

# Alfentanil

**Brand names** Alfenta, generic

**Medication error potential** ISMP high-alert medication that has an increased risk of causing significant patient harm if it is used in error.<sup>(1)</sup>  
Look-alike, sound-alike drug names  
USP reports that alfentanil has been confused with SUFentanil; no patient harm resulted.<sup>(2)</sup>

**Contraindications and warnings** **Contraindications:** Alfentanil is contraindicated in patients with a hypersensitivity to the drug or known intolerance to opioid agonists.<sup>(4)</sup>  
**Warnings:** Alfentanil should only be administered by persons specifically trained in the use of IV anesthetics.<sup>(4)</sup>

**Infusion-related cautions** Significant bradycardia, muscle or chest wall rigidity (dose-related), and apnea may occur early in administration of alfentanil or following rapid administration.<sup>(4,5)</sup> Pretreatment with atropine and a nondepolarizing neuromuscular blocking agent may aid in minimizing these adverse effects. Ventilatory support is indicated.<sup>(4)</sup>  
An opioid antagonist, resuscitation and intubation equipment and oxygen should be readily available when using alfentanil.<sup>(4)</sup>

**Dosage** *Alfentanil is not recommended in children <12 years.*<sup>(4)</sup>  
Dosages vary depending on the desired degree of analgesia/anesthesia and adjunctive therapies (e.g., halothane, propofol).  
**Dosing adjustment for obesity:** When dosing obese (>20% above ideal body weight) patients, use lean body weight.<sup>(4)</sup> Some authors recommend using total body weight for loading dose, then ideal or lean body weight afterward.<sup>(23)</sup> (See Appendix B.)  
**Anesthesia (children >12 years and adults)**<sup>(4,6)</sup>  
**Spontaneously breathing or assisted ventilation when required:** Induction 8–20 mcg/kg; maintenance 3–5 mcg/kg q 5–20 min or 0.5–1 mcg/kg/min (total dose 8–40 mcg/kg).  
**Assisted or controlled ventilation**  
**Incremental injection (for laryngoscopy and intubation):** Induction 20–50 mcg/kg; maintenance 5–15 mcg/kg q 5–20 min (total dose up to 75 mcg/kg).  
**Continuous infusion: (to attenuate response to intubation and incision):** Induction 50–75 mcg/kg; maintenance 0.5–3 (average 1–1.5) mcg/kg/min; titrate to desired effect; total dose dependent on procedure.  
**Anesthetic induction:** Induction 130–245 mcg/kg; maintenance 0.5–1.5 mcg/kg/min or general anesthetic; total dose dependent on procedure (administer slowly over 3 minutes; concentration of inhalation agents should be decreased by 30% to 50% for first hour). After an anesthetic induction dose, the alfentanil infusion rate is reduced by 30% to 50% for the first hour of the maintenance infusion.  
**Monitored anesthesia care (MAC)**  
**For sedated and responsive, spontaneously breathing patients:** Induction 3–8 mcg/kg; maintenance 3–5 mcg/kg q 5–20 min or 0.25–1 mcg/kg/min (total dose 3–40 mcg/kg).  
**The following doses have been reported in children <12 years:**  
**Neonates (preterm and term) and infants**  
**Sedation/analgesia during mechanical ventilation:** 9–25 mcg/kg over 0.5–1 minute<sup>(5,7)</sup> or 15–20 mcg/kg over 30 minutes followed by an infusion of 3–5 mcg/kg/hr<sup>(8)</sup>



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<b>Dosage (cont.)</b>	<p><b>Anesthesia:</b> 20 mcg/kg to facilitate intubation<sup>(9)</sup>; 25 mcg/kg alone, or 12 mcg/kg with regional nerve block to provide analgesia during abdominal or genitourinary surgery<sup>(10)</sup></p> <p><b>Children (&lt;12 years)</b></p> <p><b>Sedation/analgesia in spontaneously breathing patients:</b> 20 mcg/kg along with propofol was given to 20 patients for lumbar punctures. Supplemental oxygen was required in 50% of patients.<sup>(11)</sup></p> <p><b>Anesthesia:</b> Induction 10–100 mcg/kg (12.5–25 mcg/kg when combined with halothane)<sup>(12-17)</sup>; maintenance 2.5–5 mcg/kg/min.<sup>(13)</sup> Analgesia during surgery: 25 mcg/kg alone or 12 mcg/kg with regional nerve block to provide analgesia during abdominal or genitourinary surgery.<sup>(10)</sup></p> <p><b>Infants and children on cardiac bypass (congenital heart repair):</b> 20 mcg/kg for induction followed by continuous infusion of 1 mcg/kg/min with supplemental doses of 5 mcg/kg PRN<sup>(18)</sup></p>
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<b>Dosage adjustment in organ dysfunction</b>	No dosage adjustment is required in patients with renal dysfunction. <sup>(19)</sup> Patients with hepatic dysfunction may require smaller doses to achieve the same therapeutic effect. <sup>(4)</sup> Repeated doses may lead to medication accumulation; therefore, caution is warranted on administration of alfentanil to patients with liver dysfunction. <sup>(4)</sup>
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<b>Maximum dosage</b>	Dosages are titrated to the desired level of sedation or analgesia. <sup>(4)</sup>
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<b>Additives</b>	None. Contains sodium chloride 9 mg/mL. <sup>(4)</sup>
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<b>Suitable diluents</b>	D5W, D5NS, NS, LR <sup>(20)</sup>
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<b>Maximum concentration</b>	500 mcg/mL (undiluted) <sup>(4,20)</sup>
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<b>Preparation and delivery</b>	<i>Parenteral products should be visually inspected for particulate matter and discoloration before use. Refer to appropriate reference for more information on compatibility with other drugs and solutions, compatibility following Y-site delivery, and suggested storage and extended stability.</i> <sup>(20)</sup>
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<b>IV push</b>	≤500 mcg/mL over 3–5 minutes. <sup>(4,20)</sup> Doses ≤100 mcg/kg have been given over 30 seconds. <sup>(13,17)</sup> (See the Infusion-Related Cautions section.)
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<b>Intermittent infusion</b>	25–80 mcg/mL concentrations have been reported, though the manufacturer makes no recommendation on the desired concentration for intermittent infusion. <sup>(8,20)</sup>
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<b>Continuous infusion</b>	25–80 mcg/mL concentrations have been reported. <sup>(4,8,12,13)</sup> (See the Dosage section.) After an anesthetic induction dose, the infusion rate is reduced by 30% to 50% for the first hour of the maintenance infusion. <sup>(4)</sup>
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<b>Other routes of administration</b>	No information is available to support administration by other routes.
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<b>Comments</b>	<p><b>Significant adverse effects:</b> Delayed respiratory depression, respiratory arrest, bradycardia, asystole, arrhythmias, and hypotension have been reported with alfentanil use.<sup>(4)</sup></p> <p>Epileptiform activity has occurred in patients receiving alfentanil during epilepsy surgery.<sup>(21,22)</sup></p>
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**Pharmacokinetic considerations:** Molecular weight 452.98<sup>(4)</sup>

