Technoleg Iechyd Cymru
Health Technology Wales

Appraisal Summary

Oscillating positive expiratory pressure devices for airway clearance in chronic hypersecretory lung conditions

Why did HTW appraise this topic?

Positive expiratory pressure (PEP) devices are often used as a form of chest physiotherapy to clear mucus from the lungs of individuals with hypersecretory conditions. OPEP devices seek to interrupt expiratory airflow by providing resistance during exhalation, causing the airways to vibrate and loosen the mucus. OPEP devices are already available through NHS prescribing and several devices are available in Wales. Feedback from clinical experts suggests that they are used as an option for patients alongside traditional airway clearance techniques (ACTs) where the patient is unable to undergo conventional types of physiotherapy. The review focused on use of the OPEP devices in people with hypersecretory conditions, including cystic fibrosis, chronic obstructive pulmonary disease (COPD), and bronchiectasis.

HTW undertook an evidence review to address the following question: are oscillating positive expiratory pressure (OPEP) devices more clinically and cost-effective than other techniques for airway clearance in chronic hypersecretory lung conditions?

What evidence did HTW find?

HTW identified and included seven systematic reviews and 10 further primary studies which were not covered by the reviews. The most evidence was found for patients with cystic fibrosis (three systematic reviews and three primary studies) or bronchiectasis (three systematic reviews and two primary studies). Less evidence was found for patients with COPD (one systematic review and three primary studies), however, there are ongoing studies in this area.

For patients with cystic fibrosis, no significant difference was found between treatment groups in lung function outcome measures, with the exception of a recent small study comparing peak expiratory flow (PEF) following OPEP and control. No studies found a significant difference in health-related quality of life between OPEP and other PEPs. Findings for respiratory exacerbations and hospitalisation comparing OPEP and other ACTs were mixed. Measures of sputum production, lung clearance, and patient satisfaction and acceptability (including self-reported measures) also had mixed findings. The few studies comparing different types of OPEP device found no difference between them.

For patients with bronchiectasis, the majority of studies found no difference in measures of lung function between OPEP and various comparators. One study found an improvement in health-related quality of life with OPEP compared to no ACT, while none of the studies comparing OPEP to other ACTs found a significant difference in this outcome. Measures of lung clearance and

sputum production reported mixed findings. No significant difference was found between interventions for other reported symptoms such as chest discomfort, dyspnoea, or breathlessness and one study found no difference in respiratory exacerbations. Findings for participant satisfaction and acceptability were limited and mixed. One comparison between different types of OPEP device was identified and findings were mixed.

The majority of studies and reviews identified found no difference between OPEP and other treatment options in lung function measures for COPD or chronic bronchitis. Findings for respiratory exacerbations, hospital admissions, health-related quality of life, lung clearance and sputum production, and other symptoms were mixed.

Two economic analyses were identified and these indicated the OPEP device Aerobika to be a cost-effective strategy compared to no OPEP/PEP. However, there were a number of issues which limited the applicability of these findings to a Welsh Population. HTW developed a resource impact analysis to estimate the potential cost associated with introducing OPEP devices for airway clearance in COPD into clinical practice in NHS Wales using the evidence available. The net cost of introducing the OPEP devices for COPD over five years (assuming not already used in Wales and based on the average cost of all available devices) was £759,293.

What was the outcome of HTW's Appraisal?

Health Technology Wales is a national body working to improve quality of care in Wales. We collaborate with partners across health, social care, and industry to issue independent Guidance that informs commissioning within NHS Wales. We are supported by an Assessment Group, who ensure our work adheres to high standards of methodological and scientific rigour, and an Appraisal Panel, who consider evidence within the Welsh context and produce HTW Guidance. More details on our appraisal process, the assessment group, and the appraisal panel can be found on the HTW website.

Stakeholders indicated that in Wales, there is a clear, patient-dependent decision making process in place to determine who uses OPEP, and this process is subject to change in the future. Any recommendation would be temporary and little value would be added by the production of guidance at this time. Therefore, HTW's Assessment Group concluded that this topic should not progress to Appraisal Panel and will not receive HTW Guidance recommendations.

Evidence Appraisal Report 023 follows below and provides full details for this topic.