**TITLE:** Medication Administration via Direct Intravenous Push versus Minibags: Comparative Clinical Effectiveness and Guidelines

**DATE:** 06 January 2017

**RESEARCH QUESTIONS**

1. What is the comparative clinical effectiveness of medication delivery via direct intravenous push versus minibags?

2. What are the evidence-based guidelines regarding medication delivery via direct intravenous push or minibags?

**KEY FINDINGS**

One non-randomized study was identified regarding medication delivery via direct intravenous push versus minibags.

**METHODS**

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. For Question 1, no filters were applied to limit the retrieval by study type. For Question 2, methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2011 and December 18, 2016. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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<tbody>
<tr>
<td><strong>Population</strong></td>
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<tr>
<td>All patients in a hospital setting, requiring intravenous drug delivery (e.g., antiemetics, diuretics, antibiotics, analgesics, narcotics)</td>
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<td><strong>Intervention</strong></td>
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<tr>
<td>Q1: Medication administration via direct IV push or bolus infusion</td>
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<td>Q2: Medication administration via direct IV push or minibags</td>
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<tr>
<td><strong>Comparator</strong></td>
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<tr>
<td>Q1: Medication administration via minibags (also known as intermittent infusion or piggyback administration)</td>
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<td>Q2: Methods compared with each other, no comparator</td>
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<td><strong>Outcomes</strong></td>
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<td>Q1: Clinical benefits and harms (e.g., adverse events associated with rapid drug administration, extravasation)</td>
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<tr>
<td>Q2: Evidence-based guidelines for use, including recommendations regarding which delivery method should be used with which medications or classes of medication</td>
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<tr>
<td><strong>Study Designs</strong></td>
</tr>
<tr>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, guidelines</td>
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</table>

IV = intravenous.

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One non-randomized study was identified regarding medication delivery via direct intravenous push versus minibags. No health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest, including guidelines with uncertain methodology, are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The included non-randomized study compared delivery of cefazolin as prophylaxis for phlebitis in patients undergoing orthopedic surgery. The study concluded that there was no statistically significant difference for development of phlebitis in the patients receiving intravenous push cefazolin compared with patients receiving cefazolin via intravenous piggyback.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature was identified.

Systematic Reviews and Meta-analyses
No literature was identified.

Randomized Controlled Trials
No literature was identified.

Non-Randomized Studies


Guidelines and Recommendations
No literature was identified.

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APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-Analyses – Alternate Comparator

   PubMed: PM26373874

   PubMed: PM24659334

   PubMed: PM24657044

   PubMed: PM22125127

Randomized Controlled Trials – Alternate Comparator

   PubMed: PM26754759

   PubMed: PM27651513

   PubMed: PM27792112


Non-Randomized Studies – Alternate comparator


Guidelines and Recommendations - Systematic methodology uncertain


Additional References