1  

**Butorphanol** (byoo-tor-fa-nole)  

**[High Alert](#)**  

**Classification**  

Therapeutic: opioid agonists  

Pharmacologic: opioid agonists/antagonists  

**Schedule IV**  

**Pregnancy Category C**  

**Indications**  


**Action**  

Binds to opiate receptors in the CNS. Alters the perception of and response to painful stimuli while producing generalized CNS depression. Has partial antagonist properties that may result in opioid withdrawal in physically dependent patients. Therapeutic Effects: Decreased severity of pain.  

**Pharmacokinetics**  

Absorption: Well absorbed from IM sites and nasal mucosa.  

Distribution: Crosses the placenta and enters breast milk.  

Metabolism and Excretion: Mostly metabolized by the liver; 11–14% excreted in the feces. Minimal renal excretion.  

Half-life: 3–4 hr.  

**TIME/ACTION PROFILE (analgesia)**  

<table>
<thead>
<tr>
<th>Administration</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>within 15 min</td>
<td>30–60 min</td>
<td>3–4 hr</td>
</tr>
<tr>
<td>IV</td>
<td>within 15 min</td>
<td>2–3 hr</td>
<td>2–4 hr</td>
</tr>
<tr>
<td>Intranasal</td>
<td>within 15 min</td>
<td>1–2 hr</td>
<td>4–5 hr</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**  

Contraindicated in: Hypersensitivity. Patients physically dependent on opioids (may precipitate withdrawal).  

**Use Cautiously in:** Head trauma; intracranial pressure; severe renal, hepatic, or pulmonary disease; severe cerebral arteriosclerosis; defensive reactions; drug dependency (may precipitate withdrawal); hypothyroidism; adrenal insufficiency; disordered sleep; uncontrolled intracranial pressure; Prinzmetal angina; **Pregnancy**; **Pedi**: Safety not established but has been used during labor (may cause respiratory depression in the newborn).  

**Adverse Reactions/Side Effects**  

**CNS:** confusion, dysphoria, hallucinations, sedation, euphoria, floating feeling, headache. **EENT:** blurred vision, diplopia, miosis (high doses). **Resp:** respiratory depression. **CV:** hypertension, hypotension, palpitations. **GI:** nausea, constipation, dry mouth, diarrhea, vomiting, GI sensory disturbances. **Derm:** sweating, clammy feeling. **Misc:** physical dependence, psychological dependence, tolerance.  

**Interactions**  

**Drug-Drug:** Use with extreme caution in patients receiving MAO inhibitors (may produce severe, potentially fatal reactions—reduce initial dose of butorphanol to 25% of usual dose). Additive CNS depression with alcohol, antidepressants, antihistamines, and sedative/hypnotics. May precipitate withdrawal in patients who are physically dependent on opioids and have not been detoxified. May affect effects of concurrently administered opioids.  

**Drug-Natural Products:** Concomitant use of kava-kava, valerian, chamomile, or hops may potentiate CNS depression.  

**Route/Dosage**  

**IM (Adults):** 2 mg q 3–4 hr as needed (range 1–4 mg).  

**IV (Adults):** 1 mg q 3–4 hr as needed (range 0.5–2 mg).  

**Intranasal (Adults):** 1 mg (1 spray in 1 nostril) initially. An additional dose may be given 60–90 min later. This sequence may be repeated in 3–4 hr.  

**Intranasal (Geriatric Patients):** 1 mg (1 spray in 1 nostril) initially. An additional dose may be given 90–120 min later. This sequence may be repeated in 3–4 hr.  

**Assessment**  

- assess type, location, and intensity of pain before and 30–60 min after IM, 5 min after IV, and 60–90 min after intranasal administration. When titrating opioid therapy, evaluate effectiveness of analgesia, patient’s response, and adverse effects.  

**NURSING IMPLICATIONS**  

- **Assessment:**  
  - Monitor type, location, and intensity of pain before and 30–60 min after IM, 5 min after IV, and 60–90 min after intranasal administration. When titrating opioid therapy, evaluate effectiveness of analgesia, patient’s response, and adverse effects.  

- **Implementation:**  
  - Intranasal: 1 mg (1 spray in 1 nostril) initially. An additional dose may be given 60–90 min later. This sequence may be repeated in 3–4 hr.  

- **Patient/Family Education:**  
  - Provide patient with written literature.  

- **Side Effects/Adverse Reactions:**  
  - Use with extreme caution in patients receiving MAO inhibitors (may produce severe, potentially fatal reactions—reduce initial dose of butorphanol to 25% of usual dose). Additive CNS depression with alcohol, antidepressants, antihistamines, and sedative/hypnotics. May precipitate withdrawal in patients who are physically dependent on opioids and have not been detoxified. May affect effects of concurrently administered opioids.  

- **Nursing Considerations:**  
  - Use with extreme caution in patients receiving MAO inhibitors (may produce severe, potentially fatal reactions—reduce initial dose of butorphanol to 25% of usual dose). Additive CNS depression with alcohol, antidepressants, antihistamines, and sedative/hypnotics. May precipitate withdrawal in patients who are physically dependent on opioids and have not been detoxified. May affect effects of concurrently administered opioids.  

- **Contraindications:**  
  - Hypersensitivity. Patients physically dependent on opioids (may precipitate withdrawal).  

- **Precautions:**  
  - Use with extreme caution in patients receiving MAO inhibitors (may produce severe, potentially fatal reactions—reduce initial dose of butorphanol to 25% of usual dose). Additive CNS depression with alcohol, antidepressants, antihistamines, and sedative/hypnotics. May precipitate withdrawal in patients who are physically dependent on opioids and have not been detoxified. May affect effects of concurrently administered opioids.  

- **Dosage and Administration:**  
  - Intranasal: 1 mg (1 spray in 1 nostril) initially. An additional dose may be given 60–90 min later. This sequence may be repeated in 3–4 hr.
doses, increases of 25—30% should be administered until there is either a 30% reduction in the patient’s pain rating on a numerical or visual analog scale or the patient reports satisfactory pain relief. A repeat dose can be safely administered at the time of the peak of previous dose if ineffective and side effects are minimal. Patients requiring doses higher than 4 mg should be converted to an opioid agonist. Butorphanol is not recommended for prolonged use or as first-line therapy for acute or cancer pain.

- All intravenous infusion sets (see Appendix B) should be used when changing routes or when changing from one opioid to another.
- Assess BP, pulse, and respiration before and periodically during administration. If respiratory rate is < 15/min, assess level of sedation. Dose may need to be decreased by 25—30%. Respiratory depression does not increase in severity, only in duration, with increased dosage.

The depressant properties may induce withdrawal symptoms (vomiting, restlessness, abdominal cramps, increased BP and temperature) in patients who are physically dependent on opioid agonists.

- Butorphanol has a lower potential for dependence than other opioids; however, patients receiving butorphanol for pain do not develop psychological dependence. If tolerance develops, changing to an opioid agonist may be required to relieve pain. Butorphanol is not recommended for prolonged use or as first-line therapy for acute or cancer pain.
- Explain therapeutic value of medication before administration to enhance the an-}

### Toxicity and Overdose:
- Lab Test Considerations:

- Y-Site Compatibility:
- pH:
- Rate:

### Potential Nursing Diagnoses
- Risk for Injury (Side Effects)
- Risk for Alteration in Sensorium (Side Effects)
- Risk for Impaired Verbal Communication (Side Effects)
- Risk for Ineffective Management of Pain (Side Effects)

### Implementation
- **High Alert:** Accidental overdose of opioid analgesics has resulted in fatalities. Before administering, clarify all orders and ensure independent check of original order, dose calculations, route of administration, and infusion pump programming.

- **Y-Site Compatibility:** acetaminophen, allopurinol, amikacin, ampicillin, amphotericin B lipid complex, amphotericin B liposome, azathioprine, aztreonam, bleomycin, busulfan, cyclophosphamide, cyclosporine, dacarbazine, daunorubicin, dexamethasone, dose, doxorubicin, epirubicin, etoposide, fludarabine, fosphenytoin, furosemide, gemcitabine, gentamicin, ganciclovir, granisetron, haloperidol, heparin, hydrocortisone, hydromorphone, imipenem/cilastatin, irinotecan, itraconazole, leucovorin, levetiracetam, levofloxacin, linezolid, lorazepam, magnesium sulfate, mannitol, melphalan, meropenem, methotrexate, metronidazole, mitoxantrone, mitomycin, mitoxantrone, mitrazole, nafcillin, nalbuphine, naloxone, norepinephrine, oxaliplatin, oxacillin, oxazepam, piperacillin, plasmopha-
**butorphanol**

* *Canadian drug name.*

**Genetic Implication.** CAPI TALS indicate life-threatening, underline indicate most frequent. Strikethrough indicates discontinued.

**Discontinued.**

**CONTINUED**

**Canadian drug name.**

**Genetic Implication.** CAPI TALS indicate life-threatening, underline indicate most frequent. Strikethrough indicates discontinued.

**Discontinued.**

**Y-Site Incompatibility:** amphotericin B cholesteryl, amphotericin B colloidal, azathioprine, chloramphenicol, dantrolene, diazepam, diazoxide, furosemide, ganciclovir, indomethacin, insulin, pantoprazole, pentamidine, pentobarbital, phenytoin, sodium bicarbonate, trimethoprim/sulfamethoxazole.

**Intranasal:** 1 spray in each nostril.

**Patient/Family Teaching**

- Instruct patient on how and when to ask for pain medication.
- Medication may cause drowsiness or dizziness. Advise patient to call for assistance when ambulating and to avoid driving or other activities requiring alertness until response to the medication is known.
- Encourage patients on bedrest to turn, cough, and deep breathe every 2 hr to prevent atelectasis.
- Instruct patient to change position slowly to minimize orthostatic hypotension.
- Caution patients to avoid concurrent use of alcohol or other CNS depressants with this medication.
- Instruct patient to keep oral hygiene clean with frequent mouth rinses, and unsweetened gum or candy may decrease dry mouth.
- If 2-mg dose is prescribed, administer additional spray in other nostril. May cause dizziness and drowsiness. Patient should remain recumbent after administration of 2-mg dose until response to medication is known.

**Evaluation/Desired Outcomes**

- Decrease in severity of pain without a significant alteration in level of consciousness or respiratory status.

Why was this drug prescribed for your patient?