

Effect of incomplete registration at general practices on the annual prevalence of treated asthma

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Background

Annual prevalence of 'treated asthma' can be estimated using primary care routine data. However, the denominator may include people with incomplete registration at general practices (GP) in the year of estimation. Patients with incomplete registrations who actually take medications but have no recorded prescriptions represent false-negative cases leading to underestimated prevalence.

Objectives

To estimate the effect of incomplete GP registrations on the annual prevalence of treated asthma in Wales.

Approach

Using the GP dataset of the Secure Anonymised Information Linkage (SAIL) Databank, we created a denominator of people who lived in Wales and registered at Welsh GPs for any period during 2010. For the uncorrected prevalence, the numerator included people who ever had a recorded asthma diagnosis and any current recorded asthma prescriptions. For the corrected prevalence, we estimated the number of false-negatives and added them to the numerator. To do that, we calculated, for asthma patients with incomplete registrations and no recorded prescriptions, the sum of probabilities of having prescriptions if they had complete registrations. We estimated the absolute and relative increases in the prevalence at national and local authority levels as well as for the subpopulation with incomplete registration.

Results

The denominator included 2,221,967 people, of whom 94.8% had complete GP registration in 2010. Without correction, the numerator included 132,439 patients giving a prevalence of 5.96% [95% CI 5.93-5.99]. By adding estimated 1,801 false-negative cases to the numerator, the adjusted prevalence is 6.04% [95% CI 6.01-6.07] with absolute and relative increases of 0.08% and 1.36%, respectively. At the local authority level, the relative increase ranged from 0.47% for Blaenau Gwent to 3.94% for Monmouthshire. Among the subpopulation with incomplete registration (5.1%), the prevalence increased by 68.0% from 2.32% to 3.91%.

Conclusion

In Wales, which has a highly stable population, incomplete GP registration has negligible effect on the prevalence of treated asthma at a national level, although it was more significant for sub-regions with less stable populations. This correction method could be useful for more accurate estimation of asthma burden and the prevalence of active disease in highly dynamic populations.

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