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OP01 CHANGES IN THE RELATIONSHIP BETWEEN ASTHMA AND ASSOCIATED RISK FACTORS IN CHILDREN AGED 8–13 OVER FIFTY YEARS: ECOLOGICAL STUDY FROM ABERDEEN, NORTH EAST SCOTLAND

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Background Asthma is the most common chronic childhood medical condition globally. After sharp rises in prevalence over the second half of the twentieth century, falling prevalence has been found in some countries including the United Kingdom during the first decade of the twenty-first century. In order to gain insight into the hitherto unconfirmed factors underlying changing susceptibility to asthma, we used data from one of the longest-running paediatric asthma epidemiology studies in the world: the Aberdeen Schools Asthma Survey (ASAS). We hypothesised that the relationship between asthma and associated risk factors had changed between 1964 and 2014.

Methods An ecological study design was used. Parents of children aged 8–13 in state schools in the City of Aberdeen, North East Scotland, were invited to participate in a questionnaire survey in May 1964, May 1989 and then at five-year intervals to 2014. Child history of asthma and eczema, parental smoking, parental asthma, sex and socioeconomic status (SES) were determined. 2 knot structural change models, with knots after 1964 and 1999, were constructed to assess changes in the relationship between child history of asthma and these risk factors over time.

Results Data for analysis were available for 15 108 children aged 8–13 (75% response rate). Asthma prevalence rose from 4% in 1964 to 28% in 2004 before falling to 22% in 2009 and 19% in 2014. Parental smoking prevalence fell in a near-linear fashion from 58% in 1989 to 28% in 2014. The odds ratio (OR) for a child with asthma to have eczema increased between 1989 and 1999 by 1.031 (95 confidence interval 1.028, 1.035) and by 1.042 (1.038, 1.047) between 2004 and 2014. The OR for a child with asthma to have a parent who smoked rose by 1.032 (1.028, 1.036) between 1989 and 1999 and by 1.043 (1.038, 1.047) between 2004 and 2014. The OR for a child with asthma to have a parent with asthma, to be male and to be from the most deprived communities also rose over the study period.

Conclusion As hypothesised, we found that the relationship between asthma and associated risk factors such as child eczema, sex, parental smoking, parental asthma and deprivation changed over the period 1964 to 2014. Limitations in our study include regulatory changes and falling response rates over time. The changing nature of relationships with asthma suggests that modification of environmental exposures, e.g. to second-hand smoke, can reduce population asthma susceptibility.

OP02 TRENDS IN CURE AND RELAPSE BY CLINICAL CHARACTERISTICS FOR CHILDREN DIAGNOSED WITH LEUKAEMIA AGED 0–17 YEARS IN YORKSHIRE 1990–2009: A POPULATION-BASED STUDY

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Background The 10 year survival estimates for children aged 0–14 years diagnosed with leukaemia have increased from 23% during the early 1970s to 81% for 2001–2005. Statistical cure models offer an alternative approach to examining survival by simultaneously estimating the proportion of patients cured and the survival of those 'uncured'. The proportion cured is defined as the proportion of patients as a group for whom there is no excess mortality compared to the general population. The aims of this study were to estimate the cure proportion for childhood leukaemia and examine trends by clinical prognostic risk factors. Trends in relapse free survival were also examined.

Methods Children aged 0–17 diagnosed with leukaemia between 1990 and 2009 were extracted from the Yorkshire Specialist Register of Cancer in Children and Young People (n=583). Flexible parametric cure models were used to estimate cure proportions and median survival times (MSTs) of those 'uncured' by age at diagnosis, sex, diagnostic subtype, white cell count (WCC), and period of diagnosis. A further cure model based on relapse free survival and a competing risk model for relapse with death as a competing risk were also fitted to examine patterns of relapse.

Results The standardised (adjusting for age, sex, subtype and WCC) cure proportion increased from 0.63 (95%CI: 0.55–0.70) for those diagnosed between 1990 and 94 to 0.83 (95%CI: 0.75–0.88) for those diagnosed 2005–2009. Over this same time period the MST of the uncured remained around 2 years. There were significant differences in cure proportions by age, subtype and WCC, and differences in MST by age and subtype. Models based on relapse free survival found that the proportion cured increased from 0.45 (95%CI: 0.38–0.53) to 0.78 (95%CI: 0.71–0.84) and the MST to relapse or death remained between 1.5–1.7 years. The risk of relapse decreased over time (Hazard ratio 0.18 (95%CI: 0.10–0.31) for 2005–2009 compared to 1990–1994).

Conclusion These results demonstrate that the proportion of patients cured, defined either by overall survival or relapse free survival, has increased substantially. There was no change in the median survival time of the uncured group during this time period, however, the risk of relapse has decreased. Cure models provide an alternative and clinically informative method to assess trends in survival for cancer patients.

OP03 IS IN-UTERO EXPOSURE TO MATERNAL H1N1 INFLUENZA INFECTION AND VACCINATION ASSOCIATED WITH AN INCREASED RISK OF CHILDHOOD SEIZURES? A NORWEGIAN REGISTRY-BASED STUDY

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