



The significant morbidity and mortality associated with influenza can impose a major economic burden on society. As a result, data on the potential economic benefits of vaccination can help inform immunization policy development alongside disease burden information.

Executive Summary

- **Seasonal influenza imposes a major economic burden.** Influenza epidemics can result in increased healthcare costs, reduced productivity and workplace absences. Estimates suggest influenza costs billions of dollars each year in the United States and Europe alone.
- **Vaccination can help reduce the cost of influenza.** A number of studies, notably from the US, indicate influenza vaccination can be economically beneficial.
 - **Vaccinating the elderly.** US research indicates vaccinating those aged ≥ 65 years can provide societal cost savings, and one study estimated cost-effectiveness was \$980 per QALY saved. In Europe, the Commission considers the cost benefit effectiveness of immunization is well established in groups aged 65 years and over.
 - **Vaccinating working age adults.** Results from evaluations of vaccinating younger American adults suggest the approach may be cost saving on average, or cost-effective.
 - **Vaccinating children.** A number of studies indicate immunizing children can be cost saving or cost beneficial. Although strategies targeting those at higher risk can be more cost-effective than universal childhood vaccination, an age-based strategy may be easier to implement and therefore likely more successful. An Argentinean study found routine vaccination of high risk children would be cost saving for society.
 - **Vaccinating universally.** Research in Canada shows Ontario's universal vaccination program reduced cases of influenza by 61% and deaths by 28% compared with a targeted strategy. Although the universal program had higher costs, it was found to be economically attractive.
- **Vaccine coverage levels are linked to economic support for immunization.** Economic factors appear to influence vaccination levels. An IFPMA study shows financial support for immunization is more closely related to coverage levels than national development status.

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Economic Benefits of Immunization

Seasonal Influenza Vaccination Series: Paper 3



IFPMA

**Influenza Vaccine Supply
International Task Force**

Influenza epidemics are responsible for significant levels of illness and death, and can have a major economic impact due to increased healthcare costs, lost productivity and societal disruption^{1,2}. A number of studies, largely from industrialized countries, have explored this economic burden and the potential benefits offered by vaccination^{1,3}. These data provide a valuable complement to disease burden information, and can help inform immunization policy development.

Seasonal influenza imposes a significant economic burden

The financial impact of influenza epidemics is significant. The World Health Organization references studies from France, Germany and the US that suggest the total annual cost of influenza is between \$1 million and \$6 million per 100,000 population¹. The Commission of the European Communities suggests the total cost may reach €5.67 million per 100,000 people in industrialized countries². The Commission estimates the annual cost to Europe may be between €5.9 billion and €27.7 billion².

Data from the United States confirm the cost associated with influenza outbreaks is significant. A national study estimated influenza accounts for \$10.4 billion of direct medical costs annually (in 2003 dollars), and imposes an overall burden of \$87.1 billion³. A study in children found significant costs associated with hospitalization due to influenza-related illness, totalling on average over \$13,000³.

Vaccination can help reduce the cost of influenza

Estimates of the economic benefits offered by influenza vaccination vary and can be difficult to compare as they often include different measures of costs and benefits³. Despite these differences, a number of studies show immunization can reduce the healthcare, societal and individual costs and the absenteeism and productivity losses associated with influenza³.

- **Economic benefits of immunization: the elderly**

A number of US studies indicate vaccinating those aged ≥ 65 years old can substantially reduce hospitalizations and deaths and provide overall societal cost savings³. In Europe, the Commission states the 'cost benefit effectiveness for groups above 65 of age is well established in nearly all locations². A study in the United States estimated cost-effectiveness of vaccination for those aged ≥ 65 years was \$980 per QALY saved (in 2000 dollars)³.

- **Economic benefits of immunization: working age adults**

Results from economic evaluations of vaccination in younger adults vary. An analysis of direct and indirect costs cited by the US health authorities found vaccination of healthy working-aged adults was on average cost saving^{3,4}. Other research estimated vaccination was cost-effective³.

- **Economic benefits of immunization: children**

US recommendations state that analyses generally indicate vaccinating children is cost saving or cost beneficial³. Targeting those with higher risk conditions can be more cost-effective than immunizing all children³, although an age-based strategy may be easier to implement and therefore likely more successful. An Argentinean study, referenced by the US authorities, estimated vaccinating high risk children would be cost saving for society^{3,5}.

- **Economic benefits of immunization: universal coverage**

A study of the universal vaccination program introduced in Ontario, Canada, estimated it reduced the number of cases of influenza by 61% and associated deaths by 28%, compared with a targeted vaccination strategy^{3,6}. The universal program, which cost approximately twice as much as the targeted approach, reduced healthcare costs by 52%, and was estimated to be 'economically attractive'^{3,6}.

Conclusions

Seasonal influenza epidemics can impose a major economic burden through increased healthcare costs, lost productivity, workplace absence and societal disruption. Estimates suggest the total cost amounts to billions of dollars annually in Europe and the United States alone. Vaccination may help reduce these costs. A number of studies, notably from the US, suggest immunizing the elderly and children is economically beneficial, and may be cost-effective in healthy working adults. Canadian research found a strategy of universal vaccination can reduce the number of influenza cases and deaths compared with a targeted program, and although costs are higher it is economically attractive. Economic factors also appear to influence vaccination coverage levels, with research indicating financial support for immunization is more important than national development status.

References

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- ⁵ Dayan G, Nguyen V, Debbag R et al. Cost-effectiveness of influenza vaccination in high-risk children in Argentina. *Vaccine* 2001;19(30):4204-13.
- ⁶ Sander B, Kwong J, Bauch C et al. Economic appraisal of Ontario's Universal Influenza Immunization Program: a cost-utility analysis. *PLoS Med* 2010;7(4):e1000256.

**International Federation
of Pharmaceutical
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About the IFPMA

IFPMA represents the research-based pharmaceutical companies and associations across the globe. The research-based pharmaceutical industry's 1.3 million employees research, develop and provide medicines and vaccines that improve the life of patients worldwide. Based in Geneva, IFPMA has official relations with the United Nations and contributes industry expertise to help the global health community find solutions that improve global health.

IFPMA manages global initiatives including: IFPMA Developing World Health Partnerships Directory studies and identifies trends for the research-based pharmaceutical industry's long-term partnership programs to improve health in developing countries, IFPMA Code of Practice sets standards for ethical promotion of medicines, IFPMA Clinical Trials Portal helps patients and health professionals find out about on-going clinical trials and trial results.

About the Influenza Vaccine Supply (IVS) Task Force

The IVS Task Force includes 16 vaccine manufacturing companies that are involved in research, development and production of influenza vaccines, representing more than 95% of world production. The IVS member companies are, Abbott, Adimmune Corporation, Baxter, Biken, CSL Limited, Crucell, Denka Seiken, GlaxoSmithKline Biologicals, Green Cross Corporation, Hualan Biologicals, Kaketsuken, Kitasato Institute, MedImmune, Novartis Vaccines & Diagnostics, Sanofi Pasteur, Sanofi Pasteur MSD, and Sinovac.



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