Dosing Guidelines for Precedex®

Nonintubated Procedural Sedation

and

ICU Sedation

Precedex®
(dexmedetomidine HCl Injection)

Precedex® Overview

- Precedex is indicated for sedation of initially intubated and mechanically ventilated patients during treatment in an intensive care setting and for sedation of nonintubated patients prior to and/or during surgical and other procedures.[1]
- Precedex should be administered by continuous infusion not to exceed 24 hours.
- Precedex should be administered only by persons skilled in the management of patients in the intensive care or operating room setting.[1]
- Due to the known pharmacologic effects of Precedex, patients should be continuously monitored.[1]
- The most common adverse reactions with Precedex (incidence >2%) are hypotension, bradycardia and dry mouth.[1]
- Due to the increased incidence of bradycardia and hypotension in the elderly, and the potential for reduced clearance in patients with impaired hepatic or renal function, dose reductions should be considered in these patient types.[1]

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What to Expect

Cardiovascular Effects

- Clinically significant episodes of bradycardia and sinus arrest have been associated with Precedex administration in young, healthy volunteers with high vagal tone or with different routes of administration, such as rapid intravenous infusion or bolus administration.[1]
- Moderate heart rate and blood pressure reductions should be anticipated with Precedex.[2]
- If medical intervention is required for Precedex-induced hypotension or bradycardia, treatment may include[1,3]:
  - Decreasing or stopping the infusion of Precedex
  - Increasing the rate of IV fluid administration
  - Elevation of lower extremities
  - Use of pressor agents, such as glycopyrrolate, atropine or ephedrine
- Because Precedex decreases sympathetic nervous system activity, hypotension and/or bradycardia may be expected to be more pronounced in hypovolemic patients and in patients with diabetes mellitus or chronic hypertension, as well as in the elderly.[1]
- Because Precedex has the potential to augment bradycardia induced by vagal stimuli, clinicians should be prepared to intervene with anticholinergic agents (e.g., atropine, glycopyrrolate or ephedrine) to modify vagal tone.[1,3]
- Caution should be exercised when administering Precedex to patients with advanced heart block and/or severe ventricular dysfunction.[1]
- Use with caution when coadministering with other vasodilators or negative chronotropic agents due to additive pharmacodynamic effects.[1]
- Transient hypertension has been observed primarily during the loading dose in association with the initial peripheral vasoconstrictive effects of Precedex. Treatment has generally not been necessary, although reduction of the loading infusion rate may be desirable.[1]

ICU Sedation

- In two pivotal Phase III clinical trials of ICU patients treated with Precedex®, the largest mean decrease in heart rate was approximately 7% and the largest mean decreases in systolic and diastolic blood pressures were 10% and 11%, respectively.[2]

Procedural Sedation

- Precedex has been studied in two pivotal Phase III clinical trials of nonintubated patients receiving monitored anesthesia care (MAC) sedation for a variety of surgical procedures as well as patients undergoing awake fiberoptic intubation.[1]
- The table on page 5 shows the frequency at which Precedex-sedated patients undergoing MAC sedation may experience hypotension or bradycardia and the frequency at which certain types of interventions may be needed to manage these adverse events.

Incidence and Interventions for Hypotension, Bradycardia in Patients Undergoing Procedural Sedation[3]

	Hypotension* (n=318)	Bradycardia† (n=318)
Overall Incidence	173 (54%)	45 (14%)
Intervention	(n=173)	(n=45)
No Intervention Required	113 (65%)	33 (73%)
Intervention Required	60 (35%)	12 (27%)
Type of Intervention When Required‡	(n=173)	(n=45)
Ephedrine or Phenylephrine	55 (32%)	1 (2%)
Glycopyrrolate	-	7 (16%)
Atropine	-	1 (2%)
Calcium Chloride	2 (1%)	-
Dopamine	1 (<1%)	-
IV Fluid Administration	16 (9%)	-
Precedex Dose Reduced	9 (5%)	-
Precedex Discontinued	1 (<1%)	1 (2%)

*Hypotension was defined in pivotal trial protocols in absolute and relative terms as SBP <80 mm Hg, DBP <50 mm Hg or >30% decrease from prestudy drug infusion values.

†Bradycardia was defined in pivotal trial protocols as <40 beats per minute or >30% decrease from prestudy drug infusion values.

‡Other possible interventions included elevation of lower extremities. Patients may have received multiple forms of intervention.

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Treatment Options for Drug-induced Bradycardia or Hypotension

In Precedex® clinical trials, atropine, glycopyrrolate and ephedrine were effective in the treatment of most episodes of Precedex-induced bradycardia. However, in some patients with significant cardiovascular dysfunction, more advanced resuscitative measures were required.[1,3]

Glycopyrrolate Dosing for Drug-induced Bradycardia or Hypotension

Glycopyrrolate Injection may be used during surgery to counteract drug-induced or vagal reflexes and their associated arrhythmias (e.g., bradycardia). It should be administered intravenously as single doses of 0.1 mg (0.5 mL) and repeated, as needed, at intervals of 2 to 3 minutes.[4]

Atropine Dosing for Drug-induced Bradycardia or Hypotension

Initial single doses in adults vary from around 0.5 mg to 1 mg (5-10 mL of a 0.1 mg/mL solution). Administration of less than 0.5 mg can produce a paradoxical bradycardia because of the central or peripheral parasympathomimetic effects of low doses in adults.[5]

When the recurrent use of atropine is essential in patients with coronary artery disease, the total dose should be restricted to 2 to 3 mg (maximum 0.03 to 0.04 mg/kg) to avoid the detrimental effects of atropine-induced tachycardia on myocardial oxygen demand. For patients with bradyasystolic cardiac arrest, a 1 mg dose of atropine is administered intravenously and is repeated every 3 to 5 minutes if asystole persists. Three milligrams (0.04 mg/kg) given IV is a fully vagolytic dose in most patients. The administration of this dose of atropine should be reserved for patients with bradyasystolic cardiac arrest. Endotracheal administration of atropine can be used in patients without IV access. The recommended adult dose of atropine for endotracheal administration is 1 to 2 mg diluted to a total not to exceed 10 mL of sterile water or normal saline.[5]

Ephedrine Dosing for Drug-induced Bradycardia or Hypotension

Ephedrine is indicated to counteract the hypotensive effects of spinal or other types of nontopical conduction anesthesia. Depending on the clinical circumstances, Ephedrine Sulfate Injection may be given subcutaneously, intramuscularly or intravenously. Usual adult dose: 25 to 50 mg (range 10 to 50 mg) injected subcutaneously or intramuscularly (equivalent to 0.2 to 1 mL of 5% solution) is usually adequate to prevent or minimize hypotension secondary to spinal anesthesia. Repeat doses should be governed by blood pressure responses. Absorption (onset of action) by the intramuscular route is more rapid (within 10 to 20 minutes) than by subcutaneous injection. The intravenous route may be used if an immediate effect is desired.[6]

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Titrate Precedex® and Concomitant Medications to Effect

Coadministration of Precedex with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required.[1]

These effects have been demonstrated in pharmacodynamic studies of healthy subjects and in patients undergoing sedation while taking the medications listed below.

Anesthetic Gases	
• Sevoflurane[a,7]	• Isoflurane[b,c,8,9]
IV Sedatives or Anxiolytics	
• Midazolam[d,8]	• Propofol[e,10]
Opioid-based Analgesics	
• Morphine[f,11]	• Alfentanil[g,8]

These clinical trials are of different designs in a variety of patient populations. Because clinical trials are conducted under widely varying conditions, rates observed may not be directly compared to other trials and may not always reflect the rates observed in practice.

[a]Sevoflurane. Dexmedetomidine 0.7 ng/mL decreased the MAC of sevoflurane by 17% in patients undergoing elective surgery.[7]

[b]Isoflurane. Low- and high-dose infusions of dexmedetomidine decreased the end-tidal isoflurane concentration by 31%-50%, respectively, necessary to elicit the desired response in 50% of healthy subjects.[8]

[c]Isoflurane. Dexmedetomidine decreased the MAC of isoflurane by 47% in patients who also received thiopental and alfentanil as induction agents.[9]

[d]Midazolam. In healthy subjects, the effect of midazolam in combination with dexmedetomidine on sedation was synergistic, with greater degrees of synergy occurring at lower levels of sedation. At higher degrees of sedation, the augmentation of the effect of dexmedetomidine on midazolam was less pronounced.[8]

[e]Propofol. In healthy subjects, dexmedetomidine reduced the propofol concentrations required for sedation and suppression of motor response by approximately one half. Propofol doses required for sedation and induction of anesthesia may have to be reduced in the presence of dexmedetomidine.[10]

[f]Morphine. A single IV dose of 1 mcg/kg dexmedetomidine given 10 minutes before induction reduced postoperative morphine consumption by 28% at identical pain scores compared to control.[11]

[g]Alfentanil. In the presence of dexmedetomidine, less alfentanil is needed to produce the same degree of pain relief; thus, the impact on respiratory function can be lessened by reducing alfentanil when coadministered with Precedex.[8]

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Coadministration of Precedex® with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required.[1]

In Phase III placebo-controlled pivotal trials, patients were administered the study drug as well as a rescue sedative as needed to achieve an equivalent depth of sedation. Patients also received concomitant morphine or fentanyl as needed to control pain. Differences in coadministered dosages of rescue sedative and analgesics are shown in the table on page 11 for patients receiving Precedex and patients in the placebo control group.

Mean total dosages of coadministered sedatives and/or morphine in three placebo-controlled Phase III pivotal trials of Precedex in surgical ICU patients and patients undergoing MAC sedation.[1,12]

	Placebo Control	Precedex
Study 1 ICU Sedation **Propofol (mg)**	513	72
Study 2 ICU Sedation **Midazolam (mg)**	19	5
Study 3 MAC Sedation **Midazolam (mg)**	4.1	0.9 to 1.4*
Study 1 ICU Sedation **Morphine (mg/hr)**	0.89	0.43
Study 2 ICU Sedation **Morphine (mg/hr)**	0.83	0.47
Study 3 MAC Sedation **Fentanyl (mcg)**	151	86 to 85*

Patients in each study were titrated to achieve an equivalent level of sedation, either a Ramsay Sedation Score ≥3 or an OAA/S score ≤4.[1] Patients received either morphine or fentanyl as needed to maintain adequate analgesia.[1,12]

*Two Precedex strengths were used in the trial (1 mcg/kg loading dose and 0.5 mcg/kg loading dose, respectively, over 10 minutes and titrated to effect).

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Sedative Profile

Precedex® has a different mechanism of action than other IV sedatives, and the sedative profile may differ from that of other IV sedatives you are more accustomed to using.[1]

In pivotal clinical trials, patients were titrated to achieve an equivalent level of sedation using Precedex alone or in combination with midazolam, propofol, morphine or fentanyl. All patients were titrated to achieve either a Ramsay Sedation Score ≥3 or an OAA/S score ≤4. However, when stimulated, some patients were reported as arousable and alert.[1]

This is important for clinicians and caregivers to understand because the ability to be awakened while sedated with Precedex should not be considered as evidence of a lack of efficacy in the absence of other clinical signs and symptoms.[1]

The decision to administer additional analgesics or sedative medications should not be based solely on the ability to arouse a patient sedated with Precedex. The additive pharmacodynamic effects of sedative/hypnotic agents with opioid analgesics may produce unwanted side effects.[1]

Question the patient prior to administration of additional medications to assess accurately the status of the patient before determining the need for additional analgesics or sedative medications.

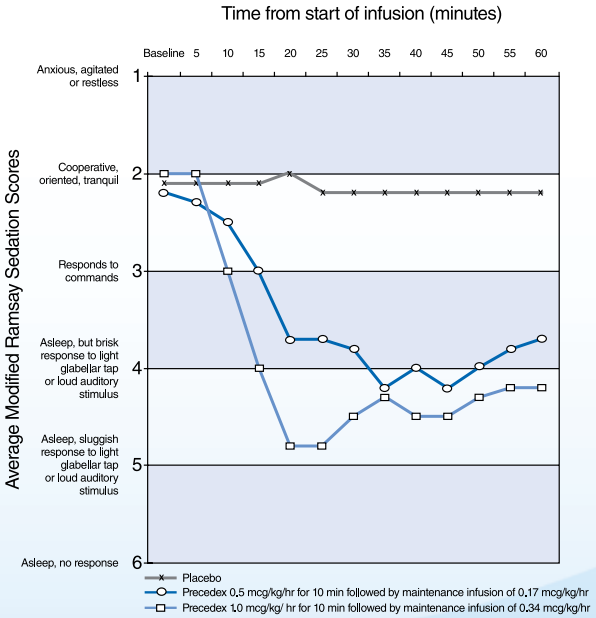
Time to Onset

Following infusion, Precedex exhibits a rapid distribution phase with a half-life of about 6 minutes.[1]

Based on sedation scores, a loading infusion of one mcg/kg over a 10-minute period provides clinically effective onset of sedation generally within 10 to 15 minutes after the start of the infusion.[13] If a loading dose is not used, time to onset of the sedative effect may be extended.

The terminal elimination half-life of Precedex is approximately 2 hours.[1]

Time to Sedative Onset with Precedex in Healthy Normal Subjects[13]



- When a loading dose of 1 mcg/kg is administered for 10 minutes followed by a maintenance infusion of 0.3 mcg/kg/hr, an average Ramsay Sedation Score of 4 to 5 was achieved 20 to 25 minutes after initiating infusion in healthy normal subjects.[13]
- When administering a lower loading dose of 0.5 mcg/kg over 10 minutes followed by a lower maintenance infusion of 0.2 mcg/kg/hr, an average Ramsay Sedation Score of 3 to 4 was achieved after 15 to 33 minutes.[13]

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Transitioning to Precedex® From Other IV Sedative Agents

Transitioning to Precedex involves maintaining a balance between adding Precedex and decreasing other preexisting sedatives and/or opioids due to the additive pharmacodynamic effects. This is important to know so that preexisting sedative agents are not titrated downward too quickly before the sedative effects of Precedex are observed, or too slowly, such that patients are oversedated.[1]

- Generally initiate Precedex maintenance infusion at 0.4 mcg/kg/hr. The titration range for Precedex in the ICU is 0.2 to 0.7 mcg/kg/hr.[1]
- Titrate down other concomitant sedatives as per their different pharmacokinetic/pharmacodynamic profiles.
- Full sedative effect of Precedex is generally not seen for 20 to 30 minutes.[13]
- Adjusting the Precedex dose too rapidly (i.e., less than 20 to 30 minutes) may not allow Precedex to reach its full sedative effects after each dosage adjustment.[13]
- Increasing Precedex dosages too rapidly could lead to oversedation and an increased potential for side effects.[1]
- Decreasing/discontinuing the patient's previous IV sedative therapy prior to the onset of Precedex could lead to periods of undersedation and an increased potential for agitation.

Important Pharmacodynamic Properties of Precedex to Understand When Transitioning from Other IV Sedatives

Coadministration of anesthetics, sedatives, hypnotics and opioids with Precedex can enhance the pharmacodynamic effects of these agents and a decrease in the dosage of Precedex or the concomitant medication may be required when initiating Precedex. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam.[1]

Because of the potential for enhanced pharmacodynamic effects of Precedex in combination with other IV sedatives it is especially important to wait 20 to 30 minutes after each dosage titration to determine the extent of each dosage modification so as to avoid oversedation and potential for increased incidence of side effects.[1,13]

With Precedex the time to onset of some sedative effect is generally 10 to 15 minutes when a 1 mcg/kg loading dose is administered over a 10 minute period. However, if a loading dose is not used, the initiation of a sedative effect may extend beyond 15 minutes.[13]

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Dosing in Special Patient Populations[1]

Pregnancy

There are no adequate and well-controlled studies in pregnant women. Precedex® should be used during pregnancy only if the potential benefits justify the potential risk to the fetus.

Labor and Delivery

The safety of Precedex during labor and delivery has not been studied. Therefore, Precedex is not recommended during labor and delivery including cesarean section deliveries.

Nursing Mothers

It is not known whether Precedex is excreted in human milk. Radio-labeled Precedex administered subcutaneously to lactating female rats was excreted in milk. Because many drugs are excreted in human milk, caution should be exercised when Precedex is administered to a nursing woman.

Pediatric Use

There have been no clinical studies to establish the safety and efficacy of Precedex in pediatric patients below 18 years of age. Therefore, Precedex should not be used in this population.

Geriatric Use

Precedex is known to be substantially excreted by the kidney, and the risk of adverse reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection in elderly patients, and it may be useful to monitor renal function.

Hepatic Impairment

Since Precedex clearance decreases with severity of hepatic impairment, dose reduction should be considered in patients with impaired hepatic function.

Renal Impairment

Precedex pharmacokinetics (C_{max}, T_{max}, AUC, $t_{1/2}$, CL, and V_{ss}) were not significantly different in patients with severe renal impairment (creatinine clearance: <30 mL/min) compared to healthy subjects. However, the pharmacokinetics of the metabolites of Precedex have not been evaluated in patients with impaired renal function. Since the majority of metabolites are excreted in the urine, it is possible that the metabolites may accumulate upon long-term infusions in patients with impaired renal function.

Also see Geriatric Use.

Please see enclosed full Prescribing Information.

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How to Reconstitute Precedex®

Precedex should be diluted in 0.9% sodium chloride solution prior to administration. Preparation of solutions is the same whether for the loading dose or maintenance infusion.[1]
To prepare the infusion[1]:

1. Withdraw 2 mL of Precedex.
2. Add to 48 mL of 0.9% sodium chloride injection to a total of 50 mL.
3. Shake gently to mix well.
4. Final concentration is 4 mcg/mL.

Compatibility

Precedex has been shown to be COMPATIBLE when administered with the following intravenous fluids: 5% dextrose in water, 0.9% sodium chloride in water, lactated Ringer's solution. Precedex is also compatible with a number of additional drugs. Please see full Prescribing Information for a complete list.[1]

Precedex has been shown to be INCOMPATIBLE when administered with the following drugs: amphotericin B, diazepam.[1]

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Precedex®
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Dosing for Nonintubated Patients Requiring Sedation for Surgical or Other Procedures

- Precedex® should be diluted in 0.9% sodium chloride solution prior to administration. Preparation of solutions is the same whether for the loading dose or maintenance infusion. To prepare the infusion[1]:
  - Withdraw 2 mL of Precedex.
  - Add to 48 mL of 0.9% sodium chloride injection to a total of 50 mL.
  - Shake gently to mix well.
  - Final concentration is 4 mcg/mL.
- Precedex dosing should be individualized and titrated to the desired clinical effect.[1]
- Precedex is not indicated for infusions lasting longer than 24 hours.[1]
- Precedex should be administered using a controlled infusion device (IV pump).[1]

	Loading Dose	Maintenance Dose
Adult patients and procedures	1 mcg/kg over 10 minutes*	• Followed by 0.6 mcg/kg/hr • Titrate to effect with doses from 0.2-1 mcg/kg/hr • Rate of infusion should be adjusted to achieve targeted level of sedation
Less invasive procedures (e.g., ophthalmic)	0.5 mcg/kg over 10 minutes may be suitable	
Patients over 65 yrs	0.5 mcg/kg over 10 minutes	• A reduction in maintenance dosage should be considered
Patients with impaired hepatic or renal function	A dose reduction should be considered	• A reduction in maintenance dosage should be considered
Awake fiberoptic intubation	1 mcg/kg over 10 minutes	• Followed by 0.7 mcg/kg/hr until endotracheal tube is secured

*Coadministration of Precedex with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required. In patients already sedated with other anesthetics, sedatives, hypnotics or opioid analgesics, a loading dose may not be necessary.

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Precedex® Dosing for Procedural Sedation

Based on 4 mcg/mL concentration

Loading Dose[14]

Precedex is **generally** initiated with a loading infusion of 1 mcg/kg **over 10 minutes**. Coadministration of Precedex with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required. In patients already sedated with other anesthetics, sedatives or opioid analgesics, a loading dose may not be necessary.[1]

Weight (kg)	Loading Infusion Rate (mL/hr) for 10 min	Total Volume Infused (mL)
50	75	12.5
55	82.5	13.8
60	90	15
65	97.5	16.3
70	105	17.5
75	112.5	18.8
80	120	20
85	127.5	21.3
90	135	22.5
95	142.5	23.8
100	150	25
105	157.5	26.3
110	165	27.5
115	172.5	28.8
120	180	30
125	187.5	31.3
130	195	32.5
135	202.5	33.8
140	210	35
145	217.5	36.3
150	225	37.5
155	232.5	38.8
160	240	40
165	247.5	41.3
170	255	42.5
175	262.5	43.8
180	270	45
185	277.5	46.3

1. **Find patient weight (row).**
2. **Find desired dose (top of column).**
3. **Find infusion rate (intersection).**

Maintenance Dose[14]

1 WEIGHT (kg)	2 DOSE (mcg/kg/hr) 0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
50	2.5	3.8	5	6.3	7.5	8.8	10	11.3	12.5
55	2.8	4.1	5.5	6.9	8.3	9.6	11	12.4	13.8
60	3	4.5	6	7.5	9	10.5	12	13.5	15
65	3.3	4.9	6.5	8.1	9.8	11.4	13	14.6	16.3
70	3.5	5.3	7	8.8	10.5	12.3	14	15.8	17.5
75	3.8	5.6	7.5	9.4	11.3	13.1	15	16.9	18.8
80	4	6	8	10	12	14	16	18	20
85	4.3	6.4	8.5	10.6	12.8	14.9	17	19.1	21.3
90	4.5	6.8	9	11.3	13.5	15.8	18	20.3	22.5
95	4.8	7.1	9.5	11.9	14.3	16.6	19	21.4	23.8
100	5	7.5	10	12.5	15	17.5	20	22.5	25
105	5.3	7.9	10.5	13.1	15.8	18.4	21	23.6	26.3
110	5.5	8.3	11	13.8	16.5	19.3	22	24.8	27.5
115	5.8	8.6	11.5	14.4	17.3	20.1	23	25.9	28.8
120	6	9	12	15	18	21	24	27	30
125	6.3	9.4	12.5	15.6	18.8	21.9	25	28.1	31.3
130	6.5	9.8	13	16.3	19.5	22.8	26	29.3	32.5
135	6.8	10.1	13.5	16.9	20.3	23.6	27	30.4	33.8
140	7	10.5	14	17.5	21	24.5	28	31.5	35
145	7.3	10.9	14.5	18.1	21.8	25.4	29	32.6	36.3
150	7.5	11.3	15	18.8	22.5	26.3	30	33.8	37.5
155	7.8	11.6	15.5	19.4	23.3	27.1	31	34.9	38.8
160	8	12	16	20	24	28	32	36	40
165	8.3	12.4	16.5	20.6	24.8	28.9	33	37.1	41.3
170	8.5	12.8	17	21.3	25.5	29.8	34	38.3	42.5
175	8.8	13.1	17.5	21.9	26.3	30.6	35	39.4	43.8
180	9	13.5	18	22.5	27	31.5	36	40.5	45
185	9.3	13.9	18.5	23.1	27.8	32.4	37	41.6	46.3

3 **INFUSION RATE (mL/hr)** The rate of the maintenance infusion should be adjusted from 0.2 to 1 mcg/kg/hr to achieve the desired effect.

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ICU Sedation Dosing

- Precedex® should be diluted in 0.9% sodium chloride solution prior to administration. Preparation of solutions is the same whether for the loading dose or maintenance infusion. To prepare the infusion[1]:
  - Withdraw 2 mL of Precedex.
  - Add to 48 mL of 0.9% sodium chloride injection to a total of 50 mL.
  - Shake gently to mix well.
  - Final concentration is 4 mcg/mL.
- Precedex dosing should be individualized and titrated to the desired clinical effect.[1]
- Precedex is not indicated for infusions lasting longer than 24 hours.[1]
- Precedex should be administered using a controlled infusion device (IV pump).[1]

	Loading Dose	Maintenance Dose
Adult patients	1 mcg/kg over 10 minutes*	• Followed by 0.4 mcg/kg/hr • Titrate to effect with doses from 0.2-0.7 mcg/kg/hr • Rate of infusion should be adjusted to achieve targeted level of sedation
Patients over 65 yrs	A dose reduction should be considered	• A reduction in maintenance dosage should be considered
Patients with impaired hepatic or renal function	A dose reduction should be considered	• A reduction in maintenance dosage should be considered

*Coadministration of Precedex with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required. In patients already sedated with other anesthetics, sedatives, hypnotics or opioid analgesics, a loading dose may not be necessary.

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Precedex® Dosing for ICU Sedation

Based on 4 mcg/mL concentration

Loading Dose[14]

Precedex is **generally** initiated with a loading infusion of 1 mcg/kg **over 10 minutes**. Coadministration of Precedex with anesthetics, sedatives, hypnotics and opioids can enhance the pharmacodynamic effects of these agents. Specific studies have confirmed these effects with sevoflurane, isoflurane, propofol, alfentanil and midazolam. A decrease in the dosage of Precedex or the concomitant agent may be required. In patients already sedated with other anesthetics, sedatives or opioid analgesics, a loading dose may not be necessary.[1]

Weight (kg)	Loading Infusion Rate (mL/hr) for 10 min	Total Volume Infused (mL)
50	75	12.5
55	82.5	13.8
60	90	15
65	97.5	16.3
70	105	17.5
75	112.5	18.8
80	120	20
85	127.5	21.3
90	135	22.5
95	142.5	23.8
100	150	25
105	157.5	26.3
110	165	27.5
115	172.5	28.8
120	180	30
125	187.5	31.3
130	195	32.5
135	202.5	33.8
140	210	35
145	217.5	36.3
150	225	37.5
155	232.5	38.8
160	240	40
165	247.5	41.3
170	255	42.5
175	262.5	43.8
180	270	45
185	277.5	46.3

1. **Find patient weight (row).**
2. **Find desired dose (top of column).**
3. **Find infusion rate (intersection).**

Maintenance Dose[14]

1 WEIGHT (kg)	2 DOSE (mcg/kg/hr) 0.2	0.3	0.4	0.5	0.6	0.7
50	2.5	3.8	5	6.3	7.5	8.8
55	2.8	4.1	5.5	6.9	8.3	9.6
60	3	4.5	6	7.5	9	10.5
65	3.3	4.9	6.5	8.1	9.8	11.4
70	3.5	5.3	7	8.8	10.5	12.3
75	3.8	5.6	7.5	9.4	11.3	13.1
80	4	6	8	10	12	14
85	4.3	6.4	8.5	10.6	12.8	14.9
90	4.5	6.8	9	11.3	13.5	15.8
95	4.8	7.1	9.5	11.9	14.3	16.6
100	5	7.5	10	12.5	15	17.5
105	5.3	7.9	10.5	13.1	15.8	18.4
110	5.5	8.3	11	13.8	16.5	19.3
115	5.8	8.6	11.5	14.4	17.3	20.1
120	6	9	12	15	18	21
125	6.3	9.4	12.5	15.6	18.8	21.9
130	6.5	9.8	13	16.3	19.5	22.8
135	6.8	10.1	13.5	16.9	20.3	23.6
140	7	10.5	14	17.5	21	24.5
145	7.3	10.9	14.5	18.1	21.8	25.4
150	7.5	11.3	15	18.8	22.5	26.3
155	7.8	11.6	15.5	19.4	23.3	27.1
160	8	12	16	20	24	28
165	8.3	12.4	16.5	20.6	24.8	28.9
170	8.5	12.8	17	21.3	25.5	29.8
175	8.8	13.1	17.5	21.9	26.3	30.6
180	9	13.5	18	22.5	27	31.5
185	9.3	13.9	18.5	23.1	27.8	32.4

3 **INFUSION RATE (mL/hr)** The rate of the maintenance infusion should be adjusted from 0.2 to 0.7 mcg/kg/hr to achieve the desired effect.

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