



## Asthma and Chronic Obstructive Pulmonary Disease

(COPD) are common conditions in the U.S. About 20 million Americans have asthma. Some five million are children. Each year, about two million people visit a hospital emergency department because of an asthma attack, and some 4,500 die. As many as 24 million Americans have COPD, the fourth leading cause of death in the U.S.

Doctors use several different types of medicines to treat both these conditions. One is a class of drugs called inhaled steroids. There are six medicines in this class. To help you and your doctor evaluate and choose among them, *Consumer Reports* has analyzed the steroid inhalers based on their effectiveness, safety, dosing convenience, and cost. This 2-page brief is a summary of an 18-page report you can access on the Internet at [www.CRBESTBUYDRUGS.org](http://www.CRBESTBUYDRUGS.org). You can also learn about other drugs we've analyzed on this free Web site. Our independent evaluations are based on scientific reviews conducted by the Oregon Health and Science University-based Drug Effectiveness Review Project. Grants from the Engelberg Foundation and National Library of Medicine help fund *Consumer Reports Best Buy Drugs*.

### DO YOU NEED AN INHALED STEROID?

Inhaled steroids reduce and help prevent inflammation and mucus build-up in your airways. They help prevent asthma attacks and keep you breathing easier if you have either asthma or COPD. Not everyone needs an inhaled steroid drug. Sometimes, prevention (especially quitting smoking) and lifestyle adjustments work well. But, if you or your child have persistent asthma (see below), your doctor is very likely to prescribe an inhaled steroid. If you have mild COPD, your doctor may discourage regular use of an inhaled steroid. If you have moderate to severe COPD, however, your doctor may advise trying one for several months to see if it helps.

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## Our Recommendations

Inhaled steroids are effective and safe. Their use in the treatment of asthma is well established. Their effectiveness against COPD is less clear cut. Fewer studies have evaluated the drugs in treating COPD.

The six drugs do not differ in their effectiveness treating asthma. However, because of each drug's unique properties, some of the inhaled steroids are prescribed only to children of certain ages. Your doctor will know about these restrictions.

The inhaled steroid medicines differ in their potency, convenience of use, the inhaler device in which they are packaged, and their cost. Taking all factors into account, we have chosen the following inhaled steroids as *Consumer Reports Best Buy Drugs* for treating adult and childhood asthma and adult COPD:

- *Beclomethasone* (QVAR) 80mcg – for adults and children aged 5 and over with asthma
- *Budesonide* (Pulmicort Turbuhaler) 200mcg – for adults with asthma who may prefer a dry powder inhaler and for children with asthma aged 6 and over
- *Fluticasone* (Flovent HFA) 110mcg – for children with asthma aged 12 and over
- *Fluticasone* (Flovent HFA) 220mcg – for children aged 12 and over and adults with asthma, and for adults with moderate to severe COPD
- *Mometasone* (Asmanex Twisthaler) 220mcg – for adults with asthma

All of these medicines are well priced at the low and medium number of puffs needed per day (see page 2). In addition, at these doses, low- and medium-level use requires fewer puffs per day. That assures better compliance and control of your symptoms.

If you or your child has severe asthma, the cost of inhaled steroids is greater – over \$200 a month. That makes talking with your doctor about the most affordable inhaled steroid even more important.

*The information in this brief was last updated in April 2006.*

### Gradations of Asthma

#### Mild Intermittent

- Your asthma comes and goes, with symptoms, either during the day or at night, occurring twice a week or less.

#### Mild Persistent

- You have symptoms more than twice a week, but not every day. Asthma attacks affect your activity.

#### Moderate Persistent

- You have symptoms every day and attacks often affect your activity.

#### Severe Persistent

- You have symptoms throughout the day, most days. Activity is limited.

### Stages of COPD

#### At Risk

- Normal breathing test, but mild signs include chronic cough and sputum production.

#### Mild COPD

- Mild airflow limitation on breathing test. Cough and sputum production.

#### Moderate COPD

- Worsening breathing difficulty when working hard, walking fast, or during brisk activities.

#### Severe COPD

- Severe airflow limitation on breathing test. Shortness of breath even after very little activity.

## Inhaled Steroid Choices and Cost Comparison – Adults

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| Generic Name and Strength                                     | Brand Name                      | Use <sup>1</sup>  | Puffs Per Day <sup>2</sup> | Average Monthly Cost <sup>3</sup> |
|---|---------------------------------|-------------------|----------------------------|-----------------------------------|
| Beclomethasone 40mcg  | QVAR                            | Low               | 4                          | \$87                              |
|   |                                 | Medium            | 9                          | \$196                             |
|   |                                 | High <sup>4</sup> | 16                         | \$349                             |
| Beclomethasone 80mcg inhaler                                  | QVAR                            | Low               | 2                          | \$51                              |
|   |                                 | Medium            | 4 to 5                     | \$115                             |
|   |                                 | High <sup>4</sup> | 8                          | \$204                             |
| Budesonide 200mcg   | Pulmicort Turbuhaler            | Low               | 2                          | \$60                              |
|   |                                 | Medium            | 4 to 5                     | \$136                             |
|   |                                 | High              | 8                          | \$241                             |
| Flunisolide 250mcg  | AeroBid                         | Low               | 3                          | \$86                              |
|   |                                 | Medium            | 6                          | \$172                             |
|   |                                 | High <sup>4</sup> | 11                         | \$316                             |
| Flunisolide 250mcg  | AeroBid-M<br>(menthol flavored) | Low               | 3                          | \$82                              |
|   |                                 | Medium            | 6                          | \$164                             |
|   |                                 | High <sup>4</sup> | 11                         | \$302                             |
| Fluticasone 44mcg   | Flovent HFA                     | Low               | 4                          | \$92                              |
|   |                                 | Medium            | 10 to 11                   | \$241                             |
|   |                                 | High              | 19                         | \$436                             |
| Fluticasone 110mcg  | Flovent HFA                     | Low               | 1 to 2                     | \$45                              |
|   |                                 | Medium            | 4                          | \$119                             |
|   |                                 | High              | 8                          | \$239                             |
| Fluticasone 220mcg  | Flovent HFA                     | Low               | 1                          | \$46                              |
|   |                                 | Medium            | 2                          | \$92                              |
|   |                                 | High              | 4                          | \$184                             |
| Mometasone 220mcg inhaler (30 puffs per inhaler) <sup>5</sup> | Asmanex Twisthaler              | Low               | 1                          | \$122                             |
|   |                                 | Medium            | 2                          | \$244                             |
|   |                                 | High              | 3                          | \$366                             |
| Mometasone 220mcg (60 puffs per inhaler) <sup>5</sup>         | Asmanex Twisthaler              | Low               | 1                          | \$61                              |
|   |                                 | Medium            | 2                          | \$121                             |
|   |                                 | High              | 3                          | \$182                             |
| Mometasone 220mcg (120 puffs per inhaler) <sup>5</sup>        | Asmanex Twisthaler              | Low               | 1                          | \$41                              |
|   |                                 | Medium            | 2                          | \$82                              |
|   |                                 | High              | 3                          | \$124                             |
| Triamcinolone 100mcg  | Azmacort                        | Low               | 7                          | \$100                             |
|   |                                 | Medium            | 15                         | \$214                             |
|   |                                 | High <sup>4</sup> | 25                         | \$357                             |

Note: This cost table applies to adults only. Our full report contains a separate cost table for children since the choice of inhaled steroids for children with asthma depends on different factors. To view or obtain that table, please download (for free) our full 18-page report at [www.CRBESTBUYDRUGS.org](http://www.CRBESTBUYDRUGS.org).

(1) The range of low to high use is from the National Asthma Education and Prevention Program (NAEPP) Expert Panel. We use the mid-point of low and medium dosing ranges and an approximation of a reasonable dose in the high dosing range to further classify the number of puffs per day and average monthly cost.

(2) The number of puffs per day reflects the mid-point or a reasonable estimate based on the NAEPP dosing categories.

(3) Prices reflect nationwide retail average for December 2005, rounded to the nearest dollar. This information is derived by *Consumer Reports Best Buy Drugs* from data provided by Wolters Kluwer Health, Pharmaceutical Audit Suite.

(4) This dosing exceeds the manufacturer's highest recommend dose, but is consistent with the NAEPP Expert Panel Report's classification of a high dose.

(5) This drug comes in an inhaler programmed to deliver a specified number of puffs.

ASTH-01-0706