



## Commentary

## No increased sensitization from early vaccination of infants: a prospective study of infant vaccination in anthroposophical families

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Vaccination against infectious diseases is of the utmost importance for the health of our children. Therefore, it is good that the vaccination coverage today is extensive, e.g. estimated at 86% for children globally for vaccination against diphtheria, tetanus and pertussis vaccination [1].

The age when these vaccine doses are administered differs between countries, but the first doses are normally given between 6 weeks and 3 months of age.

Besides the risk of infection, does the age of the infant at the first immunization have any other consequences for the health of the child? It has been proposed that there could be a shift in the T-helper cell type 1/T-helper cell type 2/regulatory T cells balance and that more allergic diseases will develop with early vaccination in infancy.

Previous studies have been contradictory with respect to the association of immunization at an early age with the development of allergic diseases. Kiraly et al. [2] found no association with the first vaccine doses (DTaP and invariably Hep B, Hib, PCV, rotavirus) at around 2 months vs >3 months for food allergy or atopic sensitization. There was, however, an increase in eczema at one year of age. MacDonald et al. found a negative association between delay in administration of the first dose of whole-cell pertussis vaccine in DPT immunization in childhood and the development of asthma; the association was greater with delays in all of the first 3 doses [3]. This Canadian study used retrospective data, which might have led to selection bias.

However, Grüber et al. [4] showed in children at heightened risk of atopy that common childhood immunization in the first year was not associated with an increased risk of more severe eczema or allergic sensitization. They recommended that parents of atopic children should be encouraged to fully immunize their children.

After 14 years of no general pertussis vaccination, almost 82,000 Swedish children were immunized for pertussis in a vaccination trial [5]. Data for the main outcome variable (i.e., dispensed prescribed asthma medication for each individual in the cohort during

2008–2010) were obtained from the national prescription database. Children vaccinated at 2, 4, and 6 months were compared with children vaccinated at 3, 5, and 12 months; the timing of vaccination did not affect the outcome.

In this journal, Swartz et al. report about families with an anthroposophical lifestyle who are restrictive with vaccinations [6]. They start later with the vaccination program if they immunize their children at all. A total of 466 children fulfilled the inclusion criteria and 339–396 children were evaluated on four occasions between birth and 5 years of age. There was no increase in allergic sensitization in relation to age at the first vaccination, the total number of vaccinations or the total number of vaccines. Nor could they find any relation between measles, mumps and rubella vaccination and allergic sensitization.

This is one of the studies that indicate that there is no increased risk attached to vaccination at 3 months of age rather than later start of the vaccinations.

Vaccination at an early age is crucial to prevent infections with significant risk of mortality in infancy.

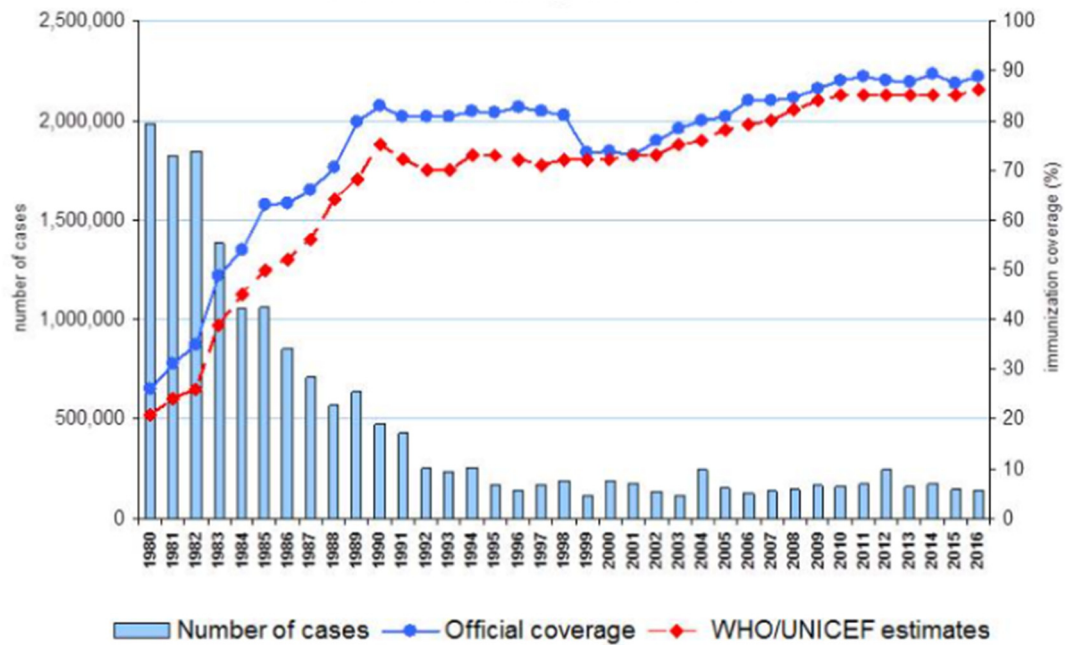
It is difficult to find studies with vaccinated and non-vaccinated infants living within the same or adjacent areas. Anthroposophical communities live adjacent to the rest of society, often in the countryside, but their lifestyle differs from that of more conventional families. They have a more individualized vaccination program; some are not vaccinated at all. However, their lifestyle is different in several other aspects such as longer breastfeeding periods, a biodynamic/organic, largely vegetarian, diet and restrictive use of certain drugs, such as antipyretics. As in the case of farming people with animals, they report significantly fewer allergic diseases.

It is not a large study, but the researchers have followed the children prospectively and therefore delete risks of recall bias or reverse causation, i.e. instead of X causing Y, the opposite is true. The study has one drawback; there is no information about symptoms of allergies or asthma in the children, which would have been of value. Objective evaluations of symptoms of allergy are, however, hard to compare from health care personnel and the families. Sensitization differs between anthroposophical children and children from ordinary families, but this has been adjusted for.

This study shows that vaccination at around 3 months and later on or no vaccination at all does not change allergic sensitization. Anthroposophical families are an important group in this evaluation and an interesting choice of comparative group.

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## Pertussis global annual reported cases and DTP3 coverage, 1980–2016



Source: WHO/IVB database, 2017  
194 WHO Member States.  
Data as of 19 July 2017

### References

- [1] [https://www.who.int/immunization/monitoring\\_surveillance/burden/vpd/surveillance\\_type/passive/pertussis/en/](https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/passive/pertussis/en/).
- [2] Kiraly N, Koplin JJ, Crawford NW, Bannister S, et al. Timing of routine infant vaccinations and risk of food allergy and eczema at one year of age. *Allergy* 2016;71(4):541–9.
- [3] McDonald KL, Huq SI, Lix LM, Becker AB, Kozyrskyj AL. Delay in diphtheria, pertussis, tetanus vaccination is associated with a reduced risk of childhood asthma. *J Allergy Clin Immunol* 2008;121(3):626–31.
- [4] Grüber C, Warner J, Hill D, Bauchau V, EPAAC Study Group. Early atopic disease and early childhood immunization—is there a link? *Allergy* 2008;63(11):1464–72.
- [5] Vogt H, Bråbäck L, Kling AM, Grünewald M, Nilsson L. Pertussis immunization in infancy and adolescent asthma medication. *Pediatrics* 2014;134(4):721–8.
- [6] Swartz J, Aronsson B, Lindblad F, et al. Vaccination and allergic sensitization in early childhood – the ALADDIN birth cohort. *EClinicalMedicine* 2018;4-5:92–8.