



TITLE: Standing Orders for Insulin Administration in Hospitalized Patients with Type I or Type II Diabetes: Clinical Evidence

DATE: 17 January 2013

RESEARCH QUESTION

What is the clinical evidence regarding the effectiveness of standing insulin order protocols to guide subcutaneous insulin dosing and administration for the maintenance of glycemic control in hospitalized patients with type I or type II diabetes?

KEY MESSAGE

Two randomized controlled trials and six non-randomized studies were identified regarding the effectiveness of standing insulin order protocols to guide subcutaneous insulin dosing and administration for the maintenance of glycemic control in hospitalized patients with diabetes.

METHODS

A limited literature search was conducted on key resources including Medline, Embase, PubMed, The Cochrane Library (2012, Issue 12), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2008 and January 4, 2013. 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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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 and non-randomized studies.

Two randomized controlled trials and six non-randomized studies were identified regarding the effectiveness of standing insulin order protocols to guide subcutaneous insulin dosing and administration for the maintenance of glycemic control in hospitalized patients with diabetes. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Evidence from two cluster randomized trials^{1,2} and six non-randomized studies³⁻⁸ suggested that standing insulin order protocols to guide subcutaneous insulin dosing and administration were effective for the maintenance of glycemic control in hospitalized patients with diabetes.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

1. Schnipper JL, Liang CL, Ndumele CD, Pendergrass ML. Effects of a computerized order set on the inpatient management of hyperglycemia: a cluster-randomized controlled trial. *Endocr Pract.* 2010 Mar;16(2):209-18.
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Non-Randomized Studies

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[PubMed: PM22800878](#)
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[PubMed: PM19670354](#)
6. Maynard G, Lee J, Phillips G, Fink E, Renvall M. Improved inpatient use of basal insulin, reduced hypoglycemia, and improved glycemic control: effect of structured subcutaneous insulin orders and an insulin management algorithm. *J Hosp Med.* 2009 Jan;4(1):3-15.
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[PubMed: PM18257047](#)

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – unclear if subcutaneous insulin

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[PubMed: PM20404621](#)
10. Wesorick DH, Grunawalt J, Kuhn L, Rogers MA, Gianchandani R. Effects of an educational program and a standardized insulin order form on glycemic outcomes in non-critically ill hospitalized patients. J Hosp Med. 2010 Oct;5(8):438-45.
[PubMed: PM20690189](#)
11. Lee J, Clay B, Zelazny Z, Maynard G. Indication-based ordering: a new paradigm for glycemic control in hospitalized inpatients. J Diabetes Sci Technol. 2008 May;2(3):349-56. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2769741>
[PubMed: PM19885198](#)

Non-Randomized Studies – patient glycemic control not examined

12. Deal EN, Liu A, Wise LL, Honick KA, Tobin GS. Inpatient insulin orders: are patients getting what is prescribed? J Hosp Med. 2011 Nov;6(9):526-9.
[PubMed: PM22042479](#)
13. Neinstein A, Cucina R. An analysis of the usability of inpatient insulin ordering in three computerized provider order entry systems. J Diabetes Sci Technol. 2011 Nov;5(6):1427-36. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3262709>
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[PubMed: PM20182560](#)

Review Articles

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Additional References

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[PubMed: PM23246685](#)

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21. Ahmann AJ, Maynard G. Designing and implementing insulin infusion protocols and order sets. *J Hosp Med*. 2008 Sep;3(5 Suppl):42-54.
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