

Real-world data to measure and improve quality of asthma care

Wern Ee Tang^{1,2,3} FCFP(S), John Abisheganaden^{1,4,5} FRCP(Edin)

In this issue of the Annals, the paper “Association of quality-of-care indicators with asthma outcomes: An observational study for asthma care in Singapore” by Lam et al.¹ illustrates the use of real-world data to generate real-world evidence in the area of asthma care in Singapore.

Asthma is a chronic health condition that can have significant impact on the individual and society. The lifetime prevalence of asthma in Singapore has been estimated to be 11.9%² while the annual economic burden of asthma in Singapore is estimated to be SGD2.09 billion (USD1.50 billion), with 79% due to losses in productivity.³

With the increasing availability of real-world data, there is growing interest and efforts to tap such data to answer research questions that may otherwise be difficult to address. The primary purpose of quality measurement is to support work aimed at improving the quality of care and outcomes.⁴ However, the clinical impact of some quality measures has been difficult to quantify.

Asthma education and the monitoring of objective measurements of asthma control using an assessment tool such as the Asthma Control Test (ACT) has long been advocated, but strong evidence showing its impact on clinical outcomes has been limited. The study by Lam et al. has helped to address the question on the impact of the use of quality measures such as the Asthma Control Test and asthma education on a measurable and key asthma clinical outcome, i.e. the time to severe asthma exacerbation (TTSE).

Lam et al.’s study showed that the performance of asthma education (which included the use of a written asthma action plan) and the use of ACT are associated with increased TTSE and decreased number of exacerbations, which supports the continuing use of these 2 important quality-of-care measures in asthma care. The findings also serve to reinforce those from previous studies that showed the benefits of asthma education on patient outcomes.⁵

Interestingly, Lam et al. reported that only 13% (501 out of 3849 patients) in the study cohort had a documentation of spirometry, which was mostly performed in the specialist clinics, and only 3 of the 9 primary care clinics provided spirometry. Hence, the observation that the patients with spirometry performed were more likely to have more severe or uncontrolled asthma managed in a tertiary care setting. This finding that spirometry measurements were not routinely or widely performed during the period of observation of this study likely reflects real-world practice in the population studied. Spirometry is useful in asthma management, for confirmation of the diagnosis of asthma and for monitoring.⁵ However, the findings in the study may reflect the need for spirometry services to be made more widely available and/or the use of these services to be more routinely advocated in asthma management, especially in primary care.

There are challenges in using real-world data. Real-world data have been described as often messy, incomplete, heterogeneous and subject to different types of measurement errors and biases.⁶ Of note, the study did not report using medication or prescription data as a quality-of-care indicator. The 2 most commonly used methods of measuring adherence from pharmacy databases are the medication adherence ratio (MPR) and the proportion of days covered (PDC).⁷ Adherence to inhaled corticosteroid inhalers has been associated with improved asthma control, and the asthma medication possession ratio has been used as a quality-of-care indicator in some US health systems.⁸ While neither MPR nor PDC can confirm that the prescribed medication was taken by the patient as prescribed, both can provide insight into whether the medication was available for the person to take.⁷ However, there are many variations in the calculations of MPR and PDC used in the literature with no “gold standard” as yet. Future studies should address important gaps revealed

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¹ Singapore National Asthma Programme Steering Committee, Ministry of Health, Singapore

² Clinical Research Unit, National Healthcare Group Polyclinics, Singapore

³ Information Management and Analytics, National Healthcare Group Polyclinics, Singapore

⁴ Department of Respiratory & Critical Care Medicine, Tan Tock Seng Hospital, Singapore

⁵ Health Services and Outcomes Research, National Healthcare Group, Singapore

Correspondence: Assoc Prof Tang Wern Ee, National Healthcare Group Polyclinics, 3 Fusionopolis Link, #05-10, Nexus@one-north, Singapore 138543.

Email: wern_ee_tang@nhgp.com.sg

through the analysis of these real-world data, such as asthma monitoring and the use of asthma medication records as a quality-of-care measure.

Keywords: *asthma, asthma education, quality-of-care indicators, real-world evidence, respiratory care*

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