Panel Discussion:

- What does the data suggest regarding vaccine induced protection to omicron?

- For each platform, what do humoral responses tell us about likely CMI responses?

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No conflict of interest

Comité Scientifique Vaccins Covid19
Comité d’Orientation de la Stratégie Vaccinale
MabTher Reacting group
What does the data suggest regarding vaccine induced protection to Omicron Severe Disease?

- Field studies: Older versus young people

**Serious hospital events** following symptomatic infection with Sars-CoV-2 Omicron and Delta variants: an exposed-unexposed cohort study in December 2021 from the COVID-19 surveillance databases in France. V Auvigne et al. (Santé Publique France)

- Case-negative study (N=149,064) of severe infections after mRNA vaccines (Cominarty° or Spikevax°) as main French vaccine Platform:
  - reduced risk / Omicron
    - 87% < 80 yo
    - No significant impact of booster
  - 70% in older:
    - Primary immunization: 54% reduction
    - Booster: 77% reduction

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**Table 7. Multivariate analysis using Cox regression for the risk of a serious hospitalisation event among cases infected by the Omicron or Delta variant of the SARS-CoV-2, stratified by age, December 2021-January 2022, France (n = 149,064)**

<table>
<thead>
<tr>
<th>Variant</th>
<th>Age (18,80)</th>
<th>Age (80,Inf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>aHR(^1)</td>
<td>95% CI(^1)</td>
</tr>
<tr>
<td>DELTA</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>OMICRON</td>
<td>0.13</td>
<td>0.09 – 0.18</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ref</td>
<td></td>
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<tr>
<td>Sex</td>
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<tr>
<td></td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Vaccination</td>
<td>0.15</td>
<td>0.11 – 0.19</td>
</tr>
<tr>
<td></td>
<td>Primary vaccination</td>
<td>0.15</td>
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<tr>
<td></td>
<td>Booster</td>
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<td>Comorbidity</td>
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<td>0.10 – 0.22</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>Ref</td>
</tr>
<tr>
<td></td>
<td>Medium-risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very-high-risk</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)HR = adjusted Hazard Ratio, CI = Confidence Interval

https://doi.org/10.1101/2022.02.02.22269952 doi: medRxiv preprint
For mRNA vaccines what do humoral responses tell us about likely CMI responses?

• Field studies: Older versus young people:

Immunogenicity of a BNT162b2 vaccine booster against SARS-CoV-2 Delta and Omicron variants in older people

EK Alidjinou et al. Lancet Pre-print 2022

• Primary immunisation:
  • Lower humoral response peak
  • Lower but plateauing CMI

• Boost at 3 months:
  • Catch-up of Abs at same levels as young people
  • But still lower CMI than Abs
- What does the data suggest regarding vaccine induced protection to omicron?
- For each platform, what do humoral responses tell us about likely CMI responses?

• Ancestral (Wuhan) **mRNA vaccine**: protection against Omicron **Severe disease**:
  - **Durable in younger** people, despite Ab decrease: role of CMI?
  - Transient in > 80yo
    - **Booster**: protects better against **Omicron severe disease** than primary immunisation alone
      - Role of **Ab boosting rather than weak CMI in older people**?

➢ Necessity to maintain High antibody levels against risk of VOCs Severe disease?
  - Not absolutely required in <60-80yo thanks to solid and persisting CMI
  - Required in older people >80yo due to frail CMI

✓ Would a VOC-adapted vaccine do better? Answer in Q2 2022 with Omicron and Beta-adapted vaccines