



**Title** Short-Acting Agents for Procedural Sedation and Analgesia in Canadian Emergency Departments: A Review of Clinical Outcomes and Economic Evaluation

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## Aim

To evaluate the clinical efficacy, safety, and cost effectiveness of etomidate, ketamine, “ketofol,” and propofol used in Canadian emergency departments (ED) for procedural sedation and analgesia (PSA) for common painful procedures in adults.

## Conclusions and results

There are relatively few direct comparisons of short-acting agents, but the available evidence suggests that etomidate, ketofol, and propofol are at least as effective as other regimens in terms of procedural success and are clearly more effective in terms of reduced procedure time. With the exception of etomidate, short-acting agents were associated with no additional risk of minor adverse events (AEs).

Etomidate offers the greatest cost savings in time and labor, but savings associated with propofol are greater because differences in the costs of hospitalization and AEs more than offset the differences in labor costs. The overall effectiveness and popularity of propofol suggests that it should be considered for regular use for PSA in Canadian EDs. A survey of Canadian EDs revealed traditional agents are still in common use. Opportunities may exist for clinicians with less experience (eg, rural physicians, nurse practitioners, and paramedics) to use these agents, given enough guidance or training.

## Recommendations

None given.

## Methods

Electronic databases were comprehensively searched in May 2007 and updated in November 2007. A rigorous systematic review identified all randomized controlled trials (RCTs) and prospective observational studies that compared short-acting procedural sedation drugs with one another, or with conventional opioid and benzodiazepine agents for adult ED PSA. Meta-analyses and simple pooling were performed when appropriate.

A cost-minimization analysis and multi-way sensitivity analysis were employed to evaluate the cost effectiveness of short-acting procedural sedation drugs compared with one another, and with conventional opioid and benzodiazepine agents for adult ED PSA.

## Further research/reviews required

Further and higher-quality comparative research is needed, especially to evaluate the use of PSA outside traditional clinical domains (eg, paramedics, nurse practitioners).