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Cumulative incidence of chronic health conditions recorded in hospital admissions from birth to age 16 in England: a cohort study using linked hospital and education administrative data

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Objectives

Monitoring the incidence of chronic health conditions (CHCs) in childhood in England using administrative data to derive numerators and denominators is challenged by unmeasured migration. We used a birth cohort design and different criteria for contact with health or education services to estimate the cumulative incidence of CHCs to age 16 years.

Approach

We identified all births in Hospital Episode Statistics (HES) from 2002/3 to 2011/12, with follow-up to 2018/19 (maximum age 8 to 16 years), censoring on death, first non-England residence record or 16th birthday. Children must have linked to later HES records and/or the National Pupil Database (NPD), which provides information on all state-school enrolments. The cumulative incidence of CHCs was estimated to age 16 using diagnostic codes in hospital admission records. We also explored temporal variation. Sensitivity analyses varied denominator criteria.

Results

Between 423,456 children (79.4%, of all HES-recorded births in 2002/3) and 618,054 (97.5% in 2011/12) linked to later HES or NPD records. The cumulative incidence of ever having a recorded CHC before age 16 among children born in 2002/3 or 2003/4 was 24.6%, ranging from 21% to 32% in sensitivity analyses. There was little temporal variation. At least 28% of children with any CHC had more than one body system affected by age 16. Multimorbidity rates rose with later cohorts.

Conclusions

Approximately one quarter of children are affected by CHCs, but varies depending on how the denominator is defined. More accurate estimation of the incidence of CHCs requires a dynamic population estimate.

