



PATIENT INSTRUCTIONS

# Air Compressor and Large Volume Nebulizer



APRIA HEALTHCARE®

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# Orientation Checklist

During orientation, the following information will be discussed, demonstrated and, in return, demonstrated by you.

## Special instructions:

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### Demonstrate the following:

- How to wash hands
- How to set up and operate the air compressor
- How to adjust the mist output
- How to attach the tubing and mask
- How to bleed in oxygen (if applicable)
- How to clean and disinfect equipment and supplies
- How and when to clean or change the air compressor inlet filter

### Safety information:

- Explain the importance of grounding all electrical equipment
- Explain the importance of following cleaning procedures
- Explain the Air Compressor and Large Volume Nebulizer Patient Instructions manual
- Give patient/caregiver Apria Healthcare's telephone number to call for routine and after hours equipment problems
- Explain how to obtain help if a medical emergency arises
- Explain safety issues regarding the use of oxygen (if applicable)

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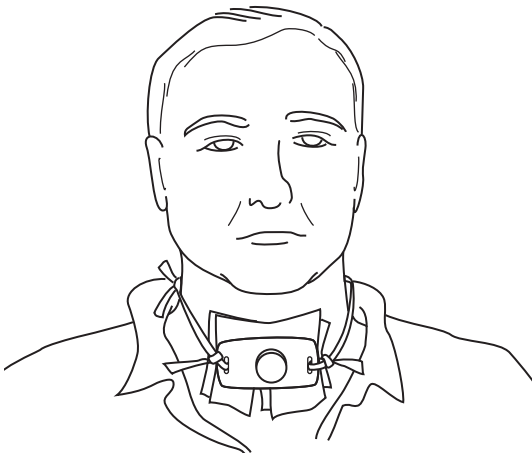
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## Your Prescription

Large volume nebulizers are used to turn liquid into a mist so that it can be inhaled. A large volume nebulizer may be used for patients who have a tracheostomy or otherwise need to deliver a mist that moisturizes their airway. In the home, a 50 psi air compressor usually powers the large volume nebulizer.



*A tracheostomy becomes  
a person's airway*

A tracheostomy is a surgically produced opening in the windpipe (trachea). A tracheostomy tube is used to keep the opening from becoming obstructed. The tracheostomy bypasses a person's nose and mouth and becomes his or her airway. That person breathes and coughs primarily through the tracheostomy as long as it remains unobstructed. Some patients with fenestrated or uncuffed trachs can speak and still use their mouth to expectorate secretions. A stoma is a permanent, surgically created opening in the windpipe. Some patients just have a stoma and do not use a trach tube.

When breathing through a tracheostomy, the air no longer passes through the nose where it normally would be warmed, filtered and humidified. Because of this, most patients require a nebulizer that humidifies the air delivered to the trach and lungs. Occasionally heaters are added to increase the humidity output and to warm the air. The large volume nebulizer provides this humidification and that is why it may be used.

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## Your Prescription *(continued)*

An air compressor may also be used to deliver some respiratory medications through a filtered large volume nebulizer.

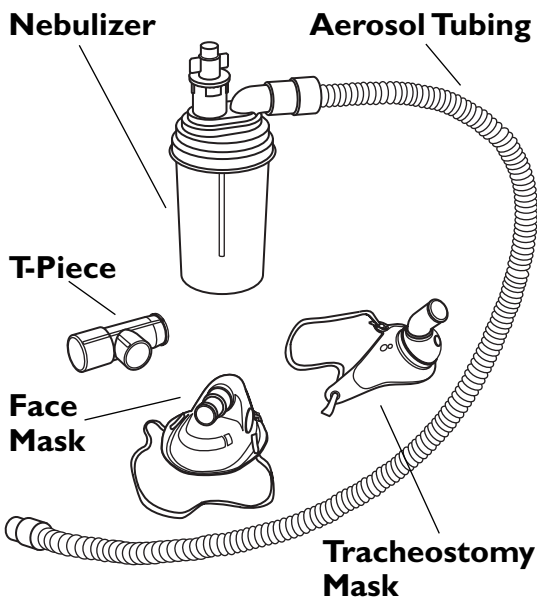
Please note that the information provided here is meant to supplement the information provided by your physician, not to replace it. If your physician changes the frequency of use or medication volume (if applicable), notify Apria Healthcare of the change in your prescription.

For more information on your illness or condition, the drugs used to treat them, and common equipment please visit our Web site at [www.Apria.com](http://www.Apria.com).

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# Using an Air Compressor and Large Volume Nebulizer

## for Continuous Mist to the Trach, Stoma or with a Face Mask



*A typical nebulizer set up*

Although nebulizer equipment may vary in appearance, most models operate in a similar fashion and contain the components shown below.

The following step-by-step instructions will help you operate your air compressor.

**Step 1:** Select a table top area close to where you will use the air compressor. Most patients will use the air compressor when they are in bed. Always make sure that the air compressor is kept below the level of the patient's head to prevent aspiration of any accumulated water in the tubing if the air compressor should fall over. All air compressors vibrate somewhat. Because of this, some patients prefer to place the air compressor on the floor. You may also put padding, such as a towel, on the table to decrease the noise level and keep the air compressor from vibrating.

**Step 2:** Check the number of prongs on the plug of your air compressor. If the plug has two prongs, you may plug it in. If the air compressor power plug has three prongs, and your electrical power outlet is not a three-prong (grounded) power outlet, you will need to use a grounded plug adapter. Do not use a non-grounded plug adapter.

**Warning:** If your outlet is not grounded or if you are unsure whether it is or not, Apria Healthcare recommends that you contact an electrician. Using a non-grounded outlet could result in a fire hazard or an electrical shock. Continue following these instructions ONLY if you are sure that your electrical power outlet is grounded.

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## Using an Air Compressor and Large Volume Nebulizer *(continued)*

Do not use the air compressor with an extension cord or with a power strip with multiple outlets.

**Step 3:** Wash your hands as instructed on page 15.

**Step 4:** Fill the nebulizer jar with distilled water.

**Step 5:** Attach the nebulizer jar to the output arm of the air compressor. Be careful to properly align the nebulizer jar as the plastic threads on the top of it may become cross-threaded.

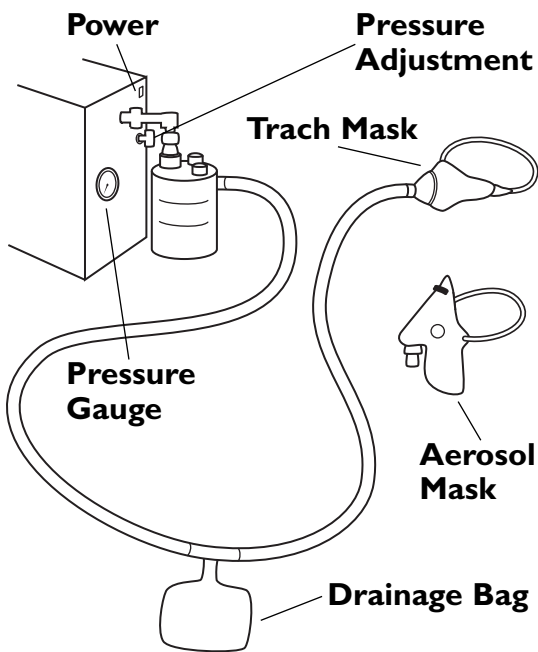
**Step 6:** Attach a length of corrugated aerosol tubing (usually about three to four feet) to the nebulizer jar. You may have received a box of tubing that can be easily cut into any length. Do not exceed six feet of length.

**Step 7:** Attach a water drainage bag or washable water trap to the end of the aerosol tubing. This will trap any excess water from the nebulizer jar and keep it from going into the patient's lungs. It is important to keep the water drainage bag lower than the patient's head so that any accumulated water does not drain back towards the patient.

**Step 8:** Attach a second length of aerosol tubing onto the other side of the drainage bag. Do not exceed six feet of length.

**Step 9:** Attach a trach mask or a face mask to the end of the aerosol tubing.

**Step 10:** Turn the ON/OFF switch on the air



*A typical trach mist set up*

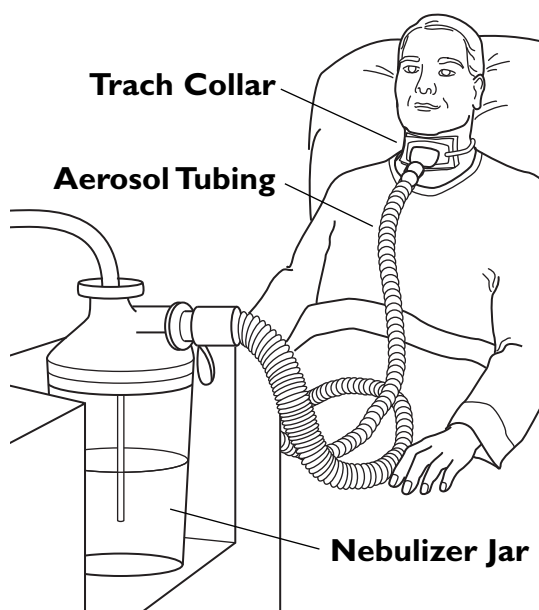
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## Using an Air Compressor and Large Volume Nebulizer *(continued)*

compressor to the ON position and set the pressure dial on the front between 23 and 25 psi, or as directed by your Apria Healthcare representative.

**Step 11:** You should see a fine mist coming through the tubing and out through the trach mask. Some nebulizer jars have a dial at the top of the jar. The amount of mist produced by the nebulizer can be adjusted by rotating this dial. Too much mist may increase the patient's secretions and cause the patient to need more frequent suctioning. It may also cause excessive water to accumulate in the tubing and drainage bag.

Too little mist may cause the patient's secretions to dry out and could lead to mucus plugging. If no mist is coming out, check the tubing to see if it is kinked or obstructed. Also, condensation may collect at low points in the tubing, causing a bubbling noise. If this happens, drain the excessive water into the water trap or drainage bag. Do not drain it back into the nebulizer jar. The output of nebulizer is adjusted by rotating the dial on the top of the nebulizer.



*A typical mist-to-trach application*



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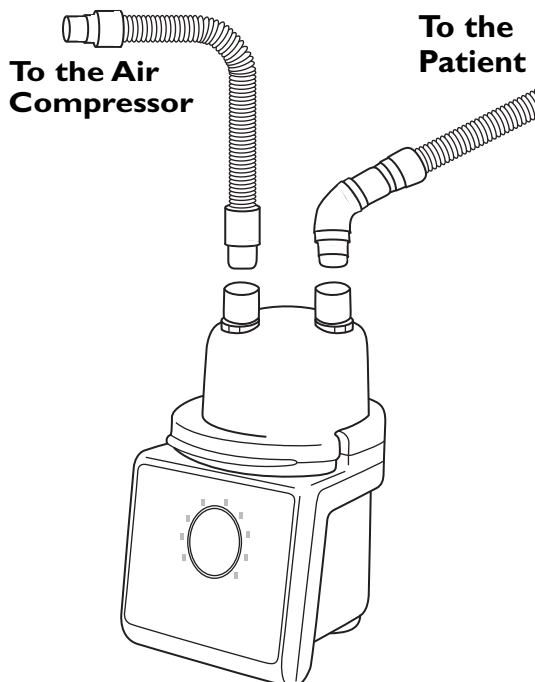
## How to Bleed in Oxygen (If Ordered)

Some patients requiring continuous mist to the trach also require supplemental oxygen. An oxygen adapter is used to bleed the oxygen into the mist using a standard oxygen system, usually an oxygen concentrator. Oxygen may be bled into the corrugated tubing close to the trach mask or at the output connector of the nebulizer jar. Your Apria clinician will provide instruction on using oxygen with the air compressor or large volume nebulizer.

It is imperative that you do not change the liter flow of oxygen ordered. If changes need to be made, contact your physician.

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## Heated Humidity



*A typical heated humidifier*

Some patients require a heated mist. This may be delivered in several different ways. The most common way to deliver a heated mist is to wrap a heater unit around the top of the nebulizer jar. This will heat the water in the jar to a temperature that is warm. If the heated mist is delivered through a tracheostomy, a thermometer **MUST** be kept in the tubing line and the temperature must be monitored to ensure that the humidified air does not get too hot. Generally, the heated mist temperature should be around 98.6°F (37°C).

A heated mist may also be delivered through a heated humidifier base.

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# Using an Air Compressor for Medication Treatments

Some patients require an air compressor to deliver medications.

**Step 1:** Select a table top area close to where you will use the air compressor.

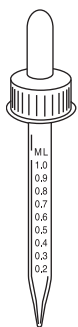
**Step 2:** Check the number of prongs on the plug of your air compressor. If the plug has two prongs, you may plug it in. If the air compressor power plug has three prongs, and your electrical power outlet is not a three-prong (grounded) power outlet, you will need to use a grounded plug adapter. Do not use a non-grounded plug adapter.

**Warning:** If your outlet is not grounded or if you are unsure whether it is or not, Apria Healthcare recommends that you contact an electrician. Using a non-grounded outlet could result in a fire hazard or an electrical shock. Continue following these instructions **ONLY** if you are sure that your electrical power outlet is grounded.

**Step 3:** Wash your hands as instructed on page 15.

# Preparing Your Medication

**Eye Dropper**



**Syringe**



**Unit Dose**



*Medication measuring devices*



*Measuring medication*

**Step 1:** If you have unit dose medications, proceed to step 5.

**Step 2:** If you do not use unit dose medications, use a clean measuring device for measuring your medication. An eyedropper or a syringe is the best measuring device. If either of the above does not come with your medication, ask your pharmacist to supply you with one.

Discard any medications or solutions that have:

- Changed colors
- Formed crystals
- Developed a strange color
- Gone beyond the expiration date

Replace your eyedropper each time you receive a new bottle of medication.

**Step 3:** Always use caution when measuring your medication. Use the exact amount of each solution as directed by your physician or pharmacist. Fill your syringe or eyedropper to the line that indicates your dosage, then squeeze this amount of medication into the nebulizer cup.

**Step 4:** If your medication is not premixed, measure the sterile normal saline or sterile water, if ordered, used to dilute the medication in the same manner as you measured your medicine. NEVER use tap water to mix your medication. Tap water has impurities that may cause your respiratory condition to become worse.

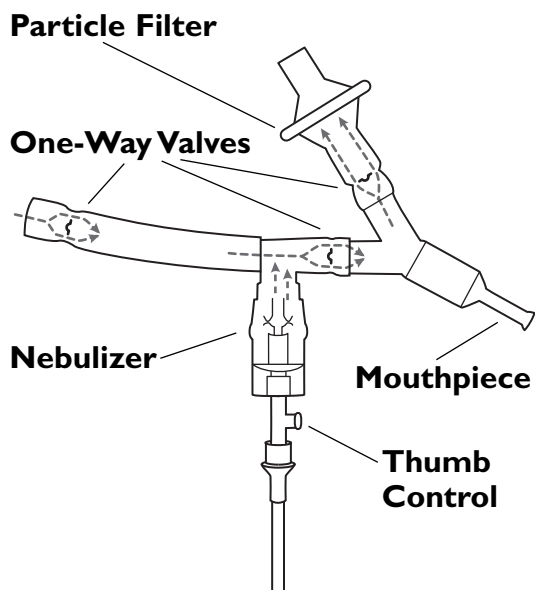
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## Preparing Your Medication *(continued)*

**If you think that you have made a mistake in measuring, empty the medication and begin again. If you are confused as to proper measurement, consult your physician or your pharmacist.**

**Step 5:** Pop the top of the unit dose medication vial and squeeze the medication into the nebulizer cup. Measure and add saline or sterile water, if directed.

**Note:** Some medications delivered through a large volume air compressor require that a nebulizer with one-way filters be used. Your Apria Healthcare representative will provide you with the appropriate nebulizer required for your medication. In addition, some medications require that caregivers in the room with the patient during the treatment wear a mask to protect themselves from inhaling any of the medication.



*A typical nebulizer with one-way filters*

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# Taking Your Treatment

**Step 1:** Position yourself comfortably in a sitting position that will allow you to take a deep breath.

**Step 2:** Attach the nebulizer to the air compressor using a nipple adapter.

**Step 3:** Turn the air compressor on. Set the pressure between 23 and 25 psi, or as directed by your Apria representative.

**Step 4:** Check to see that the nebulizer is creating a steady mist. If not, recheck tubing attachment points at the nebulizer and air compressor. If the nebulizer still does not supply an adequate mist, use your spare nebulizer kit and call Apria Healthcare.

**Step 5:** Place mouthpiece between teeth and on top of the tongue and inhale through your mouth. If you are using a mask, secure the mask on your face and inhale with your mouth open.

**Step 6:** Breathe normally through your mouth. Your physician may advise you to periodically inhale slowly and deeply with up to a five second breath hold. This will allow the maximum amount of medication to reach your lungs.

**Step 7:** Monitor for side effects. If you experience any of the following, stop your treatment.

- Increase in pulse by 20 beats per minute
- Palpitations (noticeable heart beat)
- Dizziness
- Shakiness
- Nausea
- Chest pain
- Uncontrollable coughing

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## Taking Your Treatment *(continued)*

Rest for five to ten minutes. If the sensation goes away, continue with your treatment, but at a slower pace. If physical problems persist, contact your physician.

**Step 8:** Continue the treatment until the medication is gone.

Periodically tap the side of your medication cup to cause any residual medication droplets to go to the bottom of the cup where they can be nebulized.

If you need to cough or rest during the treatment, turn the air compressor off so you can save your medication.

**Step 9:** Store medication as directed when not in use. Follow the instructions on the medication label and refrigerate if required.

**Step 10:** Ask your pharmacist how long your medication can be used after being opened. There may be a time limit on the use of your medication.

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## After Your Treatment

**Step 1:** Turn the air compressor off.

**Step 2:** If needed, cough several times to loosen and bring up any mucus.

**Step 3:** Clean nebulizer unit using the instructions listed on page 13. Some nebulizers are single use only and must be discarded after every treatment.

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# Cleaning and Disinfecting Procedure

Cleaning and decontamination of respiratory therapy equipment in the home is important. Proper cleaning and disinfecting will minimize the chance of infection. To prevent equipment contamination, a simple but effective cleaning procedure must be carried out on a routine basis. Do all cleaning in a sanitary environment. Avoid doing it after vacuuming, under an open window, or in dusty, dirty, smoky areas.

	<b>Jar Used for Trach Mist</b>	<b>Nebulizer Used for Breathing Treatments</b>
<b>Rinsing</b>	Daily, rinse the nebulizer jar under running water and refill with distilled water.	After each use, rinse out the nebulizer medication cup, mouthpiece or mask under running water and let air dry.
<b>Washing</b>	Twice weekly, wash the nebulizer jar, tubing, drainage bag and trach mask in a non-lotion dishwashing detergent and warm water. Rinse thoroughly. Let the parts air dry.	Twice weekly, wash the nebulizer medication cup, mouthpiece or mask in a non-lotion dishwashing detergent and warm water. Rinse thoroughly. Let the parts air dry.
<b>Disinfecting</b>	Twice weekly, after washing parts in dishwashing detergent, soak them in a solution of one part white vinegar and one part water for 30 minutes. Rinse and shake off the excess water. Let the parts air dry. When thoroughly dry, store in a clean plastic bag until ready for use.	
<b>Filter Care</b>	Weekly, rinse the sponge filter in clean water. Dry thoroughly before putting the filter back on the air compressor.	

**Contact your Apria Healthcare branch when you need additional supplies.**

# Common Problems and Their Solutions

Problem	Probable Cause	Solution
Unit does not operate	<ol style="list-style-type: none"> <li>1. Air compressor is not plugged in</li> <li>2. No power to the air compressor</li> </ol>	<p>Check plug at the outlet.</p> <p>Check the electrical circuit breaker.</p> <p>Allow 10–15 minutes for internal circuit breaker to reset and turn the air compressor back on.</p>
Limited outlet flow	<ol style="list-style-type: none"> <li>1. Obstruction in the tubing</li> <li>2. Leak</li> <li>3. The PSI is set too low</li> </ol>	<p>Check the tubing for obstructions or kinks. Replace if necessary.</p> <p>Check outlet fitting and connections.</p> <p>Increase the PSI setting.</p>
Overheating	<ol style="list-style-type: none"> <li>1. Poor ventilation</li> <li>2. Dirty air inlet filter</li> <li>3. Inoperative cooling fan</li> </ol>	<p>Move air compressor to a cooler, better ventilated area.</p> <p>Clean and replace air inlet filter.</p> <p>Turn the air compressor off and call Apria to exchange the unit.</p>
Water or medication not misting	<ol style="list-style-type: none"> <li>1. Nebulizer jar or cup is not properly assembled</li> <li>2. Nebulizer jar or cup is not clean</li> <li>3. Tubing is blocked by condensation</li> </ol>	<p>Reassemble nebulizer jar or cup.</p> <p>Clean and replace nebulizer jar or kit.</p> <p>Drain water from the tubing.</p>
Medication leaks out of nebulizer cup	<ol style="list-style-type: none"> <li>1. Nebulizer cup is cross-threaded</li> </ol>	<p>Unscrew cap from nebulizer cup and reassemble.</p>



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## Physical Problems

If you experience any of the following problems, call your physician:

- Increased mucus production
- Mucus becomes thicker
- Change in mucus color
- Headaches
- Chest pain
- Weight gain overnight
- Nasal, sinus or ear pain
- Persistent skin irritation
- Increased sleepiness
- Gastric distention

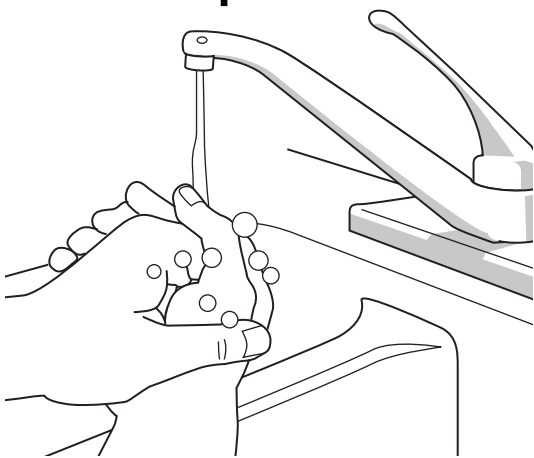
If you are having trouble with your **equipment**, call Apria Healthcare.

If you experience any **physical problems**, call your physician.

If you experience **severe physical problems**, call 911 or the rescue squad.

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## Handwashing Technique



*Wash hands for 1–2 minutes*

Hands must be clean prior to handling supplies and solutions. Wash hands before beginning any procedure.

**Step 1:** Wet hands thoroughly with warm water.

**Step 2:** Use antibacterial soap.

**Step 3:** Wash hands for one to two minutes using a rotary motion and friction. Wash:

- back and palm of each hand
- between all fingers

**Step 4:** Rinse hands under running water.

**Step 5:** Dry on clean towel or with paper towel.

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# Good Health Habits That Help Stop the Spread of Germs



*Protect others from germs that may be spread when you cough or sneeze*

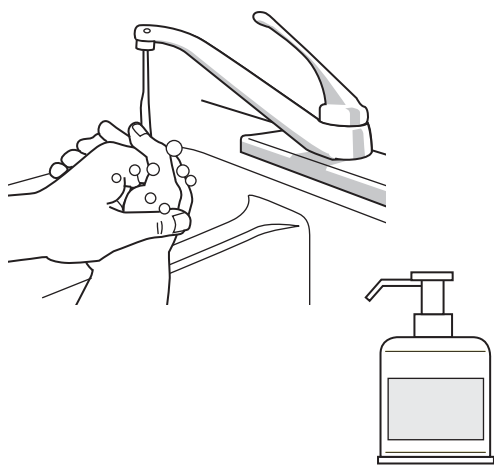
## **Cover Your Cough**

Cover your mouth and nose when you cough or sneeze. Put your used tissue in a waste basket.

You may be asked to put on a mask to protect others.

## **Clean Your Hands After Coughing or Sneezing**

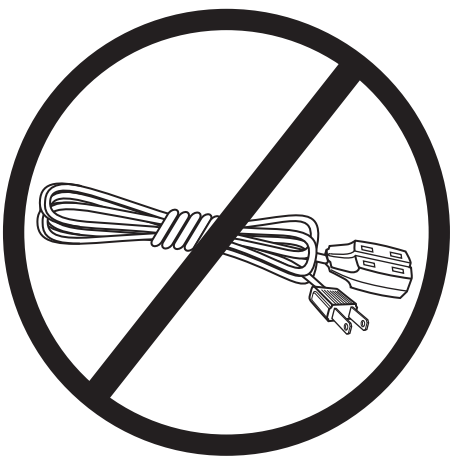
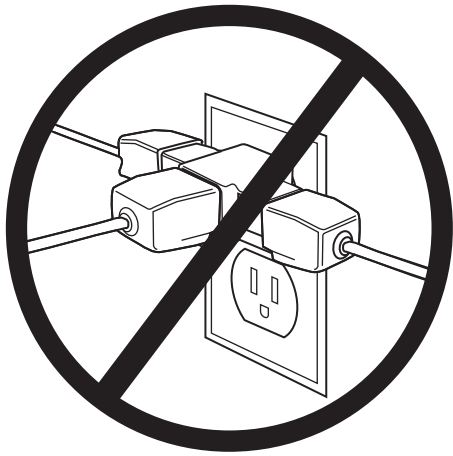
Wash your hands with soap and warm water for 20 seconds OR clean with alcohol-based hand sanitizer.



*Remember to clean your hands well if you are coughing or sneezing*

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# Safety Precautions



## **Use Your Equipment Safely**

**Never immerse the equipment in water.**

Never try to clean the unit by placing it in water. The electrical components will be damaged and this can create a shock to the user the next time it is plugged into an electrical outlet.

**Never plug in the unit if it is wet or damp.**

Moisture always increases the potential of electrical shock.

**Never plug your unit into an electrical outlet that is being used to supply power to another major appliance.**

Plug your unit into an electrical outlet that is NOT being used to supply electricity to other major appliances. If you need to use the same outlet that is shared by other equipment, make sure the other appliances are NOT being used at the same time.

**Never try to repair your equipment.**

Your unit is considered medical equipment and needs to be worked on by a professional. If you are renting this equipment, call Apria Healthcare and your unit will be replaced. If you have purchased the unit, contact Apria Healthcare for assistance in getting it repaired.

**Never use your unit with an extension cord.**

**Make Sure Your Home Address Is Visible**

**Make sure your home address can be easily seen from the street during both day and night.**

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## Safety Precautions *(continued)*

If you are expecting a night delivery or visit, turn on the porch light. Check to see that your address numbers are easy to spot and read from the street. This will allow all Apria Healthcare and emergency services to locate your residence easily.

## **Follow Emergency and Natural Disaster Instructions**

In the event of an emergency or natural disaster, follow the radio or television instructions of your local authorities.

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## Feedback on Our Services

Apria Healthcare is among America's most experienced and respected home respiratory care providers, and our patient satisfaction scores are consistently high. It is possible, however, that you may have a concern and we welcome feedback.

To voice a concern, you should take these steps:

1. Call your local Apria branch and ask to speak to the branch manager.

OR

2. Contact us by e-mail at:  
Patient\_Satisfaction@Apria.com

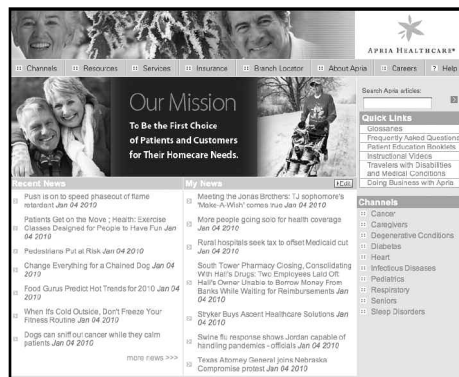
OR

3. Visit our Web site at [www.Apria.com](http://www.Apria.com)

## **Satisfaction Survey Process**

Our goal is to ensure your satisfaction. You will likely receive an Apria patient satisfaction questionnaire and we hope that you will take a few minutes to fill it out and return it to us. The postage is prepaid by Apria Healthcare.

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