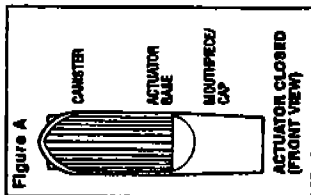


# MAXAIR™ Inhaler

## pirbuterol acetate inhalation aerosol

### PATIENT'S INSTRUCTIONS FOR USE

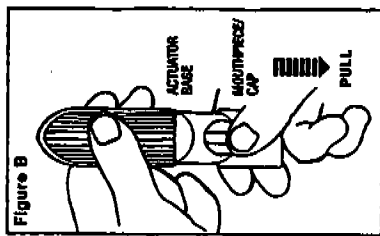
Before using your MAXAIR Inhaler, read the following instructions carefully.



**NOTE:** Your MAXAIR Inhaler is assembled with a special one-piece light blue plastic actuator and attached white mouthpiece/cap that protects your inhaler from dust during shipping and in between use (see Figure A).

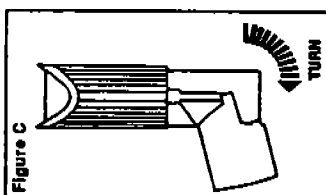
The Actuator is Readily Prepared For Use As Follows:

1. Grasp the base of the actuator with one hand and pull the mouthpiece/cap with the other hand (see Figure B). The light blue plastic actuator supplied with MAXAIR Inhaler should not be used with any other product canisters, and actuators from other products should not be used with MAXAIR Inhaler canister.



As with all aerosol medications, it is recommended to prime (test) MAXAIR Inhaler before using for the first time and in cases where the Inhaler has not been used for more than 2 weeks. Prime by releasing three "test sprays" into the air away from yourself and other people.

2. While holding the base, turn the mouthpiece/cap as shown. Inspect mouthpiece for foreign objects (see Figure C).
3. Just prior to use, SHAKE the Inhaler.
4. Hold the Inhaler so that the base of the canister is UP as shown (see Figure D). Avoid spraying in eye.



5. Breathe normally, do not exhale deeply.
6. Place the mouthpiece well into the mouth. Press down firmly and fully on the canister with your index finger (see Figure E) to release one dose. Breathe in deeply while doing this. Hold your breath for 5 seconds. Remove the Inhaler from your mouth, then breathe normally.
7. Wait one minute and SHAKE the Inhaler again. Repeat steps 4 through 6 for each inhalation if necessary as prescribed by your physician. No more than 12 inhalations should be taken in one day.

asthma. In this setting, cardioselective beta blockers could be continued, although they should be administered with caution.

**Warnings:** The ECG changes and hypotensive effects that may result from the administration of non-potassium sparing diuretics (such as loop or thiazide diuretics) can be amplified by beta-agonists, especially when the recommended dose of the beta-agonist is exceeded. Although the clinical significance of these effects is not known, caution is advised in the concomitant use of beta-agonists with non-potassium sparing diuretics.

**Contraindications:** Metoprolol and isoproterenol are contraindicated in patients with severe heart failure, aortic stenosis, or aortic regurgitation. In a 16-month study in mice at dietary doses of 1.0, 3.0, and 10 mg/kg (approximately 2.5, 7.5, and 22.5 times the maximum recommended daily inhalation dose for adults on a mg/m<sup>2</sup> basis) revealed no evidence of impaired fertility. Prior to the study, no evidence of maldevelopment in *In vitro* assays and histologically mediated assays for point mutations and *in vivo* tests for genotoxicity or genotoxicity in mice (chromosomal assay).

**Teratogenic Effects - Pregnancy Category C:** Pirbuterol was not teratogenic in rats administered oral doses of 10, 30, and 300 mg/kg (approximately 2.5, 7.5, and 75 times the maximum recommended daily inhalation dose for adults on a mg/m<sup>2</sup> basis). Pirbuterol was not teratogenic in rabbits administered oral doses of 30 and 100 mg/kg (approximately 7.5 and 25 times the maximum recommended daily inhalation dose for adults on a mg/m<sup>2</sup> basis). However, fetotoxicity was observed at oral doses of 300 mg/kg (approximately 75 times the maximum recommended daily inhalation dose for adults on a mg/m<sup>2</sup> basis) causing abortion and fetal death.

There are no adequate and well-controlled studies in pregnant women. Pirbuterol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Labor and Delivery: Because of the potential for beta-agonist interference with uterine contractility, use of MAXAIR Inhaler for relief of bronchospasm during labor should be restricted to those patients in whom the benefits clearly outweigh the risk.

**Nursing Mothers:** It is not known whether pirbuterol is excreted in human milk. However, MAXAIR Inhaler should be used during nursing only if the potential benefit justifies the possible risk to the newborn.

**Pediatric Use:** MAXAIR Inhaler is not recommended for patients under the age of 12 years because of insufficient clinical data to establish safety and effectiveness.

#### ADVERSE REACTIONS

The following rates of adverse reactions to pirbuterol are based on single- and multiple-dose clinical trials involving 781 patients, 400 of whom received multiple doses (mean duration of treatment was 2.6 months and maximum was 19 months).

The following were the adverse reactions reported more frequently than 1 in 100 patients:  
CNS: nervousness (6.9%), tremor (6.0%), headache (2.0%), dizziness (1.2%).  
Cardiovascular: palpitations (1.7%), tachycardia (1.2%).  
Respiratory: cough (1.2%).  
Gastrointestinal: nausea (1.7%).

The following adverse reactions occurred less frequently than 1 in 100 patients and there may be a causal relationship with pirbuterol:

**Paradoxical Bronchospasm:** MAXAIR Inhaler can produce paradoxical bronchospasm, which can be life threatening. If paradoxical bronchospasm occurs, MAXAIR Inhaler should be discontinued immediately and alternative therapy instituted. It should be recognized that paradoxical bronchospasm, when associated with inhaled sympathomimetics, frequently occurs with the first use of a new canister or vial.

**Use of Anti-Inflammatory Agents:** The use of beta adrenergic agonist bronchodilators alone may not be adequate to control asthma in many patients. Early consideration should be given to adding anti-inflammatory agents, e.g., corticosteroids.

**Deterioration of Asthma:** Asthma may deteriorate acutely over a period of hours or chronically over several days or longer. If the patient needs more doses of MAXAIR Inhaler than usual, this may be a marker of decompensation of asthma and requires reevaluation of the patient and the treatment regimen, giving special consideration to the possible need for anti-inflammatory treatment, e.g., corticosteroids.

#### PRECAUTIONS

**General:** Since pirbuterol is a sympathomimetic amine, it should be used with caution in patients with cardiovascular disorders, including ischemic heart disease, hypertension, or cardiac arrhythmias, and in patients who are severely or moderately hypertensive, or who have a history of angina pectoris, or who are taking antiarrhythmic agents. Significant changes in systolic and diastolic blood pressure could be expected to occur in some patients after use of any beta adrenergic aerosol bronchodilator.

Beta adrenergic agonist medications may produce significant hypotension in some patients, possibly through intracellular uncoupling, which has the potential to produce adverse cardiovascular effects. The decrease is usually transient, not requiring supplementation.

**Information for Patients:** The action of MAXAIR Inhaler should last up to five hours or longer. MAXAIR Inhaler should not be used more frequently than recommended. Do not increase the dose or frequency of MAXAIR Inhaler without consulting your physician. If you find that treatment with MAXAIR Inhaler becomes less effective for symptoms relief, or your symptoms become worse, and/or you need to use the product more frequently than usual, you should seek medical attention immediately. While you are using MAXAIR Inhaler, other inhaled drugs and asthma medications should be taken only as directed by your physician. Common adverse effects include palpitations, chest pain, rapid heart rate, tremor or nervousness. If you are pregnant or nursing, contact your physician about use of MAXAIR Inhaler. Effective and safe use includes an understanding of the way the medication should be administered. As with all aerosol medications, it is recommended to prime (test) MAXAIR Inhaler before using for the first time and in cases where the Inhaler has not been used for more than 2 weeks. Prime by releasing three "test sprays" into the air away from yourself and other people. (See "Patient's Instructions for Use" portion of this package insert.)

**Drug Interactions:** Other short-acting beta adrenergic agonist bronchodilators should not be used concomitantly with MAXAIR Inhaler because they may have additive effects. Monoamine oxidase inhibitors or Tricyclic Antidepressants: Pirbuterol should be administered with extreme caution to patients being treated with monoamine oxidase inhibitors or tricyclic antidepressants, or within 2 weeks of discontinuation of such agents, because the action of pirbuterol on the vascular system may be potentiated.

**Beta Blockers:** Beta adrenergic receptor blocking agents not only block the pulmonary effect of beta-agonists, such as MAXAIR Inhaler, but may produce severe bronchospasm in asthmatic patients. Therefore, patients with asthma should not normally be treated with beta blockers. However, under certain circumstances, e.g., as prophylaxis after myocardial infarction, there may be no acceptable alternatives to the use of beta adrenergic blocking agents in patients with

**Clinical Trials:** In controlled, double-blind, single-dose clinical trials, the onset of improvement in pulmonary function occurred within 5 minutes in most patients as determined by forced expiratory volume in one second (FEV<sub>1</sub>), FEV, and MMEF measurements also showed that maximum improvement in pulmonary function generally occurred 30-60 minutes following one (1) or two (2) inhalations of pirbuterol (200-400 mcg). The duration of action of pirbuterol is maintained for 5 hours (the time at which the last observations were made) in a substantial number of patients, based on a 15% or greater increase in FEV<sub>1</sub>. In controlled repetitive-dose studies of 12 weeks' duration, 74% of 150 patients on pirbuterol and 52% of 141 patients on metoprolol showed a clinically significant improvement based on a 15% or greater increase in FEV<sub>1</sub> on at least half of the days. Onset and duration were equivalent to that seen in single-dose studies. Continued effectiveness was demonstrated over the 12-week period in the majority (84%) of responding patients; however, chronic dosing was associated with the development of tachyphylaxis (tolerance) to the bronchodilator effect in some patients in both treatment groups.

A placebo-controlled, double-blind, single-dose study (24 patients per treatment group), using continuous Holter monitoring for 5 hours after drug administration, showed no significant difference in ectopic activity between the placebo control group and pirbuterol at the recommended dose (200-400 mcg), and twice the recommended dose (800 mcg). As with other inhaled beta adrenergic agonists, supraventricular and ventricular ectopic beats have been seen with pirbuterol (see WARNINGS).

**Preclinical:** Studies in laboratory animals (mice/pigs, rodents, and dogs) have demonstrated the occurrence of cardiac arrhythmias and sudden death (with histologic evidence of myocardial necrosis) when beta-agonists and methylenedioxymethamphetamine were administered concurrently. The clinical significance of these findings when applied to humans is unknown. **Pharmacokinetics:** As expected by extrapolation from oral data, systemic blood levels of pirbuterol are below the limit of assay sensitivity (2-5 ng/ml) following inhalation of doses up to 800 mcg (twice the maximum recommended dose). A mean of 51% of the dose is recovered in urine as pirbuterol plus its sulfate conjugate following administration by aerosol. Pirbuterol is not metabolized by catechol-O-methyltransferase. The percent of administered dose recovered as pirbuterol plus its sulfate conjugate does not change significantly over the dose range of 400 mcg to 800 mcg and is not significantly different from that after oral administration of pirbuterol. The plasma half-life measured after oral administration is about two hours.

#### INDICATIONS AND USAGE

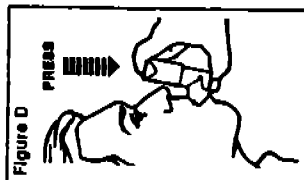
MAXAIR Inhaler is indicated for the prevention and reversal of bronchospasm in patients 12 years of age and older with reversible bronchospasm including asthma. It may be used with or without concurrent theophylline and/or corticosteroid therapy.

#### CONTRAINDICATIONS

MAXAIR Inhaler is contraindicated in patients with a history of hypersensitivity to pirbuterol or any of its ingredients.

#### WARNINGS

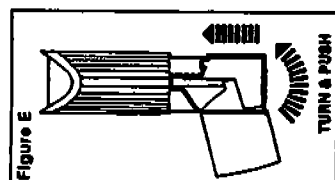
**Cardiovascular:** MAXAIR Inhaler, like other inhaled beta adrenergic agonists, can produce a clinically significant cardiovascular effect in some patients, as measured by pulse rate, blood pressure, and/or symptoms. Although such effects are uncommon after administration of MAXAIR Inhaler at recommended doses, if they occur, the drug may need to be discontinued. In addition, beta-agonists have been reported to produce ECG changes, such as flattening of the T wave, prolongation of the QTc interval, and ST segment depression. The clinical significance of these findings is unknown. Therefore, MAXAIR Inhaler, like all sympathomimetic amines, should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension.



8. After use, the mouthpiece/cap should be turned back, then pushed into the CLOSED POSITION to protect from dust or foreign objects (see Figure E).

9. Cleanse the inhaler thoroughly at least once a day. Remove the cap section with warm running water. If soap is used, rinse thoroughly with plain water. Allow the actuator to dry before reuse (do not expose to excessive heat; see CAUTION below), then reassemble.

Dosage: Use only as directed by your physician. The correct amount of medication in each canister cannot be assured after 300 actuations even though the canister is not completely empty. You should keep track of the number of actuations used from each MAXAIR Inhaler and discard the canister after 300 actuations. The canister should be discarded when the labeled number of actuations has been used. Before you reach the specified number of actuations, you should consult your physician to determine whether a refill is needed. Just as you should not take extra doses without consulting your physician, you should not stop using MAXAIR Inhaler without consulting your physician.



**WARNINGS:** The effects of MAXAIR Inhaler may last up to five hours or longer. Therefore, it should not be used more frequently than recommended. Do not increase the number or frequency of doses without speaking with the prescribing physician. If the recommended dosage does not provide relief of symptoms, or your symptoms get worse, speak with your physician. While taking MAXAIR Inhaler, other inhaled medicines should not be used unless prescribed.

Note: The Indented statement below is required by the Federal government's Clean Air Act for all products containing or manufactured with chlorofluorocarbons (CFC's).

This product contains trifluoromethane and dichlorodifluoromethane, substances which harm the environment by destroying ozone in the upper atmosphere.

Your physician has determined that this product is likely to help UNLESS INSTRUCTED TO DO OTHERWISE BY YOUR PHYSICIAN. If you have any questions about alternatives, consult with your physician.

Caution: CONTENTS UNDER PRESSURE. Do not puncture. Do not use or store near heat or open flame. Exposure to temperature above 120°F may cause bursting. Never throw canister into fire or incinerator. Avoid spraying in eyes. KEEP OUT OF REACH OF CHILDREN.

Store between 15° and 30°C (59° to 86°F). Failure to use this product within this temperature range may result in improper dosing. For optimal results, the canister should be at room temperature before use. Shake well before using.

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**CHF:** depression, anxiety, confusion, insomnia, weakness, hyperkalemia, syncope.  
**Cardiovascular:** hypotension, skipped beats, chest pain.  
**Gastrointestinal:** dry mouth, glossitis, abdominal pain/ cramps, anorexia, diarrhea, bloating, nausea and vomiting.  
**Ear, Nose and Throat:** ameliorative changes, sore throat.  
**Neurological:** rash, pruritus.  
**Other:** numbness in extremities, ataxia, bradycardia, fatigue, edema, weight gain, flushing.  
**Other adverse reactions** were reported with a frequency of less than 1% in 100 patients but a causal relationship between pirbuterol and the reaction could not be determined: migraine, productive cough, wheezing, and dermatitis.

The following rates of adverse reactions during three-month controlled clinical trials involving 319 patients are noted. The table does not include mild reactions.

**PERCENT OF PATIENTS WITH MODERATE TO SEVERE ADVERSE REACTIONS**

Reaction	Pirbuterol N=167	Metoprolol N=153
Central Nervous System		
Tremor	3.3%	2.6%
Nervousness	4.5%	2.0%
Headache	1.3%	1.3%
Weakness	0%	0.7%
Dizziness	0.6%	0%
Cardiovascular		
Palpitations	1.3%	1.3%
Bradycardia	1.3%	0%
Respiratory		
Chest pain/tightness	1.3%	0%
Cough	0%	0.7%
Gastrointestinal		
Diarrhea	1.3%	0.7%
Dry mouth	1.3%	1.3%
Nausea	0%	0.7%
Dermatological		
Skin reaction	0%	0.7%
Rash	0%	1.3%
Other		
Irritation	0.6%	0%
Inadvertent change	0.6%	0%
Numbness	0%	0.7%
Fatigue	0%	0.7%
Nose congestion	0%	0.7%

**Electrocardiograms:** Electrocardiograms, obtained during a randomized, double-blind, cross-over study in 87 patients, showed no observations or findings considered clinically significant, or related to drug administration. Most electrocardiographic observations, obtained during a randomized, double-blind, cross-over study in 40 patients, were judged not clinically significant or related to drug administration. One patient was noted to have some changes on the one hour post-dose electrocardiogram consisting of ST and T wave abnormalities suggesting possible inferior ischemia. This abnormality was not observed on the pre-dose or the six hours post-dose ECG. A treadmill test was subsequently performed and all the findings were normal.

**OVERDOSEAGE**  
 The expected symptoms with overdose are those of excessive beta-stimulation and/or any of the symptoms listed under ADVERSE REACTIONS, e.g., tachycardia, angina, hypertension, hypotension, tachypnea with rates up to 200 beats per minute, arrhythmias, nervousness, headache, tremor, dry mouth, palpitation, nausea, dizziness, fatigue, malaise, and insomnia. Hypokalemia may also occur. As with all sympathomimetic aerosol medication, cardiac arrest and even death may be associated with abuse of MAXAIR Inhaler.

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 Treatment consists of discontinuation of pirbuterol together with appropriate symptomatic therapy. The tubous use of a carderecting beta-receptor blocker may be considered, basing in effect that such medication can produce bronchospasm. There is insufficient evidence to determine if diuretics is beneficial for overdosage.

The oral median lethal dose of pirbuterol dihydrochloride in mice and rats is greater than 2000 mg/kg (approximately 1400 and 950 times the maximum recommended daily inhaled dose for adults on a mg/m<sup>2</sup> basis).

**INDICATION AND ADMINISTRATION**  
 The use dose for adults and children 12 years and older in two inhalations (400 mcg) repeated every 4-6 hours. One inhalation (200 mcg) repeated every 4-6 hours may be sufficient for some patients.

A total daily dose of 12 inhalations should not be exceeded. If a previously effective dosage regimen fails to provide the usual relief, medical advice should be sought immediately as this is often a sign of seriously worsening asthma which would require reassessment of therapy.

As with all aerosol medications, it is recommended to prime (test) MAXAIR Inhaler before using for the first time and in cases where the inhaler has not been used for more than 2 weeks. Prime by releasing three "test sprays" into the air away from yourself and other people.

**HOW SUPPLIED**  
 MAXAIR Inhaler, box of one, is supplied in a pressurized aluminum canister with a light blue plastic actuator and attached while mouthpiece. Each actuation delivers pirbuterol acetate equivalent to 200 mcg of pirbuterol (as pirbuterol acetate) from the mouthpiece.

Net content weight 25.0 g, 300 metered inhalations (NDC 0006-7706-31).

The correct amount of medication in each canister cannot be assured after 300 actuations even though the canister is not completely empty. The canister should be discarded when the labeled number of actuations has been used.

Note: The Indented statement below is required by the Federal government's Clean Air Act for all products containing or manufactured with chlorofluorocarbons (CFC's).

**WARNING:** Contains trifluoromethane and dichlorodifluoromethane, substances which harm public health and environment by destroying ozone in the upper atmosphere.

A notice similar to the above WARNING has been placed in the patient's instructions for use. Position of this notice is required under the Environmental Protection Agency's (EPA) regulations. The patient's warning states that the patient should consult his or her physician if there are questions about alternatives.

Store between 15° and 30°C (59° to 86°F). Failure to use this product within this temperature range may result in improper dosing. For optimal results, the canister should be at room temperature before use. Shake well before using.

The contents of MAXAIR Inhaler are under pressure. Do not puncture. Do not use or store near heat or open flame. Exposure to temperature above 120°F may cause bursting. Never throw canister into fire or incinerator. Keep out of reach of children. Avoid spraying in eyes.

The light blue plastic actuator supplied with MAXAIR Inhaler should not be used with any other product canister, and actuators from other products should not be used with MAXAIR Inhaler canister.

**WARNINGS:** The effects of MAXAIR Inhaler may last up to five hours or longer. Therefore, it should not be used more frequently than recommended. Do not increase the number or frequency of doses without speaking with the prescribing physician. If the recommended dosage does not provide relief of symptoms, or your symptoms get worse, speak with your physician. While taking MAXAIR Inhaler, other inhaled medicines should not be used unless prescribed.

Note: The Indented statement below is required by the Federal government's Clean Air Act for all products containing or manufactured with chlorofluorocarbons (CFC's).

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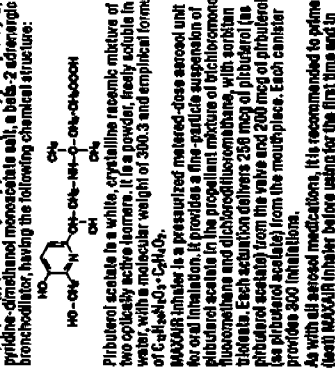
Your physician has determined that this product is likely to help UNLESS INSTRUCTED TO DO OTHERWISE BY YOUR PHYSICIAN. If you have any questions about alternatives, consult with your physician.

Caution: CONTENTS UNDER PRESSURE. Do not puncture. Do not use or store near heat or open flame. Exposure to temperature above 120°F may cause bursting. Never throw canister into fire or incinerator. Avoid spraying in eyes. KEEP OUT OF REACH OF CHILDREN.

Store between 15° and 30°C (59° to 86°F). Failure to use this product within this temperature range may result in improper dosing. For optimal results, the canister should be at room temperature before use. Shake well before using.

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**MAXAIR™ Inhaler**  
 Pirbuterol acetate inhalation aerosol  
 For Oral Inhalation Only

**DESCRIPTION**  
 The active component of MAXAIR Inhaler (pirbuterol acetate) is (R)-5-(1,1-dimethylbutylamino)-3-hydroxy-2-(4-piperidin-3-ylmethoxy)propanoic acid, a beta<sub>2</sub> adrenergic bronchodilator, having the following chemical structure:



Pirbuterol acetate is a white, crystalline racemic mixture of two optically active isomers. It is a readily freely soluble in water, with a molecular weight of 330.3 and empirical formula of C<sub>21</sub>H<sub>34</sub>N<sub>2</sub>O<sub>5</sub>·C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>.

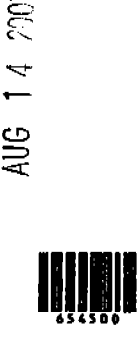
MAXAIR Inhaler is a pressurized metered-dose aerosol unit for oral inhalation. It provides a fine-particle suspension of pirbuterol acetate in the propellant mixture of trichlorofluoromethane and dichlorodifluoromethane, with sorbitan trioleate. Each actuation delivers 200 mcg of pirbuterol (as pirbuterol acetate) from the valve and 200 mcg of pirbuterol provides 500 inhalations.

As with all aerosol medications, it is recommended to prime (test) MAXAIR Inhaler before using for the first time and in cases where the inhaler has not been used for more than 2 weeks. Prime by releasing three "test sprays" into the air away from yourself and other people.

**CLINICAL PHARMACOLOGY**  
**In vitro studies and in vivo pharmacologic studies** have demonstrated that pirbuterol has a preferential effect on beta<sub>2</sub> adrenergic receptors compared with isoproterenol. While it is recognized that beta<sub>2</sub> adrenergic receptors are the primary target receptors in bronchial smooth muscle, data indicate that there is a population of beta<sub>2</sub> receptors in the human heart, defining the concentration of beta<sub>2</sub> receptors in the lung. The relative function of these receptors has not been established (see WARNINGS section).

The pharmacologic effects of beta<sub>2</sub> adrenergic agonist drugs, including pirbuterol, are at least in part attributable to stimulation through beta<sub>2</sub> adrenergic receptors of intracellular adenylyl cyclase, the enzyme which catalyzes the conversion of adenosine triphosphate (ATP) to cyclic-3',5'-adenosine monophosphate (c-AMP). Increased c-AMP levels are associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially from mast cells.

Bronchodilator activity of pirbuterol was manifested clinically by an improvement in various pulmonary junction parameters (FEV<sub>1</sub>, MMF, PEF, airway resistance [RAW] and conductance [GAW]).



3M Pharmaceuticals  
 Northridge, CA 91324  
 SEPTEMBER 2000  
 654500

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 SEPTEMBER 2000  
 654500

ORIGINATOR	CODE NUMBER	ID NUMBER	PRODUCT NAME	DESCRIPTION	DATE	COLORS	REMARKS	VENDOR
3M PHARMACEUTICALS MICHAEL P. HOFFMANN (616) 709-3293	M6545	654500	MAXAIR INHALER PRESS & BREATHE	INHIBIT	9-30-00	BLACK	QUARKXPRESS 4.1 MAC	