

## **R070: Investigating the association between biologic use, medication adherence and comorbidities in severe asthma: an analysis of linked data – QUB**

Asthma is a common condition affecting around 182,000 patients in Northern Ireland. Around 5% of these are severe asthmatics who remain uncontrolled despite taking high-dose inhaled corticosteroids. These patients suffer a substantial morbidity burden, including frequent exacerbations, and are managed within the Belfast City Hospital Difficult Asthma Service. Recently, several new biologic therapies have been licensed for use in severe asthma. These have been shown to be highly effective in clinical trials, however some patients do not respond to treatment despite having susceptible biology. Identifying and, if possible, addressing the reasons for non-response is crucial to ensure that these high-cost medications are efficiently utilised.

Non-adherence to maintenance treatment is a common problem within asthma. Several factors have been associated with non-adherence including beliefs around the necessity of taking treatment. Given the profound effect of biologic medications on asthma symptoms, there is some concern that patients may consider their maintenance treatment to be less necessary, and therefore reduce adherence following biologic initiation with downstream effects on treatment response. Furthermore, little is known about the comorbidity profile of patients receiving biologic treatment within the UK as the randomised controlled trials which informed clinical practice generally excluded patients with other diseases. Consequently, the effect of comorbidities on treatment response remains unclear.

The primary aim of this study is to investigate the effect of biologic initiation on maintenance asthma medication adherence. Its secondary aims are to characterise patients receiving biologics, and explore the impact of non-adherence and comorbidities on biologic response through linkage to primary care data.

Primary Research Question:

P1. Does asthma maintenance medication adherence change after initiation of biologic therapy?

Secondary Research Questions:

S1. Are patients receiving biologic therapy adherent to their maintenance medications before initiation?

S2. Does pre- and post-biologic maintenance medication adherence effect biologic therapy treatment response?

S3. What are the demographic, comorbidity and clinical characteristics of patients attending the Belfast City Regional Severe Asthma service?