NEBULIZER

A nebulizer or nebuliser is a drug delivery device used to administer medication in the form of a mist inhaled into the lungs. Nebulizers are commonly used for the treatment of asthma, cystic fibrosis, COPD and other respiratory diseases or disorders. They use oxygen, compressed air or ultrasonic power to break up solutions and suspensions into small aerosol droplets that can be directly inhaled from the mouthpiece of the device. An aerosol is a mixture of gas and solid or liquid particles.

Types of Nebulizer

Jet nebulizer

Jet nebulizers are connected by tubing to a compressor, that causes compressed air or oxygen to flow at high velocity through a liquid medicine to turn it into an aerosol, which is then inhaled by the patient. jet nebulizers are commonly used for patients in hospitals who have difficulty using inhalers, such as in serious cases of respiratory disease, or severe asthma attacks.[13] The main advantage of the jet nebulizer is related to its low operational cost.

Ultrasonic wave nebulizer

an ultrasonic wave nebulizer is to have an electronic oscillator generate a high frequency ultrasonic wave, which causes the mechanical vibration of a piezoelectric element. This vibrating element is in contact with a liquid reservoir and its high frequency vibration is sufficient to produce a vapor mist.

Vibrating mesh technology

With this technology a mesh/membrane with 1000–7000 laser drilled holes vibrates at the top of the liquid reservoir, and thereby pressures out a mist of very fine droplets through the holes. This technology is more efficient than having a vibrating piezoelectric element at the bottom of the liquid reservoir, and thereby shorter treatment times are also achieved.

HUMIDIFIERS

Humidifier therapy adds moisture to the air to prevent dryness that can cause irritation in many parts of the body. Humidifiers can be particularly effective for treating dryness of the skin, nose, throat, and lips. They can also ease some of the symptoms caused by the flu or common cold.

Humidity acts as a natural moisturizing agent that can relieve dryness. For this reason, humidifiers are often used for relieving:

- dry skin
- sinus congestion/headache
- dry throat
- nose irritation
- bloody noses
- irritated vocal cords
- dry cough
- cracked lips

TYPES OF HUMIDIFIERS

- central humidifiers
- evaporators
- impeller humidifiers
- steam vaporizers
- ultrasonic humidifiers

Central humidifiers

Central humidifiers are built directly into your home's air conditioning or heating unit. These are the most expensive types of humidifier, but they're the best choice if you want to add humidity throughout the entire house.

Traditional humidifiers carry a potential risk of burns from the steam they emit. Central humidifiers don't emit steam.

Evaporators

Evaporators blow moisture through a moistened filter. Fans power the unit and expel the humidity into the air from a single-unit system.

These are more affordable than central humidifiers, but the downside is that they only work in one room at a time. They may also expel too much moisture into the air. This can be problematic for people with asthma, as it raises the likelihood for mold growth.

Impeller humidifiers

Impeller humidifiers work with the help of rotating disks that run at high speeds. These units are often less expensive. They're also among the most child-friendly devices, because they create cool mist and carry no risk of burns.

The downside is, like evaporators, they only work for single rooms. They can potentially cause breathing difficulties for people with allergies and asthma when they're overused.

Steam vaporizers

Steam vaporizers are electrically powered. They heat water, and then cool it before expelling it into the air. These are the most inexpensive and portable humidifiers. You can purchase them at drugstores.

This type can cause burns, so it's not the most kid-friendly.

Ultrasonic humidifiers

Ultrasonic humidifiers produce a cool mist with the help of ultrasonic vibration. The units vary in price, depending on the size you need for your home. Both cool and warm mist versions are available.

An ultrasonic humidifier — especially the cool-mist version — is a good choice if you have children.

INHALATOR

Inhalator is small, handheld devices deliver a puff of medicine into your airways. There are three basic types:

- Hydrofluoroalkane inhalers or HFA (formerly metered dose inhaler or MDI)
- Dry powder inhalers (DPI)
- Soft mist inhalers (SMI)

HFAs contain a liquid medication that you get through an aerosol spray. The medicine is in a pressurized canister that has a metering valve. You can close your lips around the mouthpiece or place the mouthpiece 1 to 2 inches from your mouth and breathe in slowly as you press down on the inhaler.

Another method that many people like is to use a spacer. It's a hollow plastic tube that is attached between the mouthpiece and the canister of medicine. A spacer makes it easier to get the full dose of medication all the way to your lungs.

A **DPI** is similar to an HFA, but it releases a puff of dry powder instead of a liquid mist. You shouldn't use a DPI with a spacer. Instead, close your mouth tightly around the mouthpiece of the DPI inhaler and inhale rapidly and steadily. It's important to remove the device from your mouth before you exhale, so that humid air doesn't get into the device and make the powder clump.

An **SMI** is a newer type of inhaler that provides a pre-measured amount of medicine in a slow-moving mist that helps you inhale the medicine. You put your lips on the mouthpiece while you hold the device horizontally. Be careful not to cover the air vents. This type of device actively delivers medicine in a way that doesn't depend on how fast you breathe in the air from the inhaler.