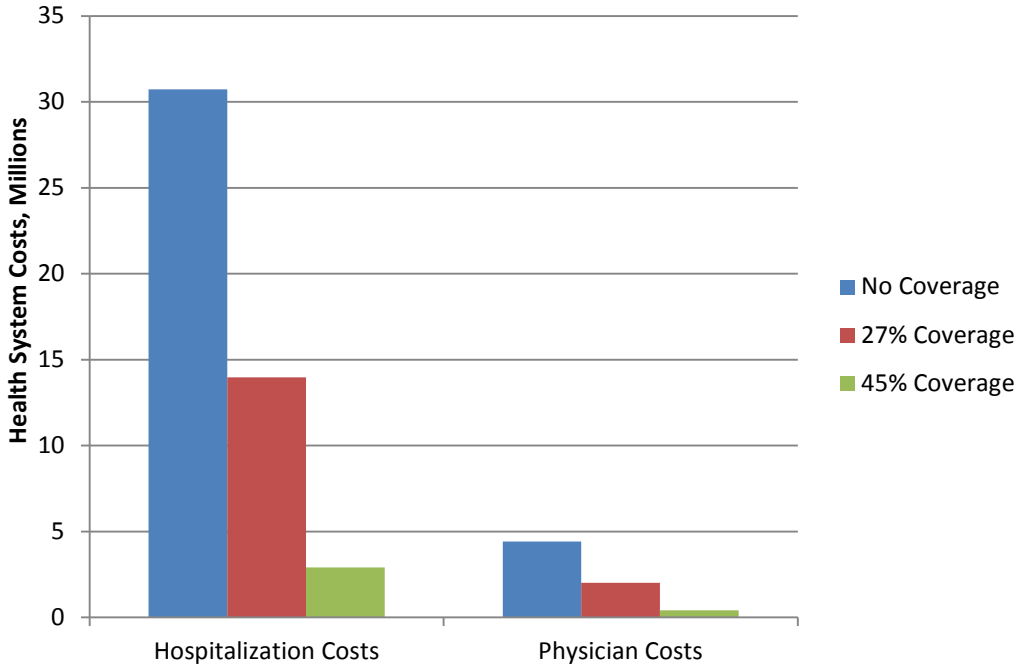
Impact of Influenza Immunization Coverage on Health System Costs

Results from a Mathematical Model

In the March 18, 2014 edition of *Health Trends Alberta*, 'Influenza Immunization Coverage and the Impact on Hospitalizations', a mathematical model[1] was used to demonstrate rapid reductions in the number of hospitalizations expected with increasing influenza immunization coverage. This week, the model is used to demonstrate the benefits to the health care system that can be anticipated for next flu season, if coverage of 45 per cent is achieved.

While the province must pay for the procurement and delivery of the vaccine, immunization prevents the spread of influenza, and can substantially reduce the burden of illness and its associated treatment costs. In this *Health Trends Alberta*, the estimated reductions in illness and costs avoided are demonstrated for the increasing influenza immunization coverage rates.



Large health system savings anticipated with increasing immunization coverage

Using the mathematical model and accounting for some prior immunity, the expected number of hospitalizations and physician visits at different immunization coverage rates were estimated. Based on the 2013/2014 influenza immunization coverage of 27 per cent, the model predicts that the province avoided 48,000 physician visits, and 900 inpatient stays, as compared to no immunization. By increasing immunization coverage to 45 per cent, an additional 31,000 physician visits and 600 inpatient stays could be avoided. This season, the model estimated that the influenza immunization program avoided approximately $19 million dollars in health system costs. By increasing coverage to 45 per cent, an additional $13 million of influenza hospitalizations and physician visits could be avoided.

[1] A mathematical model is a simplification of reality that allows users to investigate outcomes across a variety of different scenarios. The Pandemic Risk Assessment Model (PRAM) used in this *Health Trends Alberta* is calibrated to the Alberta 2009 pandemic H1N1 experience and is freely available to interested health professionals.

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