Telerehabilitation for Chronic Respiratory Disease: A Cochrane Systematic Review

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Introduction: Improving patient access to pulmonary rehabilitation, using telerehabilitation, has the potential to improve patient and health system outcomes. This Cochrane Review aimed to evaluate the efficacy of telerehabilitation in people with chronic respiratory disease. Methods: Randomised and controlled clinical trials of telerehabilitation were identified from the Cochrane Airways Group’s Specialised Register (to June 2018). Telerehabilitation was any pulmonary rehabilitation service, incorporating exercise training, delivered at a distance using telecommunications technology. Studies of primary pulmonary rehabilitation were analysed separately to secondary maintenance programs. Two authors independently assessed studies for inclusion, risk of bias, and completed data extraction. Results are for the primary outcome of exercise capacity at program completion, using published data. Results: 1907 references were screened, 96 papers assessed and 10 studies included. Telerehabilitation models utilised telephone, web-based programs, telemonitoring with telephone support, and video conferencing. Included studies reported exercise capacity outcomes in eight different ways. Two studies could be combined in a meta analysis comparing telerehabilitation (by telephone) to traditional outpatient pulmonary rehabilitation (n=418). The change in 6-minute walk distance (6MWD) at the end of the intervention did not differ between rehabilitation models (mean difference (MD) [95% confidence interval]: 6metres [-15, 27]). One study of telerehabilitation (video conferencing) demonstrated a significant increase in endurance shuttle walk test time (n=36, MD 314seconds [144, 484]) when compared to no rehabilitation. Two studies of maintenance telerehabilitation (telephone, or video conferencing, plus telemonitoring), compared to no maintenance rehabilitation, demonstrated significantly greater 6MWD (1 study, n=97, MD 40metres [10, 70]), or change in 6MWD (1 study n=112, MD 75metres [31, 119]), at the end of the intervention. Conclusion: A small number of studies provide evidence for improvements in exercise capacity following telerehabilitation, of similar magnitude to traditional pulmonary rehabilitation. Conclusions are limited by the variety of telerehabilitation models and outcomes reported.