

## Severe Asthma - Backgrounder

### Asthma overview<sup>1</sup>

Asthma is a chronic inflammatory disorder of the airways. The chronic inflammation is associated with hyper-responsiveness (i.e. a greater response than normal to allergens and other stimuli) that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing. During these episodes, commonly known as asthma attacks or asthma exacerbations, the lining of the airways in the lung (i.e. bronchial tubes) swell, causing the airways to narrow and reducing the flow of air into and out of the lungs.

The airflow obstruction is often reversible, either spontaneously or with treatment. Recurrent asthma symptoms frequently cause sleeplessness, daytime fatigue, reduced activity levels, and school and work absenteeism. Asthma can put heavy limits on daily life, and can sometimes be fatal.

### Asthma is common and severe types are often uncontrolled

Asthma is one of the top five chronic diseases globally, along with heart disease, stroke, cancer and diabetes.<sup>1</sup> Asthma affects an estimated 300 million people worldwide and 30 million people in Europe.<sup>2</sup> There has been a sharp increase in the global prevalence, morbidity, mortality, and economic burden associated with asthma since the 1960s, particularly in children, and the global prevalence is expected to grow to as many as 400-500 million people by 2025.<sup>2,3</sup>

Approximately 18% of Europeans with asthma have the severe form of the disease (symptoms that occur throughout the day on most days and during the night), and 20% of these patients are uncontrolled.<sup>2,4,5</sup>

### Asthma greatly impacts quality of life

Asthma is under-diagnosed and under-treated, creating a substantial burden to individuals and their families, which they will potentially have to deal with for the rest of their lives.<sup>1</sup> Unlike many chronic diseases, asthma occurs in all countries regardless of level of development.<sup>1</sup>

Inadequately managed severe asthma causes a large burden in terms of morbidity and mortality.<sup>6</sup> Patients with severe asthma often have significantly impaired quality of life, are frequently absent from school or work, have decreased productivity, and are at an increased risk of hospital admission and death.<sup>6</sup>

### The causes of asthma are numerous and not fully understood<sup>1</sup>

The fundamental causes of asthma are not completely understood. For example, urbanisation has been associated with an increase in asthma, but the exact nature of this relationship is unclear.

### Risk and triggers

The strongest risk factors for developing asthma are a combination of genetic predisposition with environmental exposure to inhaled substances and particles that may provoke allergic reactions or irritate the airways, such as:

- Indoor allergens (e.g. house dust mites in bedding, carpets and stuffed furniture; pollution and pet dander)<sup>3</sup>
- Outdoor allergens (e.g. pollens and moulds)<sup>1</sup>
- Tobacco smoke<sup>1</sup>
- Chemical irritants in the workplace<sup>1</sup>
- Air pollution<sup>1</sup>

There are also other triggers (i.e. stimuli that irritate and inflame the airways) for asthma including:

- Cold air
- Extreme emotions such as anger or fear
- Physical exercise
- Certain medications (e.g. aspirin and other non-steroid anti-inflammatory drugs, or beta-blockers which are used to treat high blood pressure, heart conditions and migraine).

### **The unmet need for uncontrolled severe asthma patients**

Efforts to reduce mortality and morbidity due to asthma need to focus on poorly controlled severe disease, as 80-85% of asthma-related deaths occur in this group and there is a strong association between increased recurrences of hospitalisation and asthma severity.<sup>7,8</sup> Even the highest dose of standard medications do not liberate them from frequent and life-threatening attacks, and few treatment options exist to control their disease.<sup>9</sup>

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