that inform the user how the drug should be taken and these instructions will include the proper route of administration. Example: Put two drops in each eye, twice a day.

The right time refers to the time of day when the medication should be taken and the proper separation between doses. Example: Apply the cream to the affected areas once a day before bedtime.

The right patient is more of a concern in hospitals or other healthcare facilities where multiple medications are given to many different patients. But a client should be instructed to routinely check the label before taking a prescription medication for the first time to ensure the drug has been prescribed for him/her. The right patient can also refer to age, reproductive status, and pre-existing
medical problems. Certain medications should not be given to children, women who are pregnant, or if the client has a specific medical problem.

The final guideline is a bit more complex than the others and it primarily refers to prescription drugs. The right reason refers to need. Medications are used to cure, diagnose, prevent, or treat a disease, so any drug that is prescribed by a physician is for a specific client need. In order for clients to be sure that they are taking a medication for the right reason they must: 1) know their medical history, and; 2) know what a particular medication is used for.

This does not mean that clients need to have a sophisticated level of about diseases and pharmacology, but they should know what medical conditions they have and they should be able to identify the purpose of any particular drug they are taking. Example: A client who has diabetes should be aware that diabetes is a chronic disease that affects blood sugar, and he/she should be able to recognize that metformin is a drug that is used to control blood sugar.

MEDICATION ERRORS

Medication errors are very, very common. There are millions of medication errors that occur every year and medication errors can cause significant harm or even death. Certified Nursing Assistants who are working with clients who self-administer medications need to have a basic understanding of medication errors so that they can: 1) teach clients about medication errors, and; 2) recognize when a medication error has occurred.

The Definition of a Medication Error
What is a medication error? This may seem to be a simple question with an obvious answer but it is not. Consider the following examples.

- A client is scheduled to take her prescription pain medication, oxycodone 10 mg, at 14:00. She loses track of time and takes it at 14:10.
- The physician had prescribed an antibiotic to be taken for 10 days. After considering the results of some laboratory tests the physician decides that the antibiotic is no longer needed and advises the client to stop taking it. The client, however, continues to use the drug. No harmful effects occur.
- A 78-year-old man is prescribed metoprolol 100 mg, a commonly used anti-hypertensive medication. He is to take one tablet every morning. The client had recently been prescribed prednisone and he was told to take five tablets on the first day, four tablets the following day, and so on. After getting the prednisone from the pharmacy he takes one prednisone tablet and five metoprolol tablets. The client is observed in an emergency room for six hours and his blood pressure and pulse remain normal.

All of these examples obviously involve a mistake and a deviation from safe medication administration, but the implications and the consequences of each situation are very different.

- Taking oxycodone 10 minutes past the scheduled time poses a very slight possibility that the patient may develop some pain as the effects of the previous dose wear off, but there is no risk for serious harm. However, some drugs need to be tightly scheduled in order to be effective. A client who assumes that is it safe to take a medication 10 minutes ahead of or
behind schedule may then decide that if 10 minutes is acceptable then 20 is okay and if 20 is harmless, then 45 will be, too.

- Continuing to use a medication after it has been discontinued by the prescriber may or may not be a problem. In the situation described above, the client is being exposed unnecessarily to the side effects of a drug that is not needed, and improper use of an antibiotic can allow for a drug-resistant infection to occur.

- In the last example, the client has taken five times the prescribed amount of a medication that can lower heart rate and blood pressure to dangerous levels but fortunately this did not happen.

A medication error then is not the same as a mistake and a medication error is not defined by whether or not someone was harmed. A medication error is defined as:

A medication error is a deviation from safe medication practices that has the potential to cause harm.

It is not important that clients know and memorize this definition. But they should be aware, and they should be taught, that medication errors can cause injury or death. The primary point that clients should understand is that it is never a good idea to deviate from safe medication practices. Always practice the six rights of medications administration.

Medication Errors and the Six Rights of Medication Administration

The six rights of medication administration can be very useful for teaching clients about common medication errors.
Right Drug

Taking the wrong drug can have serious consequences. Clients should be instructed to take only the medications that have been prescribed for them. Do not take a medication that has been prescribed for someone else. Do not take a medication that was previously prescribed but was discontinued by a physician or another healthcare professional. Doing any of these would be considered a medication error. If a client is using two medications that are similar they should be instructed to always check labels before taking the drug. Example: A 57-year-old woman uses two types of insulin, one that has a duration of action of several hours and one that can lower blood sugar for 24 hours or longer. She confuses the two insulin preparations and injects a very large amount of the longer-acting preparation. Her blood sugar becomes dangerously low and because the hypoglycemia will last for so long she must be hospitalized.

Right Dose

Medication doses are carefully calculated and taking too much can be dangerous. It was mentioned previously that over-use of acetaminophen is a common cause of liver failure and need for a liver transplant, and many medications can be dangerous if an incorrect dose is taken. Clients should be instructed that:

1. More is not better: All medications have an effective dosing range, and it has been proven that taking a dose that is beyond the top of a dosing range will not be more effective and it increases the risk of side effects.
This warning applies to prescription medications and over-the-counter medications.

2. Less is not better: Some clients will take less of a medication than what has been prescribed or will not take an over-the-counter medication according to the directions. They may do this to save money or because they are afraid of taking too much, or for any number of reasons. But the dosing range of a drug has both a high and a low dose. The lowest dose is the minimal amount that will be effective. Anything below that dose will not serve the purposes of a medication; it will not cure, diagnose, prevent, or treat a disease, or have a meaningful effect on human physiology.

3. Don’t play catch-up: A 66-year-old man takes Lasix, 40 mg, one tablet a day. This is a commonly prescribed drug that increases urine output and is used to control hypertension. He forgets to take the drug for four days so on the fourth day he takes four tablets in order to “catch-up.” His primary care physician monitors the client with frequent phone calls and no harm occurs but there was potential for dehydration and low blood pressure.

4. Double dosing: Double dosing is one of the most common medication errors. Many people take multiple medications and have done so for years. It is very easy to forget that you have taken a dose and then take it again.

5. Professional errors: Physicians, pharmacists, and other health care providers do make prescribing and dispensing errors involving an incorrect dose. In the pharmacy this can happen if the prescription was incorrectly
read or if two medications look very much alike and the wrong one is given to a client.

**Right Route**

Medication bottle/containers have directions that instruct the user on the proper route of administration. If the incorrect route of administration is used the medication may not be effective and it may also be harmful. Examples of this include:

1. Prescription eye drops and prescription ear drops are both dispensed in small containers that are similar in size and appearance. Because of this many people instill ear drops into their eyes or vice versa, something that can cause damage to the eyes or ears and certainly will not provide the client with the beneficial effects of the medication.

2. Spiriva is a medication that is used for treating chronic obstructive pulmonary disease. Spiriva is supplied in a capsule but it is used in a hand-held inhaler. However, as Spiriva is identical in appearance to an oral capsule swallowing Spiriva is a common occurrence. This is not harmful but the medication does not work when it is taken by mouth.

3. Some medications are designed to be chewed; some are designed to be swallowed. Some can be cut or broken in half and some cannot, and certain drugs can be crushed and mixed with food if needed while others must be taken as a whole capsule or tablet. Errors in using the proper route of administration can have adverse effects. For example, extended-release medications are made so that when they reach the stomach the
drug is slowly absorbed into the blood stream. These medications must be swallowed whole to work as intended. If an extended-release medication is chewed or broken in half, the drug can be rapidly and erratically absorbed, causing very high blood levels. Analgesic patches that contain Fentanyl must never broken open. These patches contain a very high amount of drug and they are designed to slowly be absorbed through the skin. If the integrity of a Fentanyl patch is disrupted someone can be exposed to a dangerous amount of the drug.

**Right Time**

Some medications must be taken at a specific time while with others a bit of leeway is allowed. But clients should be encouraged to follow the scheduled times for their medications as closely as is practical. They cannot be expected to know which medications can be safely taken ahead of or behind schedule and which cannot. Taking a drug at the wrong time is seldom harmful or ineffective for clients who self-administer medications yet there are exceptions. Analgesics that are used on a schedule should be taken at the advised/prescribed time. If they are not the blood level of the drug may become too low and the client will have break-through pain. Antibiotics should be taken at the prescribed times in order to maintain blood levels.

**Right Patient**

Clients should only take medications that have been prescribed for them. This may seem to be very obvious but many people mistakenly take the wrong medication, saying later that they “just grabbed the bottle and didn’t read the
label.” Inadvertent ingestion of a family member’s or spouse’s medication is a very common medication error. Instruct your clients that they should always check the label on the bottle or container before taking a medication. Dispensing errors also happen when a pharmacy accidentally gives someone the wrong medication, either the wrong drug or the wrong dose.

**Right Reason**

Medication errors involving the right reason can occur when someone is prescribed a medication that is inappropriate for him/her. These errors can also happen when someone “self-diagnoses” and borrows a prescription medication or takes an over-the-counter product to treat a symptom. One of the most common “right reason” medication errors occurs when someone decides to re-start a medication that the physician has discontinued or a client decides to stop taking her/his medications.

**MEDICATION SIDE EFFECTS**

There are many highly effective drugs available, but the science of pharmacology has not yet been able to make medications that only produce therapeutic effects. All medications have side effects, and a side effect is defined as follows.

*A side effect is an unwanted and possibly harmful effect caused by a medication.*

Some side effects are minor and some can be quite serious. Certain side effects are common and predictable and others are quite rare and it is not possible to know who they will affect or when. Medication side effects are not always predictable and many are not.
It is not practical to expect clients to know all of the possible side effects of their medications. A quick look at the prescribing information for a popularly prescribed medication such as Lipitor (used to lower serum cholesterol) shows that the use of this medication has been associated with dozens of side effects.

However, not all side effects are considered equally. Mild and temporary stomach upset is a common side effect of aspirin. Unless this side effect is persistent and causes significant pain it is not harmful or serious and therapy with aspirin can be continued. Ringing in the ears and blood in the stool are also relatively common side effects of aspirin but these are obviously dangerous: aspirin therapy would be stopped if they occurred.

*Clients who self-administer medications should know which medication side effects are considered serious and when to call the prescribing physician.*

This may seem to be a complicated demand but it is not. Lipitor was mentioned as an example of a medication that can cause many side effects. Stomach upset can happen but it is not serious. But muscle pain or muscle weakness may be signs of a rare serious side effect in which Lipitor cause breakdown of muscle tissue and kidney damage. People who take Lipitor should call the prescribing physician immediately if they are having muscle pain or muscle weakness.

**MEDICATION INTERACTIONS**

As with medication side effects, there are so many possible medication interactions that it is impossible and impractical to a client to have up-to-date information about this topic. And medication interactions are like side effects in
that some are quite serious while some are relatively benign. It is also possible that while two medications may interact, the benefit of the drugs outweighs the risk of the medication interaction.

Because of these complexities and to make sure that harmful medication interactions do not occur, there is essentially one point that clients need to know regarding medication interactions.

*Always check with a physician, pharmacist, or other healthcare provider before taking any new medication.*

**CLIENT EDUCATION FOR SELF-ADMINISTRATION OF MEDICATIONS**

Self-administering medications in most situations and for most clients is not difficult. The information that has been provided up to this point may seem to have presented medication self-administration as quite complex. But with the proper instruction and with good follow-up assessments, essentially anyone can learn to effectively and safely take her/his own medications. The practical tips that are outlined below will help accomplish that goal. They can also be used as teaching points and they can be used to assess a client’s knowledge of medication administration.

Clients who self-administer medication should be aware of the following points.

**Understand the definition of a medication**

- Talk to a physician or a pharmacist before adding an over-the-counter medication, vitamin, or natural/herbal supplement to the medication regimen. All of these substances should be considered to be medications.
• Read the labels of over-the-counter medications before using them in order to avoid harmful interactions with prescription medications.

• Natural/herbal supplements are not tested like over-the-counter and prescription medication. Finding information about drug interactions and adverse effects can be difficult.

• Read the labels of all over-the-counter medications. This will help avoid taking medications that may have similar ingredients or the same ingredients.

  **Right Drug**

• Check prescription labels to be sure the right drug was dispensed.

• Compare the label with the medication. Prescription medication bottles have a description of the medication printed on the label, e.g., “This medication is a peach colored tablet with an imprint code of Z 2304 on the tablet.”

• Do not start or stop taking prescription medications unless doing so was recommended by your physician or other healthcare provider.

• Do not give adult medications to children.

• If you are pregnant do not take an over-the-counter medication, a supplement, extra doses of vitamins, or a prescription medication unless the physician has approved.

  **Right Dose**
- Take the recommended or prescribed amount of over-the-counter and prescription medications. Do not skip dose or take extra doses to catch up if a dose was missed.

- Taking more or less of a medication will not be helpful and may be harmful.

- Read the labels to determine the correct dose.

  **Right route**

  - Prescription and over-the-counter medications have instructions for the proper route of administration.

  - Do not alter or change a medication.

  **Right Time**

  - Do not deviate from the recommended or prescribed interval between doses.

  **Right Patient**

  - Check prescription bottle labels to make sure you were given the correct medication.

  - Never take a medication that is not prescribed for you. A friend or family member may have hypertension and you may have hypertension but that does not mean that their medications will be safe and effective for someone else.

  **Right reason**

  - Clients who self-administer medications should know what medical problems they have.
• Clients who self-administer medications should keep a list of the medications they take.

• They should know what each one is and why it has been prescribed.

  **Medication Errors**

• Clients should know the basics of medication errors and they should know who to call if a medication error has occurred.

  **Side Effects**

• Clients who self-administer medications should know which medication side effects are considered serious and when to call the prescribing physician.

All of this information can be summarized quite simply. Clients should be able to identify:

1. What medical problems they have.
2. What medications they take.
3. What each medication is for.
4. How and when to take their medications.
5. What the serious side effects are.
6. Who to call if they have a question or a problem with their medications.

**PRACTICAL TIPS FOR SAFE SELF-ADMINISTRATION OF MEDICATIONS**

• Make a list: The client can make a list of all his/her the medications, including names, dosages, reason for use, the times the medications
should be taken, how to take them, and side effects. A health care professional who can verify the information such as a pharmacist, MD, CNA, or RN should check the list to be sure it is accurate. The client should make copy and keep the information in a safe and easily accessible place.

- Medication timers: Medications timers are basically alarm clocks that can be set to ring, alarm, etc. at specified times during the day. When the alarm goes off, the client will know it is time to take a medication. Medication watches that serve the same function are also available.

- Medication organizers: A medication organizer is a small plastic container that is used to hold medications. These are very popular and the most commonly used ones are "week-long" organizers. These have seven separate containers labeled Monday through Sunday. The client simply places the day's supply of medications in the appropriate part of the container. Medication "calendars" are another option. The client writes down what he/she needs to take each day and makes a note on the calendar after taking a dose.

- Medication cards: These are printed cards that can be placed in a prominent position where the client can easily access them.

**CLIENT RESOURCES**

Clients who self-administer medication need resources that they can access if they have a question or problem. Over-the-counter medications are labeled with the basic facts needed to take the drug safely and prescription medications are
often dispensed with a patient education sheet that has information about the
drug that clients need to know. There is an enormous amount of drug information
on the internet, but clients should be discouraged from using the internet as a
resource for medication questions. There are some very good drug information
websites but there are many that are less than reputable.

Professional resources for medication information are the client’s physician;
the dispensing pharmacist; other healthcare professionals who are caring for the
client, and; telephone resources such as poison control centers and nurse help
lines that are sponsored by health insurance companies. Clients who self-
administer medications should have the telephone numbers of all of these at
hand. For non-emergency situations clients should call the physician, the
pharmacist, or other healthcare professional. If there is an emergency or a
medication error has occurred, call the poison control center or the nurse help
line. Poison control or the nurse help line will be able to determine if the situation
is emergent and direct the client to the appropriate resource.