COVID-19 Vaccine Safety Technical (VaST) Work Group

Assessment of 3rd dose safety data
H. Keipp Talbot, MD MPH (VaST Chair)
Robert H. Hopkins, Jr., MD (NVAC Chair)

Advisory Committee on Immunization Practices
September 22, 2021
COVID-19 Vaccine Safety Technical (VaST) Work Group

Objectives

- Review, evaluate, and interpret post-authorization/approval COVID-19 vaccine safety data
- Serve as the central hub for technical subject matter expertise from federal agencies conducting post-authorization/approval safety monitoring
- Advise on analyses, interpretation, and data presentation
- Provide updates to the ACIP COVID-19 Vaccines Work Group and the ACIP on COVID-19 vaccine safety
VaST Activities

Dec 21, 2020 – present
35 independent meetings to review vaccine safety data
8 joint meetings with COVID-19 Vaccines Work Group focused on safety

Dec 12 Dec 19
Pfizer Moderna
(16+) (18+)

Feb 28
Janssen
(18+)

May 12
Pfizer
(12-15)

Aug 13
Additional mRNA vaccine

Aug 30
Pfizer 3rd dose

Jan 27
Anaphylaxis following mRNA vaccination

Mar 1
Anaphylaxis updates; Pregnancy vaccine safety data

Apr 14
CVST following Janssen

May 12
TTS updates

Jun 23
Myocarditis updates

July 22
GBS following Janssen

Aug 30
Safety overview

Sept 23
3rd dose

ACIP votes

Jun 23
Myocarditis updates

May 17 & 24
Myocarditis

Aug 30
Safety overview

Sept 23
3rd dose

CVST, cerebral venous sinus thrombosis; TTS, thrombosis with thrombocytopenia syndrome; GBS, Guillain-Barré syndrome
VaST continues to review data on myocarditis, GBS, anaphylaxis, and TTS following COVID-19 vaccination from passive and active surveillance systems

- U.S. safety monitoring systems including VAERS, VSD, CMS, VA, IHS, DoD
- Israel, Canada, Global Advisory Committee on Vaccine Safety
- Special evaluations underway, such as follow-up studies of myocarditis cases in VAERS, VSD, and DoD
Safety data regarding 3rd dose COVID-19 vaccination reviewed by VaST

- Israel – data from spontaneous reporting system*
- United States – data from v-safe

*Also presented at VRBPAC meeting, September 17, 2021
Safety data regarding 3rd dose Pfizer-BioNTech COVID-19 vaccination, Israel

- 3rd doses were phased in, first for persons ≥60 years; since the end of August everyone ≥12 years has been eligible for 3rd dose
- ~2.8 M 3rd doses administered to persons ≥12 years (through September 13)
  - Most to persons ≥60 years
- Rates of reported systemic, local, neurologic, allergic, and other reactions were substantially lower after dose 3 than after dose 1 or 2
  - Suspected under-reporting
- 1328 non serious and 19 serious adverse events (SAE)
  - All hospitalized patients and deaths investigated by a work group
  - Among serious cases, 7 possibly associated with vaccination

https://www.fda.gov/media/152205/download
Data from Israeli Ministry of Health

Rate of systemic adverse events by dose
(under-reporting expected in all cases)

https://www.fda.gov/media/152205/download
Data from Israeli Ministry of Health

Myocarditis cases and number of vaccinees by age group and sex

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age group</th>
<th>1st dose (0-21 days after vac.)</th>
<th>2nd dose (0-30 days after vac.)</th>
<th>3rd dose (0-30 days after vac. but in many vaccinees less days so far)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of vaccinees</td>
<td>Myocarditis cases</td>
<td>Number of vaccinees</td>
</tr>
<tr>
<td>Female</td>
<td>12-15</td>
<td>186,655</td>
<td>0</td>
<td>134,637</td>
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<tr>
<td></td>
<td>16-19</td>
<td>242,497</td>
<td>0</td>
<td>215,725</td>
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<tr>
<td></td>
<td>20-24</td>
<td>260,693</td>
<td>1</td>
<td>239,427</td>
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<tr>
<td></td>
<td>25-29</td>
<td>244,705</td>
<td>0</td>
<td>226,471</td>
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<tr>
<td></td>
<td>30+</td>
<td>2,116,016</td>
<td>3</td>
<td>2,013,329</td>
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<tr>
<td>Male</td>
<td>12-15</td>
<td>174,597</td>
<td>1</td>
<td>126,723</td>
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<tr>
<td></td>
<td>16-19</td>
<td>248,673</td>
<td>3</td>
<td>217,006</td>
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<tr>
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<td>20-24</td>
<td>272,641</td>
<td>6</td>
<td>248,747</td>
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<tr>
<td></td>
<td>25-29</td>
<td>255,426</td>
<td>3</td>
<td>236,913</td>
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<tr>
<td></td>
<td>30+</td>
<td>1,973,238</td>
<td>10</td>
<td>1,882,588</td>
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</table>

* All cases reported in Israel Dec. 2020 - Sep 13, 2021

Most young vaccinees received booster only in last two weeks

https://www.fda.gov/media/152205/download
Safety data after 3rd dose COVID-19 vaccination, v-safe

- As of September 11, 3rd doses were recorded by 24,165 participants.
- While 3rd doses are currently only recommended for persons with immunocompromising conditions in the United States, there are no data in v-safe to indicate underlying conditions.
- Compared with dose 2:
  - Larger proportion of participants report local reactions following mRNA vaccination dose 3.
  - Smaller proportion of participants report systemic reactions following mRNA vaccination dose 3.
VaST assessment of 3rd dose Pfizer-BioNTech COVID-19 vaccination safety data

- **Safety data from Israel**
  - Assessment limited by likely underreporting of local, systemic, and SAEs.
  - The few SAEs potentially associated with vaccination need further follow-up.
  - VaST noted single case of myocarditis reported in male aged 30-34 years.

- **Safety data from v-safe**
  - Systemic reactions following dose 3 slightly less than following dose 2.
  - Assessment limited by lack of data on underlying conditions or whether recipients are individuals with immunocompromise.
  - v-safe data significance unclear given that local and systemic reactogenicity does not predict more severe adverse events.
Safety monitoring and VaST next steps

- VaST will continue to:
  - Review safety regarding 3rd doses as data become available
  - Collaborate with global vaccine safety colleagues on key issues that impact benefit-risk balance
  - Provide updates to the ACIP COVID-19 Vaccines Work Group and the ACIP at future meetings
# VaST Members

<table>
<thead>
<tr>
<th>VaST Members</th>
<th>Ex Officio and Liaison Representatives</th>
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<tbody>
<tr>
<td>Keipp Talbot (ACIP)</td>
<td>Tatiana Beresnev (NIH)</td>
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<tr>
<td>Robert Hopkins (NVAC)</td>
<td>Karen Farizo; Hui Lee Wong (FDA)</td>
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<tr>
<td>Matt Daley</td>
<td>Judith Steinberg (OIDP)</td>
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<td>Grace Lee</td>
<td>Jeffrey Kelman (CMS)</td>
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<td>Veronica McNally</td>
<td>Matthew Clark (IHS)</td>
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<td>Kathy Edwards</td>
<td>Mary Rubin (HRSA)</td>
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<td>Lisa Jackson</td>
<td>Fran Cunningham (VA)</td>
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<td>Jennifer Nelson</td>
<td>Limone Collins (DoD)</td>
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<td>Laura Riley</td>
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<td>Robert Schechter</td>
<td><strong>Administrative Support</strong></td>
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<td>Patricia Whitley-Williams</td>
<td>Jared Woo</td>
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**CDC Co-Leads**

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<th>Lauri Markowitz</th>
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<td>Melinda Wharton</td>
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Rate of local adverse events by dose
(under-reporting expected in all cases)

1st dose

2nd dose

3rd dose

https://www.fda.gov/media/152205/download
Monitoring and Responding to Safety Data

Safety monitoring
- mRNA COVID-19 vaccines
  - Anaphylaxis
  - Myocarditis
- Janssen COVID-19 vaccine
  - TTS
  - GBS
- Pre-specified AESI
- Maternal immunization

Incorporating safety data into decision-making
- Dynamic benefit-risk balance
- Risk mitigation strategies
  - Support informed discussions about benefits and risks of available vaccines
  - Clinical guidance to support early detection and appropriate management
- Guidance for use of post-approval safety data in GRADE

TTS, thrombosis with thrombocytopenia syndrome; GBS, Guillain-Barré syndrome; AESI, adverse events of special interest