

# Dexmedetomidine for the Sedation of Patients in the Intensive Care Unit or Pediatric Intensive Care Unit: A Review

## Context

The sedation of patients in the intensive care unit (ICU) is often essential to maximize survival, reduce length of stay in the ICU and hospital, and facilitate mechanical ventilation. The standard of care for sedation in the ICU includes benzodiazepines and propofol. However, these sedatives can cause several side effects, such as agitation and delirium.

## Technology

Dexmedetomidine is a potential alternative to traditional sedatives for maintaining light to moderate ICU sedation. It is thought to carry a lower risk of some of the side effects caused by the more commonly used sedative agents. However, the Health Canada-approved label for dexmedetomidine includes warnings that the drug is associated with hypotension, clinically significant episodes of bradycardia, and sinus arrest.

## Issue

A review of the clinical effectiveness and safety of dexmedetomidine for the sedation of patients in the ICU or the pediatric ICU, compared with traditional sedatives, will help to inform decisions about which sedatives to use in these patients.

## Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications

were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

## Key Messages

In adult patients, dexmedetomidine, compared with traditional sedatives, was shown to:

- reduce the length of stay in the ICU
- reduce the time on mechanical ventilation
- lower the incidence of delirium
- lead to higher rates of bradycardia.

For pediatric patients, dexmedetomidine, compared with traditional sedatives, was shown to:

- reduce the time on mechanical ventilation
- lower the incidence of delirium.

## Results

The literature search identified 211 citations, with 2 additional articles identified from other sources. After screening the abstracts, 18 were deemed potentially relevant; and 11 articles reporting on 10 studies — 1 systematic review, 4 meta-analyses, and 5 randomized controlled trials — met the criteria for inclusion in this review.

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