Reviewer's report

**Title:** Prevalence of diphtheria toxoid IgG antibodies in children, adolescents and adults in Poland

**Version:** 4  **Date:** 9 October 2013

**Reviewer:** Thea Sesardic

**Reviewer's report:**

This short manuscript describes population immunity study to diphtheria in Poland and concludes prevalence of inadequate immunity with increasing age. Study looked at a range of subjects within 10-age category groups and applied standardized ELISA assay taking toxoid as antigen for detection of anti-diphtheria antibodies. Of interest is the finding that less than 50% of subjects within the 0-2 years age group were considered as fully protected, with diphtheria toxoid antibody level >0.1 IU/ml. This is considerably lower compared to similar other population immunity studies.

Study is not particularly novel in view that many have been published with somehow same conclusion, with regards to decreasing level of antibody with age.

However, this study would be much improved if reason for lower immunity to diphtheria in 0-2 year age group is explained. It is documented in literature that in general antibody response to all antigens in DTwP vaccine can be lower compared to DTaP version and that schedule of immunization plays significant role. Authors should discuss these from literature where possible (compulsory) but ideally testing a set of subjects from this age group immunized with different vaccine (i.e DTaP or combination based on DTaP) and analysed by an identical method would be most valuable (discretionary). Discussion should also focus more on clinical relevance reported findings.

If available laboratory data on protective potency of vaccines used in the campaign should be included (discretionary).

**Specific comments (compulsory and minor essential)**

Manuscript will require formal review by an English editor to improve reading and grammatical mistakes.

Correct / harmonize statement that study looked at level of antibodies to diphtheria toxoid, not toxin.

Method section should provide more details on the how antibody concentration were measured and calibrated in IU/ml. More specifically where validation data was published and which reference antitoxin standard was used to produce standard curve.

Study population section would benefit and or legend to Figure 1 which vaccine
exactly is given for primary and which for booster immunization. It should be more explicitly mentioned that this is wP.

In discussion section (e.g. study in Latvia and that by Edmunds) should be supported by additional information on method used to assess antibodies as different kit/reference or coating antigen might provide different conclusion with regards to higher level of antibodies determined in those studies.

Explain why total number of subjects in Table 1 and Table 2 are not the same. Table 2 – correct table legend – were these patients or subjects?

**Level of interest:** An article of limited interest

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'