COVID-19 Vaccine: What You Need to Know
February 5, 2021
12:00 - 1:00 pm

Join us for a webinar about the COVID-19 vaccine. Learn about how the vaccine was developed, how it is being rolled out, and some tips for talking with your employees, clients, and others.

Featuring

Dr. Sarah Haessler, Hospital Epidemiologist at Baystate Medical Center
Senator Eric Lesser
Lindsey Tucker, Associate Commissioner, MA Department of Public Health
Vaccinations to prevent COVID-19

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Hospital Epidemiologist, Division of Infectious Diseases
Associate Professor of Medicine, UMass Medical School-Baystate
Overview

• How do vaccinations for COVID-19 work?
• How were they developed so quickly?
• Are they safe?
• What are the side effects?
• Are there medical conditions that would prevent someone from getting vaccinated?
• Can pregnant people get the vaccine?
• Can we stop wearing masks once we are vaccinated?
Prior Work on SARS-CoV and MERS-CoV identified the COVID-19 vaccine target

- Spike protein on the surface of the virus helps it bind to and enter cells
- This was the target of previous SARS-CoV vaccine studies
- SARS-CoV-2 is closely related to SARS-CoV, so the spike protein was chosen as the COVID-19 vaccine target

mRNA vaccines use our cells to express the SARS-CoV-2 spike protein

- Messenger RNA (mRNA) is wrapped in lipid nanoparticles in order to protect it
- The mRNA enters the cells, where it is read, and the cells produce the spike protein
- The spike protein is seen by immune cells, which create immunity
  - B cells produce neutralizing antibodies
  - T cells directly kill cells infected by the virus
mRNA vaccines have been under investigation for decades

- mRNA is quickly destroyed in the body, so the initial challenge was protecting it long enough to produce proteins
- Katalin Karikó, a Hungarian immigrant at Penn, worked on mRNA since 1990
  - Due to lack of results, she was demoted
  - Finally, in 2005, she published a solution to inserting mRNA into cells
- Karikó now works for BioNTech, the German company that partnered with Pfizer for COVID-19 vaccine development

How did vaccine get approved so quickly?

- Vaccine trial protocols overseen by NIH, allowing trials to start faster
- Operation Warp Speed:
  - The most promising vaccine candidates received government funding to:
    - support the clinical trials
    - start manufacturing vaccine prior to completion of vaccine trials
  - This allowed large scale amount of vaccine to be available as soon as the FDA Emergency Use Authorization (EUA) was granted

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>2002-2003</td>
<td>SARS-CoV identified</td>
</tr>
<tr>
<td>2004-2005</td>
<td>Phase 1 vaccine trials against SARS-CoV</td>
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<tr>
<td>2012</td>
<td>MERS-CoV identified</td>
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<tr>
<td>Dec 2019</td>
<td>First cases of viral pneumonia identified in Wuhan, China</td>
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<tr>
<td>Jan 2020</td>
<td>Isolation of a novel coronavirus from patients in China</td>
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<tr>
<td>Mar-Apr 2020</td>
<td>Publication of genetic sequence</td>
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<tr>
<td>Moderna Phase 1 trial</td>
<td></td>
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<tr>
<td>Funding for Moderna vaccine trials</td>
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<tr>
<td>Pfizer-BioNTech Phase 1 trial</td>
<td></td>
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<tr>
<td>Pfizer-BioNTech Phase 3 trial</td>
<td></td>
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<tr>
<td>July 2020</td>
<td>Funding for manufacturing &amp; distribution of Pfizer-BioNTech vaccine</td>
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<tr>
<td>July-Nov 2020</td>
<td>Funding for manufacturing &amp; distribution of Moderna vaccine</td>
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<tr>
<td>August 2020</td>
<td>EUAs issued for both Pfizer-BioNTech &amp; Moderna vaccines</td>
</tr>
<tr>
<td>Dec 2020</td>
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How do we know if the COVID-19 vaccines are safe?

- COVID-19 vaccines were tested in large clinical trials to make sure they meet safety standards.
- FDA carefully reviews all safety data from clinical trials.
- FDA authorizes emergency vaccine use only when the expected benefits outweigh potential risks.
- ACIP reviews safety data before recommending any COVID-19 vaccine for use.
- FDA and CDC will continue to monitor the safety of COVID-19 vaccines to make sure even very rare side effects are identified.
- The US has robust vaccine safety monitoring systems in place.
Phase 3 trial of vaccines

**Pfizer-BioNTech**
- Included adults 16 years of age or older - healthy or with stable chronic medical conditions; includes stable hepatitis B or C and HIV
- Excluded people with known history of COVID-19, treatment with immunosuppressive therapy, immunocompromising condition, or who were pregnant
- 21,720 people received vaccine & 21,728 people received placebo
- 51% male
- 9% black or African American
- 28% Latinx
- 42% 55 or older
- 35% obese

**Moderna**
- Included adults 18 years of age or older, including people with high risk for severe COVID-19 disease (e.g. chronic lung disease, significant cardiac disease, severe obesity, diabetes, liver disease, HIV)
- 15,181 people received vaccine & 15,170 received the placebo
- 47% female
- 10% black or African America
- 20% Latinx
- 25% 65 or older
- 22% with high risk condition
- 25% healthcare workers

Adapted from M Gallagher, S. Haessler. Baystate Health Infectious Disease. 1/6/2021 presentation.
What can I expect after getting the vaccine?

Common Side Effects

• Soreness and/or swelling at site of injection in the arm
• Fever
• Chills
• Tiredness
• Headache

You may have some side effects, which are normal signs that your body is building protection. Side effects should go away in a few days.

Why is vaccine best option at this time?

Natural immunity vs. immunity from vaccines

• Both the disease and the vaccine are new. We don’t know how long protection lasts for those who get infected or get vaccinated.
• COVID-19 has caused very serious illness and death for many people.
• If you get COVID-19, you also risk giving it to a loved ones who may get sick.
• **The vaccine has been rigorously tested & no serious safety concerns were identified.**
• Getting a COVID-19 vaccine is a safer choice.

I’m Pregnant? Should I get a COVID vaccine?

- Free decision tool for pregnant people available at: http://foamcast.org/COVIDvacPregnancy/
- Developed by Dr. Elizabeth Schoenfeld and Baystate colleagues
# Appendix A: Triage of persons presenting for mRNA COVID-19 vaccination

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>MAY PROCEED WITH VACCINATION</th>
<th>PRECAUTION TO VACCINATION</th>
<th>CONTRAINDICATION TO VACCINATION</th>
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<tbody>
<tr>
<td></td>
<td>CONDITIONS</td>
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<td>CONDITIONS</td>
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<tr>
<td></td>
<td>• Immunocompromising conditions</td>
<td>• Moderate/severe acute illness</td>
<td>• None</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
<td>• Risk assessment</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td>• Lactation</td>
<td>• Potential deferral of vaccination</td>
<td></td>
</tr>
<tr>
<td>ACTIONS</td>
<td>• Additional information provided*</td>
<td>• 15-minute observation period if vaccinated</td>
<td></td>
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<tbody>
<tr>
<td></td>
<td>ALLERGIES</td>
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<td></td>
<td>History of allergies that are unrelated to components of an mRNA COVID-19 vaccine, other vaccines, injectable therapies, or polysorbate, such as:</td>
<td>History of any immediate allergic reaction* to vaccines or injectable therapies (except those related to component of mRNA COVID-19 vaccines or polysorbate, as these are contraindications)</td>
<td>History of the following are contraindications to receiving either of the mRNA COVID-19 vaccines:</td>
</tr>
<tr>
<td></td>
<td>• Allergy to oral medications (including the oral equivalent of an injectable medication)</td>
<td>• Risk assessment</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose of an mRNA COVID-19 vaccine or any of its components</td>
</tr>
<tr>
<td></td>
<td>• History of food, pet, insect, venom, environmental, latex, etc., allergies</td>
<td>• Consider deferral of vaccination and/or referral to allergist-immunologist</td>
<td>• Immediate allergic reaction* of any severity to a previous dose of an mRNA COVID-19 vaccine or any of its components* (including polyethylene glycol)*</td>
</tr>
<tr>
<td></td>
<td>• Family history of allergies</td>
<td>• 30-minute observation period if vaccinated</td>
<td>• Immediate allergic reaction of any severity to polysorbate*</td>
</tr>
<tr>
<td>ACTIONS</td>
<td>• 30-minute observation period: Persons with a history of anaphylaxis (due to any cause)</td>
<td></td>
<td>ACTIONS</td>
</tr>
<tr>
<td></td>
<td>• 15-minute observation period: All other persons</td>
<td></td>
<td>• Do not vaccinate*</td>
</tr>
</tbody>
</table>

The following recommendations may change as further information becomes available.

Source: https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html#Appendix-A
Do I still have to wear a mask and physically distance after getting the vaccine?

The **current safety precautions** will still be important. Here are some reasons why:

- As the vaccine rolls out, there will still be high levels of infection in our communities.
- You will most likely need two doses of the vaccine in order to be protected. It takes 2 weeks after receiving the second dose of MRNA vaccines to achieve full immune response.
- **Even though you are protected after getting the vaccine, it is not known if you could still become asymptotically infected and spread the virus to others.**

Baystate Health COVID-19 Vaccine Q&A
Multiple Layers Improve Success

The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.

**Personal responsibilities**
- Physical distance, stay home if sick
- Hand hygiene, cough etiquette
- If crowded, limit your time

**Shared responsibilities**
- Ventilation, outdoors, air filtration
- Quarantine and isolation
- Masks
- Avoid touching your face
- Fast and sensitive testing and tracing
- Government messaging and financial support
- Vaccines

Source: Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason. Illustration by Rose Wong

Where can I get more information?

- Centers for Disease Control and Prevention- https://www.cdc.gov/vaccines/covid-19/
- Baystate Health - https://www.baystatehealth.org/covid19/vaccine
- Mercy Medical Center/Trinity Health of New England- https://www.trinityhealthofne.org/find-a-service-or-specialty/covid-19/covid-19-vaccine
- Your healthcare provider
When can I get a COVID-19 vaccine in MA?

**PHASE ONE**
In order of priority

- Clinical and non-clinical healthcare workers doing direct and COVID-facing care
- Long term care facilities, rest homes and assisted living facilities
- First responders (EMS, Fire, Police)
- Congregate care settings (including corrections and shelters)
- Home-based healthcare workers
- Healthcare workers doing non-COVID-facing care

**PHASE TWO**
In order of priority

- Individuals 75+
- Individuals 65+, Individuals with 2+ comorbidities (those that are at increased risk for severe illness)

**PHASE THREE**
Vaccine available to general public

- Early education and K-12 workers, transit, grocery, utility, food and agriculture, sanitation, public works and public health workers
- Individuals with one comorbidity

December - February
Estimated timeframes

February - April

April - June
Updated 1/25/2021
The Advisory Group took a strong stance on equity:

- Prioritizes all COVID-facing individuals in healthcare settings, including food service and environmental (not just doctors and nurses) as well as home health workers.
COVID-19 Vaccine in Massachusetts

Massachusetts is preparing for the safe, equitable, and effective delivery of an FDA-approved COVID-19 vaccine. Learn about the approach and when you can expect to get vaccinated.

WHEN CAN I GET THE VACCINE?
How do I get a COVID-19 vaccine?

1. Find your priority group and an estimated timeline for eligibility

If you are eligible:

2. Find a COVID-19 vaccination location

3. Have important documents ready* to schedule an appointment and fill out the self attestation form

*Such as your insurance card if insured

Go to mass.gov/COVIDvaccine

Have medical questions? Contact your doctor

COVID-19 Vaccination Locations

- Mass vaccination sites (Public)
- Public vaccination sites
- Restricted vaccination sites (Geographic restrictions)
- Prospective vaccination sites - currently closed (Planned sites of all types not currently open or scheduling appointments)

Additional sites added regularly. For location details and to book an appointment visit mass.gov/COVIDVaccineMap
Is the vaccine safe?

- Yes. The vaccine is safe.
- Vaccines go through more testing than any other pharmaceuticals, including extensive testing in clinical trials.
- The FDA, which approves the vaccine, and the CDC’s Advisory Committee on Immunization Practices (ACIP), reviewed data to ensure the Moderna and Pfizer vaccines are both safe and effective.
- The infectious disease leads in the state’s academic medical centers also reviewed the EUA data for both vaccines and provided an independent opinion about their safety and efficacy and recommended their use.

What will the vaccine cost?

- The vaccine is being provided free of charge to all individuals.
- There is no cost to the individual.
- Insurance companies will not charge any out-of-pocket fees or co-payments related to COVID-19 vaccine administration.
- All health care provider sites that receive vaccine must agree to not charge patients out-of-pocket fees or deny anyone vaccination.

Other FAQs are available on mass.gov/covidvaccine
Where to learn more

Latest Massachusetts COVID-19 Vaccination Plan update
COVID-19 Vaccination Program | Mass.gov

When can I get the COVID-19 vaccine?
When can I get the COVID-19 vaccine? | Mass.gov

MA COVID-19 vaccination data report
COVID-19 Vaccination Program | Mass.gov

FAQs for the general public

COVID-19 Vaccine information from CDC
COVID-19 Vaccines | CDC