

1 Supplemental Appendix I.

2 Data sources

3 Since 1978 data on hospital admissions and diagnoses have been registered in the Danish National
4 Patient Registry. All emergency room visits, somatic outpatient, and psychiatric contacts have
5 been recorded as well since 1995. Data on all medications dispensed from Danish pharmacies is
6 registered in The Danish National Prescription Registry and is considered both complete and valid
7 from 1995. The Danish National Health Service Register tracks billing codes given by all general
8 practitioners and certain medical specialists, including psychiatrists and psychologists. Because the
9 data is connected to reimbursement, the coverage is assumed to be good. Information on deaths
10 e.g. manner of death is registered in the National Causes of Death Registry. Information on tax-
11 reported household income is registered in the Income Statistics Register.

12 Definitions

13 Definition of first-born: defined as both mother's and father's first-born

14 Definition of sibling: having both same mother and father, or if one was unknown, then same
15 known parent

16 Other variables; Atopic comorbidity (index child)

17 To avoid misclassification of the prescription criteria of e.g. asthmatic bronchitis, we defined
18 children as asthmatic/with hay fever only if they were 6 years of age or above when they received
19 the medication, in accordance with a distinction in asthma guidelines¹ and validation studies
20 showing asthma prescription algorithms without an age limit to be predictive of asthmatic

21 bronchitis rather than of asthma² and reporting higher positive predictive values for asthma in
22 older children³.

23 References

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- 26 2. Stensballe LG, Klansø L, Jensen A, Haerskjold A, Thomsen SF, Simonsen J. The validity of
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28 rhinoconjunctivitis. *Pediatr Allergy Immunol*. 2017;28(6):535-542.
- 29 3. Örtqvist AK, Lundholm C, Wettermark B, Ludvigsson JF, Ye W, Almqvist C. Validation of
30 asthma and eczema in population-based Swedish drug and patient registers.
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