

Evaluating the impact of telehealth for COPD in Liverpool: a quantitative analysis with an inequalities perspective.

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Background

Telehealth is monitoring of a persons vital signs and symptoms in their own home using digital technology. In Liverpool, the monitoring uses a tablet connected via Bluetooth to equipment such as an oxygen saturation monitor and then uses mobile data to securely transfer vital sign readings to a local Nurse-led hub. If the monitoring shows adverse changes, treatment can be adjusted or a Community Matron visit arranged, with the aim of preventing unnecessary hospital admissions.

Chronic Obstructive Pulmonary Disease (COPD) is obstruction of lung airflow, known by historical terms such as Chronic Bronchitis and Emphysema. COPD is predominantly caused by tobacco smoking but is also caused by exposure to fine particles in the air, at work or from pollution. The particles cause inflammation and destruction of the supporting structure of the small airways in the lungs. This leads to airway narrowing or obstruction.¹

Globally and nationally COPD has a huge impact on health, it is predicted to be the 3rd most prevalent disease by 2020.¹ In the North of England COPD is more frequently diagnosed due to a number of factors, the main one being higher smoking rates locally but COPD is also more frequently seen in areas of higher deprivation, such as Liverpool.

The cost of treating COPD is rising and the frequency of diagnosing COPD is still increasing, in addition many people have the disease but have not been diagnosed.² The cost to the NHS of treating COPD is in the region of £810 – 930 million per year. One of the highest costs is emergency hospital admissions, which are higher in Liverpool, than other similar CCGs in England.¹ The pyramid opposite shows a number of COPD interventions and next to them a standard way of calculating the cost (QALY – quality adjusted life year). The most expensive intervention is telehealth at £92,000 per QALY.³

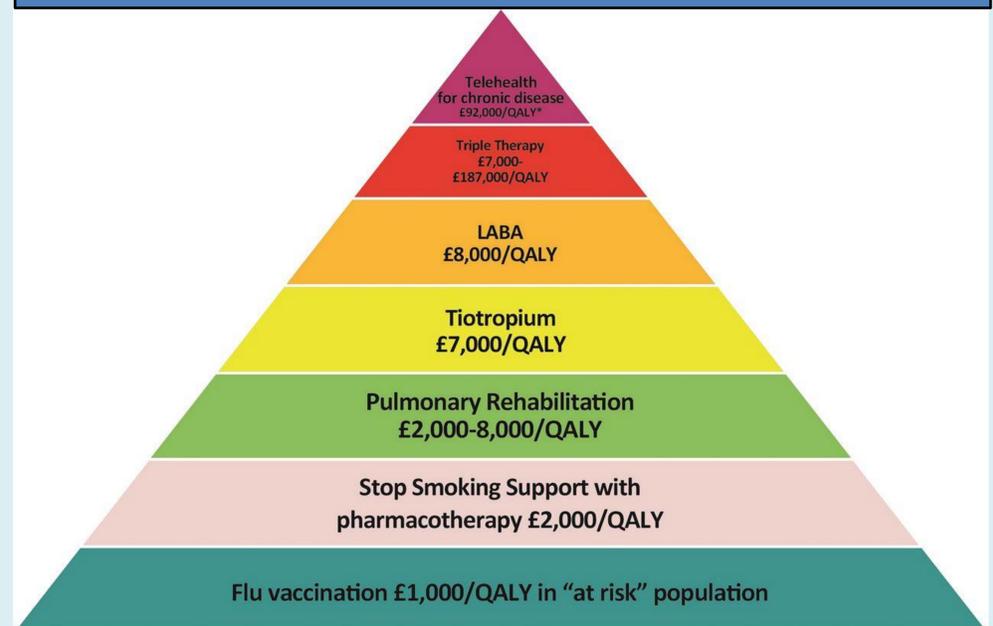
The NHS funding has been below the average annual funding increase since 2009/10, this requires the NHS to assess what we spend and what interventions are value for money. This evaluation is to support that ongoing process.

A previous evaluation of telehealth in Liverpool has been undertaken reviewing the individual patients who chose to take up telehealth and looking at people with a number of conditions including diabetes, heart failure and COPD.⁴ This evaluation does not provide information on COPD alone, is considered bias if the individuals who chose telehealth are reviewed as they may be quite different to those that did not choose telehealth. This study will use GP Practice level data to review impact, which had less bias and attempts to provide a more objective analysis for people with COPD.

It is vital to include Public Advisors to ensure as wide an audience understand this work, the public can ensure what is important to them is factored in as the telehealth service evolves. Public Advisors will also shape the final report.

The relative cost of COPD interventions.

Developed by the London Respiratory Network and the London School of Economics.³



Methods

A quantitative analysis will be undertaken using a database of nationally available data. The analysis will be supported by Ben Barr and Tanith Rose in The department of Psychology and Public Health at The University of Liverpool. Pre-telehealth hospital admission data for COPD will be compared to post-telehealth admission data.

It is hoped to include some basic analysis of inhaled medication pre and post-telehealth to understand the impact.

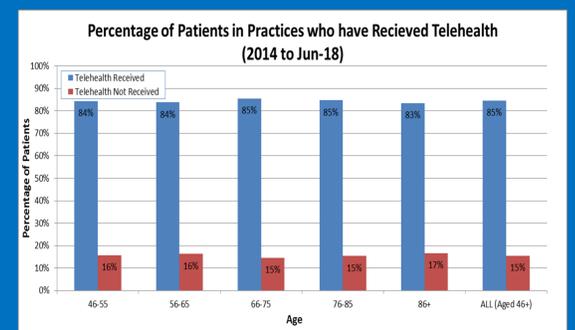
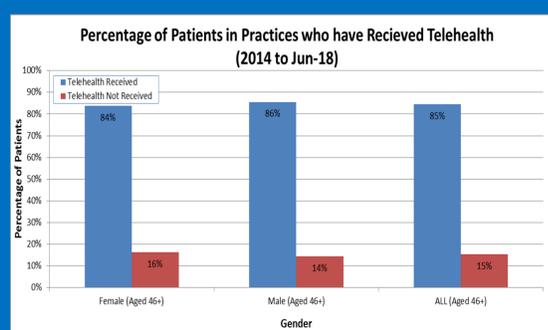
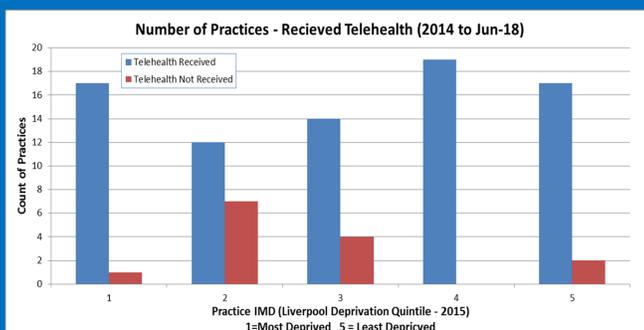
The local price of an average emergency admission for COPD is £2048, in Liverpool. This will allow the evaluation to comment on the cost of COPD treatment with and without telehealth. The main findings are due be shared in November 2018.

A previous local evaluation has shown that telehealth has reduced hospital admissions by 21%.⁴ Recent meta-analysis data on the impact of telehealth for COPD is not conclusive.⁵ This study will focus solely on the impact on GP Practice level hospital admissions for COPD.

Aim

The aims of this evaluation are to understand the impact of GP Practice uptake of telehealth for COPD. To include an assessment of inequalities in uptake of telehealth for COPD. To look at when GP Practices signed up for telehealth and comparing the pre-telehealth and post-telehealth hospital admissions / re-admissions .

Early Findings



Early Findings

Interim results are looking at inequalities, comparing the GP Practices taking up telehealth and those Practices not taking up telehealth. The Three graphs above show, deprivation, age and gender. The Index of Multiple Deprivation or IMD is used to describe deprivation, where 1 is the most deprived and 5 is the least deprived. The more deprived group of IMD 2 and the middle deprivation group IMD 3 are under represented in the GP Practices not taking up telehealth, which is likely to increase health inequity.

There is no inequality shown due to age or gender.

A full quantitative analysis of the impact of telehealth on a GP Practice's hospital admissions, re-admissions and prescribing in Liverpool will use the dates the GP Practice commenced taking up telehealth for COPD, to compare the data prior to and post telehealth. The full results are due in November 2018.

References

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