TITLE: Masimo Patient Safety Net System for Monitoring Pediatric Patients: Clinical and Cost-Effectiveness

DATE: 25 November 2010

RESEARCH QUESTIONS

1. What is the clinical effectiveness of the Masimo Pulse Oximetry and Safety Net System for the continuous monitoring of pediatric patients?

2. What is the cost-effectiveness of the Masimo Pulse Oximetry and Safety Net System for the continuous monitoring of pediatric patients?

KEY MESSAGE

Clinical evidence is mixed and no cost-effectiveness information was identified regarding the clinical effectiveness of the Masimo Pulse Oximetry and Safety Net System; the system may lead to fewer false alarms but may not be equivalent to older technologies under certain conditions.

METHODS

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 11, 2010), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI (Health Devices Gold), EuroScan, international health technology agencies, and a focused Internet search. A general search on oximetry/instrumentation in pediatrics was limited to English language articles published between January 1, 2005 and November 16, 2010 and filters were applied to limit the retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials and economic studies. A focused search specifically on the Masimo Pulse Oximetry system in pediatrics was limited to English language articles but not limited by date or study type. 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.

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 economic evaluations.

Two relevant non-randomized studies were identified pertaining to the clinical effectiveness of the Masimo Pulse Oximetry and Safety Net System for the continuous monitoring of pediatric patients. No relevant healthy technology assessment reports, systematic reviews, meta-analyses, randomized controlled studies, or economic information were identified. Additional information that may be of interest, including studies relevant to pediatric patients in intensive care units, is included in the appendix.

OVERALL SUMMARY OF FINDINGS

Limited evidence regarding the clinical effectiveness of the Masimo Pulse Oximetry and Safety Net System for the continuous monitoring of pediatric patients was identified. No relevant cost-effectiveness information was retrieved.

One non-randomized study comparing the Masimo SET system to an older pulse oximetry system (Solar 8000) found that when signal conditions were “good”, the Masimo system performed similarly to older technology but that when there was poor signal quality or patient hypoxemia, the Masimo system was not equivalent. The age of the children and the setting of the study were unclear from the information provided in the abstract.

A second non-randomized study compared Masimo Signal Extraction Technology (SET) to conventional pulse oximetry (CPO) in postanesthesia pediatric patients. The Masimo system reduced the incidence and duration of false alarms and identified a more frequent incidence of true alarms compared to CPO.
REFERENCES SUMMARIZED

Health technology assessments
No literature identified.

Systematic reviews and meta-analyses
No literature identified.

Randomized controlled trials
No literature identified.

Non-randomized studies


Economic evaluations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

**Neonatal Intensive Care Unit**

*Randomized controlled trials*


*Non-randomized studies*


**Additional references**


