

# Study shows antibiotic prophylaxis a vital weapon in preventing streptococcus b infection in newborns

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A study investigating epidemiology of *Streptococcus B* infection worldwide has shown that the highest levels of infection are found in Africa, followed by the Americas and Europe. The study shows the use of prophylactic antibiotics in mothers at risk of *Streptococcus B* substantially reduces infection rates in newborns, and that such intervention, widely applied in high-income countries, should also be used in the developing world, at least until vaccines become available. Encouragingly, and unlike some other pathogens, the distribution of strains of *Streptococcus B* appears similar worldwide, and therefore vaccines in development could have near-universal applicability once licensed. The study is by Dr Karen Edmond, London School of Hygiene and Tropical Medicine, UK, and colleagues.

The authors did a systematic review and meta-analysis to examine the current global burden of [invasive disease](#) and the serotype distribution of group B *Streptococcus* isolates. Despite widespread use of intrapartum antibiotic prophylaxis, group B *Streptococcus* remains a leading cause of morbidity and mortality in infants in Europe, the Americas, and Australia. However, there are few studies from other regions and many are of poor quality. 74 studies met the inclusion criteria; 56 studies reported incidence, 29 case fatality, and 19 serotype distribution. An additional search for studies that reported serotype distribution from Jan 1, 1980, yielded a total of 38 articles. Only five low-income countries were represented in the review and contributed 5% weight to the meta-

analysis.

More than two thirds (69%) of studies reported use of any intrapartum antibiotic prophylaxis. Mean global incidence of group B *Streptococcus* in infants aged 0 days was 0.53 per 1000 livebirths and the mean case fatality ratio was 10%. The included studies showed Africa to have the highest incidence (1.21 cases per 1000 livebirths) and case fatality (22%). Incidence in the Americas (0.67 per 1000) and Europe (0.57 per 1000) were also higher than the global average, but while case fatality in the Americas was close to the global average (11%), in Europe it was lower (7%). Global incidence of early-onset group B *Streptococcus* (days 0-6), at 0.43 per 1000 livebirths, and case fatality, at 12%, were twice as high for early onset than late-onset disease (days 7-89).

Serotype III (49%) was the most frequently identified *Streptococcus* B serotype in all regions with available data followed by serotypes Ia (23%), Ib (7%), II (6%), and V (9%). Studies in which no antibiotic prophylaxis was used reported an incidence of early-onset *Streptococcus* b infection three times higher than those that did report use of prophylaxis (0.75 versus 0.25 per 1000 livebirths).

The authors say: "More high-quality studies are needed to accurately estimate the global burden of group B *Streptococcus*, especially in low-income countries."

They add: "A conjugate vaccine incorporating five serotypes (Ia, Ib, II, III, V) could prevent most global group B streptococcal disease... Group B *Streptococcus* conjugate vaccines are at advanced stages of testing and phase 3 trials will soon begin in Africa. Vaccination of pregnant women also has the potential to reduce premature births, stillbirths, and puerperal sepsis caused by group B *Streptococcus*."

In a linked Comment, Dr Mark F Cotton and Dr Helena Rabie,

Department of Paediatrics and Child Health, Tygerberg Children's Hospital, Stellenbosch University, Tygerberg, South Africa, say: "An effective vaccine, hopefully for both early-onset and late-onset disease, will require infrastructure for implementation. A vaccine could be fairly well implemented in settings where uptake of antenatal care is high and tetanus toxoid (or influenza) vaccine is given routinely. The role of a vaccine is likely to be widespread because group B [Streptococcus](#) is also responsible for disease in adults, especially those aged over 64 years."

But they add: "Introduction of intrapartum antibiotic prophylaxis on a broad scale is feasible and necessary. Lessons from the success of programmes to prevent vertical transmission of HIV could be applied. The role of intramuscular antibiotics should also be assessed in settings where the intravenous route is a barrier. With scale-up of programmes, costs come down and efficiency is improved."

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 [\(11\)61651-6/abstract](http://www.thelancet.com/journals/lan...)

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