Department of Pediatrics Covid Updates: Looking Forward

Research: John Whitin and Gary Shaw

Education: Becky Blankenburg

Clinical: Roshni Mathew and Bonnie Maldonado
Stanford R3 Model: Recover, Restore, and Re-open

- Contain and Control COVID-19
  - Establish expanded testing strategies
  - Build an integrated public health surveillance system
  - Assess plans to conduct contact tracing at scale
  - Ensure adherence to public health safety measures

- Safeguard and Support Your Community
  - Protect vulnerable populations and promote health equity
  - Prepare health systems and hospitals for future surges
  - Establish protocols to tighten controls rapidly in response to new outbreaks
  - Promote alignment and coordination with government authorities and employers

- Recover, Restore, and Re-open
  - Mitigate financial and operational implications
  - Address mental health and wellbeing
  - Develop frameworks to reimagine physically distanced lifestyles
  - Digitally transform the ambulatory environment

- Adapt and Thrive in the “New Normal”
WHAT YOU CAN DO ONCE YOU HAVE BEEN FULLY VACCINATED

Activity
- Visit inside a home or private setting without a mask with other fully vaccinated people of any age
- Visit inside a home or private setting without a mask with one household of unvaccinated people who are not at risk for severe illness
- Travel domestically without a pre- or post-travel test
- Travel domestically without quarantining after travel
- Travel internationally without a pre-travel test depending on destination
- Travel internationally without quarantining after travel
- Visit indoors, without a mask, with people at increased risk for severe illness from COVID-19
- Attend medium or large gatherings

See also
- What should I do if I’m feeling ill?
- COVID-19 Vaccinations
- COVID-19 surveillance testing for faculty, staff and postdocs
- Frequently asked questions: COVID-19 surveillance testing at Stanford
- Overview of gatherings and meetings at Stanford
- Surveillance testing options for affiliates
- Prevention & self-care

Overview of gatherings and meetings at Stanford

Last modified on April 2, 2021

Purpose
This document describes restrictions and modifications for gatherings involving students, staff, postdocs, researchers, and faculty who are approved to be on campus and individuals living on campus, in order to comply with statewide orders during COVID-19. This outline also clarifies several related topics including allowable classroom instruction under certain county risk levels, business meetings, and use of essential shared spaces.

Any event that involves gathering of individuals (e.g., in a living space), even if the event is half digital, half in person, must be submitted to UMSA for approval via the Events & Gatherings Form. Student-led events and events put on by student organizations must also be submitted to Student Affairs UMSA for approval.

This guidance is subject to change as state and local requirements continue to evolve, and as Stanford further updates its policies and protocols related to these matters. For access to the latest state rules, please see the Source Material section at the end of this document.
Task Force Members

1. Marcia Cohen, SAD, Finance and Operations
2. Kevin Moody, Associate Dean, HR and Office of Facilities Planning & Mgmt.
3. Elisabeth Einaudi, DFA, MCP and Chair, Admin. Steering Committee
4. Cathy Garzio, DFA, Medicine
5. Inderjit Singh, DFA, Psychiatry
6. Aaron Straight, Chair, Biochemistry
7. Mary Hawn, Chair, Surgery
8. Mary Leonard, Chair, Pediatrics
9. Kathleen Thompson, Research Management Group
10. Niraj Dangoria, Associate Dean, Facilities Planning and Management
11. Terrence Mayes, Equity and Strategic Initiatives
12. Cecilia Arradaza, Communications
13. Sean Hennessey, Strategy
14. Yvette Mau, Medical Center Development
15. Ayodele Thomas, Graduate Education
16. Sofie Kleppner, Postdoctoral Affairs
17. Michelle Jaross, Compensation, University HR
18. Ann-Marie Yap, TDS Customer Experience and Support Services
19. Sarah Pokorny, Human Resources Group
20. Lakshmi Kalyanaraman, Finance and Operations Initiatives

Introduce yourself and if you are comfortable please include one question below in your introduction.

Questions:

→ When travel resumes, which is your first destination?
→ Which show did you binge watch and would recommend?
→ Did you pick up any new hobbies this past year?
Vision: Advance the preeminence of Stanford Medicine through dedication to performance excellence and by providing workplace flexibility, equity, and inclusion in a manner that best suits staff needs without compromising the requirements of the job.

Flexible workplace plan guiding principles:

1. Our leaders embrace a flexible and equitable workplace and recognizes the central importance it plays in staff wellbeing, increased affordability, and our competitiveness as an employer of choice while serving our missions.
2. We are a workplace that values engagement, collaboration, and transparency, where all staff are offered equitable career advancement and professional development opportunities.
3. A flexible workplace provides a powerful and unique opportunity to expand diversity, equity, and inclusion in our staff and leadership roles.
4. Providing flexibility should be net-positive to the needs of our mission, stakeholders, work teams and staff.

Flexible workplace plan commitments:

1. Departments and local units are empowered to design a flexible workplace that meets their unique needs and demonstrates a commitment to diversity, equity, and inclusion.
2. We will adopt appropriate tools, technology, and invest in training to establish and sustain a flexible workplace.
3. Departments and local units will maintain consistency and remain responsive and agile to the changing environment and revisit their plan on a periodic basis.
Center for Academic Medicine (CAM)
CAM – Who is there?

PEDIATRICS
• Chair’s Suite
• Education
• Endocrinology
• General Peds
• Genetics
• Hospital Medicine
• Infectious Diseases
• Neonatology
• Nephrology

OTHER DEPARTMENTS
• Anesthesia
• Medicine Clinical Excellence Research Center
• Neurology/Neurosurgery*
• Ob/Gyn*
• Pediatric Surgery
• Radiology*
• Urology*
CAM – Amenities

• Café Arbor
  • Open now for coffee and “grab and go” breakfast/lunch
  • Wine Bar opens mid-May
  • CAM event catering
• Red Oak Dining Room
CAM – Amenities

• Fitness Center
• ~18 machines
• Lockers/showers
• Grand Rounds
CAM – Amenities

- Full Support Tech Bar
- Parking
  - “A” and Visitor Parking – 800 spots
  - Bike storage
Basic lab-based research in Pediatrics during Pandemic

April 9, 2021
Pediatrics laboratories

• At least 48 Pediatrics faculty have independent research labs
  • Located in BMI, CCSR, Clark Center, Grant, Fairchild, Lokey Stem Cell, 1701
    Page Mill Rd, 3165 Porter Drive

• 24 labs set up in BMI, 5 in 1701 PM and 1 in 3165 Porter Drive since
  beginning of pandemic

• 12 new labs established in last 18 months
## Changes in lab density during Pandemic

<table>
<thead>
<tr>
<th>Date</th>
<th>Stage</th>
<th>Density</th>
<th>6ft distance</th>
<th>Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/16/20</td>
<td>-</td>
<td>NA</td>
<td>NA</td>
<td>Closed</td>
</tr>
<tr>
<td>5/11/20</td>
<td>0</td>
<td>NA</td>
<td>Yes</td>
<td>Closed</td>
</tr>
<tr>
<td>6/1/20</td>
<td>1</td>
<td>1-2/PI</td>
<td>Yes</td>
<td>Open</td>
</tr>
<tr>
<td>6/22/20</td>
<td>2</td>
<td>2/PI</td>
<td>Yes</td>
<td>Open</td>
</tr>
<tr>
<td>7/13/20</td>
<td>2</td>
<td>1/250 sq ft</td>
<td>Yes</td>
<td>Open</td>
</tr>
<tr>
<td>10/5/20</td>
<td>2</td>
<td>1/125 sq ft</td>
<td>Yes</td>
<td>Open</td>
</tr>
<tr>
<td>4/12/21</td>
<td>2</td>
<td>NA</td>
<td>Yes</td>
<td>Open</td>
</tr>
</tbody>
</table>
BMI 2200 module
24 benches/1383 sq ft

Stage 2 increased density (red circles): 11 benches
April 12, 2021 (red and blue circles): 12 benches
BMI 2250 desk area
30 desks

Stage 2 increased density (red circles): 7 desks
April 12, 2021 (red and blue circles): 15 desks
Training in laboratories

• Train remotely as much as possible
• Maintain 6 ft distancing when interactive training is required
• Understand the risk matrix:
  • Minimize time spent less than 6 feet apart for less than 15 continuous minutes AND not on a regular/frequent basis
  • Working within 6 feet from others becomes increased, medium risk when:
    • for more than 15 total minutes over a 24-hour period, OR
    • for less than 15 total minutes over a 24-hour period*, on a regular or frequent basis.
Pediatrics Restart Research Committee

If you have questions or concerns, please email us. We meet at least weekly to discuss new guidance and solve issues related to the Department of Pediatrics’ research recovery activities.

- Gary Shaw
  Associate Chair, Research Professor
- Anna Gloyn
  Associate Chair, Research Professor
- John Whitin
  Senior Staff Scientist
- Kara Davis
  Assistant Professor
- Crystal Botham
  Research Development
- Michael Propst
  DFA
- Mary Chen
  MCHRI Executive Director
Restarting Research in Pediatrics

CLINICAL RESEARCH

Allowable non-Covid Clinical Research Activities?
1. Essential clinical trials or clinical research not associated with a clinical visit at SCH/SHC that involve in-person human subjects where cessation of treatment could negatively impact patient outcomes, safety or care
2. In-person human subjects clinical studies associated with a clinical/medical visit in the clinical setting only (SCH/SHC)
3. In-person human subjects clinical studies associated with a clinical/medical visit in the clinical setting (SCH/SHC Clinics) AND in another SoM or non-SoM building on the same day or different day as the clinical visit

*100% remote clinical research does not require Chair approval as long as the IRB is modified & approved for remote study activities

Complete Pediatrics NON-COVID-19 Human Subject Research
Approval from Mary Leonard (all) and SADR (1 & 3 only). SADR approval facilitated by Mary Chen.

Proceed

BASIC RESEARCH

Allowable Essential Basic Research?
- Conduct on campus research that cannot be done remotely
- Work remotely as much as possible

Standard Operating Procedures (SOP)
- As of April 12, 2021, approved SOPs should reflect lab density policy to maintain >6-foot distance between personnel
- New and relocated labs should submit SOP to John Whitten for review
- Contact APB, VSC, EH&S as necessary
- SOP must contain details of training for new individuals, equipment and instruments
- SOP must identify all medium and high risk activities, including training in close proximity

While at Stanford:
- Complete COVID-19 Hygiene Best Practices course
- Health Check app use / ORMS up to date
- Required COVID-19 testing
- Adhere to Lab level SOP
- Required PPE and safe distancing
- Work with neighboring groups to follow density and occupancy limits

Proceed


Our Guiding Principles:
Safety & Transparency

April 5, 2021
Opening up Educational Opportunities

Becky Blankenburg, MD, MPH  
Associate Chair of Education, Peds

Payam Massaband, MD  
Program Director, Radiology

Larry Katznelson, MD  
Associate Dean of GME

Carrie Rassbach, MD, MAEd  
Program Director, Pediatrics

April 9, 2021
Recommendations

1. Increase In-person Educational Clinical Exposure

2. Increase In-person Educational Conferences/Sessions

3. Re-Establish Community Activities/Wellness/Graduation
Protective Factors

- 89% of residents/fellows are vaccinated
- Enough PPE
Why?

Learner Factors

• Prior to COVID, already imbalance in service over education
  (GME Institutional Data)
• Lost educational opportunities
  (GME Survey; GME Focus Groups)
• Need to maximize training because our trainees will soon be independent faculty
• Burnout
Imbalance in Service over Education

Represents 674 residents and fellows across Stanford and LPCH in Nov 2019, and 603 in Nov 2020

ACGME: Green should be ≥80%

Key: Solid Bars = Pediatric Residents, Non-Solid Bars = All Stanford
Imbalance in Service over Education

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Lost Educational Opportunities
(Program Directors/Fellowship Directors/Ed Leaders’ Surveys 12/2020)

**Gaps**

23% Very Much/A Lot

N=80
Lost Educational Opportunities
(Program Directors/Fellowship Directors/Ed Leaders’ Surveys 12/2020)

Gaps

#1 – Physical Exams
#2 – Inability to see physical exam findings/learn from others’ patients
#3 – In-person communication skills
#3 – Direct observation/coaching
#3 – Fewer clinic options
Lost Educational Opportunities
(GME Resident Focus Groups 12/2020-1/2021)

1. Physical Exams
2. Procedures (EMGs, Injections, Ultrasound, Ophtho procedures)
3. Low Clinic Volume
4. Patients not always available on telehealth (if caregivers call)
5. Increased test ordering
6. Decreased autonomy
7. Decreased variety of clinics
8. Decreased ability to learn from co-residents, techs, allied health
9. Decreased exposure for medical students → impacts recruitment

*Note: Surgical residents did not note any gaps in clinic education
Burnout

2019
51% report burnout

2020
41% report burnout

Represents 674 residents and fellows across Stanford and LPCH in Nov 2019, and 603 in Nov 2020

Use your own definition of burnout and select the option best describing your current state.
<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>St mean</th>
<th>National Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find my work to be meaningful.</td>
<td>50.0%</td>
<td>48.4%</td>
<td>0.0%</td>
<td>1.6%</td>
<td>3.47</td>
<td>3.6</td>
</tr>
<tr>
<td>I work in a supportive environment.</td>
<td>41.9%</td>
<td>54.8%</td>
<td>3.2%</td>
<td>0.0%</td>
<td>3.38</td>
<td>3.5</td>
</tr>
<tr>
<td>The amount of work I am expected to complete in a day is reasonable.</td>
<td>22.6%</td>
<td>62.9%</td>
<td>11.3%</td>
<td>3.2%</td>
<td>3.05</td>
<td>3.4</td>
</tr>
<tr>
<td>I participate in decisions that affect my work.</td>
<td>25.8%</td>
<td>59.7%</td>
<td>12.9%</td>
<td>1.6%</td>
<td>3.097</td>
<td>3.5</td>
</tr>
<tr>
<td>I have enough time to think and reflect.</td>
<td>8.1%</td>
<td>40.3%</td>
<td>46.8%</td>
<td>4.8%</td>
<td>2.52</td>
<td>3.3</td>
</tr>
<tr>
<td>I am treated with respect at work.</td>
<td>33.9%</td>
<td>58.1%</td>
<td>6.5%</td>
<td>1.6%</td>
<td>3.25</td>
<td>3.5</td>
</tr>
<tr>
<td>I often feel emotionally drained at work.</td>
<td>19.4%</td>
<td>38.7%</td>
<td>37.1%</td>
<td>4.8%</td>
<td>2.73</td>
<td>2.8</td>
</tr>
<tr>
<td>I feel more and more engaged in my work.</td>
<td>9.7%</td>
<td>48.4%</td>
<td>38.7%</td>
<td>3.2%</td>
<td>2.65</td>
<td>3.3</td>
</tr>
<tr>
<td>I find my work to be a positive challenge.</td>
<td>27.4%</td>
<td>66.1%</td>
<td>6.5%</td>
<td>0.0%</td>
<td>3.21</td>
<td>3.5</td>
</tr>
<tr>
<td>I find new and interesting aspects in my work.</td>
<td>24.2%</td>
<td>67.7%</td>
<td>6.5%</td>
<td>1.6%</td>
<td>3.15</td>
<td>3.5</td>
</tr>
<tr>
<td>After work, I need more time than in the past in order to relax.</td>
<td>32.3%</td>
<td>45.2%</td>
<td>19.4%</td>
<td>3.2%</td>
<td>3.07</td>
<td>2.6</td>
</tr>
<tr>
<td>I feel worn out and weary after work.</td>
<td>25.8%</td>
<td>58.1%</td>
<td>12.9%</td>
<td>3.2%</td>
<td>3.07</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Stanford pediatrics residents are below the national mean on all questions.
Challenges

Institutional Challenges

- Differences in signage/messaging
- Inconsistency in faculty coming in person
- Inconsistency in how close providers are together for patient care (differentially affects those in reading rooms, workrooms)
- Perception challenges: safety fears
  - By patient
  - By attending providers
  - By learners
- Room size
  - Work rooms, Team Rooms, Clinic Rooms
Challenges

Institutional Challenges
• Meld with hospital/county policies
• Meld with university policies
Institutional Recommendation #1

- Increase In-person Educational Clinical Exposure
  - Optimize the number of people allowed in clinical workrooms, patient rooms, and conference rooms.
    - Safety practices: Masked, no eating.
  - Will preserve opportunity for telehealth for those who feel uncomfortable.
Institutional Recommendation #2

• Increase Educational Conferences/Sessions

• Re-institute in person community didactics
  • Enhance “community” learning
  • Enhance community support
  • Enhance joy of learning through in person engagement
  • Enhance friendships
Institutional Recommendation #3

• Re-Establish Community Activities/Wellness/Graduation
  • Enhance wellness through community engagement
  • Enhance support structures
  • Create lasting memories
  • Enhance connection and collegiality between learners and faculty
Recommendations to Frontline Faculty/APPs/Fellows/Residents

• Reestablish bedside teaching
  • Thinking through differential diagnoses
  • Physical exam findings
  • Pulling learners into rooms to learn from patients

• Reestablish chalk talks/small group teaching
Other Educational Opportunities

- Visiting Resident Rotations Have Been Approved (since March 2021)
- Visiting Student Rotations Approved for 8/23/2021

→ Both of these are very important for recruitment
Questions?
COVID-19 Clinical Updates

Roshni Mathew, MD
Clinical Associate Professor I Pediatric Infectious Diseases I Stanford University School of Medicine
Associate Medical Director I Infection Prevention & Control I Lucile Packard Children’s Hospital
The case rate, test positivity, and health equity metric thresholds must be met to move forward toward more reopening.

<table>
<thead>
<tr>
<th>WIDESPREAD</th>
<th>SUBSTANTIAL</th>
<th>MODERATE</th>
<th>MINIMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• More than 10.0 daily new cases (per 100k)*</td>
<td>• 6.0 – 10.0 daily new cases (per 100k)*</td>
<td>• 2.0 – 5.9 daily new cases (per 100k)*</td>
<td>• Less than 2.0 daily new cases (per 100k)*</td>
</tr>
<tr>
<td>• More than 8.0% positive test for entire county**</td>
<td>• 5.0 – 8.0% positive tests for entire county**</td>
<td>• 2.0 – 4.9% positive tests for entire county**</td>
<td>• Less than 2.0% positive tests for entire county**</td>
</tr>
<tr>
<td></td>
<td>• Less than 8.1% positive tests for health equity quartile**</td>
<td>• Less than 5.3% positive tests for health equity quartile**</td>
<td>• Less than 2.2% positive tests for health equity quartile**</td>
</tr>
</tbody>
</table>
Children and COVID-19: 4/1/21
Summary of State-Level Data Provided in this Report

Detail and links to state/local data sources provided in Appendix

Cumulative Number of Child COVID-19 Cases*
- 3,469,500 total child COVID-19 cases reported, and children represented 13.4% (3,469,500/25,798,537) of all cases
- Overall rate: 4,610 cases per 100,000 children in the population

Hospitalizations (24 states and NYC reported)*
- Children were 1.3%-3.1% of total reported hospitalizations, and between 0.1%-2.0% of all child COVID-19 cases resulted in hospitalization

Mortality (43 states, NYC, PR and GU reported)*
- Children were 0.00%-0.19% of all COVID-19 deaths, and 10 states reported zero child deaths
- In states reporting, 0.00%-0.03% of all child COVID-19 cases resulted in death

See detail in Appendix: Data from 49 states, NYC, DC, PR, and GU; Analysis by American Academy of Pediatrics and Children’s Hospital Association
* Note: Data represent cumulative counts since states began reporting. All data reported by state/local health departments are preliminary and subject to change.
Cases by Age Group:

https://covid.cdc.gov/covid-data-tracker/#demographics
Deaths by Age Group:

https://covid.cdc.gov/covid-data-tracker/#demographics
COVID-19 Update
April 9, 2021

Bonnie Maldonado, MD
New CDC Travel Guidance for Vaccinated Individuals: Domestic Travel

• Last week the Centers for Disease Control and Prevention (CDC) updated its travel guidance for fully vaccinated people to reflect the latest evidence and science.

• Given recent studies evaluating the real-world effects of vaccination, CDC recommends that fully vaccinated people can travel at low risk to themselves. A person is considered fully vaccinated two weeks after receiving the last recommended dose of vaccine.

• Fully vaccinated people can travel within the United States and COVID-19 testing or post-travel self-quarantine are not required as long as they continue to take COVID-19 precautions while traveling – wearing a mask, avoiding crowds, socially distancing, and washing hands frequently.
New CDC Travel Guidance for Vaccinated Individuals: Domestic Travel

“With millions of Americans getting vaccinated every day, it is important to update the public on the latest science about what fully vaccinated people can do safely, now including guidance on safe travel,” said CDC Director Dr. Rochelle Walensky. “We continue to encourage every American to get vaccinated as soon as it’s their turn, so we can begin to safely take steps back to our everyday lives. Vaccines can help us return to the things we love about life, so we encourage every American to get vaccinated as soon as they have the opportunity.”
New CDC Travel Guidance for Vaccinated Individuals: International Travel

• Because of the potential introduction and spread of new SARS-CoV-2 variants, differences in disease burden, vaccines, and vaccine coverage around the world, CDC is providing the following guidance related to international travel:

• Fully vaccinated people can:
  • Travel internationally without getting a COVID-19 test before travel unless it is required by the international destination.
  • Do not need to self-quarantine after returning to the United States, unless required by a state or local jurisdiction
  • Should still have a negative COVID-19 test result before they board a flight to the United States and get a COVID-19 test 3 to 5 days after returning from international travel.
  • Should continue to take COVID-19 precautions while traveling internationally.
New CDC Travel Guidance for Vaccinated Individuals: International Travel

• The guidance does not change the agency’s existing guidance for people who are not fully vaccinated.

• Unvaccinated travelers should still get tested 1-3 days before domestic travel and again 3-5 days after travel. They should stay home and self-quarantine for 7 days after travel or 10 days if they don’t get tested at the conclusion of travel. CDC discourages non-essential domestic travel by those who are not fully vaccinated.
New CDC Travel Guidance for Vaccinated Individuals: International Travel

• Updates to CDC travel guidance for vaccinated people can be found here:

• Due to the large number of Americans who remain unvaccinated and the current state of the pandemic, CDC recommends that fully vaccinated people continue to take COVID-19 precautions, such as wearing a mask, social distancing, washing hands frequently and avoiding crowds when in public, when visiting with unvaccinated people from multiple other households, and when around unvaccinated people who are at high risk of getting severely ill from COVID-19.
### Cases of Variants of Concern in the United States†

<table>
<thead>
<tr>
<th>Variant</th>
<th>Reported Cases in US</th>
<th>Number of Jurisdictions Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1.1.7</td>
<td>16,275</td>
<td>52</td>
</tr>
<tr>
<td>B.1.351</td>
<td>386</td>
<td>36</td>
</tr>
<tr>
<td>P.1</td>
<td>356</td>
<td>25</td>
</tr>
</tbody>
</table>

†Cases may not align with external mapping and reporting due to differences in geographic scope and data collection and reporting methodology.

# Stanford Health Care Variant Update – 04/07/2021*

<table>
<thead>
<tr>
<th>Variant</th>
<th>Notable Spike Mutations</th>
<th>Confirmed (Presumptive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1.1.7 (UK)</td>
<td>N501Y, del79-80</td>
<td>44 (69)</td>
</tr>
<tr>
<td>B.1.351 (SA)</td>
<td>N501Y, E484K, K417N</td>
<td>3 (0)</td>
</tr>
<tr>
<td>B.1.1.28.1 (BR1)</td>
<td>N501Y, E484K, K417T</td>
<td>1 (5)</td>
</tr>
<tr>
<td>B.1.1.28.2 (BR2)</td>
<td>E484K</td>
<td>11 (9)</td>
</tr>
<tr>
<td>B.1.427/B.1.429 (CA,USA)</td>
<td>L452R</td>
<td>70 (1621)</td>
</tr>
<tr>
<td>B (IN)</td>
<td>L452R, E484Q</td>
<td>6 (1)</td>
</tr>
</tbody>
</table>

Confirmation by SARS-CoV-2 whole genome sequencing

* Provided by B. Pinsky
## Pfizer, Moderna and J&J Overview

<table>
<thead>
<tr>
<th></th>
<th>Pfizer</th>
<th>Moderna</th>
<th>Johnson and Johnson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant Number</strong></td>
<td>~44,000</td>
<td>~30,000</td>
<td>~44,000</td>
</tr>
<tr>
<td><strong>Primary Endpoint</strong></td>
<td>PCR+ COVID-19 Symptoms</td>
<td>PCR+ COVID-19 Symptoms</td>
<td>PCR+ COVID-19 Symptoms</td>
</tr>
<tr>
<td><strong>Cases - Placebo</strong></td>
<td>162</td>
<td>185</td>
<td>193</td>
</tr>
<tr>
<td><strong>Cases - Vaccinees</strong></td>
<td>8</td>
<td>11</td>
<td>66</td>
</tr>
<tr>
<td><strong>TOTAL CASES</strong></td>
<td>170</td>
<td>196</td>
<td>259</td>
</tr>
<tr>
<td><strong>Vaccine Efficacy</strong></td>
<td>95%</td>
<td>94%</td>
<td>66.1%</td>
</tr>
<tr>
<td><strong>Efficacy Endpoint</strong></td>
<td>7 days after second dose</td>
<td>14 days after second dose</td>
<td>14 days after dose (single dose vaccine)</td>
</tr>
<tr>
<td><strong>Prevention of Hospitalizations/Deaths</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Interim Estimates of Vaccine Effectiveness of BNT162b2 and mRNA-1273 COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Health Care Personnel, First Responders, and Other Essential and Frontline Workers — Eight U.S. Locations, December 2020–March 2021

- Pfizer and Moderna 90% effective against symptomatic or asymptomatic infection after 2 doses
- 80% effective after one dose

Morbidity and Mortality Weekly Report US Department of Health and Human Services/Centers for Disease Control and Prevention MMWR / April 2, 2021 / Vol. 70 / No. 13 495
Pfizer and Pediatric Vaccine Efficacy

• The Pfizer-BioNTech Phase 3 clinical trial began in late July 2020, recruiting participants aged 12 and over.

• 2,259 participants were between the ages of 12-15 and 754 participants were 16 and 17 years old.
Pfizer and Pediatric Vaccine Efficacy

- 12-15 year olds
- Interim analysis demonstrated safety and robust immune responses
- Higher antibody responses compared to adults
- 100% effectiveness against symptomatic infection (0 cases) compared to placebo (18 cases)
Pfizer and Pediatric Vaccine Efficacy

- In March 2021, Pfizer and BioNTech dosed the first healthy children in a global Phase 1/2/3 continuous study in children 11 years to 6 months old.

- **Stanford a participating site in Phase 1, 2 and 3 trials**
# Vaccine Clinical Development: Children

<table>
<thead>
<tr>
<th>Platform/Design</th>
<th>Biontech/Pfizer</th>
<th>Moderna</th>
<th>Janssen</th>
<th>AstraZeneca</th>
</tr>
</thead>
<tbody>
<tr>
<td>mRNA: encodes</td>
<td>mRNA: encodes</td>
<td>Replication</td>
<td>Replication</td>
<td></td>
</tr>
<tr>
<td>stabilized spike; lipid NP</td>
<td>2P- stabilized spike; lipid NP</td>
<td>incompetent Ad26; stabilized spike</td>
<td>incompetent ChAdOx1 chimp Ad; wild type spike</td>
<td></td>
</tr>
</tbody>
</table>

| Dose/ Schedule Adults | IM 2 doses X 30 μg 21 days apart | IM 2 doses 100 μg 28 days apart | IM 1 dose at 5 x 10^{10} vp (also testing 2 doses (0, 56 days)) | IM 2 doses at 5 x 10^{10} vp, (0, 28 days) |

<table>
<thead>
<tr>
<th>Current Status</th>
<th>EUA ages 16 and up</th>
<th>EUA ages 18 and up</th>
<th>Phase 3 adults</th>
<th>Phase 3 adults</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Adolescents</th>
<th>Fully enrolled</th>
<th>TeenCOVE</th>
<th>Start 4-6wks after results from adult trials</th>
<th>Begin Early 2021</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Younger Children</th>
<th>Planning early 2021</th>
<th>Planning early 2021</th>
<th>Planning early 2021</th>
<th>Planning early 2021</th>
</tr>
</thead>
</table>

| Comments            |                      | Platform used widely in teens, infants, children |                      |                      |

Others supported by USG: Novavax (Ph3 enrolling), Sanofi
Pfizer Trials in Pregnant Women

In February 2021, Pfizer and BioNTech dosed the first participant in a global Phase 2/3 study to further evaluate the safety, tolerability, and immunogenicity of the Pfizer-BioNTech COVID-19 vaccine in preventing COVID-19 in healthy pregnant women 18 years of age and older.

What are the objectives of the Phase 2/3 study in pregnant women?

The Phase 2/3 clinical trial will evaluate the safety and immune response in healthy pregnant women 18 years of older between 24-34 weeks of their pregnancy. We plan to enroll approximately 4,000 participants at more than 130 global sites within the U.S., Canada, Brazil, Chile, Mozambique, South Africa, U.K. and Spain. Each woman will participate in the study for approximately 7 to 10 months.