

Births and their outcomes by time, day and year: a retrospective birth cohort data linkage study

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Plain English summary

A retrospective birth cohort data linkage study

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Research in the 1970s showed that births of babies were spread unevenly through the week. The current research, on more than 7 million births in England and Wales from 2005 to 2014, is the first national study of both the day and time of births.

Three large sets of routinely collected data were linked to combine mother and baby records from birth registration, birth notification when NHS numbers are allocated to babies, and records about care during labour and birth. A database was created to enable us to analyse the data.

Results show a regular weekly cycle, with numbers of births increasing each day from Mondays to Fridays, lower numbers on Saturdays and lowest weekly numbers of births on Sundays. Fewest births occurred at Christmas. Births also varied seasonally, with a peak in late September.

The pattern of singleton births varied by place and type of birth. Numbers of births in freestanding midwifery units and at home were highest from midnight to 07.00, peaking from 04.00 to 06.00. They were lowest during the day and in the hours up to midnight. In NHS hospitals, when labour involved no medical assistance, births followed a similar pattern. Planned caesarean births were usually on weekday mornings. Births after induced labour were more likely to occur around midnight on Tuesdays to Saturdays, whether or not any medical assistance was needed, with a peak before public holidays.

In conclusion, the variation in the timing of births by place and type of birth has implications for midwifery and medical staffing. Further research is needed to use the new database to investigate how death rates at birth of children and their mothers and any risk of complications varies depending on the time of day and the day of the week.

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