Untying the Gordian knot: unravelling what influences quality of life in asthma patients

Ralph R. Turner[1] and Christopher Landon[2]

Affiliations: [1]Scotch Mountain Associates, Gainesville, VA, USA. [2]Pediatric Diagnostic Center, Ventura, CA, USA.

Correspondence: Ralph R. Turner, Scotch Mountain Associates, 13248 Fieldstone Way, Gainesville, VA 20155, USA. E-mail: scotchmtassociates@gmail.com

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A new study reports that non-symptom aspects of asthma control and generic QOL best predict asthma-specific QOL http://ow.ly/PWNMB

Readers of the *European Respiratory Journal* are well aware that asthma is an important healthcare concern. Current treatments include glucocorticoids, leukotriene antagonists, long-acting bronchodilators, monoclonal antibodies directed at interleukin (IL)5, IgE, and IL13, and a degree of chemotherapy in cost and degree of complexity becoming close kin to individualised treatment for cancer, and yet hospitalisation and emergency care with substantial impact on quality of life continues. Alexander has yet to winter at Gordium, unsheathe his sword and slice the knot. In this issue of the *European Respiratory Journal,* Stucky *et al.* [1] present work that disentangles major contributors to asthma-specific quality of life that often have been confounded in patient measures reported in previous research [2]. By doing so, the authors have clarified how asthma symptoms, asthma control and general health-related quality of life, uniquely and in the aggregate, influence asthma-specific quality of life. This work points the way for more focussed and precise measures which will, in turn, help inform the discussion about treatment options and healthcare services delivery.

The most recent data from the US Centers for Disease Control reveal an overall prevalence of 7.3% in the USA with highest percentages among those aged <18 years (8.3%), females (8.3%), African–American (9.9%), and those having the lowest incomes (10.9%) [3]. According to the Global Burden of Asthma report for 2004, prevalence in Europe ranged from 16.1% in the UK and Ireland to 4.9% in Scandinavia and the Baltic states with an average prevalence across Europe of 8.3% [4]. Asthma comes with a price. During 2010 in the USA, there were 1.8 million emergency department visits due to asthma, with 439 000 asthma-related hospitalisations. Asthma costs some $56 billion in the USA, 90% of which are direct medical costs, mainly due to hospitalisations [5]. For adults, asthma results in work absenteeism and loss of productivity with >14 million work days lost each year while, among children aged 5–17 years, it is one of the leading causes of school absences, accounting for an annual loss of more than 10.5 million school days [6].

Clinical measures – asthma symptoms, severity and control – while important for understanding disease status and treatment progress, fall short of providing information about the full impact of asthma on patient functioning and wellbeing. The 2010 National Institutes of Health expert panel meeting cited this problem and served as a basis for the work reported by Stucky and co-workers: "…because the burden of asthma as measured by symptoms or activity levels does not give a complete picture, an assessment of the patient's perception of the impact of impairments on his or her QoL [quality of life] remains essential" [7].

As advanced psychometric methods and techniques that have been applied with success in other disciplines, notably psychological testing, educational assessment and rehabilitation research, are brought to bear in clinical research settings, measurement of patient-reported outcomes has become more robust and precise. Stucky and co-workers drew upon their experience with the PROMIS (Patient Reported Outcomes Measurement Information System) initiative [8] as well as the RAND Corporation's long-standing work in

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health outcomes assessment [9–11] to develop the RAND negative Impact of Asthma on Quality of Life (RAND-IAQL). Designed to avoid confounding quality of life with asthma symptomatology and functional impairment, the IAQL focuses on content important to people with asthma [1]. Using IAQL along with other measures of asthma symptoms, asthma control and generic quality of life, the authors found that non-symptom aspects of asthma control and generic quality of life accounted for the greatest proportion of variance in predicting asthma-specific quality of life. This finding has implications for understanding more precisely how asthma impacts patient wellbeing.

Understanding this relationship has the potential to help inform healthcare providers in crafting effective treatment plans for patients with asthma. Important among these is concern for increasing adherence with asthma medications. Shell [12] indicated that children with severe asthma have treatment regimens approaching those of AIDS patients, with some taking as many as eight medications per day. Interventions to increase adherence include behavioural and educational programmes [13], electronic reminder systems [14], and assessing barriers to adherence, including understanding patient preference and satisfaction [15, 16]. This is especially important for minority patients for whom access to care is limited [17], and family lack of understanding of the disease may impede effective treatment [18].

All of these approaches require measurement systems that meet the test of "fit for purpose" in terms of validity, reliability, sensitivity, responsiveness and precision. Stucky *et al*. [1] have shown that when those standards are met, the value-added information has the potential to help achieve the goal of better overall asthma control.

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