Season influenza vaccination of children predicted to be highly cost-effective in Thailand

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Credit: National Cancer Institute

Seasonal influenza vaccination of children is likely to represent good short-term value for money in Thailand, according to a study published this week in *PLOS Medicine*. The study, led by Aronrag Meeyai of the Health Intervention and Technology Assessment Program and Mahidol University, Thailand, uses an age-structured model to estimate the health benefits and cost-effectiveness of flu vaccination among Thai children aged 2 to 17 years.

Many seasonal influenza vaccination programs target elderly people, who have the highest risk of dying as a result of an influenza infection. Several high-income countries now also recommend annual influenza vaccination of children because children are particularly important in influenza transmission. However, the benefits of this policy in low- or middle-income countries have not been established. Meeyai and colleagues therefore developed a mathematical model to evaluate policies of annual vaccination of children with trivalent live-attenuated influenza vaccine (LAIV) or trivalent inactivated influenza vaccine (TIV). They populated this model with available data to estimate reductions to infection, reductions to mortality, and cost-effectiveness of age—and LAIV- or TIV—specific vaccination policies in Thailand.

The largest estimated reduction to influenza and associated mortality was obtained by vaccinating 2-17 year olds with LAIV. This policy was predicted to prevent about 3,000 deaths annually in Thailand, mostly as a result of reducing influenza transmission to people over 60 years of age. The smallest reduction was estimated for increasing TIV coverage in elderly people from 10% (the current annual flu vaccination uptake among this age group) to 66%. All six distinct childhood vaccination policies were estimated to be highly cost-effective according to WHO criteria; the policy with the highest cost-effectiveness depended on the estimate of the population's willingness-to-pay to avert one disability adjusted life year (DALY).

The long-term consequences of annual influenza vaccination of children in Thailand cannot be reliably predicted because of limited understanding of influenza immunity. The accuracy of Meeyai and colleagues' findings is limited by the model assumptions and by the cost and efficacy data quality, which was variable. The generalizability of these model predictions to other middle- income countries is also not yet understood. The authors state, "Fundamental uncertainties about influenza remain, however, and for this reason we believe proposals for large-scale community-based controlled trials of policies to vaccinate children against influenza are as relevant to low and middle income settings as they are to high income countries."

More information: Meeyai A, Praditsitthikorn N,

Kotirum S, Kulpeng W, Putthasri W, Cooper BS, et al. (2015) Seasonal Influenza Vaccination for Children in Thailand: A Cost-Effectiveness Analysis. *PLoS Med* 12(5): e1001829. DOI: 10.1371/journal.pmed.1001829