

# Dexmedetomidine to Reduce PONV

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## Purpose

The purpose of this scoping review is to identify currently available literature on utilizing dexmedetomidine (Precedex) to reduce perioperative opioid use and postoperative nausea and vomiting (PONV).

## Background

- PONV is a problem that occurs in 30-80% of patients undergoing elective surgery.
- PONV is linked to costly postoperative complications and patient dissatisfaction.
- There are numerous anesthesia-related causes of PONV, and opioids are one of the most potent offenders.
- There are many available treatment protocols that aim to reduce PONV, yet it remains a problem.
- Dexmedetomidine (Precedex) is an alpha-2 adrenoceptor agonist that is used for anxiolysis, sedation, and analgesia.
- Dexmedetomidine has been shown to independently reduce PONV and opioid requirements, but evidence supporting these modalities is not well-documented.

## Methods

Scoping review:

- Search engines: PubMed, OVID, CINAHL
- Over 11,000 articles initially returned

## Methods-continued

Inclusion criteria:

- Use of dexmedetomidine and its effect on PONV
- Adult patients

Exclusion criteria:

- Pediatric patients
- Articles without full text
- Articles not in English

Critical Appraisal:

- 8 articles met all criteria and were appraised

## Results

↓ ↓	1	2	3	4	5	6	7	8
<b>Outcome #1: PONV</b>	↓ <sup>a</sup>	✓ <sup>c</sup>	↓ <sup>b</sup>	↓ <sup>b</sup>	↓ <sup>b</sup>	↓ <sup>b</sup>	↓ <sup>a</sup>	↓ <sup>b</sup>
<b>Outcome #2: POP</b>	↓ <sup>c</sup>	↓ <sup>c</sup>	↓ <sup>c</sup>	↓ <sup>b</sup>	NR	↓ <sup>b</sup>	NR	↓ <sup>b</sup>
<b>Outcome #3: DSP</b>	✓ <sup>c</sup>	✓ <sup>c</sup>	NR	NR	NR	NR	NR	NR
<b>Outcome #4: POU</b>					↓ <sup>b</sup>	↓ <sup>b</sup>	NR	↓ <sup>b</sup>

**SYMBOL KEY** ↑ = Increased, ↓ = Decreased, — = No Change, NE = Not Examined, NR = Not Reported, ✓ = applicable or present; <sup>a</sup> = higher-level evidence; <sup>b</sup> = statistically significant findings; <sup>c</sup> = statistical significance not reported; <sup>d</sup> = postoperative nausea and vomiting was reduced

**LEGEND** 1 = Lundorf, L., et al. (2016); 2 = Dutta, V., et al. (2017); 3 = Panchgar, V., et al. (2017); 4 = Xin, J. et al. (2017); 5 = Shenhui, J., et al. (2017);

6 = Grape, S., et al. (2019); 7 = Wang et al. (2016); 8 = Pan et al. (2020)

PONV = Postoperative nausea and vomiting; POP = Postoperative pain; DSP = Dexmedetomidine safety profile; POU = Perioperative opioid use

*Incorporation of dexmedetomidine, an alpha-2 agonist, in an opioid-sparing approach significantly reduced incidences of PONV and postoperative pain scores*

## Implications for Practice

- Dexmedetomidine is effective for reducing perioperative opioid usage and PONV.
- The practice of using two classes of antiemetics to prevent PONV remains the standard of care in anesthetic practice, making some providers hesitant to attempt using dexmedetomidine for this purpose.
- Providers should be educated on the findings of this scoping review.
- Further studies aiming to identify the efficacy of using dexmedetomidine to reduce PONV should be conducted.

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