Maternal immunization with pneumococcal vaccines

The possibility of immunizing pregnant or breastfeeding women with pneumococcal vaccines to protect the newborn in the first few months of life before routine infant immunization with pneumococcal conjugate vaccine remains an area where further research is needed. Currently available data from developing countries are extremely limited concerning the burden of pneumococcal disease in the newborn and mother as well as the potential achievable public health benefits and risks of a maternal immunization strategy in these groups. A recent (2006) Cochrane Collaboration review concluded that there is currently insufficient evidence to support the notion that pneumococcal vaccination during pregnancy could reduce infant infections, particularly at the age when infants would be too young to be immunized with PCV7 i.e. at less than 2 months.

In general, pneumococcal vaccines should be deferred during pregnancy because their effects on the fetus are unknown. The safety of pneumococcal polysaccharide vaccine during the first trimester of pregnancy has not been evaluated, although no adverse consequences have been reported among newborns whose mothers were inadvertently vaccinated during pregnancy or immunized in the context of clinical trials. Pregnant women with underlying medical conditions, that are indications for PPV23 vaccination can be vaccinated after careful weighing of the risks and benefits. Whenever possible, however, women with risk factors should be vaccinated before pregnancy. It is further unclear what the benefit would be of increased maternal transfer of antibodies through the cord and breast milk versus through breast milk only, and consequently if vaccinating during pregnancy would be a better alternative to postpartum vaccination.

Pneumococcal conjugate vaccine formulations may hold promise for maternal immunization, but their narrower serotype coverage could limit their utility in preventing illness in infants in the first months of life; currently no data are available to substantiate this assumption. On the other hand, there is evidence from the U.S. of herd protection in children aged 0-3 months from routine immunization of older infants with 7-valent
pneumococcal conjugate vaccine. A research strategy should be developed to evaluate pneumococcal maternal immunization. Areas where more data are needed include: optimal vaccine type (polysaccharide or conjugate), ability to transfer antibodies from mother to fetus, protective antibody levels in neonates, duration of vaccine-induced protection in the newborn, and possible need and safety of repeated polysaccharide vaccine doses for subsequent pregnancies.