TITLE: Spirometry Testing for Chronic Obstructive Pulmonary Disease: Evidence for Change in Diagnosis, Treatment Strategy, and Cost-Effectiveness

DATE: 08 January 2010

RESEARCH QUESTIONS:

1. What is the clinical effectiveness of routine spirometry testing for patients with chronic obstructive pulmonary disease (COPD)?

2. What is the evidence regarding a change in diagnosis and subsequent change in treatment strategy following spirometry testing?

3. What is the cost-effectiveness of spirometry testing?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 4, 2009), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between 2004 and December 2009. Filters were applied to limit the retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and economic studies. An additional separate search for controlled clinical trials was also conducted. 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:

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 randomized controlled trials, controlled clinical trials, and economic evaluations.

Two relevant systematic reviews were identified pertaining to the use of spirometry testing in patients with COPD. No relevant health technology assessment reports, randomized controlled trials, controlled clinical trials, or economic evaluations were identified. Additional information that may be of interest has been included in the appendix.

OVERALL SUMMARY OF FINDINGS:

The Belgian Health Knowledge Centre’s systematic review on pulmonary function tests found four guidelines pertaining to the use of spirometry for classifying the severity of COPD. Although each classification system is somewhat different, they range from a two-stage “mild disease and continuous symptoms” to a four-stage “mild, moderate, severe, and very severe” scale, they all agree that assessing disease severity via spirometry is prognostic and therapeutic. The review found that performing spirometry during a COPD exacerbation is of little value and that although spirometry is indicated to monitor disease progression, optimal intervals have not been established and clinical judgment should be used. The Agency for Healthcare Research and Quality’s systematic review on the use of spirometry for case finding, diagnosis, and management of COPD found spirometry to be useful in adults with respiratory symptoms in order to determine when to initiate therapy for airway obstruction. They also found evidence that monitoring spirometric data throughout treatment duration was not associated with improved outcomes.

Overall, limited evidence was identified pertaining to the effectiveness of routine spirometry testing for patients with COPD. Evidence from two systematic reviews indicates that although spirometry is indicated to monitor disease progression, optimal intervals have not been established, and that in-treatment monitoring with spirometry may not improve patient outcomes. No information pertaining to a change in diagnosis and subsequent change in treatment strategy following spirometry testing was identified. Although the relevant systematic reviews do contain some expenditure information, no cost-effectiveness information was identified.
REFERENCES SUMMARIZED:

Health technology assessments
No literature identified.

Systematic reviews and meta-analyses

   See pg 27: 6.1.2.3 Spirometry for Assessing Severity of Disease

   Structured abstract available: http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?ID=12006008146
   See page 98: Spirometry for Initiating, Monitoring, and Modifying Treatment

Randomized controlled trials
No literature identified.

Controlled clinical trials
No literature identified.

Economic evaluations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Observational studies


   Available from: [http://www.thepcrj.org/journ/vol16/16_2_82_88.pdf](http://www.thepcrj.org/journ/vol16/16_2_82_88.pdf)


Guidelines and recommendations


Review articles


Additional references
