Fentanyl Transdermal (fentanyl)

**Use Cautiously in:**
- Diabetes
- Patients with severe pulmonary disease
- Patients with severe hepatic or renal impairment
- CNS tumors
- Intracranial pressure
- Head trauma
- Adrenal insufficiency
- Undiagnosed abdominal pain
- Fever or situations that increase body temperature
- Titration period (additional analgesics may be required)
- Cachectic or debilitated patients
- Pediatric patients initiating therapy at 25 mcg/hr should be opioid tolerant and receiving at least 60 mg oral morphine equivalents per day
- Geriatric patients are at increased risk of adverse effects.

**Contraindications/Precautions**
- Hypersensitivity to fentanyl or adhesives
- Patients who are not opioid tolerant
- Acute, mild, intermittent, or postoperative pain
- Significant respiratory depression
- Acute or severe bronchial asthma
- Paralytic ileus
- Severe hepatic or renal impairment
- Alcohol intolerance
- OB: Not recommended during labor and delivery
- Lactation: May cause adverse affects in infant

**Pharmacokinetics**
- Absorption: Well absorbed (92% of dose) through skin surface under transdermal patch, creating a depot in the upper skin layers. Release from transdermal system into systemic circulation gradually to a constant rate, providing continuous delivery for 72 hr.
- Distribution: Crosses the placenta, enters breast milk.
- Metabolism and Excretion: Mostly metabolized by the liver (CYP3A4 enzyme system), 10–25% excreted unchanged by the kidneys.
- Half-life: 17 hr after removal of a single application patch, 21 hr after removal of multiple patches (because of continued release from depot of drug in skin layers).

**Adverse Reactions/Side Effects**
- CNS: Confusion, sedation, weakness, dizziness, restlessness
- Resp: Apnea, bronchoconstriction, laryngospasm, respiratory depression
- CV: Bradycardia
- GI: Anorexia, constipation, dry mouth, nausea, vomiting
- Derm: Rash, urticaria, pruritus, sweating
- Local: Application site reactions
- MS: Skeletal and thoracic muscle rigidity
- Misc: Physical dependence, psychological dependence

**Interactions**
- Drug-Drug: Avoid use in patients who have received MAO inhibitors within the previous 14 days (may produce unpredictable, potentially fatal reactions). Concurrent use of CYP3A4 inhibitors including ritonavir, clarithromycin, nefazodone, amiodarone, diltiazem, erythromycin.
Transdermal (Adults): Initial dose should be 25 mcg/hr (or 1.5 mg fentanyl transdermal system; a 25–50% decrease in plasma levels and the risk of respiratory and CNS depression. Dose may need to be decreased by 25–50%. Initial drowsiness will diminish with continued use.

- Prolonged use may lead to physical and psychological dependence and tolerance. This should not prevent patient from receiving adequate analgesia. Most patients who receive opioid analgesics for pain do not develop psychological dependence.

- Progressively higher doses may be required to relieve pain with long-term therapy. It may take up to 6 days after increasing doses to reach equilibration, so patients should wear higher dose through 2 applications before increasing dose again.

- Assess bowel function routinely. Prevent constipation with increased intake of fluids and bulk, and laxatives to minimize constipating effects. Alternative stimulation (e.g., suppository) should be used in patients unable to tolerate liquid laxatives.

- Toxicity and Overdose: If an opioid antagonist is required to reverse respiratory depression or coma, naloxone is the antidote. Doses of naloxone may be required in 10 mg increments until patient response is observed (e.g., patient's respiratory rate increases and blood pressure increases). Naloxone may be repeated or may need to be administered as an infusion because of short duration of action despite removal of the patch.

Potential Nursing Diagnoses
- Chronic pain (Indications)
- Pain control (Side Effects)

Implementation
- Do not confuse fentanyl with sufentanil.

- High dose: Accidental overdose of opioid analgesics has resulted in fatalities. Before administering, confirm patient’s opioid tolerance and clarify ambiguous orders. Have second practitioner independently check original order and dose calculations.

- 0.01 mcg placebo delivers 12.5 mcg of fentanyl. For supplemental doses of short-acting opioid analgesics to manage pain until relief is obtained with the transdermal system, patients may continue to require supplemental opioids for breakthrough pain. H–10 mcg/kg is required, use multiple transdermal systems.

- Titrate dose based on patient’s report of pain until adequate analgesia (50% reduction in patient’s pain rating on numerical or visual analogue scale or patient

Physical stimulation may be sufficient to prevent significant hypoventilation. Dose may need to be decreased by 25–50%. Initial drowsiness will diminish with continued use.

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fentanyl (transdermal)

- Reports satisfactory relief is attained. Determine dose by calculating the previous 24-hr analgesic requirement and converting to the equianalgesic morphine dose using Appendix B. The conversion ratio from morphine to transdermal fentanyl is conservative; 50% of patients may require a dose increase after initial application. Increase after 3 days based on required daily doses of supplemental analgesics. Increases should be based on ratios of 4.5 mg/24 hr of oral morphine to 12.5 mcg/hr increases in transdermal fentanyl.
- Coadministration with nonopioid analgesics may have additive analgesic effects and permit lower opioid doses.
- To convert to another opioid analog, remove transdermal fentanyl system and begin treatment with half the equivalent dose of the new analog in 15–18 hr.
- Medications should be discontinued gradually after long-term use to prevent withdrawal symptoms.
- Transdermal: Apply system to flat, nonirritated, and nonirradiated site such as chest, back, flank, or upper arm. If skin preparation is necessary, use clear water and clip, do not shave, hair. Allow skin to dry completely before application. Do not alter the system (i.e., cut) in any way before application. Remove liner from adhesive layer and press firmly in place with palm of hand for 30 sec, especially around the edges, to make sure contact is complete. Remove used system and fold so that adhesive edges are together. Flush system down toilet immediately on removal or follow the institutional policy. Apply new system to a different site.

Patient/Family Teaching
- Instruct patient in how and when to ask for and take pain medication.
- Instruct patient in correct method for application and disposal of transdermal system. Discarded patches may be worn while bathing, showering, or swimming.
- Advise patient to avoid grapefruit juice during therapy.
- May cause drowsiness or dizziness. Caution patient to call for assistance when ambulating or smoking and to avoid driving or other activities requiring alertness until response to medication is known.
- Advise patient to change positions slowly to minimize dizziness.
- Caution patient to avoid concurrent use of alcohol or other CNS depressants with this medication.
- Advise patient that fever, electric blankets, heating pads, saunas, hot tubs, and located water beds decrease the release of fentanyl from the patch.
- Advise patient that good oral hygiene, frequent mouth rinses, and soft foods or candy may decrease the mouth.
- Advise patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult with health care professional before taking other medications.
- Instruct female patient to notify health care professional of pregnancy or if breast feeding.
- Advise patient referred for MRI test to discuss patch with referring health care professional and MRI facility to determine if removal of patch is necessary prior to test and for directions for replacing patch.

Evaluation/Desired Outcomes
- Decrease in severity of pain without a significant alteration in level of consciousness, respiratory status, or BP.

Why was this drug prescribed for your patient?