Expanding use of vaccines could save up to $44 for every dollar spent, study suggests

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Credit: National Cancer Institute

Vaccinations, long recognized as an excellent investment that saves lives and prevents illness, could have significant economic value that far exceeds their original cost, a new study from researchers at the Johns Hopkins Bloomberg School of Public Health has found.

In what is believed to be among the first studies to examine the potential

return on investment of vaccinations, the researchers assessed the economic benefits of vaccines in 94 low- and middle-income countries using projected vaccination rates from 2011 to 2020. When looking only at costs associated with illness, such as treatment costs and productivity losses, the return was $16 for every dollar spent on vaccines. In a separate analysis taking into account the broader economic impact of illness, vaccinations save $44 for every dollar spent.

The study will appear in the February issue of *Health Affairs*.

"Vaccines are an excellent investment," says lead author Sachiko Ozawa, PhD, MHS, an assistant scientist in the Department of International Health at the Bloomberg School. "But to reap the potential economic rewards, governments and donors must continue their investments in expanding access to vaccines."

Without vaccination, millions of children would die from preventable illnesses and diseases across the decade. While billions of dollars will be spent to try and vaccinate more children, the goal of full coverage—that is, getting every child vaccinated—has not yet been met.

To measure the potential investment returns, researchers used two approaches. The first, known as the "cost-of-illness" approach, measures averted treatment costs, transportation costs, lost caretaker wages and productivity losses. The second, known as the "full-income approach," estimates the broader economic and social benefits of vaccination and quantifies the value that people place on living longer and healthier lives. With both approaches, the costs of immunization programs were separately modeled to include supply chain, service delivery and vaccine costs.

Between 2011 and 2020, the estimated total cost of immunization programs in the 94 countries studied was $34 billion. Through these

programs, an estimated $586 billion would be averted in cost of illness associated with vaccine-preventable diseases. Using the full-income approach, the benefit was estimated at $1.53 trillion dollars.

The study assessed 10 vaccine-preventable infections: *Haemophilus influenzae* type b, hepatitis B, human papillomavirus, Japanese encephalitis, measles, *Neisseria meningitis* serogroup A, rotavirus, rubella, *Streptococcus pneumoniae* and yellow fever.

"Our findings should encourage donors and governments to continue their financial investments in immunization programs. But we must keep in mind that these are estimates that assume immunization coverage continues to expand and improve," Ozawa says.

More information: "Return On Investment From Childhood Immunization In Low- And Middle-Income Countries, 2011-2020" *Health Affairs*, 2016.

Provided by Johns Hopkins University Bloomberg School of Public Health

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