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Incidence of pneumonia is not reduced by pneumococcal conjugate vaccine

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Madhi et al.[1] write that the pneumococcal conjugate vaccine (PCV) is an effective instrument for pneumonia prevention in children. This is not strictly true. WHO data[2] suggest that there are 450 million cases of pneumonia each year and that it causes 3.9 million deaths. In the sub-Saharan region of Africa, 1 022 000 die and 702 000 die in south Asia.[1] The pneumonia referred to is "clinical pneumonia" – a diagnostic syndrome within the Integrated Management of Childhood Illness – WHO and United Nations Children's Fund (UNICEF) system for triage and clinical management in developing countries.[3] The Cochrane database[4] states that PCV does not reduce the incidence of clinical pneumonia, although it has been shown to reduce vaccine-serotype bacteraemic pneumonia and radiological pneumonia. The benefit of reducing bacteraemic pneumonia and radiological pneumonia is so minimal that it has no effect on "clinical pneumonia". Poor nations will need to assess its cost utility carefully.

A study from the Gambia showed that mortality was 16% lower in a PCV immunized group compared to placebo recipients (25.2/1000 children years versus 30.1/1000 children years).[5] Data are also provided on adverse effects and deaths within 1 week of receiving any dose of the vaccine or placebo. The mortality benefit was seen in the first week after injection, well before vaccine efficacy could have been established. There were 12 deaths in the vaccine group and 15 among controls (23.8/1000 children years versus 29.8/1000 children years). This suggests that factors other than vaccine efficacy are responsible for the difference in mortality between the groups compared.

There is also another issue that we hope to raise here. The paper states that the vaccine programme would exceed the WHO threshold in 69 eligible countries. The authors assert that these findings are conservative in the sense that they did not assume any herd protection and did not assume protection beyond the age of 2.5 years. Beutels[6]

has cautioned against this trend of noting the "positive" uncertainties (herd immunity, protection beyond 2.5 years) without reporting the "negative" ones (serotype replacement,[7] increased incidence of asthma),[8] which could dampen enthusiasm for the intervention.

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