TITLE: Hospira Plum A+ Infusion Pumps and Mednet Software: Guidelines and Clinical Effectiveness, Safety, and Cost-effectiveness

DATE: 05 September 2008

RESEARCH QUESTIONS:

1. What is the clinical effectiveness and safety of the Hospira Plum A+ infusion pump and MedNet computer software compared with other similar infusion pumps and software? How does the level of free-flow protection in this pump compare to other free-flow protected pumps?

2. What is the safety of the needlessness CLAVE connectors in the intravenous tubing used with the Hospira Plum A+ pump compared with the connectors used in the IV tubing with other infusion pumps? (from an infection control perspective)

3. What is the cost-effectiveness of the Hospira Plum A+ infusion pump and the MedNet software program compared with other infusion pumps and their corresponding software programs?

4. Are there clinical practice guidelines that recommend what type of infusion pumps and software programs should be used to reduce medical errors and improve patient safety?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 3, 2008), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international health technology agencies, and a focused Internet search. Results include articles published between 2003 and August, 2008; however, for the infection control section the publication dates start with 1998. Only English language materials were selected. Filters were applied to limit the retrieval to health technology assessments, systematic reviews, randomized clinical trials, clinical guidelines and economic studies. Internet links are provided, where available.
The summary of findings was generated from the abstracts or the summaries of the relevant information.

RESULTS:

HTIS 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 economic evaluations, randomized controlled trials, and evidence-based guidelines.

There were no abstracts that met our selection criteria to evaluate the clinical and cost-effectiveness of Hospira Plum A+ infusion pumps and MedNet software in this HTIS report. It was not possible to determine the model of an infusion pump under investigation from the abstracts. Additional information that may be of interest is included in the Appendix.

OVERALL SUMMARY OF FINDINGS:

Computerized infusion safety systems, such as smart pumps, are one of the technologies that hospitals can employ to help reduce the frequency and severity of medication errors.\(^1\)

ERCi published evaluation reports on general-purpose infusion pumps in 2007 and 2004.\(^2,6\) It suggested that when purchasing new general-purpose infusion pumps, only consider those that have a dose error reduction system;\(^6\) the Hospira Plum A+ with MedNet was suggested to be one of the better models. It was rated “acceptable” and recommended over four other acceptable pumps with dose error reduction software (the B. Braun Outlook 100 and 200 and the Baxter Colleague CX and 3CX pumps). However, the Plum A+ lacks the large memory and bolus limit capability of one of the models that ERCi rated “preferred” (the Alaris Medley Medication Safety System with Guardrails).\(^2,6\)
REFERENCES SUMMARIZED:

Health technology assessments
No literature identified.

Systematic reviews and meta-analyses
No literature identified.

Economic analyses and cost information
No literature identified.

Randomized controlled trials
No literature identified.

Guidelines and recommendations
No literature identified.

PREPARED BY:
Stella Chen, Research Officer
Raymond Banks, Information Specialist
Health Technology Inquiry Service
Email: htis@cadth.ca
Tel: 1-866-898-8439
APPENDIX – FURTHER INFORMATION:


