Work Group interpretation and next steps

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Clinical Trial Data
Safety data Reviewed by Work Group
Pfizer-BioNTech COVID-19 vaccine: Phase III data

- **Local** reactions occurring within 7 days were common
  - Pain at the injection site most common

- **Systemic** reactions were common as well
  - Fatigue, headache and muscle pain most common

- Symptom onset was **1-2 days** post-vaccine receipt

- Symptoms generally resolved after median of **1 day**
Safety data Reviewed by Work Group
Pfizer-BioNTech COVID-19 vaccine: Phase III data

Select local reactions in persons aged 16-55 years

<table>
<thead>
<tr>
<th></th>
<th>Dose 1</th>
<th>Dose 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pfizer-BioNTech vaccine</td>
<td>Placebo</td>
</tr>
<tr>
<td></td>
<td>N=2291</td>
<td>N=2298</td>
</tr>
<tr>
<td>Redness(^a), n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>104 (4.5)</td>
<td>26 (1.1)</td>
</tr>
<tr>
<td>Severe (Grade 3)</td>
<td>6 (0.3)</td>
<td>4 (0.2)</td>
</tr>
<tr>
<td>Pain at the injection site(^b), n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>1904 (83.1)</td>
<td>322 (14.0)</td>
</tr>
<tr>
<td>Severe (Grade 3)</td>
<td>24 (1.0)</td>
<td>2 (0.1)</td>
</tr>
</tbody>
</table>

Select local reactions in persons aged >55 years

<table>
<thead>
<tr>
<th></th>
<th>Dose 1</th>
<th>Dose 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pfizer-BioNTech Vaccine</td>
<td>Placebo</td>
</tr>
<tr>
<td></td>
<td>N=1802</td>
<td>N=1792</td>
</tr>
<tr>
<td>Redness(^a), n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>85 (4.7)</td>
<td>19 (1.1)</td>
</tr>
<tr>
<td>Severe (Grade 3)</td>
<td>3 (0.2)</td>
<td>2 (0.1)</td>
</tr>
<tr>
<td>Pain at the injection site(^b), n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>1282 (71.1)</td>
<td>166 (9.3)</td>
</tr>
<tr>
<td>Severe (Grade 3)</td>
<td>4 (0.2)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>
## Safety data Reviewed by Work Group

### Pfizer-BioNTech COVID-19 vaccine: Phase III data

#### Select systemic reactions in persons aged 16-55 years

<table>
<thead>
<tr>
<th>Dose 1</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pfizer-BioNTech vaccine (N=2291)</td>
<td>Placebo (N=2298)</td>
</tr>
<tr>
<td><strong>Fever, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>≥38.0°C</td>
<td>85 (3.7)</td>
</tr>
<tr>
<td>≥38.0°C to 38.4°C</td>
<td>64 (2.8)</td>
</tr>
<tr>
<td>&gt;38.4°C to 38.9°C</td>
<td>15 (0.7)</td>
</tr>
<tr>
<td>&gt;38.9°C to 40.0°C</td>
<td>6 (0.3)</td>
</tr>
<tr>
<td>&gt;40.0°C</td>
<td>0 (0)</td>
</tr>
<tr>
<td><strong>Fatiguea, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>1085 (47.4)</td>
</tr>
</tbody>
</table>

#### Select systemic reactions in persons aged >55 years

<table>
<thead>
<tr>
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</thead>
<tbody>
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<td>Placebo (N=1792)</td>
</tr>
<tr>
<td><strong>Fever</strong></td>
<td></td>
</tr>
<tr>
<td>≥38.0°C</td>
<td>26 (1.4)</td>
</tr>
<tr>
<td>≥38.0°C to 38.4°C</td>
<td>23 (1.3)</td>
</tr>
<tr>
<td>&gt;38.4°C to 38.9°C</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td>&gt;38.9°C to 40.0°C</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td>&gt;40.0°C</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td><strong>Fatiguea, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>615 (34.1)</td>
</tr>
</tbody>
</table>
Lymphadenopathy had higher frequency in vaccine group, compared to placebo
- Vaccine recipients: 64 participants Placebo recipients: 6 participants
- As localized lymph nodes are involved in the vaccine response, it is plausible this could be related to the vaccine

Bell’s palsy had an imbalance among vaccine recipients as well
- Vaccine recipients: 4 participants Placebo recipients: 0 participants
- Unknown causal relationship

Serious adverse events similar between vaccine and placebo
Efficacy data Reviewed by Work Group
Pfizer-BioNTech COVID-19 vaccine: Phase III data

- Primary efficacy endpoint: Subjects without evidence of infection
  - Efficacy: **95.0%** (90.3–97.6%)

- **High** efficacy (≥92%) for additional efficacy analysis, including those with evidence of prior infection, and across age, sex, race, and ethnicity categories, and those with underlying medical conditions
  - Efficacy among adults ≥65 years of age: **94.7%** (66.7–99.9%)

- Most recipients received 2 doses of the Pfizer-BioNTech vaccine
  - Efficacy of **52.4%** (29.5–68.4%) noted between dose 1 and dose 2
Efficacy data Reviewed by Work Group
Pfizer-BioNTech COVID-19 vaccine: Phase III data

- Efficacy noted against severe disease as well
  - FDA definition*: 66.4% (-124.8–96.3%)
  - CDC definition**: 100% (-9.9–100%)

- Phase III trial not powered to assess efficacy of the vaccine to prevent hospitalization or death

*FDA definition: Respiratory Rate ≥ 30, Heart Rate ≥125, SpO2≤ 93% on room air at sea level or PaO2/FIO2< 300 mm Hg; OR Respiratory failure or Acute Respiratory Distress Syndrome (ARDS), defined as needing high-flow oxygen, non-invasive or mechanical ventilation, or ECMO; OR evidence of shock (systolic blood pressure <90mmHg, diastolic BP<60mmHg or requiring vasopressors); OR Significant acute renal, hepatic or neurologic dysfunction; OR Admission to an intensive care unit or death

**CDC definition: Hospitalization, admission to ICU, intubation or mechanical ventilation or death
Communications around expected *local* and *systemic reactions* after vaccine receipt will be important.

Post-authorization *safety* and *effectiveness* studies will be important.
- Surveillance for Bell’s Palsy will help determine any possible causal relationship.

Reassuring to see >90% efficacy among adults ≥65 years of age.

Continued studies are needed to assess *duration of protection*.

Additional studies are needed to assess the impact of the Pfizer-BioNTech vaccine on *viral shedding* and *transmission*.
EtR Domain: Benefits and Harms
Evidence to Recommendations Framework: Benefits and Harms

- Full Evidence to Recommendations (EtR) Framework presented at upcoming meeting

- Previously, not discussed “Benefits and Harms” Domain of the EtR Framework and Work Group interpretations
Evidence to Recommendations Framework: Benefits and Harms

- **Criterion 1**: Magnitude of desirable anticipated effects

  How substantial is the anticipated effect for each main outcome for which there is a desirable effect?

  Work Group felt that the desired anticipated effects were **large**
Evidence to Recommendations Framework:
Benefits and Harms

- **Criterion 2**: Magnitude of undesirable anticipated effects

  How substantial is the anticipated effect for each main outcome for which there is an undesirable effect?

  Work Group felt that the desired anticipated effects were small
Criterion 3: Balance of the desirable versus undesirable anticipated effects

What is the balance between the desirable effects relative to the undesirable effects?

Work Group felt that the balance of effects favored the intervention:
Pfizer-BioNTech COVID-19 vaccine
Safety Surveillance
COVID-19 Vaccine Safety Technical (VaST) Subgroup

- Built off lessons learned from H1N1 vaccine safety monitoring
- Consensus VaST would ensure transparency, independence, and public accountability

Composition
- Co-chairs: Grace Lee (ACIP member) and Bob Hopkins (NVAC Chair)
- ACIP and NVAC representation
- 7 independent expert consultants
- ACIP ex officio members (NIH, FDA, OIDP, CMS, HRSA, IHS)
- VA and DoD liaison
- CDC co-leads
COVID-19 Vaccine Safety Technical (VaST) Subgroup

Objectives

- Review, evaluate, and interpret post-authorization/approval COVID-19 vaccine safety data
- Serve as the central hub for technical subject matter experts from federal agencies conducting post-authorization/approval safety monitoring
- Advise on analyses, interpretation, and data presentation
- Liaise with the ACIP COVID-19 Vaccines Working Group on issues of safety data presentation to the ACIP and application of safety data to policy decisions

Current status

- Meeting weekly to refine procedures and hear updates on monitoring systems
- Plans include periodic safety data summaries to COVID-19 Vaccine WG, ACIP and public
Next Steps
Next Steps

- Await final decision from FDA regarding issuance of EUA
- After an FDA decision, ACIP will have additional meeting
- Full Evidence to Recommendation framework presented
- Clinical considerations presentation, including:
  - Dosing intervals
  - Coadministration with other vaccines
  - Vaccination of special populations, including persons with immunodeficiencies and pregnant women
- Vote on recommendations for Pfizer-BioNTech COVID-19 Vaccine
Questions

Does ACIP have enough data on the potential benefits and harms of the Pfizer-BioNTech COVID-19 vaccine to consider a recommendation after an FDA decision?
Thank you

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.