5.1. Avoidable admissions: respiratory diseases

Asthma, a condition characterised by hyper-reactivity and chronic inflammation of the bronchial system, is the most common chronic disease in childhood, with increasing prevalence in recent decades. Childhood asthma prevalence in the United States has doubled to 9% since the 1980s (Moorman *et al.*, 2007). Asthma persists to adulthood in at least 25% of children (Sears *et al.*, 2003). Approximately 30 million people in the European region are affected by asthma (Masoli *et al.*, 2004).

Chronic obstructive pulmonary disease (COPD), sometimes referred to as chronic bronchitis, is currently the fourth leading cause of death in the world (WHO, 2006). The most important risk factor is tobacco smoking which causes 80% to 90% of COPD cases. Smokers are ten times more likely to die from COPD than non-smokers (HHS, 2004). Around 11.2 million Americans have manifest COPD and 24 million have evidence of impaired pulmonary function consistent with early stages of COPD (ALA, 2009).

Treatment for asthma with anti-inflammatory agents and bronchodilators in the primary care setting is largely able to prevent exacerbations and, when they occur, most exacerbations can be handled without any need for hospitalisation. High hospital admission rates may therefore be an indication of poor quality of care. Admission rates for asthma have been used to assess quality of care by, for example, the United Kingdom National Health Service, and in the United States National Healthcare Quality Report (AHRQ, 2008b).

While a cure of COPD is not possible, treatment approaches have proven to stabilise patients to avoid the need for hospital admissions (Jadwiga *et al.*, 2007). Innovative approaches, such as the "Hospital at Home" that originated in the United Kingdom, have shown to substantially decrease admission rates and cost (Ram *et al.*, 2004). As much of the responsibility for managing COPD lies with primary care providers, hospital admission rates are a measure of the quality of primary care (AHRQ, 2007b).

Figures 5.1.1 and 5.1.2 show that the age and sex-standardised hospital admission rates for asthma and COPD vary substantially across OECD member countries. While on average 51 out of 100 000 adults are admitted for asthma in a given year, the United States reports over twice this rate (120). Its neighbour Canada has a much lower rate of 18 admissions. For COPD, variations of similar magnitude are reported. On average, 201 admissions occurred per 100 000 adults in OECD countries, but the rate was as high as 384 in Ireland and as low as 33 in Japan. Austria, for example, reported over three times the rate of neighbouring Switzerland.

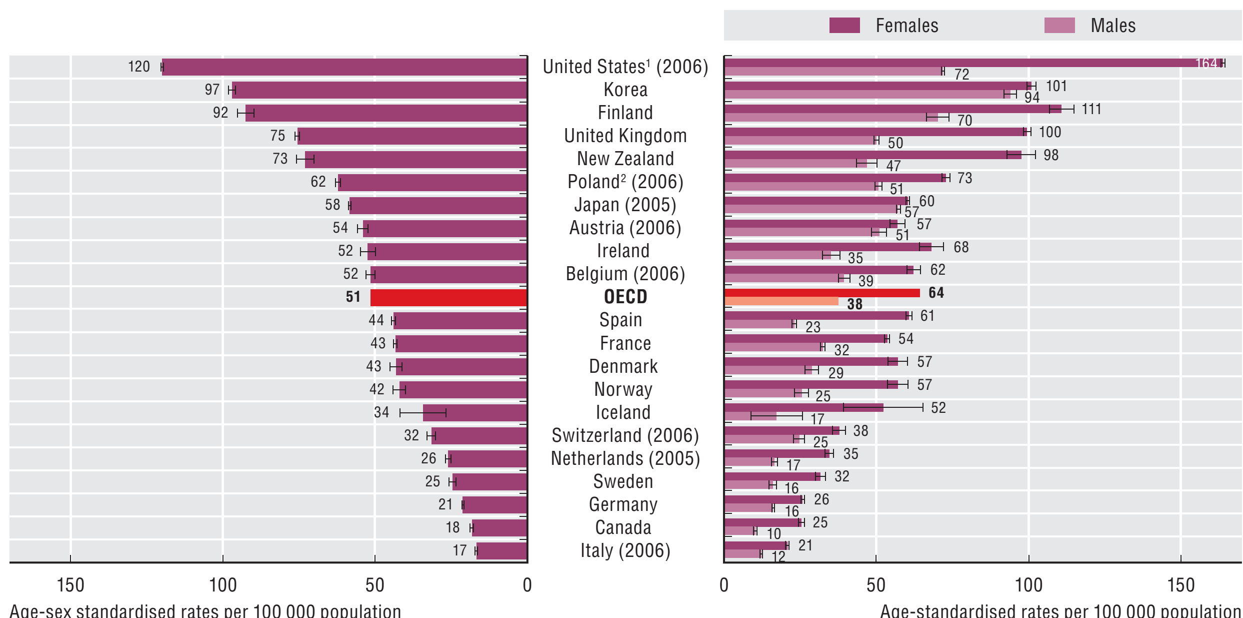
Figure 5.1.1 reveals that on average females are about 70% more likely to be admitted to hospital for asthma than males, with the rate for females in the United States being more than double the rates of males. This may be due, at least partly, to the fact that adult asthma prevalence is usually higher in females.

Figure 5.1.3 shows that COPD admission rates are correlated to a certain extent with estimates of COPD prevalence. This analysis points towards the exploration of potential gaps in care in countries with COPD admission rates that are higher than expected based on the reported disease prevalence. A similar correlation was not found between estimates of asthma prevalence and admission rates.

Definition and deviations

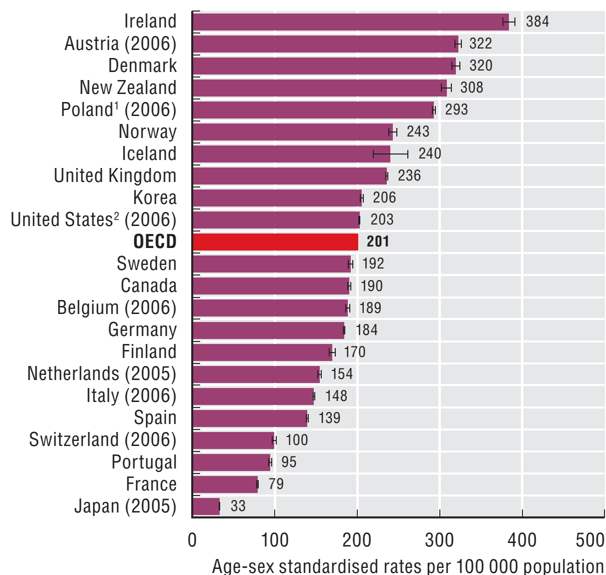
The avoidable asthma and COPD hospital admission rate is defined as the number of hospital admissions of people aged 15 years and over per 100 000 population in that age group per year. There is evidence of differences in diagnosis and coding between asthma and COPD across countries which points to limitations in the relative precision of the specific disease rates. Direct comparison of the asthma admission rates between the 2009 and 2007 editions of *Health at a Glance* is cautioned, given the rates for 2009 have been adjusted to take account of differences in the age and sex composition of each country's population and the age cohort has been revised from 18 years to 15 years and over. The prevalence estimates for COPD were self-reported by countries and the validity and comparability of these rates have not been fully assessed.

5.1.1 Asthma admission rates, population aged 15 and over, 2007



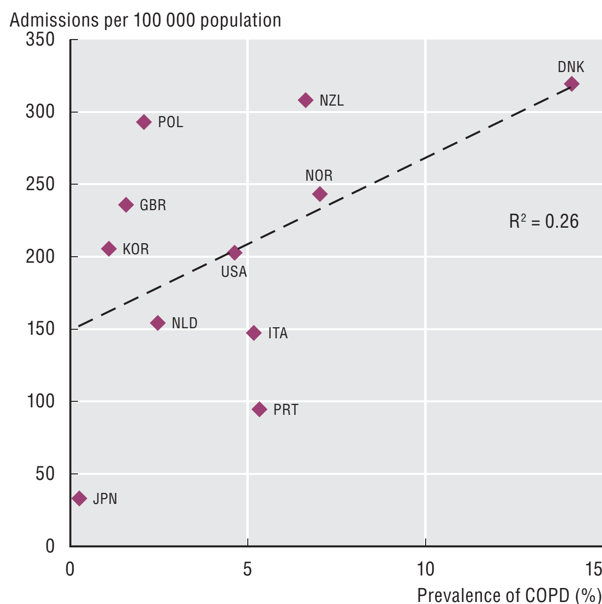
1. Does not fully exclude day cases. 2. Includes transfers from other hospital units, which marginally elevates rates.

5.1.2 COPD admission rates, population aged 15 and over, 2007



1. Includes transfers from other hospital units, which marginally elevates rates. 2. Does not fully exclude day cases.

5.1.3 COPD admission rates and prevalence rates, 2007 (or latest year available)



Source: *OECD Health Care Quality Indicators Data 2009*. Rates are age-sex standardised to 2005 OECD population. 95% confidence intervals are represented by ├─┤.

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