COVID-19 Vaccine
All you want to know but hesitate to ask

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COVID-19 VACCINE
All you want to know but hesitate to ask

Monday, April 12, 2021 at 11 am
With Dr. Karen Lin
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Rutgers RWJ Medical School

Register in advance for this webinar:
https://zoom.us/webinar/register/WN_liu6OBWpQEi6CB1Lij4TXA
• Corona viruses exist for many years, common cold in children in fall and winter, fever, cough, sore throat, running nose, species: 229E, NL63, OC43, HKU1

• SARS - CoV = **Severe Acute Respiratory Syndrome**
  – Feb. 2003, 23 countries, 8098 diagnoses, 774 death

• MERS- CoV= **Middle East Reparatory Syndrome**
  – April 2012 in Jordan, Sept in Arabian Peninsula, 30% death,
  – May 2014 two identified in USA

• 2019 - **new CoV**
  – Dec. 31, 2019 WHO informed pneumonia cases in China
  – Jan. 7, 2020, identified as New Corona virus
  – Jan 21, 2020, 1st case in USA
  – Feb.3rd, 2020, 12 cases identified in USA.
COVID-19 vaccines

Test

- **PCR**
  - RNA
  - genetic coding

- **Antigen**
  - Spike proteins

- **Antibody**
  - Host defense system
A timeline of how COVID-19 typically progresses

Days

0
5
10
11
13
15
22

DAYS OF INFECTION

Incubation
Prodromal
Acute
Convalescence

CRITICAL 48-HOURS
High contagion
Viral shedding

FIRST WEEK OF ONSET
High viral load
High transmission

SECOND WEEK OF ONSET
Either recovery begins
Or complications that lead to death

72 HOURS
No fever
No more signs

Source: Turkish Ministry of Health's Coronavirus Scientific Advisory Board, Shaoqing Lei et al., Lancet 2020, Zhou et al, Lancet 2020
When you encounter COVID-19

- **No** symptoms
- **Mild** symptom: cough, fever, chills, achiness,
- **Moderate** symptoms: fever, shivering, headache, stuffy or runny nose, sore throat, muscle pain, new loss of taste and smell, diarrhea, and nausea.
- **Serious** symptoms: shortness of breath, high fever, exhausted
- **Hospitalization**: need oxygen, ventilator, specific medications.
- **Multi-organs failure**: blood clots, lungs, heart, kidneys, stroke
- **Death**
COVID-19 Vaccine confidence vs. hesitancy

• Factors weighing on acceptance:
  – Are there side effects?
  – Does it work?
  – Is it safe?
  – How much does it cost?
Vaccine Clinical Trial

Phases of clinical trials

**Phase 1**
20-100 Healthy Volunteers

- Researchers try to answer these questions:
  - Is this vaccine safe?
  - Are there any serious side effects?
  - How does the vaccine dose relate to any side effects?
  - Is the vaccine causing an immune response?

**Phase 2**
Several Hundred Volunteers

- Researchers try to answer these questions:
  - What are the most common short-term side effects?
  - What's the body's immune response?
  - Are there signs that the vaccine is protective?

**Phase 3**
1000+ Volunteers

- Researchers try to answer these questions:
  - How do disease rates compare between people who get the vaccine and those who do not?
  - How well can the vaccine protect people from disease?

**Phase 4**
Vaccine is Approved

- Researchers try to answer these questions:
  - FDA approves a vaccine only if it's safe, effective, and benefits outweigh the risks.
  - Researchers continue to collect data on the vaccine's long-term benefits and side effects.

Source: https://covid19community.nih.gov/resources/understanding-clinical-trials
**How mRNA COVID-19 Vaccines Work**

- **Understanding the virus that causes COVID-19.**
  Coronavirus, like the one that causes COVID-19, are named for the crown-like spikes on their surface, called spike proteins. These spike proteins are ideal targets for vaccines.

- **What is mRNA?**
  Messenger RNA, or mRNA, is genetic material that tells your body how to make proteins.

- **What is in the vaccine?**
  The vaccine is made of mRNA wrapped in a coating that makes delivery easy and keeps the body from damaging it.

- **How does the vaccine work?**
  The mRNA in the vaccine teaches your cells how to make copies of the spike protein. If you are exposed to the real virus later, your body will recognize it and know how to fight it off.

**GETTING VACCINATED?**
For information about COVID-19 vaccine, visit: cdc.gov/coronavirus/vaccines

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**How Viral Vector COVID-19 Vaccines Work**

- **Understanding the virus that causes COVID-19.**
  Coronavirus, like the one that causes COVID-19, are named for the crown-like spikes on their surface, called spike proteins. These spike proteins are ideal targets for vaccines.

- **What is a viral vector vaccine?**
  A viral vector vaccine uses a harmless version of a different virus, called a 'vector', to deliver information to the body that helps it protect you.

- **How does the vaccine work?**
  The vaccine teaches your body how to make copies of the spike proteins. If you are exposed to the real virus later, your body will recognize it and know how to fight it off.

**GETTING VACCINATED?**
For information about COVID-19 vaccine, visit: cdc.gov/coronavirus/vaccines
## COVID-19 vaccines

<table>
<thead>
<tr>
<th></th>
<th>Pfizer/BioNTech</th>
<th>Moderna</th>
<th>Janssen (J&amp;J)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>age</strong></td>
<td>16 yo and older</td>
<td>18 yo and older</td>
<td>18 yo and older</td>
</tr>
<tr>
<td><strong>schedule</strong></td>
<td>2 doses 3 wks apart</td>
<td>2 doses 4 wks apart</td>
<td>Single dose</td>
</tr>
<tr>
<td><strong>dosage</strong></td>
<td>0.3 ml</td>
<td>0.5 ml</td>
<td>0.5 ml</td>
</tr>
<tr>
<td><strong>vial</strong></td>
<td>5 doses per vial</td>
<td>10 doses per vial</td>
<td>5 doses per vial</td>
</tr>
<tr>
<td><strong>storage</strong></td>
<td>-80°C to -60°C (-112°F to -76°F)</td>
<td>frozen -25°C to -15°C (-13°F to 5°F). Stored 2°C to 8°C (36°F to 46°F) for 30d days</td>
<td>2°C to 8°C (36°F to 46°F)</td>
</tr>
<tr>
<td><strong>Spike protein</strong></td>
<td>Lipid nanoparticle mRNA</td>
<td>Lipid nanoparticle mRNA</td>
<td>Modified adenovirus vector</td>
</tr>
<tr>
<td><strong>EUA approval</strong></td>
<td>12/11/20</td>
<td>12/18/20</td>
<td>2/27/21</td>
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</table>
COVID-19 vaccine trials by the numbers
As of December 21, 2020

**Pfizer/BioNTech**
- **45,302** enrolled
  - **43,125** received 2nd dose
- **150** clinical sites
  - **39** U.S. states
- Racial/ethnic distribution
  - **13%** - Hispanic
  - **10%** - African American
  - **6%** - Asian
  - **1%** - Native American
- **40%** ages 56-85

**Moderna**
- **30,000** enrolled
  - **25,654** received 2nd dose
- **89** clinical sites
  - **32** U.S. states
- Racial/ethnic distribution
  - **63%** - White
  - **20%** - Hispanic
  - **10%** - African American/Black
  - **4%** - Asian
  - **3%** - All others
- **64%** ages 45 and older
  - **39%** ages 45-64
  - **25%** ages 65+

Sources: [https://www.pfizer.com/science/coronavirus/vaccine](https://www.pfizer.com/science/coronavirus/vaccine);
[https://www.modernatx.com/cove-study](https://www.modernatx.com/cove-study)
For more information, visit [www.clinicaltrials.gov](http://www.clinicaltrials.gov)
Janssen /J&J COVID-19 vaccines

- Enrolled- 43,783
- Clinical sites - 8 countries (N. American, Latin America, S. Africa)
  - US sites 46%
- Racial/ethnic distribution
  - White 58%
  - Hispanic 45%
  - African American 19%
  - American Indian 9.5%
  - Asian 3.3%
  - All others 0.2% Native Hawaiian
- Age 18-100 yo
  - 18-59 yo 66.5%
  - >65 yo 19.6%
  - >75 yo 3.5%
Where to get vaccines

- Hospitals
- Long term care facilities
- Federal Qualified Health Centers
- Pharmacies: CVS, Walgreens, Rite Aid, Shoprite.
Vaccines for people younger than 16 yo

- Pfizer and BioNTech, 12-15 yo, 2260 children (1129 vs. 1131)
- 3/31/21: 18 cases of COVID in placebo, no cases of COVID in vaccinated group
- Moderna, 12-18 yo
- Recruited in Feb, result due in few weeks
- J&J vaccine, 12-17 yo, in early April
COVID-19 Vaccination Megasites in NJ

**Mega sites**

- Bergen
- Morris,
- Middlesex,
- Burlington,
- Gloucester,
- Atlantic.

- Atlantic City Convention Center
  - 1 Convention Boulevard, Atlantic City
  - Atlantic County
  - Open Date: OPEN
  - Health Partner: AtlanticCare
  - Register Here

- Rowan College of South Jersey
  - 1400 Tanyard Rd, Sewell
  - Gloucester County
  - Open Date: OPEN
  - Health Partner: County Health
  - Register Here

- Racetrack at Meadowlands
  - 1 Racetrack Drive, East Rutherford Lot M
  - Bergen County
  - Open Date: OPEN
  - Health Partner: Hackensack
  - Register Here

- NJ Convention and Exposition Center
  - Edison
  - Middlesex County
  - Open Date: OPEN
  - Health Partner: RWJBarnabas
  - Register Here

- Moorestown Mall
  - 400 NJ-38, Moorestown
  - Burlington County
  - Open Date: OPEN
  - Health Partner: Virtua
  - Register Here

- Rockaway Townsquare
  - 301 Mt. Hope Ave, Rockaway
  - Morris County
  - Open Date: OPEN
  - Health Partner: Atlantic Health
  - Register Here

Let’s Get Vaccinated
covid19.nj.gov/vaccine
COVID-19 Vaccination Record Card

Please keep this record card, which includes medical information about the vaccines you have received.

Por favor, guarde esta tarjeta de registro, que incluye información médica sobre las vacunas que ha recibido.

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>MI</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Date of birth</th>
<th>Patient number (medical record or IIS record number)</th>
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</table>

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Product Name/Manufacturer Lot Number</th>
<th>Date</th>
<th>Healthcare Professional or Clinic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Dose COVID-19</td>
<td></td>
<td>/ / / mm dd yy</td>
<td></td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Dose COVID-19</td>
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<tr>
<td>Other</td>
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<tr>
<td>Other</td>
<td></td>
<td>/ / / mm dd yy</td>
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</tbody>
</table>
mRNA vaccines

• mRNA vaccines carry genetic material that teaches our cells how to make a harmless piece of “spike protein,” which is found on the surface of the SARS-CoV-2 virus.
  – Genetic material from the vaccine is destroyed by our cells once copies of the spike protein are made and it is no longer needed.
• Cells display this piece of spike protein on their surface, and an immune response is triggered inside our bodies. This produces antibodies to protect us from getting infected if the SARS-CoV-2 virus enters our bodies.
• mRNA vaccines do not affect our DNA;
• mRNA does not enter the cell nucleus.
• mRNA vaccines cannot give someone COVID-19.
• mRNA vaccines are new, but the technology is not. mRNA vaccines have been studied for influenza, Zika, rabies, and cytomegalovirus (CMV).
Pre-vaccination Checklist

• Feeling sick today?
• Ever received a COVID-19 vaccine?
• Allergies to PEG (polyethylene glycol), polysorbate, previous COVID-vaccine?
• Allergy to other vaccine,
• Anaphylaxis reaction?
• Any vaccine in 14 days?
• Positive PCR?
• Monoclonal antibodies or convalescent serum
• Bleeding disorder?
• Immunocompromised (HIV or cancer)?
• Pregnant or breast feeding
COVID-19 vaccines
Possible Adverse Reaction after vaccination

- injection site reaction: pain, tenderness and swelling of the lymph nodes in the same arm of the injection, swelling (hardness), and redness
- General side effects: fatigue, headache, muscle pain, joint pain, chills, nausea and vomiting, and fever
- There is a remote chance that the Moderna COVID-19 Vaccine could cause a severe allergic reaction:
  - Difficulty breathing
  - Swelling of your face and throat
  - A fast heartbeat
  - A bad rash all over your body
  - Dizziness and weakness
April 8, 2021

- Thromboembolic Events with J&J/Janssen Vaccine
  - Four serious cases of unusual blood clots with low blood platelets have been reported postvaccination with COVID-19 Vaccine Janssen, EMA reports.

- Capillary Leak Syndrome with AstraZeneca Vaccine
  - 5 cases of capillary leak syndrome - leakage of fluid from blood vessels causing tissue swelling and a drop in blood pressure were reported in the EudraVigilance database.
After vaccine

- Smart phone: Vsafe.cdc.gov
- ModernaTx, Inc. 1-866-633-3762 (1-866-moderna)
- FDA/CDC: VAERS vaccine adverse event reporting system
  - 1-800-822-7967
  - https://vaers.hhs.gov/reportevent.html
Total vaccinated in NJ as of 4/11/21

Total Vaccine Doses Administered*
5,375,296
Current as of 11-Apr-2021 09:52 ET

People with at least one vaccine dose¹
3,417,454

Fully vaccinated people²
2,158,711
fully vaccinated individuals and individuals who have clinically recovered from COVID-19 in the past three months are **not required to self-quarantine** after their trip or to get tested before or after domestic travel unless otherwise required by their destination.

Unvaccinated travelers should still **self-quarantine** if arriving in New Jersey from beyond the immediate region (New York, Connecticut, Pennsylvania, and Delaware). Also,

All air passengers arriving to the United States from a foreign country are still subject to the federal requirement to **provide proof** of a negative COVID-19 test or proof of recovery from COVID-19.
COVID-19 vaccines

Eligible for vaccination in NJ

Phase 1a: Healthcare personnel
Long-term care facility residents

- licensed healthcare professionals: doctors, nurses, pharmacists, and dentists
- Staff: receptionists, janitors, mortuary services, laboratory technicians
- consultants, per diem and contractors who are not directly employed by the facility
- unpaid workers like health professional students, trainees, volunteers, and essential caregivers
- community health workers, doulas, and public health professionals like Medical Reserve Corps
- personnel with variable venues: EMS, paramedics, funeral staff, and autopsy workers
Eligible for vaccination in NJ

Phase 1b and 1c - February

• Phase 1b: frontline essential workers:
  • police officers, firefighters, correction officers,
  • workers at food and agriculture, postal service, manufacture, grocery store, public transit; teachers, support staff, daycare.
  • People over 75 years. -> 65 years old

• Phase 1c: -> 1b
  • people 65-74 years old
  • People 16-64 years with underlying medical conditions,
  • other essential workers: transportation, logistics, construction, finance, IT, communications, energy, law, medica, public safety, public health. Overweight, smoker

• Phase 2:
Eligible for vaccination in NJ
March 5, 2021

- Paid and unpaid healthcare workers
- Residents and workers of long-term care and high-risk congregate care facilities
- First responders including sworn law enforcement and fire professionals
- Individuals aged over 65
- Individuals aged 16-64 that have certain medical conditions that increase the risk of severe illness from the virus
- Pre-K to 12 educators and staff
- Childcare workers in licensed and registered settings
Eligible for vaccination in NJ, March 15th, 2021

- Public and local transportation workers, including bus, taxi, rideshare, and airport employees; NJ TRANSIT workers; and Motor Vehicle Commission staff;
- Public safety workers who are not sworn law enforcement or fire professionals, including probation officers and fire safety inspectors;
- Migrant farm workers;
- Members of tribal communities;
- Individuals experiencing homelessness and those living in shelters, including domestic violence shelters.
- Additional high-risk individuals

March 29th, additional frontline essential workers
Eligibility on April 5, 2021

- Individuals age 55-64
- Individuals 16+ with intellectual and developmental disabilities
- Communications, IT, and media workers
- Higher education educators and support staff
- Laundry service workers
- Librarians and library support staff
- Real estate, building, and home services workers
- Retail financial institution workers
- Sanitation workers
- Utilities workers
- **April 19, all age over 16 yo.**
COVID-19 website and call centers

- COVID19.nj.gov
- https://covidvaccine.nj.gov/: state will contact you by email
- https://covid19.nj.gov/pages/finder: directly with vaccine sites
- COVID Alert NJ app: close contact with COVID-19 +
- Text NJCOVID to 898-211 to receive alerts
- 2-1-1 (24/7 general questions)
  - Stay safe, Financial assistance, Unemployment, Donations, Food
  - Non-medical needs
- 1-855-568-0545 (8am-8pm): vaccine appointment support
- 1-856-249-7007 (8 am 8 pm): dedicated to seniors.
- 1-800-962-1253 (24/7) medical related questions
- https://familydoctor.org/condition/coronavirus/
If you leave home, know your 3 Ws!

**WEAR**
- a cloth mask over your nose and mouth.

**WAIT**
- 6 feet apart. Avoid close contact.

**WASH**
- your hands or use hand sanitizer.

@NCDHHS  #StayStrongNC
COVID-19 Testing

• **Who:**
  – Have symptoms
  – In close contact with someone who tested positive for COVID-19
  – Essential workers
  – recently in a large crowd, no 6 ft. social distance, recent travelers

• **What:**
  – PCR = polymerase chain reaction
  – Antigen = spike protein
  – Antibody tests: past infection, immunity

• **Where:**
  – [https://covid19.nj.gov/pages/testing](https://covid19.nj.gov/pages/testing);

• **When:**
  – symptomatic, before procedure, hospitalization, school, travel

• **How:** nasal swab, saliva, blood drawing
COVID-19 Testing – registration in NJ

NEW JERSEY
COVID-19 Information Hub

COVID-19 Testing Alert

New free pop-up testing sites are now available in several hotspot areas. Learn more.

Search for COVID-19 and Reopening Information Here

What rules are in place for r

How To Get Tested For COVID-19 In New Jersey

Testing is available to everyone in New Jersey.
Stay Healthy, Stay Safe, Stay Hopeful