The Front Lines of the Fight Against COVID-19

A TOWN HALL CONVERSATION XIII

We will begin at 10 a.m.
COVID-19 Vaccination and Pregnancy and Lactation

Patricia Bellows, MD
April 8, 2021
Introduction

- Discuss the risks of COVID-19 infection and pregnancy
- Mechanism of vaccine
- Safety of vaccination in pregnancy/breastfeeding
- Vaccine side-effects
- Conclusion
Maternal and Obstetrical Risk of Disease
-Society for Maternal Fetal Medicine 3/3/2021

- Pregnancy is an independent risk factor for COVID-19 disease severity
  - 3-fold increased risk for ICU admission
  - 2.4-fold increased risk for needing ECMO
  - 1.7-fold increased risk of death
  - Increased risk of blood clot formation
  - Increased risk of preterm labor, stillbirth
- People with comorbidities and older-aged have a particularly elevated risk of adverse maternal outcomes
Vaccine Mechanism

- mRNA vaccines: NOT live vaccines; NO risk for insertional mutagenesis – mRNA does not enter the cell’s nucleus
  - Pfizer-BioNTech BNT162b2
  - Moderna mRNA 1273
- Adenoviral-vector vaccine: Viral DNA enters the host nucleus to be transcribed but is not integrated into the host’s DNA
  - Janssen Biotech Ad26.COV2.S
Safety of the Vaccines

• Pregnant and lactating people excluded in initial vaccine trials
  • No Clinical trial data on safety of COVID-19 vaccines in pregnant people
  • Multiple trials are underway now
• CDC is also currently enrolling pregnant individuals in a pregnancy registry
• V-Safe (CDC self-reported registry) – Over 30,000 pregnant people
  • No concerning pregnancy outcomes, complications or neonatal outcomes compared to background data
• Antibodies cross the placenta and provide some fetal protection
Vaccination Side Effects

- Vaccination can be performed in any trimester
- Postvaccination signs and symptoms are typically mild to moderate in severity and occur within the first 3 days of vaccination and resolve within 1-2 days
  - Acetaminophen, Benadryl can be taken as needed
Women are at increased risk of severe disease in pregnancy
Pregnant and lactating women were excluded from the initial vaccine trials but data is accumulating on a weekly basis and multiple trials are underway
The mRNA vaccines are not live virus vaccines and do not alter DNA
Adenovirus vector vaccine has been studied during pregnancy in other vaccines including Ebola, HIV and RSV with no adverse pregnancy outcomes
Vaccination should be offered to all pregnant patients regardless of history of prior symptomatic or asymptomatic SARS-CoV-2 infection

Conclusions
Conclusions

ACOG and SMFM strongly recommend that pregnant and lactating people have access to the COVID-19 vaccines and that they engage in a discussion about potential benefits and unknown risks with their healthcare provider regarding receipt of the vaccine.

CDC recommended priority groups for vaccine distribution including pregnant people.
mRNA THERAPEUTICS

John P. Cooke, MD, PhD
Medical Director, RNA Therapeutics Program
Professor and Chair, Dept. of Cardiovascular Sciences
Chief Translational Officer, Houston Methodist Academic Institute

April 8, 2021
mRNA Vaccines against SARS-CoV-2

mRNA vaccines against SARS-CoV-2 are highly effective and safe.

Pfizer

90%
Effective

moderna

94.5%
Effective

The New York Times
Early Data Show Moderna’s Coronavirus Vaccine Is 94.5% Effective

Modernax is the second company to report preliminary results from a large trial testing a vaccine. But there are still months to go before it will be widely available to the public.
mRNA Vaccines: How do they work?

RNA is biological software, cellular instructions to make any protein.
Both mRNA vaccines encode Spike protein. Small differences.

**Pfizer** (BNT162b2)
- mRNA encodes the spike protein
- Nucleoside-modified, and “2P” mutation
- Encapsulated in lipid nanoparticles for IM administration

**moderna** (mRNA-1273)
- Virtually identical sequence for spike
- Some differences in non-coding 3’ and 5’ ends
- Different LNP for IM administration

Jeong DE et al, Virological.org 3-23-21
mRNA Vaccines vs. Viral Vector Vaccines

**Spike protein sequence**: The sequence of the spike protein is crucial for the immune response. The spike protein sequence is expressed in both mRNA and DNA vaccines.

**Sequence expressed in DNA**: In the viral vector vaccine, the spike protein DNA is introduced into the human cell. The DNA is transcribed into mRNA by ribosomes, and the mRNA is translated into the spike protein. The immune response is triggered by the spike protein.

**Sequence expressed in mRNA**: In the mRNA vaccine, the spike protein mRNA is directly introduced into the human cell. The mRNA is translated into the spike protein by ribosomes. The immune response is triggered by the spike protein.

**Coronavirus**: The spike protein sequence is derived from the coronavirus.

**Immune response**: The immune response is triggered by the spike protein in both vaccines, leading to the production of antibodies.
Why mRNA? Why Now?

Discovery of mRNA

1961: In vitro translation of isolated mRNA

1969: Direct injection of mRNA into rat brain for protein replacement corrects disease

1978: Development of cationic lipid-mediated mRNA delivery

1978: Lipofectin commercialized

1989: Development of TALEN mRNA for gene editing

1990: Early report of influenza vaccine using liposome-entrapped mRNA

1992: Discovery that nucleoside-modified RNA is nonimmunogenic

1993: First report of an antitumour T cell response after mRNA injection in vivo

1995: First human cancer immunotherapy by direct mRNA injection

1999: First clinical trial using DCs ex vivo transfected with mRNA

2001: iPSC generation with mRNA

2005: Development of CRISPR–Cas9 mRNA for gene editing

2008: Development of non-viral, systemic delivery of CRISPR–Cas9 RNAs for gene editing in animals

2010: Use of anti-HIV antibody mRNAs for protection against HIV-1 challenge in animals

2011: First report of mRNA–LNP formulation for in vivo vaccines against the Zika virus

2013: * Protein replacement with LNPx carrying factor IX mRNA restores normal protein levels in a haemophilia B animal model

2015: * Electroporation of CRISPR RNAs into mouse zygotes for gene editing

Hajj and Whitehead Nature Reviews Materials 2017
Why mRNA? Why Now?

Obstacles are being overcome

**Systemic Delivery**
Requires carrier that protects mRNA integrity and preferentially delivers to target cell

**Intracellular Delivery**
Requires carrier to cross cytoplasmic membrane

**mRNA Toxicity**
Innate immune activation

**Short Half-life**
RNAases are ubiquitous
Great Potential of mRNA Therapeutics

The Big 3: Market Cap (4.3.21)

- **CureVac** $17B
- **Biontech** $27.5B
- **Moderna** $53B

Rapid therapeutic development
- Writing code….like software
- New chemical entity to clinic……15 years
  RNA vaccine to clinic…….1y

Superior safety versus DNA drugs
- No integration into the host genome
- Simpler regulatory roadmap

Potential to replace a $200B+ recombinant protein industry
- Simpler manufacturing process than recombinant proteins
- Endogenous post-translational modifications

Personalized RNA molecules
- Manufacturing process is rapid
mRNA Therapeutics: Moderna Pipeline and Partners

- Founded in 2010
- Now ~30 products
- 3 Major Pharma partners
- ~$50B valuation

Modernatm

- Founded in 2010
- Now ~30 products
- 3 Major Pharma partners
- ~$50B valuation

- Merck
- Vertex
- AstraZeneca

Pipeline:
- 3 Major Pharma partners
- ~$50B valuation

Legend:
- mRNA
- siRNA
- Antibody
- Cell Therapy
Hospital-based RNA Therapeutics
We develop, manufacture, deliver and test novel RNA Therapies
Partner in Development of RNA RX
VGXI Inc.

- Partner in RNA manufacturing
- HMH: Innovation and Development
- VGXI: Large CMO for DNA vaccines

- Partnership generates a complete assembly line to support pre-clinical studies through commercialization
- HMH will generate RNA for Phase 1-2a Clinical Trials
- VGXI will generate large batches for Phase 2b-3 and commercialization
Design and characterization of LNPs, Tissue Distribution and Targeting, Genome editing, LNPs in bioscaffolds or silicon carriers
RNA Vaccine Against SARS-CoV-2

Circular mRNA against Spike protein

- mRNA degraded from ends
- Circular RNAs don’t have ends and are harder to destroy
- Longer RNA lifespan = increased chance of effectiveness
Melanoma Vaccine

Courtesy, Rong Fu Wang, HMH
mRNA hTERT Restores Telomere Length and Replicative Capacity

- We have extended telomeres of human adult cells
- Increased telomere length = increased replicative capacity
- Cells with longer telomeres function like young cells

Ramunas et al, FASEB 2015
hTERT Enhanced Skin Product

How ReCell® can Deliver Superior Outcomes

Treatment Day

Day 7

Day 12

Day 21

3 months
HMH as a destination for RNA-mediated therapy

**Infectious Disease**
- COVID-19 vaccines [RNAImmune; CalTech; GeneOne; Conserv]
- Circular RNA [D. Kiss]

**Cancer**
- Pancreatic, melanoma, glioblastoma [J. Chen; R Rostomily, D Kiss; R. Wang]
- Multiple myeloma CAR-T [Cartesian; Poseida]
- Self-replicating RNA platform [RNAcore]

**Cardiovascular**
- Heart failure [HSP60 vaccine; K. Youker]
- Bradycardia [TBX18; E. Marban, Cedars-Sinai]
- Progeria [H1ERT; J. Cooke]
- Hypercholesterolemia [PCSK9 antibody; RNAcore]
- Myocyte regeneration [Animatus]

**Orthopedics**
- Bone regeneration [BNP; Steadman Philippon Research Institute]

**Transplant/Immunology**
- RNA-based immunotherapies [Tidal - QC]
- Clinical-grade iPSCs [iPeace]

**Neurosciences**
- RNA-enhanced T regs [Appel; RNAcore]
- RNA-encoding antibodies for T-cell activation [Appel; RNAcore]
COVID-19 Vaccine Update

April 8, 2021

H. Dirk Sostman, MD FACR
Ernest Cockrell, Jr. Presidential Distinguished Chair
EVP & Chief Academic Officer
# Approved or Near-Approved Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Protection from Symptomatic Illness</th>
<th>Protection from Severe Illness</th>
<th>Protection from Hospitalization or Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderna</td>
<td>94%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Approved (US, UK, EU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pfizer</td>
<td>95% (US)</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>Approved (US, UK, EU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>72% (US)</td>
<td>82% -88%</td>
<td>100%</td>
</tr>
<tr>
<td>Approved (US)</td>
<td>68% (LatAm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>64% (S. Africa)</td>
<td>64% (S. Africa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>~70% (US/LatAm)</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Approved (UK, EU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76% (UK)</td>
<td>76% (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% (S. Africa)</td>
<td>10% (S. Africa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novavax</td>
<td>89% (UK)</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Not yet approved</td>
<td>60% (S. Africa)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The exact numbers quoted for different vaccines will vary depending on efficacy, but also on:

- clinical trial or “real world evidence”
- outcome criteria
- length of follow up
- which country
- what time period
### Protection from Symptomatic Illness

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Protection</th>
<th>Protection</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Severe Illness</td>
<td>Hospitalization</td>
<td>or Death</td>
</tr>
<tr>
<td>US Trial, 2 mos follow up</td>
<td>95%</td>
<td>90% (1/9)</td>
<td>100%</td>
</tr>
<tr>
<td>US trial, 6 mos follow up</td>
<td>92.6%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>World trial, 6 mos follow up</td>
<td>91.3%</td>
<td>95% (1/21)</td>
<td>100%</td>
</tr>
<tr>
<td>World trial, 6 mos follow up</td>
<td>91.3%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>S. Africa trial</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Protection rates based on different definitions of severe disease:
- **FDA**: 95% for US trial, 91.3% for world trial.
- **CDC**: 91.3% for world trial.
### Approved or Near-Approved Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Protection from Asymptomatic Infection</th>
<th>Provides Sterilizing Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderna</td>
<td>66% After first dose</td>
<td>Yes (monkeys)</td>
</tr>
<tr>
<td>Approved (US, UK, EU)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pfizer</td>
<td>90% After second dose</td>
<td>Yes (monkeys)</td>
</tr>
<tr>
<td>Approved (US, UK, EU)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>74% Single dose</td>
<td>Yes (monkeys)</td>
</tr>
<tr>
<td>Approved (US)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>66% (preliminary)</td>
<td>No (Monkeys)</td>
</tr>
<tr>
<td>Approved (UK, EU)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novavax</td>
<td>No data</td>
<td>Yes (mice)</td>
</tr>
<tr>
<td>Not yet approved</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accumulating evidence suggests vaccines will protect against asymptomatic infection – and transmission – with efficacy similar to their protection from symptomatic infection.
Vaccination in the Real World

• Real World Data on vaccinated groups
  – Israel – 96% protection from infection
  – Scotland – hospitalization reduced by 85% (Pfizer) and 94% (AstraZeneca)
  – Scotland – 30% reduction in household contact infections after one dose
  – England – vaccine efficacy 73% (AstraZeneca) to 89% (Pfizer)
  – Houston Methodist – reduced employees’ positive test rate 95%
  – CDC study – vaccination reduces incidence rate of all infections by 97%
  – Cambridge Health – 75% reduction in asymptomatic infection
## Phase 3 Clinical Trial

<table>
<thead>
<tr>
<th>Adverse Effect (AE)</th>
<th>Vaccine Group</th>
<th>Placebo Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solicited inject site AE</td>
<td>73%</td>
<td>11%</td>
</tr>
<tr>
<td>Solicited systemic AE</td>
<td>70%</td>
<td>34%</td>
</tr>
<tr>
<td>Unsolicited non-serious AE</td>
<td>27%</td>
<td>13%</td>
</tr>
<tr>
<td>Serious AE</td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Withdrawal for AE</td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Allergic reaction</td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Death</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

## Real World Experience

- Only unexpected development: small number of severe allergic reactions (with all three approved vaccines)
- **2.5 to 4.7** cases per million vaccinations
  - flu vaccine = 1.3 per million
- **Treatment**
  - Antihistamines and Epi-Pen
  - Fatalities = 0
- **Precautions**
  - Allergy to vaccine components or to first dose → do not vaccinate
- **Risk Benefit**
  - Risk of COVID-19 far, far worse than rare problems with vaccine
What Could Go Wrong?

Update on Viral Variants
What Could Go Wrong?

• All viruses mutate – and evolve with selective pressure
• SARS-CoV-2 mutates relatively slowly, but huge number of infections gives it many chances
• Concern is if mutants have dangerous new properties
  – Increased transmission
  – Increased severity
  – Resistance to treatments (esp Abs)
What Could Go Wrong?
Antibodies May Not “Recognize” Spike Protein with Too Much Change

RECEPTOR-BINDING DOMAIN
This area helps the virus bind to receptors on cells. The variants that have emerged in South Africa, Brazil and the U.K. have mutations here.

N-TERMINAL DOMAIN
Its function is poorly understood. The viral variants found in the U.K. and South Africa have chunks missing in this region.
What Could Go Wrong?

Viral mutations

- D614G
  - Set of 4 mutations
  - Rapidly became dominant
  - May be more sensitive to antibodies

WT (D614)

Mutant (G614)

Closed 83%

1 Erect RBD 87%

2 Erect RBD
What Could Go Wrong?

Viral mutations

- N501Y
  - B.1.1.7 (501.Y.V1) – UK
  - 501.Y.V2 – S. Africa
  - P.1 – Brazil
  - All have other mutations
  - All appear more transmissible
March 24, 2021:

US government and Eli Lilly stop distributing single monoclonal antibody preparation
## Viral Variants and Vaccines

<table>
<thead>
<tr>
<th>Vaccine Efficacy</th>
<th>UK - B.1.1.7</th>
<th>S Africa - B.1.351</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>85% (SIREN study)</td>
<td>1.25x - 6x reduction*</td>
</tr>
<tr>
<td>Moderna</td>
<td>89%</td>
<td>4x - 10x reduction*</td>
</tr>
<tr>
<td>J&amp;J</td>
<td>72% (USA data)</td>
<td>64%</td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>76%</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Data from the lab in model systems. May not reflect real life.

For example, Pfizer vaccine was 100% effective in preventing COVID-19 infection in S Africa trial.
• Houston Methodist Department of Pathology and Genomic Medicine is sequencing genomes of virtually all SARS-CoV-2 infections detected in our population

• Based on 10,300 viral genomes to date

• Variant of interest
  – B.1.526 \((n = 19)\), B.1.525 \((n = 21)\), P.2 \((n = 84)\)

• Variant of concern
  – \textbf{B.1.1.7} \((n = 1243)\), B.1.351 \((n = 4)\), P.1 \((n = 14)\)
  – B.1.427 \((n = 78)\), \textbf{B.1.429} \((n = 326)\)
Summary: Viral Variants

- Viral variants are an expected development
- Medical significance varies
  - Can have beneficial or no effect on virus behavior
  - Can increase transmissibility or lethality
- Variants are a minority of cases in Houston Methodist population
  - Trend suggests B.1.1.7 will become the dominant strain in Houston this spring
- Variable reduction in antibody (post-infection or post-vaccination) effectiveness
  - Variants have evaded single monoclonal antibody preparation – two mAb’s needed now
  - Lab data suggest reduced – but preserved – efficacy of immune (convalescent or vaccinated) serum against model viruses
  - However, data do not show major reduction in clinical efficacy of FDA-cleared vaccines against current variants
COVID-19 and Vaccine Update

Marc L. Boom, MD
April 8, 2021
MY TWO KEY TAKE HOME MESSAGES TODAY:

TRUST THE VACCINES!

GIVE US 60 – 90 DAYS!!
The Pandemic Is Ending: In millions of small ways, every day. How long it takes is up to us.

“The Pandemic Is Ending”

In millions of small ways, every day. How long it takes is up to us.

JAMES HAMILTON MARCH 11, 2020

“Pandemics end in whimpers, not in headlines.”

“The path before us should involve extremely straightforward decisions. All we have to do is decide to make them. I have no certainty that we will.”

Houston Methodist Testing Trend

Confirmed COVID-19 Lab Tests

- Positive COVID-19 Tests
- 7 Day Rolling Average of Percent of Positive Tests
COVID-19 Average Daily Cases per 100,000

Michigan Case Count and Heat Map

New reported cases

“Overall, we find that COVID-19 stories from U.S. major media outlets are much more negative than similar stories from other U.S. outlets and from non-U.S. sources. The negativity does not respond to changes in new cases.”

“...the most popular stories... have high levels of negativity.”

“...negativity appears to be unrelated to the political leanings of the newspaper’s or network’s audience.”
**Healthy Ways to Cope with Stress**

- **Take breaks from watching, reading, or listening to news stories**, including those on social media. It’s good to be informed, but hearing about the pandemic constantly can be upsetting. Consider limiting news to just a couple times a day and disconnecting from phone, tv, and computer screens for a while.

- **Take care of your body.**
  - Take deep breaths, stretch, or meditate.
  - Try to eat healthy, well-balanced meals.
  - Exercise regularly.
  - Get plenty of sleep.
  - Avoid excessive alcohol, tobacco, and substance use.
  - Continue with routine preventive measures (such as vaccinations, cancer screenings, etc.) as recommended by your healthcare provider.
  - Get vaccinated with a COVID-19 vaccine when available.

- **Make time to unwind.** Try to do some other activities you enjoy.

- **Connect with others.** Talk with people you trust about your concerns and how you are feeling.

- **Connect with your community- or faith-based organizations.** While social distancing measures are in place, try connecting online, through social media, or by phone or mail.

---

“Take breaks from watching, reading, or listening to news stories, including those on social media. It’s good to be informed, but hearing about the pandemic constantly can be upsetting. Consider limiting news to just a couple times a day and disconnecting from phone, tv, and computer screens for a while.”

MY TWO KEY TAKE HOME MESSAGES TODAY:

Trust the vaccines!

Give us 60 – 90 days!!
Greater Houston First Dose Supply

COVID-19 VACCINE ALLOCATIONS FOR GREATER HOUSTON

Weekly vaccine allocation for Greater Houston Area¹ (# doses)

Note: Week 1 included only Pfizer vaccines, distributed in large batches to medical centers.

*Starting in week 11, the labels on Pfizer vaccine vials were updated to increase the number of doses per vial from 5 to 6 doses.
HM COVID-19 Vaccines Administered

Individuals Vaccinated at HM by Day

Total First Doses: 281,130
Total Second Doses: 230,311
# National Distribution and Administration of COVID-19 Vaccine

## Total Vaccine Doses
- Delivered: 225,294,435
- Administered: 171,476,655

Learn more about the distribution of vaccines.

## People Vaccinated

<table>
<thead>
<tr>
<th>People Vaccinated</th>
<th>At Least One Dose</th>
<th>Fully Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>109,995,734</td>
<td>64,422,618</td>
</tr>
<tr>
<td>% of Total Population</td>
<td>33.1%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Population ≥ 18 Years of Age</td>
<td>109,408,066</td>
<td>64,286,560</td>
</tr>
<tr>
<td>% of Population ≥ 18 Years of Age</td>
<td>42.4%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Population ≥ 65 Years of Age</td>
<td>41,793,053</td>
<td>31,413,778</td>
</tr>
<tr>
<td>% of Population ≥ 65 Years of Age</td>
<td>76.4%</td>
<td>57.4%</td>
</tr>
</tbody>
</table>

https://covid.cdc.gov/covid-data-tracker/#vaccinations
National Vaccination Rate by Age Trend

Percent of Population Receiving 1 or More COVID-19 Vaccine By Age Group Trend

Percent of Population Fully Vaccinated for COVID-19 By Age Group Trend

COVID Data: https://covid.cdc.gov/covid-data-tracker/#vaccination-demographic
Census Data: https://data.census.gov/cedsci/table?q=Age&tid=ACSST1Y2019.S0101&hidePreview=false

Data as of April 7, 2021
How Likely Are You To Get The COVID-19 Vaccine When It Becomes Available To You?

<table>
<thead>
<tr>
<th>Month</th>
<th>Got Vaccine</th>
<th>Will get ASAP</th>
<th>Will wait to get</th>
<th>Not sure</th>
<th>Never Get Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2020</td>
<td>30.1</td>
<td>39.1</td>
<td>28.5</td>
<td>23.5</td>
<td>22.5</td>
</tr>
<tr>
<td>November 2020</td>
<td>27.9</td>
<td>29.4</td>
<td>27.8</td>
<td>28.6</td>
<td>25.6</td>
</tr>
<tr>
<td>December 2020</td>
<td>24.2</td>
<td>20.8</td>
<td>26.8</td>
<td>26.6</td>
<td>20.5</td>
</tr>
<tr>
<td>January 2021</td>
<td>20.8</td>
<td>27.9</td>
<td>28.5</td>
<td>25.6</td>
<td>19.9</td>
</tr>
<tr>
<td>February 2021</td>
<td>18.5</td>
<td>27.8</td>
<td>19.9</td>
<td>20.5</td>
<td>17.1</td>
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<tr>
<td>March 2021</td>
<td>15.8</td>
<td>15.2</td>
<td>14.6</td>
<td>16.2</td>
<td>11.3</td>
</tr>
</tbody>
</table>
In a defining move, Houston Methodist Hospital will now make COVID-19 vaccines mandatory for all employees who work there. 

Luis Antonio/GETTY IMAGES
Texas to Open COVID-19 Vaccination to All Adults on March 29

*DSHS directs providers to continue to prioritize older adults*

**News Release**
**March 23, 2021**

All adults will be eligible to receive a COVID-19 vaccine in Texas beginning Monday, March 29. The Texas Department of State Health Services expects vaccine supplies to increase next week, and providers in multiple parts of the state have made great strides in vaccinating people in the current priority groups. The state’s Expert Vaccine Allocation Panel recommended opening vaccination to everyone who falls under the current Food and Drug Administration emergency use authorizations to protect as many Texans as possible.

“We are closing in on 10 million doses administered in Texas, and we want to keep up the momentum as the vaccine supply increases,” said Imelda Garcia, DSHS associate commissioner for laboratory and infectious disease services and the chair of the Expert Vaccine Allocation Panel. “As eligibility opens up, we are asking providers to continue to prioritize people who are the most at risk of severe disease, hospitalization and death – such as older adults.”
Vaccine Distribution Plan at Houston Methodist

1A
- HM Employees
- Healthcare Workers
- First Responders (based on State criteria)

1B
- Individuals 65+
- Individuals 16+ with a medical condition

1C
- Teachers and school staff
- Licensed Child Care Professionals
- Individuals 50+

2
- Individuals 16+

Open scheduling available on the internet.

Individuals invited to schedule now.

Individuals invited to schedule now.
It’s a two-way street
Masks protect you & me

When we all wear masks, we take care of each other
<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td>Visit inside a home or private setting without a mask with other fully vaccinated people of any age</td>
<td>✅</td>
</tr>
<tr>
<td>Visit inside a home or private setting without a mask with one household of unvaccinated people who are not at risk for severe illness</td>
<td>✅</td>
</tr>
<tr>
<td>Travel domestically without a pre- or post-travel test</td>
<td>✅</td>
</tr>
<tr>
<td>Travel domestically without quarantining after travel</td>
<td>✅</td>
</tr>
<tr>
<td>Travel internationally without a pre-travel test depending on destination</td>
<td>✅</td>
</tr>
<tr>
<td>Travel internationally without quarantining after travel</td>
<td>✅</td>
</tr>
<tr>
<td>Visit indoors, without a mask, with people at increased risk for severe illness from COVID-19.</td>
<td>❌</td>
</tr>
<tr>
<td>Attend medium or large gatherings</td>
<td>❌</td>
</tr>
</tbody>
</table>
Decision Making Guidance

Health Risk Factors For You and Those Close to You

Personal Risk Tolerance

Courtesy and Respect for Others
Leading Cause of Death in the US for 2020

The provisional leading cause-of-death rankings for 2020 indicate that COVID-19 was the third leading cause of death in the US behind heart disease and cancer.

Source: https://jamanetwork.com/journals/jama/fullarticle/2778234?guestAccessKey=50b7b7f4-3889-4d72-64b-727927533db5&utm_content=weekly_highlights&utm_term=040421&utm_source=silverchair&utm_campaign=jama_network&cmp=1&utm_medium=email
Increase in Number of Deaths by Year

Increase in Number of Deaths
Year over Year

Source: https://jamanetwork.com/journals/jama/fullarticle/2778234?guestAccessKey=50b7b74f-3889-4d72-b64b-72792753dbd5&utm_content=weekly_highlights&utm_term=040421&utm_source=silverchair&utm_campaign=jama_network&cmp=1&utm_medium=email
OUTCOMES OF PATIENTS WITH COVID-19 ON ORGAN SUPPORT

20,608 patients - COVID-19 (+)

Risk Adjusted Hospital Mortality Range:

40.8%  71.6%

Median Odds Ratio: 1.69
THANK YOU FOR ATTENDING OUR TOWN HALL CONVERSATION

If you'd like more information about vaccines and pregnancy, our RNA Therapeutics program, or The Society for Leading Medicine, please contact us at foundation@houstonmethodist.org.

Take care and be well

HOUSTON Methodist
LEADING MEDICINE