

## HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use VENTOLIN HFA safely and effectively. See full prescribing information for VENTOLIN HFA.

### VENTOLIN HFA (albuterol sulfate) Inhalation Aerosol FOR ORAL INHALATION

Initial U.S. Approval: 1981

#### INDICATIONS AND USAGE

VENTOLIN HFA is a beta<sub>2</sub>-adrenergic agonist indicated for:

- Treatment or prevention of bronchospasm in patients aged 4 years and older with reversible obstructive airway disease. (1.1)
- Prevention of exercise-induced bronchospasm in patients aged 4 years and older. (1.2)

#### DOSAGE AND ADMINISTRATION

- For oral inhalation only. (2)
- Treatment or prevention of bronchospasm in adults and children aged 4 years and older: 2 inhalations every 4 to 6 hours. For some patients, 1 inhalation every 4 hours may be sufficient. (2.1)
- Prevention of exercise-induced bronchospasm in adults and children aged 4 years and older: 2 inhalations 15 to 30 minutes before exercise. (2.2)
- Priming information: Prime VENTOLIN HFA before using for the first time, when the inhaler has not been used for more than 2 weeks, or when the inhaler has been dropped. To prime VENTOLIN HFA, release 4 sprays into the air away from the face, shaking well before each spray. (2.3)
- Cleaning information: At least once a week, wash the actuator with warm water and let it air-dry completely. (2.3)

#### DOSAGE FORMS AND STRENGTHS

Inhalation Aerosol. Inhaler containing 108 mcg albuterol sulfate (90 mcg albuterol base) as an aerosol formulation for oral inhalation. (3)

#### CONTRAINDICATIONS

Hypersensitivity to any ingredient. (4)

#### WARNINGS and PRECAUTIONS

- Life-threatening paradoxical bronchospasm may occur. Discontinue

VENTOLIN HFA immediately and institute alternative therapy. (5.1)

- Need for more doses of VENTOLIN HFA than usual may be a sign of deterioration of asthma and requires reevaluation of treatment. (5.2)
- VENTOLIN HFA is not a substitute for corticosteroids. (5.3)
- Cardiovascular effects may occur. Use with caution in patients sensitive to sympathomimetic drugs and patients with cardiovascular or convulsive disorders. (5.4, 5.7)
- Excessive use may be fatal. Do not exceed recommended dose. (5.5)
- Immediate hypersensitivity reactions may occur. Discontinue VENTOLIN HFA immediately. (5.6)
- Hypokalemia and changes in blood glucose may occur. (5.7, 5.8)

#### ADVERSE REACTIONS

Most common adverse reactions (incidence greater than or equal to 3%) are throat irritation, viral respiratory infections, upper respiratory inflammation, cough, and musculoskeletal pain. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

#### DRUG INTERACTIONS

- Beta-blockers: Use with caution. May block bronchodilatory effects of beta-agonists and produce severe bronchospasm. (7.1)
- Diuretics: Use with caution. Electrocardiographic changes and/or hypokalemia associated with non-potassium-sparing diuretics may worsen with concomitant beta-agonists. (7.2)
- Digoxin: May decrease serum digoxin levels. Consider monitoring digoxin levels. (7.3)
- Monoamine oxidase inhibitors and tricyclic antidepressants: Use with extreme caution. May potentiate effect of albuterol on vascular system. (7.4)

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 12/2014

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2 **FULL PRESCRIBING INFORMATION**

3 **1 INDICATIONS AND USAGE**

4 **1.1 Bronchospasm**

5 VENTOLIN<sup>®</sup> HFA Inhalation Aerosol is indicated for the treatment or prevention of  
6 bronchospasm in patients aged 4 years and older with reversible obstructive airway disease.

7 **1.2 Exercise-Induced Bronchospasm**

8 VENTOLIN HFA is indicated for the prevention of exercise-induced bronchospasm in  
9 patients aged 4 years and older.

10 **2 DOSAGE AND ADMINISTRATION**

11 **2.1 Bronchospasm**

12 For treatment of acute episodes of bronchospasm or prevention of symptoms associated  
13 with bronchospasm, the usual dosage for adults and children is 2 inhalations repeated every 4 to  
14 6 hours; in some patients, 1 inhalation every 4 hours may be sufficient. More frequent  
15 administration or a greater number of inhalations is not recommended.

16 **2.2 Exercise-Induced Bronchospasm**

17 For prevention of exercise-induced bronchospasm, the usual dosage for adults and  
18 children aged 4 years and older is 2 inhalations 15 to 30 minutes before exercise.

19 **2.3 Administration Information**

20 VENTOLIN HFA should be administered by the orally inhaled route only.

21 Priming: Prime VENTOLIN HFA before using for the first time, when the inhaler has  
22 not been used for more than 2 weeks, or when the inhaler has been dropped. To prime  
23 VENTOLIN HFA, release 4 sprays into the air away from the face, shaking well before each  
24 spray.

25 Cleaning: To ensure proper dosing and to prevent actuator orifice blockage, wash the  
26 actuator with warm water and let it air-dry completely at least once a week.

27 **3 DOSAGE FORMS AND STRENGTHS**

28 Inhalation Aerosol. Blue plastic inhaler with a blue strapcap containing a pressurized  
29 metered-dose aerosol canister containing 60 or 200 metered inhalations and fitted with a counter.  
30 Each actuation delivers 108 mcg of albuterol sulfate (90 mcg of albuterol base) from the  
31 mouthpiece.

32 **4 CONTRAINDICATIONS**

33 VENTOLIN HFA is contraindicated in patients with a history of hypersensitivity to any  
34 of the ingredients [*see Warnings and Precautions (5.6), Description (11)*].

35 **5 WARNINGS AND PRECAUTIONS**

36 **5.1 Paradoxical Bronchospasm**

37 VENTOLIN HFA can produce paradoxical bronchospasm, which may be life

38 threatening. If paradoxical bronchospasm occurs following dosing with VENTOLIN HFA, it  
39 should be discontinued immediately and alternative therapy should be instituted. It should be  
40 recognized that paradoxical bronchospasm, when associated with inhaled formulations,  
41 frequently occurs with the first use of a new canister.

## 42 **5.2 Deterioration of Asthma**

43 Asthma may deteriorate acutely over a period of hours or chronically over several days or  
44 longer. If the patient needs more doses of VENTOLIN HFA than usual, this may be a marker of  
45 destabilization of asthma and requires reevaluation of the patient and treatment regimen, giving  
46 special consideration to the possible need for anti-inflammatory treatment, e.g., corticosteroids.

## 47 **5.3 Use of Anti-inflammatory Agents**

48 The use of beta-adrenergic agonist bronchodilators alone may not be adequate to control  
49 asthma in many patients. Early consideration should be given to adding anti-inflammatory  
50 agents, e.g., corticosteroids, to the therapeutic regimen.

## 51 **5.4 Cardiovascular Effects**

52 VENTOLIN HFA, like all other beta<sub>2</sub>-adrenergic agonists, can produce clinically  
53 significant cardiovascular effects in some patients such as changes in pulse rate or blood  
54 pressure. If such effects occur, VENTOLIN HFA may need to be discontinued. In addition, beta-  
55 agonists have been reported to produce electrocardiogram (ECG) changes, such as flattening of  
56 the T wave, prolongation of the QTc interval, and ST segment depression. The clinical relevance  
57 of these findings is unknown. Therefore, VENTOLIN HFA, like all other sympathomimetic  
58 amines, should be used with caution in patients with underlying cardiovascular disorders,  
59 especially coronary insufficiency, cardiac arrhythmias, and hypertension.

## 60 **5.5 Do Not Exceed Recommended Dose**

61 Fatalities have been reported in association with excessive use of inhaled  
62 sympathomimetic drugs in patients with asthma. The exact cause of death is unknown, but  
63 cardiac arrest following an unexpected development of a severe acute asthmatic crisis and  
64 subsequent hypoxia is suspected.

## 65 **5.6 Immediate Hypersensitivity Reactions**

66 Immediate hypersensitivity reactions (e.g., urticaria, angioedema, rash, bronchospasm,  
67 hypotension), including anaphylaxis, may occur after administration of VENTOLIN HFA [*see*  
68 *Contraindications (4)*].

## 69 **5.7 Coexisting Conditions**

70 VENTOLIN HFA, like other sympathomimetic amines, should be used with caution in  
71 patients with convulsive disorders, hyperthyroidism, or diabetes mellitus and in patients who are  
72 unusually responsive to sympathomimetic amines. Large doses of intravenous albuterol have  
73 been reported to aggravate preexisting diabetes mellitus and ketoacidosis.

## 74 **5.8 Hypokalemia**

75 Beta-adrenergic agonist medicines may produce significant hypokalemia in some  
76 patients, possibly through intracellular shunting, which has the potential to produce adverse  
77 cardiovascular effects [*see Clinical Pharmacology (12.1)*]. The decrease in serum potassium is

78 usually transient, not requiring supplementation.

79 **6 ADVERSE REACTIONS**

80 Use of VENTOLIN HFA may be associated with the following:

- 81 • Paradoxical bronchospasm [*see Warnings and Precautions (5.1)*]
- 82 • Cardiovascular effects [*see Warnings and Precautions (5.4)*]
- 83 • Immediate hypersensitivity reactions [*see Warnings and Precautions (5.6)*]
- 84 • Hypokalemia [*see Warnings and Precautions (5.8)*]

85 **6.1 Clinical Trials Experience**

86 Because clinical trials are conducted under widely varying conditions, adverse reaction  
87 rates observed in the clinical trials of a drug cannot be directly compared with rates in the  
88 clinical trials of another drug and may not reflect the rates observed in practice.

89 The safety data described below reflects exposure to VENTOLIN HFA in 248 subjects  
90 treated with VENTOLIN HFA in 3 placebo-controlled clinical trials of 2 to 12 weeks' duration.  
91 The data from adults and adolescents is based upon 2 clinical trials in which 202 subjects with  
92 asthma aged 12 years and older were treated with VENTOLIN HFA 2 inhalations 4 times daily  
93 for 12 weeks' duration. The adult/adolescent population was 92 female, 110 male and 163 white,  
94 19 black, 18 Hispanic, 2 other. The data from pediatric subjects are based upon 1 clinical trial in  
95 which 46 subjects with asthma aged 4 to 11 years were treated with VENTOLIN HFA 2  
96 inhalations 4 times daily for 2 weeks' duration. The population was 21 female, 25 male and 25  
97 white, 17 black, 3 Hispanic, 1 other.

98 Adult and Adolescent Subjects Aged 12 Years and Older: The two 12-week,  
99 randomized, double-blind trials in 610 adult and adolescent subjects with asthma that compared  
100 VENTOLIN HFA, a CFC 11/12-propelled albuterol inhaler, and an HFA-134a placebo inhaler.  
101 Overall, the incidence and nature of the adverse reactions reported for VENTOLIN HFA and a  
102 CFC 11/12-propelled albuterol inhaler were comparable. Table 1 lists the incidence of all adverse  
103 reactions (whether considered by the investigator to be related or unrelated to drug) from these  
104 trials that occurred at a rate of 3% or greater in the group treated with VENTOLIN HFA and  
105 more frequently in the group treated with VENTOLIN HFA than in the HFA-134a placebo  
106 inhaler group.

107

108 **Table 1. Adverse Reactions with VENTOLIN HFA with  $\geq 3\%$  Incidence and More**  
109 **Common than Placebo in Adult and Adolescent Subjects**

Adverse Reaction	Percent of Subjects		
	VENTOLIN HFA (n = 202) %	CFC 11/12-Propelled Albuterol Inhaler (n = 207) %	Placebo HFA-134a (n = 201) %
Ear, nose, and throat			
Throat irritation	10	6	7
Upper respiratory inflammation	5	5	2
Lower respiratory			
Viral respiratory infections	7	4	4
Cough	5	2	2
Musculoskeletal			
Musculoskeletal pain	5	5	4

110

111 Adverse reactions reported by less than 3% of the adult and adolescent subjects receiving  
112 VENTOLIN HFA and by a greater proportion of subjects receiving VENTOLIN HFA than  
113 receiving HFA-134a placebo inhaler and that have the potential to be related to  
114 VENTOLIN HFA include diarrhea, laryngitis, oropharyngeal edema, cough, lung disorders,  
115 tachycardia, and extrasystoles. Palpitations and dizziness have also been observed with  
116 VENTOLIN HFA.

117 **Pediatric Subjects Aged 4 to 11 Years:** Results from the 2-week clinical trial in  
118 pediatric subjects with asthma aged 4 to 11 years showed that this pediatric population had an  
119 adverse reaction profile similar to that of the adult and adolescent populations.

120 Three trials have been conducted to evaluate the safety and efficacy of VENTOLIN HFA  
121 in subjects between birth and 4 years of age. The results of these trials did not establish the  
122 efficacy of VENTOLIN HFA in this age-group [see *Use in Specific Populations (8.4)*]. Since the  
123 efficacy of VENTOLIN HFA has not been demonstrated in children between birth and  
124 48 months of age, the safety of VENTOLIN HFA in this age-group cannot be established.  
125 However, the safety profile observed in the pediatric population younger than 4 years was  
126 comparable to that observed in the older pediatric subjects and in adults and adolescents. Where  
127 adverse reaction incidence rates were greater in subjects younger than 4 years compared with  
128 older subjects, the higher incidence rates were noted in all treatment arms, including placebo.  
129 These adverse reactions included upper respiratory tract infection, nasopharyngitis, pyrexia, and  
130 tachycardia.

## 131 **6.2 Postmarketing Experience**

132 In addition to adverse reactions reported from clinical trials, the following adverse  
133 reactions have been identified during postapproval use of albuterol sulfate. Because these  
134 reactions are reported voluntarily from a population of uncertain size, it is not always possible to

135 reliably estimate their frequency or establish a causal relationship to drug exposure. These events  
136 have been chosen for inclusion due to either their seriousness, frequency of reporting, or causal  
137 connection to albuterol or a combination of these factors.

138 Cases of paradoxical bronchospasm, hoarseness, arrhythmias (including atrial fibrillation,  
139 supraventricular tachycardia), and hypersensitivity reactions (including urticaria, angioedema,  
140 rash) have been reported after the use of VENTOLIN HFA.

141 In addition, albuterol, like other sympathomimetic agents, can cause adverse reactions  
142 such as hypokalemia, hypertension, peripheral vasodilatation, angina, tremor, central nervous  
143 system stimulation, hyperactivity, sleeplessness, headache, muscle cramps, drying or irritation of  
144 the oropharynx, and metabolic acidosis.

## 145 **7 DRUG INTERACTIONS**

146 Other short-acting sympathomimetic aerosol bronchodilators should not be used  
147 concomitantly with albuterol. If additional adrenergic drugs are to be administered by any route,  
148 they should be used with caution to avoid deleterious cardiovascular effects.

### 149 **7.1 Beta-Adrenergic Receptor Blocking Agents**

150 Beta-blockers not only block the pulmonary effect of beta-agonists, such as VENTOLIN  
151 HFA, but may also produce severe bronchospasm in patients with asthma. Therefore, patients  
152 with asthma should not normally be treated with beta-blockers. However, under certain  
153 circumstances, there may be no acceptable alternatives to the use of beta-adrenergic blocking  
154 agents for these patients; cardioselective beta-blockers could be considered, although they should  
155 be administered with caution.

### 156 **7.2 Non-Potassium-Sparing Diuretics**

157 The ECG changes and/or hypokalemia that may result from the administration of non-  
158 potassium-sparing diuretics (such as loop or thiazide diuretics) can be acutely worsened by beta-  
159 agonists, especially when the recommended dose of the beta-agonist is exceeded. Although the  
160 clinical significance of these effects is not known, caution is advised in the coadministration of  
161 VENTOLIN HFA with non-potassium-sparing diuretics.

### 162 **7.3 Digoxin**

163 Mean decreases of 16% to 22% in serum digoxin levels were demonstrated after single-  
164 dose intravenous and oral administration of albuterol, respectively, to normal volunteers who had  
165 received digoxin for 10 days. The clinical relevance of these findings for patients with  
166 obstructive airway disease who are receiving inhaled albuterol and digoxin on a chronic basis is  
167 unclear. Nevertheless, it would be prudent to carefully evaluate the serum digoxin levels in  
168 patients who are currently receiving digoxin and albuterol.

### 169 **7.4 Monoamine Oxidase Inhibitors and Tricyclic Antidepressants**

170 VENTOLIN HFA should be administered with extreme caution to patients being treated  
171 with monoamine oxidase inhibitors or tricyclic antidepressants, or within 2 weeks of  
172 discontinuation of such agents, because the action of albuterol on the vascular system may be  
173 potentiated.

174 **8 USE IN SPECIFIC POPULATIONS**

175 **8.1 Pregnancy**

176 Teratogenic Effects: Pregnancy Category C. There are no adequate and well-controlled  
177 trials with VENTOLIN HFA or albuterol sulfate in pregnant women. During worldwide  
178 marketing experience, various congenital anomalies, including cleft palate and limb defects, have  
179 been reported in the offspring of patients being treated with albuterol. Some of the mothers were  
180 taking multiple medications during their pregnancies. No consistent pattern of defects can be  
181 discerned, and a relationship between albuterol use and congenital anomalies has not been  
182 established. Animal reproduction studies in mice and rabbits revealed evidence of teratogenicity.  
183 VENTOLIN HFA should be used during pregnancy only if the potential benefit justifies the  
184 potential risk to the fetus. Women should be advised to contact their physicians if they become  
185 pregnant while taking VENTOLIN HFA.

186 In a mouse reproduction study, subcutaneously administered albuterol sulfate produced  
187 cleft palate formation in 5 of 111 (4.5%) fetuses at exposures less than the maximum  
188 recommended human daily inhalation dose (MRHDID) for adults on a mg/m<sup>2</sup> basis and in 10 of  
189 108 (9.3%) fetuses at approximately 8 times the MRHDID. Similar effects were not observed at  
190 approximately one eleventh of the MRHDID. Cleft palate also occurred in 22 of 72 (30.5%)  
191 fetuses from females treated subcutaneously with isoproterenol (positive control).

192 In a rabbit reproduction study, orally administered albuterol sulfate produced  
193 cranioschisis in 7 of 19 fetuses (37%) at approximately 680 times the MRHDID.

194 In another rabbit study, an albuterol sulfate/HFA-134a formulation administered by  
195 inhalation produced enlargement of the frontal portion of the fetal fontanelles at approximately  
196 one third of the MRHDID.

197 Nonteratogenic Effects: A study in which pregnant rats were dosed with radiolabeled  
198 albuterol sulfate demonstrated that drug-related material is transferred from the maternal  
199 circulation to the fetus.

200 **8.2 Labor and Delivery**

201 There are no well-controlled human trials that have investigated effects of VENTOLIN  
202 HFA on preterm labor or labor at term. Because of the potential for beta-agonist interference with  
203 uterine contractility, use of VENTOLIN HFA during labor should be restricted to those patients  
204 in whom the benefits clearly outweigh the risk.

205 **8.3 Nursing Mothers**

206 Plasma levels of albuterol sulfate and HFA-134a after inhaled therapeutic doses are very  
207 low in humans, but it is not known whether the components of VENTOLIN HFA are excreted in  
208 human milk. Because of the potential for tumorigenicity shown for albuterol in animal studies  
209 and lack of experience with the use of VENTOLIN HFA by nursing mothers, a decision should  
210 be made whether to discontinue nursing or to discontinue the drug, taking into account the  
211 importance of the drug to the mother. Caution should be exercised when VENTOLIN HFA is  
212 administered to a nursing woman.

213 **8.4 Pediatric Use**

214 The safety and effectiveness of VENTOLIN HFA in children aged 4 years and older have  
215 been established based upon two 12-week clinical trials in subjects aged 12 years and older with  
216 asthma and one 2-week clinical trial in subjects aged 4 to 11 years with asthma [see *Adverse*  
217 *Reactions (6.1), Clinical Studies (14.1)*]. The safety and effectiveness of VENTOLIN HFA in  
218 children younger than 4 years have not been established. Three trials have been conducted to  
219 evaluate the safety and efficacy of VENTOLIN HFA in subjects younger than 4 years and the  
220 findings are described below.

221 Two 4-week randomized, double-blind, placebo-controlled trials were conducted in 163  
222 pediatric subjects aged from birth to 48 months with symptoms of bronchospasm associated with  
223 obstructive airway disease (presenting symptoms included: wheeze, cough, dyspnea, or chest  
224 tightness). VENTOLIN HFA or placebo HFA was delivered with either an AeroChamber Plus®  
225 Valved Holding Chamber or an Optichamber® Valved Holding Chamber with mask 3 times  
226 daily. In one trial, VENTOLIN HFA 90 mcg (n = 26), VENTOLIN HFA 180 mcg (n = 25), and  
227 placebo HFA (n = 26) were administered to children aged between 24 and 48 months. In the  
228 second trial, VENTOLIN HFA 90 mcg (n = 29), VENTOLIN HFA 180 mcg (n = 29), and  
229 placebo HFA (n = 28) were administered to children aged between birth and 24 months. Over the  
230 4-week treatment period, there were no treatment differences in asthma symptom scores between  
231 the groups receiving VENTOLIN HFA 90 mcg, VENTOLIN HFA 180 mcg, and placebo in  
232 either trial.

233 In a third trial, VENTOLIN HFA was evaluated in 87 pediatric subjects younger than  
234 24 months for the treatment of acute wheezing. VENTOLIN HFA was delivered with an  
235 AeroChamber Plus Valved Holding Chamber in this trial. There were no significant differences  
236 in asthma symptom scores and mean change from baseline in an asthma symptom score between  
237 VENTOLIN HFA 180 mcg and VENTOLIN HFA 360 mcg.

238 In vitro dose characterization studies were performed to evaluate the delivery of  
239 VENTOLIN HFA via holding chambers with attached masks. The studies were conducted with 2  
240 different holding chambers with masks (small and medium size). The in vitro study data when  
241 simulating patient breathing suggest that the dose of VENTOLIN HFA presented for inhalation  
242 via a valved holding chamber with mask will be comparable to the dose delivered in adults  
243 without a spacer and mask per kilogram of body weight (Table 2). However, clinical trials in  
244 children younger than 4 years described above suggest that either the optimal dose of  
245 VENTOLIN HFA has not been defined in this age-group or VENTOLIN HFA is not effective in  
246 this age-group. The safety and effectiveness of VENTOLIN HFA administered with or without a  
247 spacer device in children younger than 4 years have not been demonstrated.  
248

249 **Table 2. In Vitro Medication Delivery through AeroChamber Plus® Valved Holding**  
250 **Chamber with a Mask**

Age	Mask	Flow Rate (L/min)	Holding Time (seconds)	Mean Medication Delivery through AeroChamber Plus (mcg/actuation)	Body Weight 50 <sup>th</sup> Percentile (kg) <sup>a</sup>	Medication Delivered per Actuation (mcg/kg) <sup>b</sup>
6 to 12 Months	Small	4.9	0	18.2	7.5-9.9	1.8-2.4
			2	19.8		2.0-2.6
			5	13.8		1.4-1.8
			10	15.4		1.6-2.1
2 to 5 Years	Small	8.0	0	17.8	12.3-18.0	1.0-1.4
			2	16.0		0.9-1.3
			5	16.3		0.9-1.3
			10	18.3		1.0-1.5
2 to 5 Years	Medium	8.0	0	21.1	12.3-18.0	1.2-1.7
			2	15.3		0.8-1.2
			5	18.3		1.0-1.5
			10	18.2		1.0-1.5
>5 Years	Medium	12.0	0	26.8	18.0	1.5
			2	20.9		1.2
			5	19.6		1.1
			10	20.3		1.1

251 <sup>a</sup> Centers for Disease Control growth charts, developed by the National Center for Health  
252 Statistics in collaboration with the National Center for Chronic Disease Prevention and Health  
253 Promotion (2000). Ranges correspond to the average of the 50<sup>th</sup> percentile weight for boys  
254 and girls at the ages indicated.

255 <sup>b</sup> A single inhalation of VENTOLIN HFA in a 70-kg adult without use of a valved holding  
256 chamber and mask delivers approximately 90 mcg, or 1.3 mcg/kg.  
257

### 258 **8.5 Geriatric Use**

259 Clinical trials of VENTOLIN HFA did not include sufficient numbers of subjects aged 65  
260 years and older to determine whether older subjects respond differently than younger subjects.  
261 Other reported clinical experience has not identified differences in responses between the elderly  
262 and younger patients. In general, dose selection for an elderly patient should be cautious, usually  
263 starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic,  
264 renal, or cardiac function, and of concomitant disease or other drug therapy.

265 **10 OVERDOSAGE**

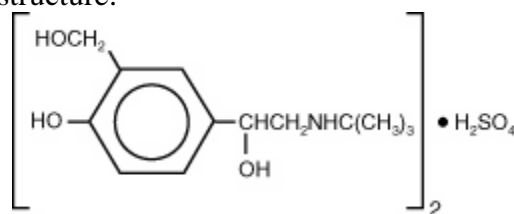
266 The expected signs and symptoms with overdose of albuterol are those of excessive  
267 beta-adrenergic stimulation and/or occurrence or exaggeration of any of the signs and symptoms  
268 of beta-adrenergic stimulation (e.g., seizures, angina, hypertension or hypotension, tachycardia  
269 with rates up to 200 beats/min, arrhythmias, nervousness, headache, tremor, muscle cramps, dry  
270 mouth, palpitation, nausea, dizziness, fatigue, malaise, insomnia, hyperglycemia, hypokalemia,  
271 metabolic acidosis).

272 As with all inhaled sympathomimetic medicines, cardiac arrest and even death may be  
273 associated with an overdose of VENTOLIN HFA Inhalation Aerosol.

274 Treatment consists of discontinuation of VENTOLIN HFA together with appropriate  
275 symptomatic therapy. The judicious use of a cardioselective beta-receptor blocker may be  
276 considered, bearing in mind that such medication can produce bronchospasm. There is  
277 insufficient evidence to determine if dialysis is beneficial for overdose of VENTOLIN HFA.

278 **11 DESCRIPTION**

279 The active component of VENTOLIN HFA is albuterol sulfate, USP, the racemic form of  
280 albuterol and a relatively selective beta<sub>2</sub>-adrenergic bronchodilator. Albuterol sulfate has the  
281 chemical name  $\alpha^1$ -[(*tert*-butylamino)methyl]-4-hydroxy-*m*-xylene- $\alpha$ ,  $\alpha'$ -diol sulfate (2:1)(salt)  
282 and the following chemical structure:



283 Albuterol sulfate is a white crystalline powder with a molecular weight of 576.7, and the  
284 empirical formula is  $(\text{C}_{13}\text{H}_{21}\text{NO}_3)_2 \cdot \text{H}_2\text{SO}_4$ . It is soluble in water and slightly soluble in ethanol.

285 The World Health Organization recommended name for albuterol base is salbutamol.

286 VENTOLIN HFA is a blue plastic inhaler with a blue strapcap containing a pressurized  
287 metered-dose aerosol canister fitted with a counter. Each canister contains a microcrystalline  
288 suspension of albuterol sulfate in propellant HFA-134a (1,1,1,2-tetrafluoroethane). It contains no  
289 other excipients.

290 After priming, each actuation of the inhaler delivers 120 mcg of albuterol sulfate, USP in  
291 75 mg of suspension from the valve and 108 mcg of albuterol sulfate, USP from the mouthpiece  
292 (equivalent to 90 mcg of albuterol base from the mouthpiece).

293 Prime VENTOLIN HFA before using for the first time, when the inhaler has not been  
294 used for more than 2 weeks, or when the inhaler has been dropped. To prime VENTOLIN HFA,  
295 release 4 sprays into the air away from the face, shaking well before each spray.  
296

297 **12 CLINICAL PHARMACOLOGY**

298 **12.1 Mechanism of Action**

299 In vitro studies and in vivo pharmacologic studies have demonstrated that albuterol has a

300 preferential effect on beta<sub>2</sub>-adrenergic receptors compared with isoproterenol. Although beta<sub>2</sub>-  
301 adrenoceptors are the predominant adrenergic receptors in bronchial smooth muscle and beta<sub>1</sub>-  
302 adrenoceptors are the predominant receptors in the heart, there are also beta<sub>2</sub>-adrenoceptors in the  
303 human heart comprising 10% to 50% of the total beta-adrenoceptors. The precise function of  
304 these receptors has not been established, but their presence raises the possibility that even  
305 selective beta<sub>2</sub>-agonists may have cardiac effects.

306       Activation of beta<sub>2</sub>-adrenergic receptors on airway smooth muscle leads to the activation  
307 of adenylyl cyclase and to an increase in the intracellular concentration of cyclic-3',5'-adenosine  
308 monophosphate (cyclic AMP). This increase of cyclic AMP leads to the activation of protein  
309 kinase A, which inhibits the phosphorylation of myosin and lowers intracellular ionic calcium  
310 concentrations, resulting in relaxation. Albuterol relaxes the smooth muscles of all airways, from  
311 the trachea to the terminal bronchioles. Albuterol acts as a functional antagonist to relax the  
312 airway irrespective of the spasmogen involved, thus protecting against all bronchoconstrictor  
313 challenges. Increased cyclic AMP concentrations are also associated with the inhibition of release  
314 of mediators from mast cells in the airway.

315       Albuterol has been shown in most controlled clinical trials to have more effect on the  
316 respiratory tract, in the form of bronchial smooth muscle relaxation, than isoproterenol at  
317 comparable doses while producing fewer cardiovascular effects. Controlled clinical studies and  
318 other clinical experience have shown that inhaled albuterol, like other beta-adrenergic agonist  
319 drugs, can produce a significant cardiovascular effect in some patients, as measured by pulse rate,  
320 blood pressure, symptoms, and/or electrocardiographic changes [*see Warnings and Precautions*  
321 (5.4)].

### 322 **12.3 Pharmacokinetics**

323       The systemic levels of albuterol are low after inhalation of recommended doses. A trial  
324 conducted in 12 healthy male and female subjects using a higher dose (1,080 mcg of albuterol  
325 base) showed that mean peak plasma concentrations of approximately 3 ng/mL occurred after  
326 dosing when albuterol was delivered using propellant HFA-134a. The mean time to peak  
327 concentrations (T<sub>max</sub>) was delayed after administration of VENTOLIN HFA (T<sub>max</sub> = 0.42 hours)  
328 as compared with CFC-propelled albuterol inhaler (T<sub>max</sub> = 0.17 hours). Apparent terminal plasma  
329 half-life of albuterol is approximately 4.6 hours. No further pharmacokinetic trials for  
330 VENTOLIN HFA were conducted in neonates, children, or elderly subjects.

## 331 **13 NONCLINICAL TOXICOLOGY**

### 332 **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

333       In a 2-year study in Sprague-Dawley rats, albuterol sulfate caused a dose-related  
334 increase in the incidence of benign leiomyomas of the mesovarium at and above dietary doses  
335 of 2.0 mg/kg (approximately 14 and 6 times the MRHDID for adults and children, respectively,  
336 on a mg/m<sup>2</sup> basis). In another study this effect was blocked by the coadministration of  
337 propranolol, a non-selective beta-adrenergic antagonist. In an 18-month study in CD-1 mice,  
338 albuterol sulfate showed no evidence of tumorigenicity at dietary doses of up to 500 mg/kg

339 (approximately 1,700 and 800 times the MRHDID for adults and children, respectively, on a  
340 mg/m<sup>2</sup> basis). In a 22-month study in Golden hamsters, albuterol sulfate showed no evidence of  
341 tumorigenicity at dietary doses of up to 50 mg/kg (approximately 225 and 110 times the  
342 MRHDID for adults and children, respectively, on a mg/m<sup>2</sup> basis).

343 Albuterol sulfate was not mutagenic in the Ames test or a mutation test in yeast. Albuterol  
344 sulfate was not clastogenic in a human peripheral lymphocyte assay or in an AH1 strain mouse  
345 micronucleus assay.

346 Reproduction studies in rats demonstrated no evidence of impaired fertility at oral doses  
347 of albuterol sulfate up to 50 mg/kg (approximately 340 times the MRHDID for adults on a mg/m<sup>2</sup>  
348 basis).

### 349 **13.2 Animal Toxicology and/or Pharmacology**

350 Preclinical: Intravenous studies in rats with albuterol sulfate have demonstrated that  
351 albuterol crosses the blood-brain barrier and reaches brain concentrations amounting to  
352 approximately 5.0% of the plasma concentrations. In structures outside the blood-brain barrier  
353 (pineal and pituitary glands), albuterol concentrations were found to be 100 times those in the  
354 whole brain.

355 Studies in laboratory animals (minipigs, rodents, and dogs) have demonstrated the  
356 occurrence of cardiac arrhythmias and sudden death (with histologic evidence of myocardial  
357 necrosis) when beta-agonists and methylxanthines are administered concurrently. The clinical  
358 relevance of these findings is unknown.

359 Propellant HFA-134a: In animals and humans, propellant HFA-134a was found to be  
360 rapidly absorbed and rapidly eliminated, with an elimination half-life of 3 to 27 minutes in  
361 animals and 5 to 7 minutes in humans. Time to maximum plasma concentration (T<sub>max</sub>) and mean  
362 residence time are both extremely short, leading to a transient appearance of HFA-134a in the  
363 blood with no evidence of accumulation.

364 Propellant HFA-134a is devoid of pharmacological activity except at very high doses in  
365 animals (i.e., 380 to 1,300 times the maximum human exposure based on comparisons of area  
366 under the plasma concentration versus time curve [AUC] values), primarily producing ataxia,  
367 tremors, dyspnea, or salivation. These events are similar to effects produced by the structurally  
368 related CFCs, which have been used extensively in metered-dose inhalers.

## 369 **14 CLINICAL STUDIES**

### 370 **14.1 Bronchospasm Associated with Asthma**

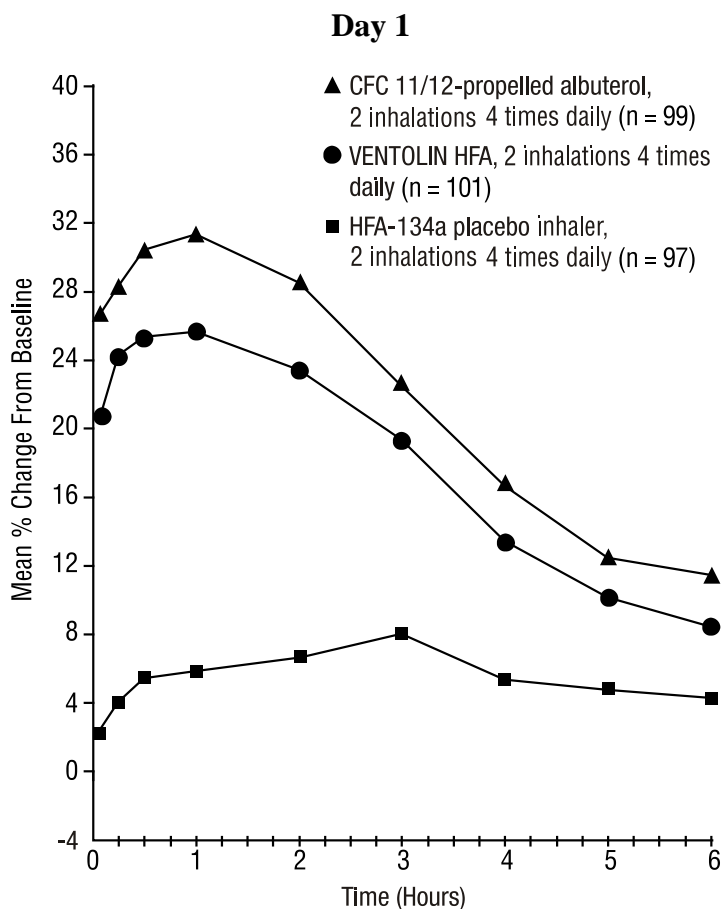
371 Adult and Adolescent Subjects Aged 12 Years and Older: The efficacy of  
372 VENTOLIN HFA was evaluated in two 12-week, randomized, double-blind, placebo-controlled  
373 trials in subjects aged 12 years and older with mild to moderate asthma. These trials included a  
374 total of 610 subjects (323 males, 287 females). In each trial, subjects received 2 inhalations of  
375 VENTOLIN HFA, CFC 11/12-propelled albuterol, or HFA-134a placebo 4 times daily for 12  
376 weeks' duration. Subjects taking the HFA-134a placebo inhaler also took VENTOLIN HFA for  
377 asthma symptom relief on an as-needed basis. Some subjects who participated in these clinical

378 trials were using concomitant inhaled steroid therapy. Efficacy was assessed by serial forced  
379 expiratory volume in 1 second (FEV<sub>1</sub>). In each of these trials, 2 inhalations of VENTOLIN HFA  
380 produced significantly greater improvement in FEV<sub>1</sub> over the pretreatment value than placebo.  
381 Results from the 2 clinical trials are described below.

382 In a 12-week, randomized, double-blind trial, VENTOLIN HFA (101 subjects) was  
383 compared with CFC 11/12-propelled albuterol (99 subjects) and an HFA-134a placebo inhaler  
384 (97 subjects) in adolescent and adult subjects aged 12 to 76 years with mild to moderate asthma.  
385 Serial FEV<sub>1</sub> measurements [shown below as percent change from test-day baseline at Day 1  
386 (n = 297) and at Week 12 (n = 249)] demonstrated that 2 inhalations of VENTOLIN HFA  
387 produced significantly greater improvement in FEV<sub>1</sub> over the pretreatment value than placebo.  
388

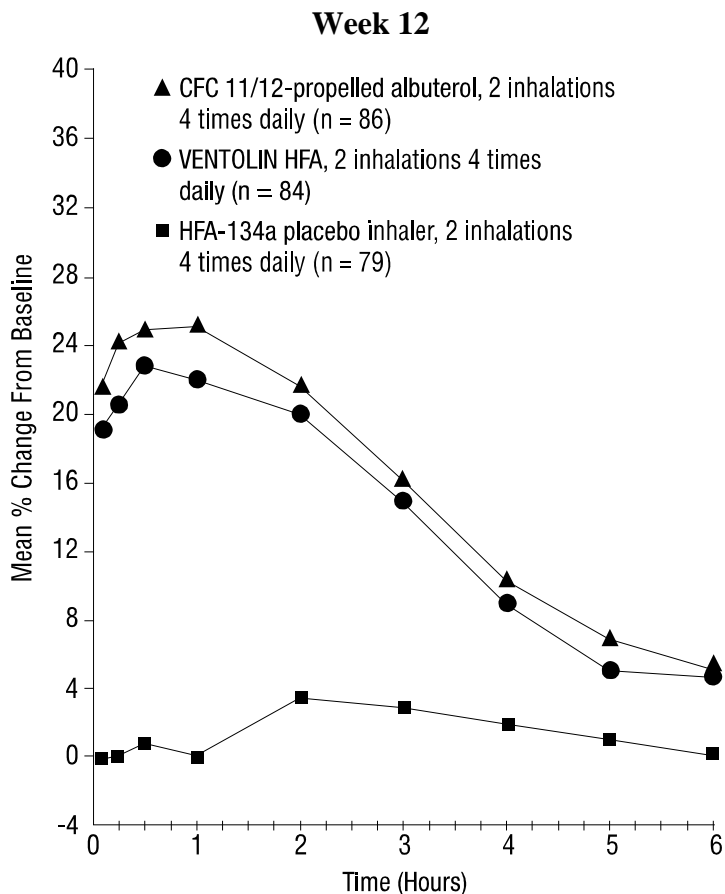
389 **FEV<sub>1</sub> as Percent Change from Predose in a Large,**  
390 **12-Week Clinical Trial**

391



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397 In the responder population (greater than or equal to 15% increase in FEV<sub>1</sub> within  
398 30 minutes postdose) treated with VENTOLIN HFA, the mean time to onset of a 15% increase in  
399 FEV<sub>1</sub> over the pretreatment value was 5.4 minutes, and the mean time to peak effect was  
400 56 minutes. The mean duration of effect as measured by a 15% increase in FEV<sub>1</sub> over the  
401 pretreatment value was approximately 4 hours. In some subjects, duration of effect was as long as  
402 6 hours.

403 The second 12-week, randomized, double-blind trial was conducted to evaluate the  
404 efficacy and safety of switching subjects from CFC 11/12-propelled albuterol to VENTOLIN  
405 HFA. During the 3-week run-in phase of the trial, all subjects received CFC 11/12-propelled  
406 albuterol. During the double-blind treatment phase, VENTOLIN HFA (91 subjects) was  
407 compared with CFC 11/12-propelled albuterol (100 subjects) and an HFA-134a placebo inhaler  
408 (95 subjects) in adult and adolescent subjects with mild to moderate asthma. Serial FEV<sub>1</sub>  
409 measurements demonstrated that 2 inhalations of VENTOLIN HFA produced significantly  
410 greater improvement in pulmonary function than placebo. The switching from CFC  
411 11/12-propelled albuterol inhaler to VENTOLIN HFA did not reveal any clinically significant  
412 changes in the efficacy profile.

413 In the 2 adult trials, the efficacy results from VENTOLIN HFA were significantly greater  
414 than placebo and were clinically comparable to those achieved with CFC 11/12-propelled

415 albuterol, although small numerical differences in mean FEV<sub>1</sub> response and other measures were  
416 observed. Physicians should recognize that individual responses to beta-adrenergic agonists  
417 administered via different propellants may vary and that equivalent responses in individual  
418 patients should not be assumed.

419 Pediatric Subjects Aged 4 to 11 Years: The efficacy of VENTOLIN HFA was  
420 evaluated in one 2-week, randomized, double-blind, placebo-controlled trial in 135 pediatric  
421 subjects aged 4 to 11 years with mild to moderate asthma. In this trial, subjects received  
422 VENTOLIN HFA, CFC 11/12-propelled albuterol, or HFA-134a placebo. Serial pulmonary  
423 function measurements demonstrated that 2 inhalations of VENTOLIN HFA produced  
424 significantly greater improvement in pulmonary function than placebo and that there were no  
425 significant differences between the groups treated with VENTOLIN HFA and CFC 11/12-  
426 propelled albuterol. In the responder population treated with VENTOLIN HFA, the mean time to  
427 onset of a 15% increase in peak expiratory flow rate (PEFR) over the pretreatment value was  
428 7.8 minutes, and the mean time to peak effect was approximately 90 minutes. The mean duration  
429 of effect as measured by a 15% increase in PEFR over the pretreatment value was greater than  
430 3 hours. In some subjects, duration of effect was as long as 6 hours.

#### 431 **14.2 Exercise-Induced Bronchospasm**

432 One controlled clinical trial in adult subjects with asthma (N = 24) demonstrated that  
433 2 inhalations of VENTOLIN HFA taken approximately 30 minutes prior to exercise significantly  
434 prevented exercise-induced bronchospasm (as measured by maximum percentage fall in FEV<sub>1</sub>  
435 following exercise) compared with an HFA-134a placebo inhaler. In addition, VENTOLIN HFA  
436 was shown to be clinically comparable to a CFC 11/12-propelled albuterol inhaler for this  
437 indication.

### 438 **16 HOW SUPPLIED/STORAGE AND HANDLING**

439 VENTOLIN HFA Inhalation Aerosol is supplied in the following boxes of 1 as a  
440 pressurized aluminum canister fitted with a counter and supplied with a blue plastic actuator with  
441 a blue strapcap:

442 NDC 0173-0682-20 18-g canister containing 200 actuations

443 NDC 0173-0682-21 8-g canister containing 60 actuations

444 NDC 0173-0682-24 8-g institutional pack canister containing 60 actuations

445 Each inhaler is sealed in a moisture-protective foil pouch with a desiccant that should be  
446 discarded when the pouch is opened. Each inhaler is packaged with a Patient Information leaflet.

447 The blue actuator supplied with VENTOLIN HFA should not be used with any other  
448 product canisters, and actuators from other products should not be used with a VENTOLIN HFA  
449 canister.

450 VENTOLIN HFA has a counter attached to the canister. The counter starts at 204 or 64  
451 and counts down each time a spray is released. The correct amount of medication in each  
452 actuation cannot be assured after the counter reads 000, even though the canister is not  
453 completely empty and will continue to operate. The inhaler should be discarded when the

454 counter reads 000 or 12 months after removal from the moisture-protective foil pouch, whichever  
455 comes first.

456 Keep out of reach of children. Avoid spraying in eyes.

457 Contents Under Pressure: Do not puncture. Do not use or store near heat or open flame.

458 Exposure to temperatures above 120°F may cause bursting. Never throw canister into fire or  
459 incinerator.

460 Store at room temperature between 68°F and 77°F (20°C and 25°C); excursions  
461 permitted from 59°F to 86°F (15°C to 30°C) [See USP Controlled Room Temperature]. Store the  
462 inhaler with the mouthpiece down. For best results, the inhaler should be at room temperature  
463 before use. SHAKE WELL BEFORE EACH SPRAY.

## 464 **17 PATIENT COUNSELING INFORMATION**

465 Advise the patient to read the FDA-approved patient labeling (Patient Information and  
466 Instructions for Use).

467 Frequency of Use: Inform patients that the action of VENTOLIN HFA should last up to  
468 4 to 6 hours. Do not use VENTOLIN HFA more frequently than recommended. Instruct patients  
469 not to increase the dose or frequency of doses of VENTOLIN HFA without consulting the  
470 physician. Instruct patients to seek medical attention immediately if treatment with VENTOLIN  
471 HFA becomes less effective for symptomatic relief, symptoms become worse, and/or they need  
472 to use the product more frequently than usual.

473 Priming: Instruct patients to prime VENTOLIN HFA before using for the first time,  
474 when the inhaler has not been used for more than 2 weeks, or when the inhaler has been dropped.  
475 To prime VENTOLIN HFA, release 4 sprays into the air away from the face, shaking well before  
476 each spray.

477 Cleaning: To ensure proper dosing and to prevent actuator orifice blockage, instruct  
478 patients to wash the actuator with warm water and let it air-dry completely at least once a week.  
479 Inform patients that detailed cleaning instructions are included in the Patient Information leaflet.

480 Paradoxical Bronchospasm: Inform patients that VENTOLIN HFA can produce  
481 paradoxical bronchospasm. Instruct them to discontinue VENTOLIN HFA if paradoxical  
482 bronchospasm occurs.

483 Concomitant Drug Use: Advise patients that while they are using VENTOLIN HFA,  
484 other inhaled drugs and asthma medications should be taken only as directed by the physician.

485 Common Adverse Effects: Common adverse effects of treatment with inhaled albuterol  
486 include palpitations, chest pain, rapid heart rate, tremor, and nervousness.

487 Pregnancy: Advise patients who are pregnant or nursing to contact their physicians  
488 about the use of VENTOLIN HFA.

489

490 VENTOLIN is a registered trademark of the GSK group of companies. The other brands listed  
491 are trademarks of their respective owners and are not trademarks of the GSK group of  
492 companies. The makers of these brands are not affiliated with and do not endorse

493 GlaxoSmithKline or its products.  
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496  
497 GlaxoSmithKline  
498 Research Triangle Park, NC 27709  
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PHARMACIST—DETACH HERE AND GIVE LEAFLET TO PATIENT

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506

### Patient Information

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508  
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**VENTOLIN<sup>®</sup> [vent' o-lin] HFA**  
**(albuterol sulfate)**  
**Inhalation Aerosol**

510 Read the Patient Information that comes with VENTOLIN HFA Inhalation Aerosol  
511 before you start using it and each time you get a refill. There may be new  
512 information. This Patient Information does not take the place of talking to your  
513 healthcare provider about your medical condition or treatment.

514  
515

#### **What is VENTOLIN HFA?**

516 VENTOLIN HFA is a prescription inhaled medicine used in people aged 4 years and  
517 older to:

- 518 • treat or prevent bronchospasm in people who have reversible obstructive airway  
519 disease
- 520 • prevent exercise-induced bronchospasm

521 It is not known if VENTOLIN HFA is safe and effective in children younger than 4  
522 years of age.

523  
524

#### **Who should not use VENTOLIN HFA?**

525 **Do not use VENTOLIN HFA** if you are allergic to albuterol sulfate or any of the  
526 ingredients in VENTOLIN HFA. See "What are the ingredients in VENTOLIN HFA?"  
527 below for a complete list of ingredients.  
528

529 **What should I tell my healthcare provider before using VENTOLIN HFA?**

530 **Tell your healthcare provider about all of your health conditions, including**  
531 **if you:**

- 532 • have heart problems.
- 533 • have high blood pressure.
- 534 • have seizures.
- 535 • have thyroid problems.
- 536 • have diabetes.
- 537 • have low potassium levels in your blood.
- 538 • are allergic to any of the ingredients in VENTOLIN HFA or any other medicines.  
539 See “What are the ingredients in VENTOLIN HFA?” below for a complete list of  
540 ingredients.
- 541 • have any other medical conditions.
- 542 • are pregnant or planning to become pregnant. It is not known if VENTOLIN HFA  
543 may harm your unborn baby.
- 544 • are breastfeeding. It is not known if the medicine in VENTOLIN HFA passes into  
545 your milk and if it can harm your baby.

546 **Tell your healthcare provider about all the medicines you take, including**  
547 **prescription and over-the-counter medicines, vitamins, and herbal supplements.**  
548 **VENTOLIN HFA and certain other medicines may interact with each other. This may**  
549 **cause serious side effects.**

550 Especially tell your healthcare provider if you take:

- 551 • other inhaled medicines or asthma medicines
- 552 • beta-blocker medicines
- 553 • diuretics
- 554 • digoxin
- 555 • monoamine oxidase inhibitors
- 556 • tricyclic antidepressants

557 Ask your healthcare provider or pharmacist for a list of these medicines if you are  
558 not sure.

559 Know the medicines you take. Keep a list of them to show your healthcare provider  
560 and pharmacist when you get a new medicine.

561

562 **How should I use VENTOLIN HFA?**

563 **Read the step-by-step instructions for using VENTOLIN HFA at the end of**  
564 **this Patient Information.**

- 565 • **Do not** use VENTOLIN HFA unless your healthcare provider has taught you how  
566 to use the inhaler and you understand how to use it correctly.
- 567 • Children should use VENTOLIN HFA with an adult's help, as instructed by the  
568 child's healthcare provider.
- 569 • Use VENTOLIN HFA exactly as your healthcare provider tells you to use it. **Do**  
570 **not** use VENTOLIN HFA more often than prescribed.
- 571 • **Do not** increase your dose or take extra doses of VENTOLIN HFA without first  
572 talking to your healthcare provider.
- 573 • Each dose of VENTOLIN HFA should last up to 4 hours to 6 hours.
- 574 • Get medical help right away if VENTOLIN HFA no longer helps your symptoms.
- 575 • Get medical help right away if your symptoms get worse or if you need to use  
576 your inhaler more often.
- 577 • While you are using VENTOLIN HFA, use other inhaled medicines and asthma  
578 medicines only as directed by your healthcare provider.
- 579 • Call your healthcare provider if your asthma symptoms like wheezing and  
580 trouble breathing become worse over a few hours or days. Your healthcare  
581 provider may need to give you another medicine to treat your symptoms.

582

583 **What are the possible side effects with VENTOLIN HFA?**

584 **VENTOLIN HFA can cause serious side effects, including:**

- 585 • **worsening trouble breathing, coughing, and wheezing (paradoxical**  
586 **bronchospasm)**. If this happens, stop using VENTOLIN HFA and call your  
587 healthcare provider or get emergency help right away. Paradoxical  
588 bronchospasm is more likely to happen with your first use of a new canister of  
589 medicine.
- 590 • **heart problems, including faster heart rate and higher blood pressure**
- 591 • **possible death in people with asthma who use too much VENTOLIN HFA**
- 592 • **serious allergic reactions.** Call your healthcare provider or get emergency  
593 medical care if you get any of the following symptoms of a serious allergic  
594 reaction:
  - 595 • rash
  - 596 • hives
  - 597 • swelling of your face, mouth, and tongue

- 598 • breathing problems
- 599 • **changes in laboratory blood levels (sugar, potassium)**

600 **Common side effects of VENTOLIN HFA include:**

- 601 • sore throat
- 602 • upper respiratory tract infection, including viral infection
- 603 • cough
- 604 • muscle pain
- 605 • your heart feels like it is pounding or racing (palpitations)
- 606 • chest pain
- 607 • fast heart rate
- 608 • shakiness
- 609 • nervousness
- 610 • dizziness

611 Tell your healthcare provider about any side effect that bothers you or that does  
612 not go away.

613 These are not all the side effects with VENTOLIN HFA. Ask your healthcare provider  
614 or pharmacist for more information.

615 Call your doctor for medical advice about side effects. You may report side effects  
616 to FDA at 1-800-FDA-1088.

617

618 **How should I store VENTOLIN HFA?**

- 619 • Store VENTOLIN HFA at room temperature between 68°F and 77°F (20°C and  
620 25°C) with the mouthpiece down.
- 621 • **The contents of your VENTOLIN HFA are under pressure:** Do not puncture.  
622 Do not use or store near heat or open flame. Temperatures above 120°F may  
623 cause the canister to burst.
- 624 • Do not throw into fire or an incinerator.
- 625 • Store VENTOLIN HFA in the unopened foil pouch and only open when ready for  
626 use.
- 627 • **Keep VENTOLIN HFA and all medicines out of the reach of children.**

628

629 **General information about the safe and effective use of VENTOLIN HFA.**

630 Medicines are sometimes prescribed for purposes not mentioned in a Patient  
631 Information leaflet. Do not use VENTOLIN HFA for a condition for which it was not  
632 prescribed. Do not give your VENTOLIN HFA to other people, even if they have the  
633 same condition that you have. It may harm them.

634 This Patient Information leaflet summarizes the most important information about  
635 VENTOLIN HFA. If you would like more information, talk with your healthcare  
636 provider or pharmacist. You can ask your healthcare provider or pharmacist for  
637 information about VENTOLIN HFA that was written for healthcare professionals.

638 For more information about VENTOLIN HFA, call 1-888-825-5249 or visit our  
639 website at [www.ventolin.com](http://www.ventolin.com).

640

#### 641 **What are the ingredients in VENTOLIN HFA?**

642 Active ingredient: albuterol sulfate

643 Inactive ingredient: propellant HFA-134a

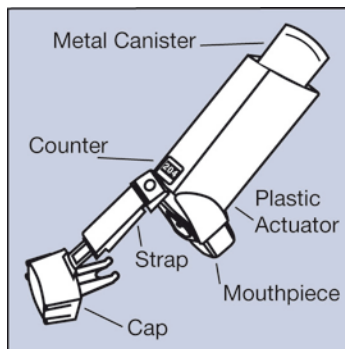
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#### **For Oral Inhalation Only**

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#### 647 **Your VENTOLIN HFA inhaler**

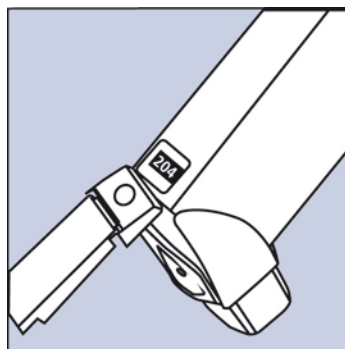


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**Figure A**



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**Figure B**

- 654 • The metal canister holds the medicine. **See Figure**  
655 **A.**
- 656 • The canister has a counter to show how many  
657 sprays of medicine you have left. The number  
658 shows through a window in the back of the  
659 actuator. **See Figure B.**
- 660 • The counter starts at either **204** or **064**,  
661 depending on which size inhaler you have. The  
662 number will count down by 1 each time you spray  
663 the inhaler. The counter will stop counting at **000**.
- 664 • **Do not try to change the numbers or take the**  
665 **counter off the metal canister.** The counter  
666 cannot be reset, and it is permanently attached to  
667 the canister.
- 668 • The blue plastic actuator sprays the medicine from  
669 the canister. The actuator has a protective cap  
670 that covers the mouthpiece. **See Figure A.** Keep  
671 the protective cap on the mouthpiece when the  
672 canister is not in use. The strap keeps the cap  
673 attached to the actuator.
- 674 • **Do not** use the actuator with a canister of  
675 medicine from any other inhaler.
- 676

677

- 678 • **Do not** use a VENTOLIN HFA canister with an  
679 actuator from any other inhaler.

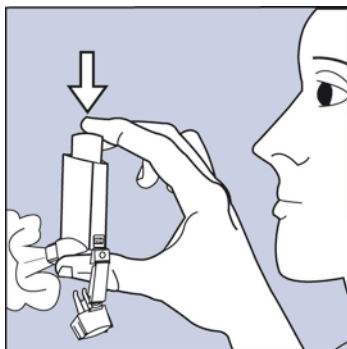
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### 681 **Before using your VENTOLIN HFA inhaler**

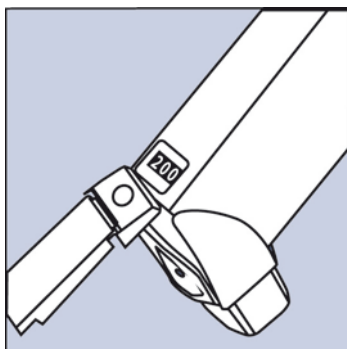
- 682 • Take VENTOLIN HFA out of the foil pouch just before you use it for the  
683 first time. Safely throw away the pouch and the drying packet that comes  
684 inside the pouch.
- 685 • The inhaler should be at room temperature before you use it.
- 686 • If your child needs to use VENTOLIN HFA, watch your child closely to  
687 make sure your child uses the inhaler correctly. Your healthcare provider  
688 will show you how your child should use VENTOLIN HFA.

689

### 690 **Priming your VENTOLIN HFA inhaler**



691  
692 **Figure C**



694  
695 **Figure D**

- 697 • **Before you use VENTOLIN HFA for the first**  
698 **time, you must prime the inhaler so that you**  
699 **will get the right amount of medicine when**  
700 **you use it.**
- 701 • To prime the inhaler, take the cap off the  
702 mouthpiece and shake the inhaler well. Then spray  
703 the inhaler 1 time into the air away from your  
704 face. **See Figure C. Avoid spraying in eyes.**
- 705 • Shake and spray the inhaler like this 3 more times  
706 to finish priming it. The counter should now read  
707 **200** or **060**, depending on which size inhaler you  
708 have. **See Figure D.**
- 709 • You must prime your inhaler again if you have not  
710 used it in more than 14 days or if you drop it.  
711 Take the cap off the mouthpiece and shake and  
712 spray the inhaler 4 times into the air away from  
713 your face.

714

### 715 **How to use your VENTOLIN HFA inhaler**

716 **Follow these steps every time you use VENTOLIN HFA.**

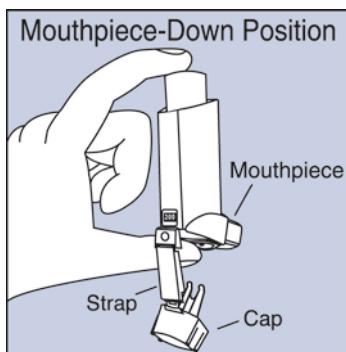


Figure E

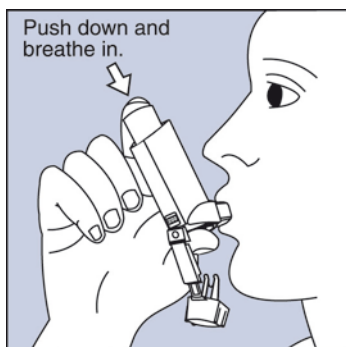


Figure F

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**Step 1.** Make sure the canister fits firmly in the actuator. The counter should show through the window in the actuator.

**Shake the inhaler well** before each spray.

Take the cap off the mouthpiece of the actuator. Look inside the mouthpiece for foreign objects, and take out any you see.

**Step 2.** Hold the inhaler with the mouthpiece down. **See Figure E.**

**Step 3.** Breathe out through your mouth and push as much air from your lungs as you can. Put the mouthpiece in your mouth and close your lips around it. **See Figure F.**

**Step 4.** Push the top of the canister **all the way down** while you breathe in deeply and slowly through your mouth. **See Figure F.**

**Step 5.** After the spray comes out, take your finger off the canister. After you have breathed in all the way, take the inhaler out of your mouth and close your mouth.

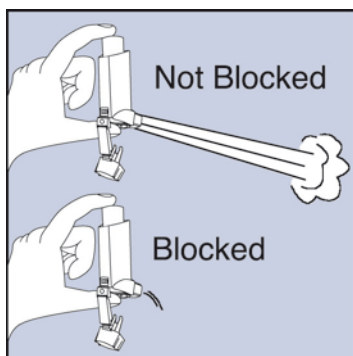
**Step 6.** **Hold your breath for about 10 seconds**, or for as long as is comfortable. **Breathe out slowly as long as you can.**

**If your healthcare provider has told you to use more sprays**, wait 1 minute and shake the inhaler again. Repeat Steps 2 through Step 6.

**Step 7.** Put the cap back on the mouthpiece after every time you use the inhaler. Make sure it snaps firmly into place.

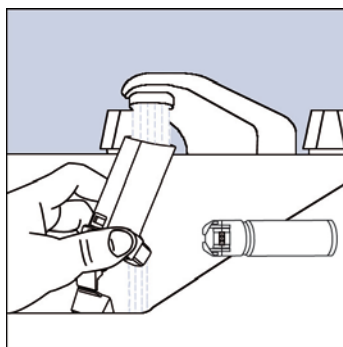
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## Cleaning your VENTOLIN HFA inhaler



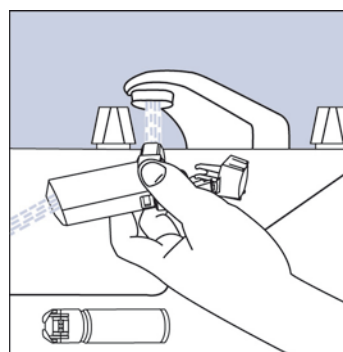
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**Figure G**



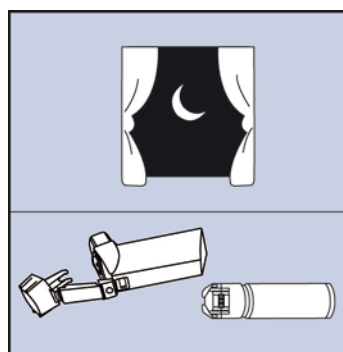
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**Figure H**



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**Figure I**



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**Figure J**

768 Clean your inhaler at least 1 time each week. You  
769 may not see any medicine build-up on the inhaler,  
770 but it is important to keep it clean so medicine build-  
771 up will not block the spray. **See Figure G.**

772 **Step 8.** Take the canister out of the actuator, and  
773 take the cap off the mouthpiece. The strap  
774 on the cap will stay attached to the  
775 actuator.

776 **Step 9.** Hold the actuator under the faucet and run  
777 warm water through it for about  
778 30 seconds. **See Figure H.**

779 **Step 10.** Turn the actuator upside down and run  
780 warm water through the mouthpiece for  
781 about 30 seconds. **See Figure I.**

782 **Step 11.** Shake off as much water from the actuator  
783 as you can. Look into the mouthpiece to  
784 make sure any medicine build-up has been  
785 completely washed away. If there is any  
786 build-up, repeat Steps 9 and 10.

787 **Step 12.** Let the actuator air-dry overnight. **See**  
788 **Figure J.**

789 **Step 13.** When the actuator is dry, put the  
790 protective cap on the mouthpiece and then  
791 put the canister in the actuator and make  
792 sure it fits firmly. Shake the inhaler well,  
793 remove the cap, and spray the inhaler once  
794 into the air away from your face. (The  
795 counter will count down by 1 number.) Put  
796 the cap back on the mouthpiece.

797 **If you need to use your inhaler before the actuator is completely dry:**

- 798 • Shake as much water off the actuator as you can.
- 799 • Put the cap on the mouthpiece and then put the canister in the actuator  
800 and make sure it fits firmly.
- 801 • Shake the inhaler well and spray it 1 time into the air away from your  
802 face.
- 803 • Take your VENTOLIN HFA dose as prescribed.
- 804 • Follow cleaning Steps 8 through 13 above.

805

806 **Replacing your VENTOLIN HFA inhaler**

- 807 • **When the counter reads 020**, you should refill your prescription or ask  
808 your healthcare provider if you need another prescription for VENTOLIN  
809 HFA.
- 810 • **Throw the inhaler away** when the counter reads **000** or 12 months  
811 after you opened the foil pouch, whichever comes first. You should not  
812 keep using the inhaler when the counter reads **000** because you may not  
813 receive the right amount of medicine.
- 814 • **Do not use the inhaler** after the expiration date, which is on the  
815 packaging it comes in.

816

817 **For correct use of your VENTOLIN HFA inhaler, remember:**

- 818 • The canister should always fit firmly in the actuator.
- 819 • Breathe in deeply and slowly to make sure you get all the medicine.
- 820 • Hold your breath for about 10 seconds after breathing in the medicine.  
821 Then breathe out fully.
- 822 • Always keep the protective cap on the mouthpiece when your inhaler is  
823 not in use.
- 824 • Always store your inhaler with the mouthpiece pointing down.
- 825 • Clean your inhaler at least 1 time each week.

826

827 If you have questions about VENTOLIN HFA or how to use your inhaler, call  
828 GlaxoSmithKline (GSK) at 1-888-825-5249 or visit [www.ventolin.com](http://www.ventolin.com).

829

830 This Patient Information and Instructions for Use have been approved by the U.S.  
831 Food and Drug Administration.

832

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837 Research Triangle Park, NC 27709

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841 December 2014

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