**FIXED-COMBINATION(S)**
With ipratropium, a bronchodilator (Combivent).

**CLASSIFICATION**
Bronchodilator

**PHARMACOTHERAPEUTIC:** Sympathomimetic (adrenergic agonist)

**PREGNANCY/LACTATION**
Category C: Appears to cross placenta; unknown if distributed in breast milk. May inhibit uterine contractility.

**AVAILABILITY (Rx)**
Tablets: 2 mg, 4 mg. Tablets (extended-release): 4 mg. Syrup: 2 mg/5 ml. Aerosol: Metered dose inhaler. Solution for Inhalation: 0.83 mg/ml, 5 mg/ml. Capsules for inhalation: 200 mcg, 400 mcg.

**PHARMACOKINETICS**

<table>
<thead>
<tr>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>5–15 min</td>
<td>0.5–2 hrs</td>
</tr>
<tr>
<td>Oral</td>
<td>5–15 min</td>
<td>0.5–2 hrs</td>
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</tbody>
</table>

**ACTION/THERAPEUTIC EFFECT**
Stimulates beta-adrenergic receptors in the lungs, resulting in relaxation of bronchial smooth muscle. Relieves bronchospasm, reduces airway resistance.

**USES**
Relief of bronchospasm due to reversible obstructive airway disease, exercise-induced bronchospasm.

**ADMINISTRATION/HANDLING**
Oral
- Do not crush or break extended-release tablets.

**INDICATION/ROUTE/DOSAGE**

**Bronchospasm**

**Inhalation (Aerosol):** Adults, elderly, children >12 yrs: 2 inhalations q1–6h. One inhalation q4h may be sufficient in some pts. Wait 1–10 min before administering second inhalation.

**Inhalation (Capsules):** Adults, elderly, children >4 yrs: 200–400 mcg q4–6h.

**Inhalation (Solution):** Adults, elderly: 2.5 mg 3–4 times/day by nebulization.

**Tablets:** Adults, children >12 yrs: 2 or 4 mg 3–4 times/day. Gradually increased to maximum dose of 8 mg 4 times/day (32 mg/day). Children 6–12 yrs: Initially, 2 mg 3–4 times/day. Gradually increased to maximum dose of 24 mg/day in divided doses. Elderly: 2 mg 3–4 times/day. Gradually increased to maximum dose of 8 mg 3–4 times/day.

**Syrup:** Adults, children >14 yrs: 2–4 mg 3–4 times/day. Maximum: 32 mg/day. Children 6–14 yrs: 2 mg 3–4 times/day. Dosage may be gradually increased to 2 mg/kg/day in divided doses. Children 2–6 yrs: Initially, 0.1 mg/kg 3 times/day (do not exceed 2 mg/kg 3 times/day). Gradually increased to 0.2 mg/kg 3 times/day (do not exceed 4 mg 3 times/day).

**Extended Release:** Adults, children >12 yrs: 4 or 8 mg q12h. May be gradually increased to 16 mg daily.

**ADVERSE REACTIONS/TOXIC EFFECTS**
Excessive sympathomimetic stimulation may produce palpitations, extra systoles, tachycardia, chest pain, slight increase in B/P followed by substantial decrease, chills, sweating, blanching of skin. Too frequent or excessive use may lead to loss of bronchodilating effectiveness and/or severe, paradoxical bronchoconstriction.

**NURSING IMPLICATIONS**

**Baseline Assessment:** Offer emotional support (high incidence of anxiety due to difficulty in breathing and sympathomimetic response to drug).

**Intervention/Evaluation:** Monitor rate, depth, rhythm, type of respiration, quality and rate of pulse. Assess lung sounds for wheezing (bronchoconstriction) and rales.

**Patient/Family Teaching:** Instruct on proper use of inhaler. Increase fluid intake (decreases lung secretion viscosity). Do not take more than 2 inhalations at any one time (excessive use may produce paradoxical bronchoconstriction or a decreased bronchodilating effect). Rinse mouth with water immediately after inhalation may prevent mouth/throat dryness. Avoid excessive use of caffeine derivatives (chocolate, coffee, tea, cola, cocoa). Do not take OTC medications without physician approval: may increase sympathetic stimulation. Avoid smoking, smoke-filled areas.

**Lifespan Considerations:** Safety and efficacy not established in children ≤2 yrs (syrup) or ≤6 yrs (tablets). Elderly may be more sensitive to tremor or tachycardia due to age-related increased sympathetic sensitivity.