Delaware Judiciary Town Hall

Alfred E. Bacon, III MD FACP
February 4, 2021
COVID-19 - Topics

• Epidemiology
• Treatment
• Vaccine development
• Variant strains
• Questions / answers
Daily Trends in Number of COVID-19 Cases in the United States Reported to CDC

Source: CDC.gov 1/29/21
Delaware New COVID Cases

- Source NYT 1/29/21
Delaware COVID Deaths

• Source NYT 1/29/21
Total Deaths by Age

Deaths

0 100 200 300 400 500 600 700 800 900

0-4 5-17 18-34 35-49 50-64 65+

Source DPH 1/29/21
DELWARE Percent of persons testing positive November 2020 vs. January 2021

Source DPH 1/29/21
**R₀ by State**

**Delaware**

<table>
<thead>
<tr>
<th>Current R₀</th>
<th>Cases</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.17</strong></td>
<td>40,381</td>
<td>788,258</td>
</tr>
</tbody>
</table>

**Effective Reproduction Rate · Rᵢ**

Rᵢ is the average number of people who become infected by an infectious person. If it’s above 1.0, COVID-19 will spread quickly. If it’s below 1.0, infections will slow. [Learn More](https://rt.live/)
Cases Who Visited Venues (Reported All Weeks)

- Restaurant: 1480
- Religious service**: 642
- Other tourist attraction: 503
- Beach: 493
- Gym: 426
- House party: 426
- Other large gathering: 398
- Dinner party: 371
- Bar: 312
- Nail or hair salon/spa: 283

Source DPH 1/29/21
Diagnostic Testing

Expanded Respiratory Panel PCR

- Went live 9/23
- Includes:
  - COVID-19
  - Flu A/B (also H1 v. H3)
  - RSV A/B
  - Other human CoVs
  - Parainfluenza 1-4
  - hMPV
  - Bordetella spp.
  - Rhinovirus/enterovirus
  - *Mycoplasma pneumoniae*
  - *Chlamydia pneumoniae*
- Default option for admitted patients in CH/MED
- Should not be repeated within 7d

New! Flu/RSV/COVID-19 PCR

- Going live 12/10!
- Includes:
  - COVID-19
  - Flu A/B
  - RSV
- Preferred test at WH (performed in-house → shorter TAT)
- Admitted and ED discharged patients
  - Ambulatory coming soon!
- Isolated flu/RSV testing no longer available
COVID-only surveillance testing still available
COVID 19- Outpatient

- Monoclonal antibody – Regeneron, Lilly
- 1 time infusion
- 0-10 days symptoms, > 65, high risk population
- DBM, HTN, BMI, Immunosuppressed
- 1.6 % vs 6.3 % hospitalization
- Well tolerated

- NEJM Jan 2021
Monoclonal Antibody

- 452 patients – 70% at least 1 risk factor
  - 309 Mab, 143 placebo
- Adverse event 22% Mab vs 24% placebo
- Viral load decreased 99.7%
- Hospitalization – 4 fold decrease
  - Mab- 1.6% (high risk 4.2%)
  - Placebo 6.3% (high risk 14.6%)

NEJM Jan 2021
COVID 19 Treatment - Hospitalized

• Steroids – RECOVERY trial – 30% reduction mortality
• Remdesivir- Improved LOS, 3-4 % decrease mortality
• Interleukin 6 blocking agents (Tocilizumab) 10 % improved mortality
• Anticoagulation/prevention/treatment
• Prone position, avoid intubation
What Do We Want a Vaccine to Do?

- Prevent infection
- Prevent disease
- Prevent hospital admission
- Prevent intensive care unit admission
- Prevent death
- Prevent transmission

Difficult to detect
Need sufficient power
Difficult to detect

Hodgson SH, et al, Lancet Inf Dis, published online 10.27.2020
Herd Immunity

• AKA ‘population immunity’
  • Population can be protected if certain threshold of vaccination reached
  • Reduces overall amount of disease able to spread → not every single person
    needs to be vaccinated to be protected

• Threshold varies based on disease
  • Measles: 95%
  • Polio: 80%
  • COVID-19: 50-70%?

• Estimated current U.S. population immunity: <10%

WHO:
“Attempts to reach ‘herd immunity’ through exposing people to a virus are scientifically problematic and unethical. Letting COVID-19 spread through populations, of any age or health status will lead to unnecessary infections, suffering and death.”
## COVID-19 vaccines in human clinical trials – United States*

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Manufacturer</th>
<th>Type</th>
<th>Phase</th>
<th>Schedule</th>
<th>Age</th>
<th>Size</th>
<th>Trial #</th>
<th>Recruiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>mRNA-1273</td>
<td>Moderna</td>
<td>mRNA</td>
<td>III</td>
<td>2 doses (0, 28d)</td>
<td>≥18 years</td>
<td>30,000 participants</td>
<td>NCT04470427</td>
<td>Enrollment complete</td>
</tr>
<tr>
<td>mRNA-BNT162</td>
<td>Pfizer, Inc./BioNTech</td>
<td>mRNA</td>
<td>III</td>
<td>2 doses (0, 21d)</td>
<td>12-85 years</td>
<td>44,000 participants</td>
<td>NCT04368728</td>
<td>✓</td>
</tr>
<tr>
<td>AZD1222</td>
<td>U of Oxford/AstraZeneca</td>
<td>Viral vector (Non-replicating)</td>
<td>III</td>
<td>2 doses (0, 28d)</td>
<td>≥18 years</td>
<td>40,000 participants</td>
<td>NCT04516746</td>
<td>✓</td>
</tr>
<tr>
<td>Ad26COV1</td>
<td>Janssen</td>
<td>Viral vector (Non-replicating)</td>
<td>III</td>
<td>1 dose</td>
<td>≥18 years</td>
<td>30,000 participants</td>
<td>NCT04614948</td>
<td>✓</td>
</tr>
<tr>
<td>NVX-CoV2373</td>
<td>Novavax</td>
<td>Protein Subunit</td>
<td>I/II</td>
<td>2 doses (0, 21d)</td>
<td>18-84 years</td>
<td>1400 participants</td>
<td>NCT04368988</td>
<td>Enrollment complete</td>
</tr>
<tr>
<td>--</td>
<td>Sanofi/GSK</td>
<td>Protein Subunit</td>
<td>I/II</td>
<td>1 dose or 2 doses (0, 21d)</td>
<td>≥18 years</td>
<td>440 participants</td>
<td>NCT04537208</td>
<td>✓</td>
</tr>
</tbody>
</table>

*As of Nov 21, 2020

**Sources:**
- [https://millerinstitute.org/covid-19-tracker](https://millerinstitute.org/covid-19-tracker)
- [https://vaccine.shiyangou.io/covid_vaccine_landscapes/](https://vaccine.shiyangou.io/covid_vaccine_landscapes/)
- [https://clinicaltrials.gov/](https://clinicaltrials.gov/)
Figure 13  Cumulative Incidence Curves for the First COVID-19 Occurrence After Dose 1 – Dose 1 All-Available Efficacy Population

172 cases in placebo group, vs. 9 in vaccine group
Severe COVID-19

- 10 cases total
  - 9 in placebo group
    - 1 O2 sat 92%
    - 7 hospitalized
    - 3 ICU
  - 1 in vaccine group
    - O2 sat 93%, not hospitalized

Table 12. First Severe COVID-19 Occurrence After Dose 1 – Dose 1 All-Available Efficacy Populations

<table>
<thead>
<tr>
<th>Secondary Efficacy Endpoint</th>
<th>Surveillance Time&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Vaccine Efficacy %&lt;sup&gt;95% CI&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>First severe case occurrence after Dose 1</td>
<td>1</td>
<td>BNT162b2 N&lt;sup&gt;a&lt;/sup&gt;=21669 Cases n&lt;sup&gt;b&lt;/sup&gt;&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>4.021 (21314)</td>
<td>Placebo N&lt;sup&gt;a&lt;/sup&gt;=21686 Cases n&lt;sup&gt;b&lt;/sup&gt;&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>After Dose 1 to before Dose 2</td>
<td>0</td>
<td>100.0 (-51.5, 100.0)</td>
</tr>
<tr>
<td>Dose 2 to 7 days after Dose 2</td>
<td>1</td>
<td>100.0 (-3800.0, 100.0)</td>
</tr>
<tr>
<td>≥7 Days after Dose 2</td>
<td>1</td>
<td>75.0 (-152.6, 99.5)</td>
</tr>
</tbody>
</table>

<sup>a</sup>N = number of participants in the specified group.
<sup>b</sup>n1 = Number of participants meeting the endpoint definition.
<sup>1</sup>Total surveillance time in 1000 person-years for the given endpoint across all participants within each group at risk for the endpoint. Time period for COVID-19 case accrual is from 7 or 14 days after Dose 2 to the end of the surveillance period depending on specified endpoint.
<sup>2</sup>n2 = Number of participants at risk for the endpoint.
<sup>3</sup>Credible interval for VE was calculated using a beta-binomial model with prior beta (0.700102, 1) adjusted for surveillance time.
<sup>4</sup>Confidence interval (CI) for VE is derived based on the Clopper and Pearson method adjusted to the surveillance time.
Moderna Phase III Data

• >30,000 participants enrolled
• Primary efficacy endpoint met: 94.5% (p<0.0001)
  • 14 days after 2nd dose
  • 95 confirmed COVID-19 cases
    • 90 in placebo group, 5 in vaccine group
    • Of 11 severe cases, all in placebo group
• Consistent across all subgroups
• “Well-tolerated across all populations”
  • Grade 3 AE >2% frequency: injection site pain (2.7%), fatigue (9.7%), myalgias (8.9%), arthralgia (5.2%), pain (4.1%), erythema at site (2.0%)
  • Generally short-lived

VACCINATIONS IN DELAWARE

COVID-19 Vaccine

Delaware's Vaccine Allocation Timeline

- **Phase 1a**: Mid December 2020
- **Phase 1b**: Mid January 2021
- **Remaining Phase 1**: March 2021
- **Phase 2**: Mid April 2021
- **Phase 3**: Mid May 2021
- **Phase 4**: June 2021

Source DPH 1/29/21
We Are Currently in Phase 1B

Facts at a Glance

People covered in Phase 1A and 1B are eligible to get vaccinated.

- Phase 1A includes health care personnel with direct patient contact and care, Emergency Medical Services agencies, and long-term care staff and residents. Efforts will continue to vaccinate individuals in this group.
- Long-term care residents and staff will continue to be vaccinated by either CVS or Walgreens pharmacy staff as part of a federal program.
- Phase 1B includes all individuals 65 and over, and frontline essential workers including: fire, police, correctional officers, teachers and education staff (including child care providers), U.S. postal workers, food manufacturing, agriculture, transportation, and grocery store workers.
Delaware has administered at least 52,586 first doses covering 9.2% of the prioritized population...
and 5.4% of the state’s population.
At least 11,464 people have been fully vaccinated.

The state has been allocated 94,000 first doses, enough to vaccinate 16.5% of the prioritized population...
and 9.7% of the state’s population. Read the methodology._

Source Washington Post  1/29/21
What Phase is Next?

Remaining Phase 1

Who:

Persons aged 16-64 with high-risk medical conditions (Obesity, Severe Obesity, Diabetes, COPD, Heart Condition, Chronic Kidney, Cancer, Smoking, Solid Organ Transplant, Sickle Cell Disease, Intellectual/Developmental Disabilities, Severe and persistent mental/behavioral health conditions).

Persons living in high-risk group settings such as correctional facilities, homeless shelters, and group homes.

Other essential workers (Transportation and Logistics, Food Service, Shelter and Housing (construction), Finance, IT and Communications, Energy, Media, Legal, Public Safety (Engineers), Water and Wastewater). Vaccines may be available through employers.

When:

Starting by end of February into early March. Not all essential workers in each category will be eligible at first. Those with more frequent public contact, and higher health risks will likely be eligible first.
Certain employees in the Delaware Court system are classified as “essential workers” and are eligible for the vaccine in phase 1B.

December 16, 2020

ADVISORY MEMORANDUM ON ENSURING ESSENTIAL CRITICAL INFRASTRUCTURE WORKERS' ABILITY TO WORK DURING THE COVID-19 RESPONSE

FROM: Brandon Wales
Acting Director
Cybersecurity and Infrastructure Security Agency (CISA)

As the Nation continues to respond to COVID-19, it is important that consideration be given to the ability of essential critical infrastructure workers to continue to inform response policies and activities. Following are specific tasks identified by CISA as essential critical infrastructure functions:

- Health and human services (Nursing homes, Dialysis facilities, etc.)
- Transportation (including emergency response and public safety services)
- Water and wastewater systems
- Energy (including electric, gas, and water utilities)
- Communications (including internet and telephone services)
- Food and agriculture (including processing, distribution, and retail)
- Chemical and petroleum products
- Manufacturing (including chemical, petroleum, pharmaceutical, and pharmaceutical products)
- Public safety (including emergency services and emergency management)
- Civil defense and national security
- Environmental services (including drinking water and wastewater systems)
- Financial services (including banking and credit unions)
- Public health services (including hospitals and healthcare facilities)
- Residential services (including social services and child care facilities)
- Education services (including schools and universities)
- Healthcare services (including nursing homes and hospitals)
- Other community- or government-based operations and essential functions

Other community- or government-based operations and essential functions:

- Workers to ensure continuity of building functions, including but not limited to security and environmental controls (e.g., HVAC), building transportation equipment, the manufacturing and distribution of the products required for these functions, and the permits and inspections for construction supporting essential infrastructure.
- Elections personnel to include both public and private sector elections support.
- Workers supporting the operations of the judicial system, including judges, lawyers, and others providing legal assistance.
- Workers who support administration and delivery of unemployment insurance programs, income maintenance, employment services, vocational rehabilitation programs and services, disaster assistance, workers' compensation insurance and benefits programs, and pandemic assistance.
- Trade Officials (FTA negotiators; international data flow administrators).
- Workers who support radio, print, internet and television news and media services, including but not limited to front line news reporters, studio, and technicians for newsgathering, reporting, and publishing news.
Highly Fit SARS CoV 2 Variant

- UK, South Africa– G614 strain
- Altered spike protein
- Likely predominant worldwide strain
- Higher viral load in trachea/upper airways
  - More readily spread
- NOT associated with more severe disease
- Neutralized by current Ab, vaccines

- NEJM Dec 2020
Variant - Vaccine efficacy

• Janssen single dose – 57% vs S. Africa, 87% vs US
• Novovax – similar data
• Moderna/Pfizer – can exchange mRNA for variant mRNA
• Race –- vaccine vs variant
• 1000 people vaccinated at 66% vs 10 at 95%
• Timing in communities/countries/cost/accessibility
• Shelf life – 2 years Janssen vaccine
Vaccine Questions

• Should I get the COVID-19 vaccine as soon as it is available to me?
  • Yes. Consult with your doctor if you are concerned about any underlying medical conditions. Be sure to notify vaccine staff about any allergies or past allergic reactions.

• Should I get the vaccine if I already have had COVID-19?
  • Yes. Reinfection is possible with COVID-19 so the CDC recommends getting the vaccine. This is also true for so-called “long-haulers” who suffer COVID symptoms for months longer than typical.

• Should I get the vaccine if I currently have COVID-19 or I was recently exposed to someone with COVID-19??
  • No. You should not get the shot until your symptoms have passed and/or the isolation period has passed.

• Should I get the vaccine if I am pregnant?
  • WHO recommends vaccine in pregnancy. No data.
Vaccine Questions

• If I received a two-dose vaccine, when should I get my second dose?
  • The CDC recommends getting a second dose within 3 weeks for the Pfizer vaccine and within 4 weeks for the Moderna vaccine. However the CDC has said that a delay of up to 6 weeks is allowed.

• If I received a first dose of one vaccine can I get a second dose of the other vaccine?
  • The CDC said the two mRNA vaccines are “not interchangeable” and so you should stick with the same vaccine. However, the CDC said in unusual circumstances it can be allowed but it is not ideal.

• Is there anyone who should not get the COVID-19 vaccine?
  • There is no COVID-19 vaccine yet for children under age 16. Several companies have begun enrolling children as young as age 12 in COVID-19 vaccine clinical trials. COVID-19 vaccination might not be recommended for people with certain health conditions. Talk to your doctor if you have questions about getting the vaccine.
Vaccine Questions

• **What about reported issues/problems with the vaccines?**
  • There is a great deal of disinformation/misinformation/bad information out there, particularly on social media. Check with credible sources – your doctor or the Centers for Disease Control (at CDC.gov) or Delaware Public Health (at coronavirus.delaware.gov).

• **What are the side effects of the vaccine (Pfizer and Moderna)?**
  • The side effects are typical for vaccines. That includes a mild fever, pain at the injection site and general body aches, tiredness or a headache. The side effects should not last more than a day or two.

• **Are there any medications that interfere with the vaccine?**
  • Currently, there is no evidence to suggest that taking any specific medications, alter vaccine efficacy. Currently CDC recommends NOT taking ibuprofen prophylaxis before vaccination.

• **Are there any long-term effects of the vaccine?**
  • Long term adverse side effects have yet been identified or reported.
Vaccine Hesitancy
What is getting in the way of vaccine confidence in the US?

There has been a considerable decline in COVID-19 vaccine acceptability in the past 4 months
Factors weighing on acceptance include:

- Concern about side effects
- Efficacy
- Risk perception/need for vaccine
- Associated costs

Perceived safety, cost, and accessibility can all affect COVID-19 vaccine acceptance
...but attributes that made COVID-19 vaccine more acceptable included:

- if your healthcare provider said it was safe
- if there are no costs to the individual
- if it would help get back to school and work
- if they could get it easily, from a walk-in or drive-thru clinic, pharmacy or doctor’s office
