COVID-19 vaccine effectiveness against Delta variant in Ontario, Canada

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Methods

• Design: Test-negative design study

• Participants:
  – Community-dwelling adults aged ≥16 years
  – Had COVID-19 symptoms or severe outcomes (hospitalization or death)
  – Tested for SARS-CoV-2 (RT-PCR) between 11 April 2021 and 30 May 2021

• Intervention/COVID-19 vaccine:
  – BNT162b2 (Pfizer-BioNTech)
  – mRNA-1273 (Moderna)
  – ChAdOx1 (AstraZeneca)

• Outcome: Vaccine effectiveness against
  – Symptomatic SARS-CoV-2 infection
  – COVID-19 severe outcome
### Vaccine effectiveness against Delta variant

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Symptomatic infection (N=1,030)</th>
<th>Hospitalization or death (N=181)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BNT162b2 (Pfizer-BioNTech)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥14 days after dose 1 only</td>
<td>55 (45, 63)</td>
<td>78 (66, 86)</td>
</tr>
<tr>
<td>≥21 days after dose 1 only</td>
<td>61 (50, 69)</td>
<td>77 (64, 86)</td>
</tr>
<tr>
<td>≥7 days after dose 2</td>
<td>87 (65, 95)</td>
<td>-†</td>
</tr>
<tr>
<td>≥14 days after dose 2</td>
<td>85 (61, 95)</td>
<td>-†</td>
</tr>
<tr>
<td><strong>mRNA-1273 (Moderna)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥14 days after dose 1 only</td>
<td>72 (58, 82)</td>
<td>96 (74, 100)</td>
</tr>
<tr>
<td>≥21 days after dose 1 only</td>
<td>70 (52, 81)</td>
<td>96 (69, 99)</td>
</tr>
<tr>
<td>≥7 days after dose 2</td>
<td>-†</td>
<td>-†</td>
</tr>
<tr>
<td>≥14 days after dose 2</td>
<td>-†</td>
<td>-†</td>
</tr>
<tr>
<td><strong>ChAdOx1 (AstraZeneca)</strong></td>
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</tr>
<tr>
<td>≥14 days after dose 1 only</td>
<td>68 (47, 81)</td>
<td>89 (64, 97)</td>
</tr>
<tr>
<td>≥21 days after dose 1 only</td>
<td>71 (49, 84)</td>
<td>88 (61, 96)</td>
</tr>
<tr>
<td>≥7 days after dose 2</td>
<td>-†</td>
<td>-†</td>
</tr>
<tr>
<td>≥14 days after dose 2</td>
<td>-†</td>
<td>-†</td>
</tr>
</tbody>
</table>

* Adjusted for age, sex, public health unit region, weekly period of test, number of SARS-CoV-2 tests in the 3 months prior to 14 December 2020, presence of any comorbidity, receipt of 2019/2020 and/or 2020/2021 influenza vaccination, and Census dissemination area-level quintiles of household income, proportion of persons employed as non-health essential workers, persons per dwelling, and proportion of self-identified visible minorities.

† VE estimated as 100% based on zero vaccinated test-positive cases.

Test-negative controls: N=111,302 for symptomatic infection, N=111,711 for hospitalization or death.
CIRN PCN Ontario study team

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