After asthma: airways diseases need a new name and a revolution

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Asthma remains a frightening diagnosis with an unclear prognosis and outcome. The estimated global burden of asthma is substantial[1] and reductions in mortality from asthma have stalled since 2006, with wide variations between countries.[2] Causes are multifactorial, triggers and symptoms are varied, and the disease course over a lifetime is unpredictable. Severity can fluctuate with sudden asthma attacks leading to death in previously well controlled patients or those with very few symptoms on no medication. Symptoms can remit over long periods and reappear, or apparently develop for the first time in adult life. Primary prevention and cure are elusive concepts. Treatment remains symptomatic with disease control as the unambitious main aim. Asthma has joined the many diseases that are now entering the biologics phase, representing the third phase of asthma treatment strategies after the bronchodilator era of the mid-1960s, in which β_2 agonists were given as bronchodilators, and the inflammation era of the 1980s, in which inhaled corticosteroids were given as anti-inflammatory drugs. But before embarking on a new treatment strategy that targets more precisely some of the inflammatory pathophysiological pathways, asthma needs a radical rethink.

This *Lancet* Clinical Commission, After asthma: redefining airways diseases,[3] announced in 2015[4] and led by Ian Pavord and Andy Bush, provides such a radical rethink. It examines in depth why we have arrived at our current approach to asthma.[3] The Commission outlines where we are now with our understanding of its definition, basic concepts, diagnosis, monitoring approaches, drug development and treatment, guideline development, and life-course approach, our current (inadequate) answer to serious disease and severe attacks. The Commissioners argue that progress has been slow and unacceptable.

One of the main messages of the Commission is that asthma is not an adequate name and that we need to become much more nuanced in the way this label is used. What does asthma really mean? From its Greek root, the word can be translated as a short-drawn breath or hard breathing and is really describing the symptom of wheezing. More than 10 years ago, *The Lancet* argued[5] that this descriptive term or label for a heterogeneous syndrome or family of airways diseases had hindered rather than helped progress. Asthma has had many adjectives over the years, such as allergic asthma, adult-onset asthma, exercise-induced asthma, and occupational asthma, but these are not distinct entities and have no clear meaning for treatment choice or success. Gary Anderson introduced the concept of endotypes in asthma,[6] which recognises subtypes of the disorder defined functionally and pathologically by a molecular mechanism or by treatment response. As we gain more and more insights into pathophysiology with relevant biomarkers, a one-size-fits-all approach to diagnosis, monitoring, and treatment is no longer appropriate. Now is the time to deconstruct asthma in a way that is helpful for patients, clinicians, and researchers.

The Commissioners offer their suggestions about where we need to go from here to achieve real progress. The seven recommendations amount to a completely different approach to this chronic airways disease. Asthma should no longer be used as a disease entity without recognising underlying treatable traits to be assessed, monitored, and managed individually, taking comorbidities, and lifestyle and environmental factors into account. Asthma needs a descriptor, as has been the convention for anaemia and arthritis, if the name is kept at all.

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Primary prevention and disease-modifying research need to have a more important role. The time when paediatric pulmonologists and adult pulmonologists work and research separately in silos should be over. Lung growth and development starts in utero, and environmental attacks on the lung, such as indoor and outdoor air pollution, smoking, and other hazardous inhaled substances have deleterious effects on lung health across all ages. Impaired lung function growth in infancy and childhood has been described as an under-recognised risk factor for chronic obstructive lung disease later in life.[7] Lifelong lung health should be the overarching public health goal. The Commissioners recommend that everyone should have their lung function measured in early adulthood as a baseline linked to meaningful educational campaigns on the dangers of smoking.

Language matters. The Commissioners argue the terms of asthma exacerbation or flare-up—implying a slight deterioration that is far from the real experiences of a severe attack—which patients frequently describe as if suffocating or fighting for air, should no longer be used. Similar to our use of the term heart attacks, asthma exacerbations are lung attacks—ie, a change in language that implies urgency in immediate action and zero tolerance for a future event. Every patient should have annual assessments and risk scores should be developed to achieve primary prevention of such attacks and ultimately asthma mortality.

Research also needs to change, with the aim to "deliver more treatment to the right lungs rather than more treatment to more lungs", and to put a new focus on primary prevention and disease-modifying goals.[3] Trial participants need to be selected and tested to identify the characteristics that a treatment strategy seeks to modify. In trials and epidemiological research, the question needs to be asked: which airway disease is actually being studied? Doctor-diagnosed asthma as used now—an arbitrary label that is established clinically—should be an anachronism. Biomarker testing should be incorporated in clinical and research assessments.

Patients must be involved in this rethinking as well. Every patient given the diagnosis of asthma should ask their doctor: which asthma do I have? Or perhaps even better, which chronic airways disease do I have? The Commissioners hope that, starting now, asthma is no longer accepted as a disease entity in its own right and that by modifying this unhelpful label, progress in individualised diagnosis, treatment, and monitoring will be accelerated in the coming years. Together with the Commissioners, we will monitor progress regularly and invite researchers and others to join us in the revolutionary rethinking of chronic airways diseases.

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