



CADTH Reference List

Monitoring for Drug-Induced Anaphylaxis With Injectable Antibiotics

August 2023

Key Messages

- We did not find any studies describing the risk of drug-induced anaphylaxis with a first dose of injectable antibiotics administered intravenously versus intramuscularly.
- We did not find any studies describing monitoring for drug-induced anaphylaxis with a first dose of antibiotics in a nonacute health care setting.
- We did not find any evidence-based recommendations concerning monitoring for drug-induced anaphylaxis for a first dose of antibiotics.
- We identified other references on this topic that may be of interest, which are listed in the report.

Research Questions

1. What is the clinical evidence describing risk of drug-induced anaphylaxis with a first dose of injectable antibiotics administered intravenously versus intramuscularly?
2. What is the clinical evidence describing monitoring for drug-induced anaphylaxis with a first dose of antibiotics in a nonacute health care setting?
3. What are the evidence-based recommendations concerning monitoring for drug-induced anaphylaxis for a first dose of antibiotics?

Methods

Literature Search Methods

An information specialist conducted a literature search on key resources including MEDLINE, Embase, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search approach was customized to retrieve a limited set of results, balancing comprehensiveness with relevancy. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. Search concepts were developed based on the elements of the research questions and selection criteria. The main search concepts were antibiotics, anaphylaxis, and injection. The search was completed on July 20, 2023, and limited to English-language documents published since January 1, 2018. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open access full-text versions of evidence-based guidelines were reviewed when available, and relevant recommendations were summarized.

Table 1: Selection Criteria

Criteria	Description
Population	Q1, Q2, and Q3: Individuals receiving a first dose of injectable antibiotics (i.e., IV, IM)
Intervention	Q1: Injectable antibiotics administered IV Q2 and Q3: Monitoring for drug-induced anaphylaxis in a nonacute care setting (e.g., home care, community-based care, long-term care)
Comparator	Q1: Injectable antibiotics administered IM Q2: Monitoring for drug-induced anaphylaxis in an acute care setting (e.g., hospital, tertiary care facility) Q1 and Q3: No comparator
Outcomes	Q1: Drug-induced anaphylaxis Q2: Clinical evidence of benefit (e.g., timely receipt of emergency medical services); or harm (e.g., morbidity, urticaria, shock); mortality Q3: Evidence-based recommendations
Study designs	Health technology assessments, systematic reviews, randomized controlled trials, nonrandomized studies, evidence-based guidelines

IM = intramuscular.

Results

No relevant literature was identified regarding the risk of drug-induced anaphylaxis (DIA) with a first dose of injectable antibiotics administered intravenously versus intramuscularly. No relevant literature was identified regarding monitoring for DIA with a first dose of antibiotics in a nonacute health care setting. No evidence-based guidelines were identified regarding monitoring for DIA for a first dose of antibiotics. No health technology assessments, systematic reviews, randomized controlled trials, or nonrandomized studies were identified.

References of potential interest that did not meet the inclusion criteria are provided in [Appendix 1](#).

Overall Summary of Findings

No relevant literature was found regarding risk of DIA with a first dose of injectable antibiotics administered intravenously versus intramuscularly. No relevant literature was found regarding monitoring for DIA with a first dose of antibiotics in a nonacute health care setting. Additionally, no evidence-based guidelines were found regarding monitoring for DIA for first dose of antibiotics; therefore, no summary can be provided.



References

Health Technology Assessments

No literature identified.

Systematic Reviews

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix 1: References of Potential Interest

Previous CADTH Reports

Vu T, Horton J. First dose of antibiotics administered using intravenous push versus intravenous mini bag systems. Ottawa (ON): CADTH; 2021: <https://www.cadth.ca/sites/default/files/pdf/htis/2021/RB1576%20IV%20antibiotics%20Final.pdf>. Accessed 2023 Jul 24.

Nonrandomized Studies

No Comparator

Kovacik CN, Shah MD, Thomas TA, Eby JC. First-dose antimicrobial infusion reactions in patients enrolled in outpatient parenteral antimicrobial therapy services. *Open Forum Infect Dis*. 2023 Jun;10(6):ofad239. [PubMed](#)

Guidelines and Recommendations

Drug Challenges Not Specific to Monitoring in Non-Acute Care Settings

Kahn DA, Banerji A, Blumenthal KG, et al. Drug allergy: a 2022 practice parameter update. *J Allergy Immunol*. 2022;150(6):1333-1393. Available from: [https://www.jacionline.org/article/S0091-6749\(22\)01186-1/pdf](https://www.jacionline.org/article/S0091-6749(22)01186-1/pdf). Accessed 2023 Jul 24. [PubMed](#)
Refer to: Consensus-Based Statement 12 (p. 1357), Statement 13 to 14 (p. 1359), Statement 17 (p. 1360)

Review Articles

Macy E, Adkinson NF Jr. The evolution of our understanding of penicillin allergy: 1942-2022. *J Allergy Clin Immunol Pract*. 2023 Feb;11(2):405-413. [PubMed](#)

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Questions or requests for information about this report can be directed to requests@cadth.ca