Adherence to the paediatric immunisation schedule in England

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4646528
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Year 2021
Title Adherence to the paediatric immunisation schedule in England
Journal Vaccine X
Volume 9
Pages / **Article-Number** 100125
Both adequate coverage and adherence to paediatric immunisation schedules are required for optimal protection against vaccine preventable diseases. We studied the timeliness of routine paediatric vaccinations according to the NHS's immunisation schedule and potential factors of schedule adherence. Immunisation data was obtained from the Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC). We collected vaccine types, doses, and dates for all routine paediatric vaccines between 2008 and 2018: DTaP/IPV/Hib/HepB, DTaP/IPV/Hib, DTaP/IPV, dTaP/IPV, Td/IPV, MMR, PCV, MenB, MenC, MenACWY, Hib/MenC, RV, HPV. Adherence to the immunisation schedule was calculated for each vaccine and dose. Differences in adherence between genders, NHS regions, and IMD quintiles were analysed. Our study included 6'257'828 vaccinations in 1'005'827 children. Seventy-five percent of first doses were administered within one (for vaccines scheduled in the first year of life) or two months (for vaccines scheduled later in life) following the recommended age, 19% too late and 6% too early. About half of the subsequent doses were given timely. The time between first and second doses was too short for 36% of vaccinations while 13% of second doses were administered too long after the first dose. Third doses were administered timely for 45%, too short for 37%, and too long for 18% of vaccinations. Differences in immunisation schedule adherence between girls and boys were negligible, except for HPV, and differences between the four main NHS regions were small. Overall, immunisation schedule adherence improved slightly with decreasing deprivation according to the Index of Multiple Deprivation. Efforts are required to improve the timeliness of paediatric vaccinations and to assure adequate protection against vaccine preventable diseases. We propose developing a compound measure combining coverage and adherence to provide a better indication of the protection against vaccine preventable diseases in a community.
URL https://doi.org/10.1016/j.jvacx.2021.100125
edoc-URL https://edoc.unibas.ch/88892/
Full Text on edoc Available;
Digital Object Identifier DOI 10.1016/j.jvacx.2021.100125
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/34825165
ISI-Number MEDLINE:34825165
Document type (ISI) Journal Article