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Nebulizers vs. MDIs by Dr. Dana Kissner

Asthma is best treated by staying away from the things that trigger symptoms and by using the right medications. There are many medications to treat asthma, and many ways to take them. Two common ways are metered dose inhalers (MDIs) and nebulizers. Other delivery devices such as dry powder inhalers (DPIs) are also used for asthma medications, especially for those used to prevent asthma attacks.

MDIs are small metal canisters that have both medicine and propellant inside, and when the canister is pressed down on an activator, a spray of medicated mist comes out. The timing of pressing down while breathing in slowly may not be easy for young children and the elderly. How much medicine gets to the lung varies between MDIs due to differences in how they are made, and about 50-80 percent of each puff can land in the back of the throat. To make sure more of the medication gets to the lungs, MDIs can be used with spacers or valved holding chambers, and masks can be used for infants and young children.

Nebulizers work by blasting air or oxygen at high speed through liquid medicine to turn it into a mist, which is then inhaled. Nebulizers are easy to use, and some medications can only be given this way. However, they are bulky, may cost more, and take more time than MDIs. The amount of mist that comes out of a nebulizer depends on the kind of machine and how it is used. Mouthpieces are better if patients are able to use them, since half of the medication is lost when face masks are used. Infections can be a problem if nebulizers are not cleaned the right way.

The Michigan Asthma Mortality Review Panels have been reviewing asthma deaths since 2002 to find ways to prevent future ones. This group found that broad use of home nebulizers in asthma may lead to overuse of quick relief medications and less use of inhaled steroids. This can mean a delay in seeking medical care during an acute flare-up, poor care of life-long asthma, and even death. This is a strong case in favor of MDIs for all who are able to use them.

The National Asthma Education and Prevention Program (NAEPP) states that MDIs are as effective as nebulizers for delivering quick relief medicine for people with mild- to moderate symptoms, but not enough research has been done with severe symptoms.

Whether an MDI or a nebulizer is used depends on means, what is available, and the judgment of the doctor. If a nebulizer is chosen, the NAEPP guidelines advise the use of a daily peak flow meter and asthma action plan for people over five years of age. Parents, as well as physicians may need to be convinced that using MDIs is better in most cases. People with asthma who use nebulizers should check with their doctors to see if an MDI could work just as well.

Dana Kissner is an Associate Professor of Medicine and Director of the Adult Cystic Fibrosis Center at Wayne State University. She practices pulmonary and critical care medicine at the Detroit Medical Center.

Michigan Asthma Statistics ~ Nebulizers & MDIs

- 45% of children with current asthma responded that they had used a nebulizer for their asthma medication in the past 3 months.*
- 23% of adults with current asthma responded that they used a nebulizer for their asthma medication in the past 3 months.*
- Of the 86 deaths examined by the Asthma Mortality Review Panel between 2002 and 2004**
 - 52 patients had a home nebulizer, and 30 used it regularly (use ranging from once every week to six times a day).
 - Among 30 individuals using a nebulizer regularly, 20 (67%) were prescribed inhaled oral steroids on a chronic basis but only 11 (37%) used them as prescribed.
 - 19 used a home nebulizer prior to the fatal event.

* Asthma Call Back Survey, Michigan Dept. of Community Health, 2005

** Is It Being Used the Right Way? Home Nebulizer Use Among Children and Young Adults Dying from Asthma, Michigan, 2002-2004. Chest, Gupta, et al. 130(4): 108S



Quick Links

[AIM Website - GetAsthmaHelp.org](#)

[Asthma Mortality Reports](#)

[AIM Event Calendar](#)

Ask an Asthma Educator

Guest Educator: Karen Kain, MS, RRT-NPS, AE-C

My neighbor says that my son's asthma is worse because he drinks milk. Should I stop having him drink it? ~Concerned Mom

Dear Concerned,

If your son's asthma is getting worse, he needs to see the doctor right away to get it under control. It is a myth that milk makes asthma worse. When you drink milk, it may thicken saliva in the mouth for a short time, which may be mistaken for lung mucus. This feeling comes from the creamy texture of the milk and will also happen with other liquids of similar 'thickness.' Some people may cough after drinking cold milk, but this is usually due to breathing in cool air while they drink. Warming the milk first can help. There is no clinical evidence to suggest that reducing or stopping intake of milk and dairy products will help relieve symptoms of asthma.

The danger of such health myths is that people can miss out on the nutrients their body needs. Dairy foods naturally contain more than 10 essential nutrients including calcium, riboflavin, protein and vitamins A and B12. Studies have found that children who avoid milk are at greater risk of lacking these nutrients, which can have serious health effects. Please take your son to his doctor soon to talk about his asthma and any other dietary concerns you may have.

Michigan Asthma Calendar

October

14 ANWM Fall Conference, Asthma Crisis 2008: Ethnic Disparities, National Guidelines & Community-Based Strategies, Prince Conference Center, Grand Rapids, 5:30-8:30 p.m. For more info: 616.685.1430

28 Sixth Annual Asthma Symposium: The Differential Diagnosis of Asthma, Hagerty Center, Great Lakes Maritime Academy, Traverse City, 5:30-8 p.m. For more info: 231.935.6930

30-31 Freedom From Smoking Facilitator Training, Metro Hospital, Grand Rapids. For more info: Bill Wright, 616.252.5025

November

4-5 Freedom From Smoking Facilitator Training, Michigan Primary Care Association, Lansing. For more info: Alison Nix, 517.484.7266

12 Open Airways for Schools Facilitator Training, MPH Interactive Learning Center, Okemos, 9 a.m. to 4 p.m. For more info: Bill Wright, 616.252.5025

20 Asthma 101 Facilitator Training, Genesee ISD, Flint, 9 a.m. to 12 noon. For more info: Patty Inman, 810.953.3951

December

9 Breathe Well Live Well (ALA adult asthma management program) Facilitator Training, Michigan Public Health Institute, Okemos, 9 a.m. to 4 p.m. For more info: Patty Inman, 810.953.3951



Please direct questions and comments about this newsletter to the Michigan Asthma Communication Network, American Lung Association of Michigan, 403 Seymour Avenue, Lansing, Michigan 48933
Phone: 1.866.EZLUNGS (395.8647)

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