

# Inhaled isopropyl alcohol for nausea and vomiting in the emergency department

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## Clinical question

Can inhaled isopropyl alcohol be used to treat nausea and vomiting in the emergency department (ED)?

## Bottom line

Two trials with about 200 nonpregnant adults presenting to the ED found inhaled (smelling) isopropyl alcohol improved mild to moderate nausea and vomiting. For example, after 30 minutes the nausea score improved from 50 out of 100 to 20 with inhaled isopropyl alcohol versus 40 with oral ondansetron. Only 1 study reported adverse events and found none.


## Evidence

- A blinded ED RCT randomized (with matching placebo) 122 nonpregnant adults with mild-moderate nausea and vomiting (most with infectious gastroenteritis) to inhaled isopropyl alcohol, ondansetron, or both.<sup>1</sup>
  - At 30 minutes, a statistically significant reduction in nausea score occurred: From a baseline score of about 50 on a 100-point scale, nausea score decreased to 40 with ondansetron versus 20 with inhaled isopropyl alcohol.
  - Other outcomes included the following: on a 100-point scale (lower score=more satisfied), patient satisfaction scores were about 20 for inhaled isopropyl alcohol versus 44 for ondansetron; fewer rescue antiemetics with inhaled isopropyl alcohol (about 26% vs 45%), but this was not statistically significant; and no difference in ED length of stay or vomiting rates.
  - There were no adverse effects.
  - Limitations were possible selection bias; 1 military hospital; and many patients (up to 60%) using inhaled isopropyl alcohol could identify their treatment group.
- Another blinded ED RCT randomized 84 patients to inhaled isopropyl alcohol or saline-soaked pads (placebo).<sup>2</sup> The baseline nausea score was 6 out of 10. At 10 minutes postintervention, median nausea score was lower (3 vs 6 [placebo]; statistically different). Patient satisfaction scores improved (4 vs 2 [placebo] out of 5; higher=more satisfied). There was no difference in number receiving antiemetics or serious adverse effects.

## Context

- Patients inhaled deeply as frequently as required to achieve nausea relief from commercially available isopropyl alcohol pads held 1 to 2 cm below the nares.<sup>1</sup>
- A recent systematic review found no evidence to support any 1 pharmacologic treatment over another in the ED for nausea.<sup>3</sup>
- Ondansetron costs about \$4 per tablet.<sup>4</sup>
- A systematic review of 4 RCTs (215 patients)<sup>5</sup> of inhaled isopropyl alcohol for postoperative nausea found fewer patients required rescue antiemetics versus standard therapy (26% vs 39% [placebo]): number needed to treat of 8. Other outcomes were inconsistent and adverse effects were not reported.

## Implementation

Nausea and vomiting can be difficult to treat in the ED. A recent systematic review found neither intravenous metoclopramide nor ondansetron to be superior to placebo on nausea scores at 30 minutes; however, metoclopramide decreased the need for rescue antiemetics (about 16% vs 38% [placebo]).<sup>3</sup> Intravenous fluids and general supportive treatment in the ED might contribute to the large placebo effect,<sup>3</sup> which lowers nausea scores by about 23 to 40 points on a 100-point scale, and explains much of the apparent efficacy of medications in practice. Inhaled isopropyl alcohol provides a peak effect within 4 minutes postinhalation,<sup>2</sup> and multiple pads can be used for continued short-lasting nausea relief.<sup>1</sup> 

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**Competing interests**  
None declared

**The opinions expressed** in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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