MODELED IMPACT OF THE COVID-19 PANDEMIC AND ASSOCIATED REDUCED ADULT VACCINATIONS ON HERPES ZOSTER IN THE UNITED STATES

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Background

- Adult vaccination in the United States (US) decreased substantially during the COVID-19 pandemic.1
- Unlike other vaccine-preventable diseases where COVID-19 mitigation measures may have reduced the risk to individuals, the risk of herpes zoster (HZ) remained.
- This study projects the impact of reduced recombinant zoster vaccine (RZV) use on HZ cases, complications, and quality-adjusted life-year (QALY) losses in the US for Apr-Dec 2020.

Methods

Markov Model

- A multi-cohort Markov model estimated the impact of missed RZV vaccinations in adults aged ≥ 50 years (see the schematic overview of Markov structure in the supplemental information).2
- Epidemiology, RZV efficacy, and utility inputs were obtained from standard US sources, clinical trial data, and published literature.
- Missed doses between Apr-Dec 2020 were estimated using data on actual RZV doses and an assumed 43% reduction in RZV vaccinations during the pandemic.1

Results

Missed RZV Vaccinations Resulted in Nearly 32,000 Avoidable HZ Cases and More Than 2,700 Avoidable PHN Cases Over a 1-Year Follow-up

- 3.9 million* RZV series initiations were missed in the base-case analysis.
- 2.2 million* RZV series initiations were missed in the sensitivity analysis.

<table>
<thead>
<tr>
<th>Scenario Analysis</th>
<th>Number of Avoidable Cases</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case</td>
<td>31,945</td>
<td>1,218</td>
</tr>
<tr>
<td>Sensitivity Analysis 1</td>
<td>27,14</td>
<td>1,184</td>
</tr>
<tr>
<td>Sensitivity Analysis 2</td>
<td>3,607</td>
<td>536</td>
</tr>
</tbody>
</table>

If Missed RZV Vaccinations Continue In 2021, HZ Burden Will Increase Over a 2-Year Follow-up

- Assuming 43% reduction in RZV vaccinations

- Assuming 30% reduction in RZV vaccinations

- Assuming individuals with missed RZV remain unvaccinated in 2021

Conclusions

- Adding to the substantial COVID-19 infection-related burden during the pandemic, reduced RZV use resulted in increased HZ-related burden.
- Health care providers should continue to emphasize the importance of vaccination against HZ and other preventable diseases.

Reduced zoster vaccination use during the COVID-19 pandemic resulted in increased shingles cases, complications and quality-adjusted life-year losses which could have been avoided by continued vaccination.

HZ, herpes zoster; PHN, postherpetic neuralgia; QALY, quality-adjusted life-year; RZV, recombinant zoster vaccine

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**Supplementary Figure**

Schematic overview of Markov structure

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**References**


* Adapted from Supplementary Text Figure 1 of the article "Cost-effectiveness of an adjuvanted recombinant zoster vaccine in older adults in the United States" by Curran D, et al., Vaccine. 2018. 36(33):5037-45, available under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/). Copyright 2018 GSK.

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