

5.05 A virtual COPD management programme using remote monitoring to reduce acute healthcare utilisation

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Background: This projects explored the use of remote monitoring technology in improving COPD patient's self-efficacy thereby reducing acute healthcare utilisation, antibiotic and steroid prescriptions.

Methods: Oxygen saturation and heart rate of 18 COPD patients were monitored daily on a secure digital platform for 4-6 months. They received self-management plans including education. Deviations from individualised baseline parameters triggered intervention from the monitoring team. 6 patients underwent continuous respiratory rate monitoring for a period of 4 weeks.

Results: Analysis compared results for the same 4 month time period in the year pre, during and post the monitoring period. Hospital presentations and length of stay decreased compared to the same time period in the year prior whereas antibiotic and steroid prescription increased (see table 1). The remote monitoring platform failed to identify any deteriorations in their COPD status. Respiratory rate monitoring demonstrated a false negative rate where patients deteriorated but it was not identified by the monitoring portal (see table 2).

Conclusions: There was a significant increase on clinician workload with minimal reduction in healthcare utilisation. Remote monitoring was not found to identify any COPD exacerbation deteriorations. Due to the high false negative rate identified in this programme, further research is warranted into continuous respiratory rate monitoring of respiratory patients in community settings.

Keywords: COPD, remote monitoring, respiratory rate monitoring, acute healthcare utilisation

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Table 1. Healthcare and medication utilisation in the specific 4 month time period in the year pre, during and post monitoring

	Pre monitoring	During monitoring	Post monitoring
Total number of Hospital admissions	7	4	3
Total length of stay	26 days	24 days	12 days
Total number of antibiotics prescribed	21	35	23

Total number of steroids prescribed	17	29	24
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Table 2. False negative rates in continuous respiratory rate monitoring

False negative rate (where the monitor failed to identify a deterioration in a patient despite a team member having had some form of intervention with the patient)	Red events (events which required a home visit/hospital admission)	Amber events (events which required a change in treatment plan)	Green events (events which required observation or follow-up)
	25% (n=1)	22% (n=2)	62% (n=5)