

# Are mobile device applications effective at supporting COPD self-management compared to usual care?

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## Abstract

**Background:** Empowering people with chronic obstructive pulmonary disease (COPD) access using tools for self-monitoring of vital signs, behaviour and symptoms (including oxygen saturation, activity and chest tightness), or educational videos may support self-management. Currently it is unclear whether such tools are effective when delivered via mobile device applications.

**Aim:** Systematic review of randomised controlled trials (RCTs) to identify and report findings of trials using mobile applications.

**Methods:** MEDLINE, CINAHL, EMBASE and Cochrane Library were searched to July 2018 for published studies of RCTs that used mobile device applications (smartphone or tablet computer-based) in people with COPD, with or without healthcare provider input. Article screening and data extraction were completed by two authors. Risk of bias was also assessed.

**Results:** 1341 citations were retrieved and 12 RCTs were eligible for review. RCTs reported on quality of life (n=12), number of exacerbations (n=5), fatigue (n=5), physical function (n=5), dyspnoea (n=4), physical activity (n=5) and self-efficacy (n=5). Statistically significant differences were reported for physical function (using the 6-minute walk test), quality of life (using the Short Form-12 and the functional component of the Clinical COPD Questionnaire) and activity (steps per day) compared with usual care ( $p<0.05$ ).

**Conclusions:** Use of mobile device applications by people with COPD may offer benefits in quality of life, physical function and activity levels; however, there was significant heterogeneity in the outcomes reported by the studies. Future trials should collect data on a standardised set of outcomes to allow comparison of findings.