

Cost-effective or not? New research on national vaccination programs

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Immunizing children against chickenpox would save money, but offering shingles vaccinations to all 65-year-olds would not. These are examples of findings in a University of Gothenburg thesis exploring the cost-

effectiveness of Sweden's national vaccination programs.

The vaccination issue is obviously topical now that a pandemic is under way. The thesis now presented at Sahlgrenska Academy, University of Gothenburg, does not cover immunization against COVID-19. Author Ellen Wolff, a health economist at the Public Health Agency of Sweden, nonetheless reflects on the current situation.

"It's become clear that new [vaccine](#) development can be rapid. But new vaccines tend to cost more per dose than those that are already established in the market," she points out.

In general, immunization is one of the key instruments of public health policy. Many diseases that formerly caused major burdens of disease and premature death have been more or less eradicated. Vaccination has a direct effect on the recipient, and also helps to protect others in the community by reducing the spread of infection.

Incorporating vaccinations into national programs, however, requires economic prioritization. While demand for healthcare is limitless, resources in the form of labor, equipment, and funds in the care sector are limited.

A cost-effectiveness analysis of vaccination programs compares health effects and costs of two or more alternative programs, on the one hand, with not providing vaccinations on the other. The results are commonly presented in terms of cost per quality-adjusted life year (QALY), an indicator combining effects of health-related length and quality of life. The analysis includes not only such expenses as vaccination doses, but also the cost of care.

Already during her doctoral studies, Ellen Wolff's research provided knowledge that has influenced Sweden's national vaccination programs.

These include the now sex-neutral vaccination against human papillomavirus (HPV), which has included boys as well as girls since fall 2020. This vaccine gives protection against not only [cervical cancer](#), but also forms of cancer that affect both sexes.

In addition, she has studied the cost-effectiveness of various vaccination strategies for protecting infants from whooping-cough (pertussis). The most cost-effective strategy proved to be immunizing babies at exactly the right time—age 3, 5, and 12 months—with no delay. Vaccinating [pregnant women](#), or the parents or guardians of newborn babies (the 'Congo strategy'), was less cost-effective.

In another study forming part of Wolff's thesis, she investigated the cost-effectiveness of pneumococcal vaccination for 65- and 75-year-olds. The results indicate that giving [65-year-olds](#) these vaccinations is not cost-effective, while vaccinating 75-year-olds may be.

Chickenpox (varicella) vaccination is not yet included in Sweden's public vaccination [program](#) for children. However, according to the thesis this measure would be cost-effective and even money-saving. On the other hand, vaccinating 65-year-olds against shingles (herpes zoster), which can affect people who have had chickenpox at some stage, fails to attain cost-effectiveness.

When asked, in a questionnaire study in the thesis, whether they thought society should spend more resources on implementing preventive vaccination programs or treating disease once it has arisen, respondents clearly gave clear priority to prevention. These respondents numbered more than 1,900, based on a representative sample of Sweden's population.

"Preventive measures like immunization may involve heavy spending in the present, while the health effects arise in the future. It may therefore

be hard to get decision makers to prioritize prevention, compared with treatment of disease that's already manifested," Ellen Wolff concludes.

More information: Cost-Effectiveness of Vaccination and the Value of Prevention: gupea.ub.gu.se/handle/2077/66814

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