

# Evaluation of myCOPD, a digital self-management technology for people with COPD, in a remote and rural population

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## Introduction

The prevalence of chronic obstructive pulmonary disease (COPD) in poor, remote, and rural populations is twice that of cities (15.4% versus 8.4%)<sup>1</sup>. COPD costs an estimated £1.9bn per year to the NHS<sup>2</sup> and is characterised by exacerbation frequency and severity. Disease education and symptom self-management are critical to reducing the healthcare burden for patients with COPD.

## **myCOPD**



myCOPD is a digital selfmanagement app designed to support patients with COPD (figure 1). It has a series of features including symptom scoring, educational videos and a virtual pulmonary rehab course<sup>5</sup>. The myCOPD technology offers potential benefits in rural populations who may struggle to engage with central health care provision.

#### **Engagement**

Participant app use was defined by their use of the different modules (figure 3A) and the symptom scoring feature (figure 3B).

Engagement with myCOPD app was not dependent on participant demographics including age, disease severity, socioeconomic status or rurality.

#### Figure 3



78% of participants activated myCOPD, 70% recorded their symptom score at least once, and 45% used additional modules at least once.

#### Figure1<sup>3</sup> MyCOPD app interface

#### Aim

The NHS Highland TEC team, Respiratory department, and University of the Highlands and Islands evaluated myCOPD for its ability to improve patient care in NHS Highland, a predominantly remote and rural population. We evaluated its effectiveness at reducing exacerbations by measuring hospital admissions, inpatient bed days and other NHS service usage for patients who use the app.

## Method

Participants were recruited between 1<sup>st</sup> May- 31<sup>st</sup> October 2019. Data was recorded for each participant regarding their use of the different features of the app. Participant NHS service use was recorded 12 months before and up to 12 months after myCOPD activation. To account for differences in activation rates and the early termination of the study due to COVID-19, data was reported as daily outcome measures (e.g., admissions/day).

## Results

## **Enrolment**

Participants were enrolled by healthcare professionals as part of their usual care.

#### Figure 2

Study flow chart.





Figure 4<sup>3</sup> The percentage of patients who used the different features of the app at least once

## **Overall findings**

There were no statistically significant decrease in hospital admissions, inpatient bed days, or other health service utilisation before and after myCOPD activation for the whole study population (figure 5).



## **Subgroup findings**

Subgroup analysis of hospital daily bed days and admissions incidence does suggest that those participants that had very high use of the app, by either module use (figure 6B) or frequency of symptoms scoring (figure 6A) did show a reduction in bed days.

#### Figure 6



#### Patient Demographics

Participant Characteristic		Result
Sex (%)	Male	47.5
	Female	52.5
Age (Average)		67
Gold Score (Average)		2.7
Urban -Rural classification Score (Average)		4.23
SIMD decile score (Average)		5.17

Table 1 Participant Characteristics as an average of the whole population



## Discussion

Overall, these data indicate that while myCOPD enrolment and engagement is viable, there is not a statistically significant health benefit to using the app, within NHS highland on a whole group level. However, it may be of benefit to individuals with higher levels of engagement. These findings provide a rationale for further research to evaluate the benefits of sustained myCOPD engagement on reducing both exacerbation and hospital admission rates.

#### References

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#### Acknowledgments

We gratefully acknowledge support from Jane Stokes at mymhealth and funding from the Scottish National TEC Team. This work was supported by the Scottish Government and Inverness and Highland City-Region Deal.