

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE174
Abstract Title:	Economic Evaluation of Seasonal Influenza Vaccination in Elderly and Health Workers: A Systematic Review and Meta-Analysis
Presenting Author:	Piyameth Dilokthornsakul

Abstract Body:

Objectives: A number of cost-effectiveness analysis of influenza vaccination have been conducted to estimate value of influenza vaccines in elderly and health workers (HWs). This study aims to summarize cost-effectiveness evidence by pooling the incremental net monetary benefit (INMB) of influenza vaccination.

Methods: A systematic review was performed in electronic databases from their inceptions to November 2020. Cost-effectiveness studies reporting quality-adjusted life year (QALY), or life year (LY) of influenza vaccination were included. Stratified meta-analyses by population, perspective, country income-level, and herd-effect were performed to pool INMB across studies.

Results: A total of 17 studies were included. Fifteen studies were conducted in elderly, while two studies were conducted in HWs. For elderly, four studies reported LY and 11 studies reported QALY. For HWs, one study reported LY and another study reported QALY. According to pre-specified analyses, studies for elderly in high-income countries without herd effect could be pooled. For societal perspective, pooled INMB was \$217·38 (206·23, 228·53), while that for healthcare provider/payer perspective was \$0·20 (-11,908·67, 11,909·07). The findings were robust across a series of sensitivity analyses. Studies in HWs indicated that influenza vaccination was cost-effective compared to no vaccination or current practice.

Conclusions: Influenza vaccination might be cost-effective for HWs and elderly under a societal perspective, while there remains limited evidence for healthcare provider/payer perspective. Further evidence from such perspective is warranted.

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE188
Abstract Title:	COVID-19 Vaccine Hesitancy Among Early Adaptors in Jordan
Presenting Author:	Suhaib Muflih

Abstract Body:

OBJECTIVES: The current coronavirus pandemic (COVID-19) is having an impact on global health and economy. Over 37 million confirmed cases and 1 million fatalities have been registered globally shortly before the COVID-19 vaccine was authorized for emergency use. The purpose of this study was to determine people's willingness to pay (WTP) for a COVID-19 vaccination in Jordan, as well as the impact of vaccine properties (safety and efficacy) on this assessment.

METHODS: The sample for this study was recruited online between August and October 2020. Two vaccine scenarios were created based on qualities that may meet public expectations. The WTP estimates were obtained using an open-ended contingent valuation (CV) approach.

RESULTS: The study enrolled 1,069 people, with more than half of them being female, under 35, living in cities, and having health insurance. The perceived risk of COVID-19 was found to have the largest influence on participants' economic and medical status. While one-third of people got flu vaccinations last year, more than half were willing to obtain COVID-19 vaccine. When asked about the maximum amount participants would pay for an existing vaccination if its safety and efficacy were unknown (scenario 1), the mean WTP was \$17.2. When participants were assured that the immunization was safe and effective, their average WTP was \$34.7. (scenario 2). WTP for COVID-19 vaccination was found to be influenced by participants' age, education, insurance status, job status, prevalence of chronic conditions, monthly income, and smoking status ($p < 0.05$). The biggest impediment was the unanticipated vaccine's adverse effects.

CONCLUSIONS: Vaccine coverage will be challenging to attain, particularly in developing countries where individuals may pay for vaccination. In Jordan, the majority of respondents perceived the advantage of vaccination as the most plausible strategy for primary prevention of the pandemic.

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EPH65
Abstract Title:	The Public Health Impact of Routine Vaccination in 16-40-Year-Old Females for the Prevention of Cytomegalovirus and Congenital Cytomegalovirus in the United States
Presenting Author:	Philip Buck

Abstract Body:

OBJECTIVES: Cytomegalovirus (CMV) infection in healthy individuals is often mild or asymptomatic; however, a pregnant woman can pass CMV to her newborn, resulting in congenital cytomegalovirus (cCMV), the major infectious cause of sensorineural hearing loss and neurodevelopmental abnormalities in infants born in developed countries. There are no vaccines currently available to prevent CMV.

METHODS: We developed a static Markov model to evaluate the incremental impact of routine prophylactic vaccination in 16-40-year-old females, regardless of CMV serostatus, compared to no vaccination. Using conservative assumptions, efficacy against primary infection for the 3-dose vaccine regimen was 70% in the first 2 years then waned to zero over the next 5 years; no efficacy was assumed against non-primary infection. Health outcomes included CMV infections (primary and non-primary) and cCMV cases (symptomatic cCMV, neonatal death, and cCMV-related stillbirth) averted; number needed to vaccinate to prevent one case of CMV and cCMV were calculated. One-way sensitivity analyses assessed the robustness of specific parameter estimates.

RESULTS: In a fully-vaccinated cohort of 100,000 females, we expected a mean reduction of 3,238 (95% CrI:1,871-4,909) CMV infections and 105 (95% CrI:63-155) cCMV cases (including 10 [95% CrI:6-15] cases of symptomatic cCMV, 2 [95% CrI:1-3] neonatal deaths, and <1 cCMV-related stillbirth). To prevent one case of CMV and cCMV, 31 (95% CrI:20-53) and 955 (95% CrI:647-1,598) females need to be vaccinated, respectively. Probability of CMV reactivation in 16-40-year-old females was the most sensitive parameter.

CONCLUSIONS: There is substantial US public health benefit associated with utilization of an effective CMV vaccine in 16-40-year-old females, regardless of serostatus. Several model parameters were based on assumptions and robust evidence generation is needed. The model didn't include potential transmission effects of vaccination. Furthermore, the efficacy and durability of a licensed vaccine, including against non-primary infection in seropositive individuals, are unknown and will be important considerations.

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE335
Abstract Title:	The Hospitalization Burden of COVID-19 in Patients with NSCLC: Differential Impact of Vaccination
Presenting Author:	Florent Richy

Abstract Body:

Objectives: SARS-Cov-2 has put a burden on most aspects of our societies worldwide. Although the benefit-risk of available therapeutics has been extensively evaluated, the financial burden of the pandemic has been scarcely investigated. The purpose for this real-world study was to assess the one-year monetary impact of vaccination amongst a cohort of patients with non-small cell lung cancer (NSCLC).

Methods: Data were extracted from Symphony Health, a large-scale US claims database that contains diagnostic, therapeutic, demographic and claims data from over 300M unique patients. Patients with a diagnostic of NSCLC from Jan 2019 to End 2020 were included. They were categorized as receiving immunotherapy (IO) or chemotherapy (CHE), vaccine (VAC+) or no vaccine (VAC-). The outcomes of interest were a diagnostic of Covid-19, claims for prescription medicine, and hospitalizations. The hospitalization costs were stratified by IO, CHE, VAC and Covid-19 diagnostic.

Results: 138.943 NSCLC patients were included in the analysis. 70.924 received IO, 68.019 received CHE, and at the time 14.195 had received Covid-19 vaccination. Overall, vaccinated patients had similar hospitalization costs (\$205.259) than those who were not vaccinated (\$219.531) ($p=NS$). However, when focusing on patients who developed Covid-19, vaccinated patients had lower annual costs: \$212.542 against non-vaccinated patients: \$247.674 ($p<0.05$). In terms of costs attributable to Covid, the highest difference was seen amongst patients with IO and VAC- (\$81.733), followed by CHE/VAC- (\$30.839), CHE/VAC+ (\$23.993) and IO/VAC+ (\$5.133) (all $p<0.05$). In an ecological perspective, total hospitalization costs in patients who contracted Covid-19 were way higher for VAC- patients than for VAC+: \$731.544.551 vs \$158.951.160 ($p<0.05$).

Conclusions: This study adds a layer of evidence on the interest of vaccine to limit the healthcare burden of Covid-19 in patients with severe comorbidities such as NSCLC. These results are of relevance for governments, hospitals, HMO's and the pharmaceutical industry.

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE388
Abstract Title:	Public Health and Economic Implications of Increasing Access to Herpes Zoster Vaccination Rate in Community Pharmacies
Presenting Author:	Sajesh K Veettil

Abstract Body:

OBJECTIVES: Community pharmacist plays an important role in providing vaccination to the general public. However, the impact on public health and economic benefits remains unknown. The objective of this study was to estimate the clinical and economic implications of community pharmacy-based herpes zoster (HZ) vaccination services with non-pharmacy-based immunization.

METHODS: A hybrid population-based model was developed to simulate a comparison between current practice with a hypothetical scenario without community pharmacy immunization services, based on the Utah population statistics to account for changes in vaccination rates and population size over time. The model compared no vaccination to vaccination with Zostavax or Shingrix (one or two doses) from the societal perspective. The model also allowed unvaccinated patients to be vaccinated at subsequent years following the initial cycle. Patients could experience shingles, postherpetic neuralgia (PHN), hospitalization, HZ ophthalmicus, monocular blindness, recovery, or death. The immunization landscape in the hypothetical scenario where pharmacists were not allowed to vaccinate was estimated based on an observational study and the actual proportion of vaccinated patients against shingles in each year was obtained from the annual Utah Immunization Coverage Report between the years 2010 and 2019. A lifetime time horizon was used. The discount rate of 3% was applied to costs and outcomes. All analyses were performed using Microsoft Excel 2010 (Microsoft Corp, Redmond, WA).

RESULTS: Based on a cohort of 853,550 people eligible for shingles immunization, an additional 11,576 individuals were vaccinated in the current scenario compared to the hypothetical scenario, resulting in 706 averted cases of shingles and 143 averted cases of PHN. Community pharmacy-based HZ vaccination (current scenario) was less costly (-\$0.15) and gained more quality-adjusted life years (0.00006) compared to the hypothetical scenario.

CONCLUSIONS: Community pharmacy-based HZ vaccination was associated with lower cost and greater outcomes.

Poster Tour Guide Packet

ISPOR 2022



Poster Session:	In-Person and Virtual Poster Session 5
Tour Name:	Vaccines
Tour Time:	Wednesday, May 18, 2022, 9:00 - 10:00 AM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE204
Abstract Title:	Budgetary Impact of New Recommendations for Pneumococcal Vaccination of US Adults
Presenting Author:	Ahuva Hanau

Abstract Body:

Objectives. US Advisory Committee on Immunization Practices (ACIP) recently updated adult pneumococcal immunization recommendations to include routine use of 20-valent pneumococcal conjugate vaccine (PCV20) alone or sequentially administered 15-valent PCV (PCV15) followed by 23-valent pneumococcal polysaccharide vaccine (PCV15→PPSV23). We evaluated the budgetary impact of PCV20 alone and, alternatively, PCV15→PPSV23 compared with previous recommendations (i.e., age/risk dependent use of PPSV23 alone or 13-valent PCV followed by PPSV23 [PCV13→PPSV23]).

Methods. Analyses were conducted using deterministic model to depict risks and costs of pneumococcal disease among US adults aged 19-64 years with underlying medical conditions and all adults aged 65-99 years (N=10M). Persons in model population were vaccinated at model entry or in subsequent years, or were never vaccinated. Clinical outcomes included invasive pneumococcal disease (IPD), inpatient and outpatient all-cause non-bacteremic pneumonia (NBP), and disease-related deaths. Economic costs included disease-related medical care and vaccination (acquisition and administration). Budgetary impact of new (vs. previous) recommendations was calculated as difference in total costs over a 5-year period.

Results. Compared with previous recommendations, PCV20 alone would prevent an additional 345 IPD cases, 1,956 inpatient and 2,834 outpatient NBP cases, and 156 disease-related deaths; with medical costs lower by \$59.0M and vaccine costs higher by \$120.0M, total budget impact was \$61.0M overall or \$0.52 per-member per-month (PMPM). Use of PCV15→PPSV23 in lieu of PCV20 alone would prevent fewer cases and deaths (191 IPD, 1,219 inpatient NBP, 1,813 outpatient NBP, and 91 deaths, vs. previous recommendations); with higher medical (\$36.0M) and vaccination (\$433.7M) costs, the total budgetary impact of PCV15→PPSV23 would also be higher (\$397.7M overall or \$3.42 PMPM).

Conclusion. Both vaccination strategies included in new US ACIP pneumococcal immunization guidelines prevent additional cases of disease and disease-attributable deaths compared with previous recommendations. PCV20 alone, however, prevents more disease and deaths than the costlier alternative strategy involving PCV15→PPSV23.