TITLE: Commercial Fitness Monitors for the Evaluation of Heart Rate in Patients in Hospital or Rehabilitation Settings: Diagnostic Accuracy, Clinical Effectiveness, and Guidelines

DATE: 21 May 2015

RESEARCH QUESTIONS

1. What is the validity and reliability of commercial fitness monitors compared to electrocardiography for evaluating heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting?

2. What is the diagnostic accuracy of commercial fitness monitors compared to electrocardiography for evaluating heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting?

3. What is the comparative clinical effectiveness of commercial fitness monitors versus electrocardiography for evaluating heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting?

4. What are the evidence-based guidelines regarding the use of commercial fitness monitors to evaluate heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting?

KEY FINDINGS

No relevant literature was identified regarding commercial fitness monitors compared to electrocardiography for evaluating heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting.

METHODS

A limited literature search was conducted on key resources including Ovid Medline, PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, 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, 2010 and May 14, 2015. Internet links were provided, where available.

**SELECTION CRITERIA**

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

| **Table 1: Selection Criteria** |
|-------------------|-------------------------------------------------|
| **Population**    | Patients (of any age) with a pre-existing medical condition in the hospital or rehabilitation (e.g., physiotherapy) setting |
| **Intervention**  | Commercial fitness monitors with heart rate monitoring capabilities (e.g., Polar, Garmin, Fitbit) |
| **Comparator**    | Q1 to 3: Electrocardiography (ECG or EKG)  
Q4: No comparator necessary |
| **Outcomes**      | Q1: Validity and reliability measures (e.g., internal consistency, reliability coefficient, criterion and convergent validity, limits of agreement)  
Q2: Diagnostic accuracy outcomes (e.g., sensitivity, specificity, positive and negative predictive value)  
Q3: Clinical effectiveness (e.g., exercise capacity, exercise intensity, physical function [e.g., 6 minute walk test], disability and dependency scores)  
Safety (e.g., cardiovascular or respiratory events)  
Q4: Guidelines and recommendations regarding the use of commercial fitness monitors |
| **Study Designs** | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines |

**RESULTS**

No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, or evidence-based guidelines were identified regarding commercial fitness monitors compared to electrocardiography for evaluating heart rate in patients with pre-existing medical conditions in the hospital or rehabilitation setting.

References of potential interest are provided in the appendix.

**Health Technology Assessments**

No literature identified.

**Systematic Reviews and Meta-analyses**

No literature identified.

**Randomized Controlled Trials**

No literature identified.

**Non-Randomized Studies**

No literature identified.
Guidelines and Recommendations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – No Comparator


Review Articles


Additional References
