New meningitis vaccine only cost-effective at low price

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The ideal cost per dose for a new meningitis vaccine ranges from £3 up to a possible £22 only if several vaccine favourable factors all coincide, according to research which has analysed how to maximise the reduction in cases while making a new vaccination programme cost-effective.

Bexsero is the first vaccine to broadly protect against meningitis B disease, but research now suggests the Government would need to negotiate a considerable reduction in the £75 list price in order to provide the same value for money as other programmes in the NHS.

In March 2014, the Joint Committee on Vaccination and Immunisation (JCVI), the independent expert group that advises UK governments on vaccination, recommended that Bexsero be offered to babies at two, four and 12 months of age as long as the Department of Health can obtain the vaccine at a cost-effective price.

Researchers at the Universities of Bristol, Cambridge and the London School of Hygiene and Tropical Medicine conducted a modelling study to estimate the potential impact of a vaccine on cases of meningitis and septicaemia and the cost-effectiveness of a range of immunisation programmes.

The model took into account a range of factors, including how many cases could be averted, the cost of care, litigation costs, the quality of life for those left with disabilities, and the impact on families. The costs and benefits of vaccination over people's lifetimes were compared to the costs and losses of not introducing it.

The research also estimated what price the vaccine should be in the UK as part of the decision making process, with details published for the first time in the *BMJ* today [10 October].

Dr Hannah Christensen, who led the research at the University of Bristol, said: "Our study suggests vaccinating babies, who are most at risk of meningococcal disease, would have the greatest immediate effect on reducing cases. After taking into account comments raised by stakeholders following the interim JCVI decision, our research shows that offering the vaccine to infants could be cost-effective, but given the current evidence the vaccine price would need to be quite low to achieve this."

Several vaccine strategies were considered, targeting infants where incidence is high and adolescents where transmission is thought to be the greatest.

Researchers also considered a range of different scenarios of how well the vaccine might work protecting against infection and disease, as well as the impact of the disease in the population.

The model estimates 1,447 cases of all meningococcal disease and 59 deaths occur annually in the absence of vaccination against

group B meningococcal disease.

Cases would be cut by 26 per cent in the first five years if the recommended vaccination programme at two four and 12 months is followed. This could be cost-effective with the vaccine priced at £7 per dose, given several favourable assumptions and the use of a quality of life adjustment factor.

Maximum reduction will be achieved by combining infant vaccination with an adolescent vaccination at 13-years-old. This would see annual cases reduced by 49 per cent in 10 years and 60 per cent in 20 years, but is dependent upon the vaccine protecting against carriage as well as disease, which is uncertain.

Assuming the vaccine works as well as possible, covering 91 per cent of meningitis B strains and preventing 60 per cent of carriage to save more lives, the maximum price of the vaccine for it to remain cost-effective would be £22 a dose to be given at two, four and 12 months.

Campaigners have been calling for the vaccine to be introduced in the UK since it was licensed in Europe in January 2013, but cost has always been a key issue.

More information: "Re-evaluating cost effectiveness of universal meningitis vaccination (Bexsero) in England: modelling study." *BMJ* 2014; 349 doi: dx.doi.org/10.1136/bmj.g5725 (Published 09 October 2014)

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