

The Front Lines of the Fight Against COVID-19

A TOWN HALL CONVERSATION XI

We will begin at 2 p.m.



COVID-19 Update

Marc L. Boom, MD February 3, 2021



TMC Dashboards

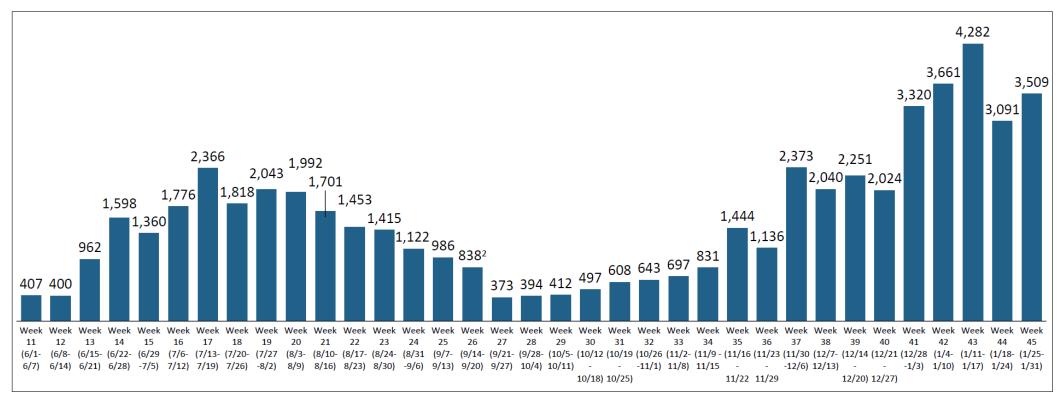




January 31, 2021

WEEKLY AVERAGE OF DAILY NEW COVID-19 POSITIVE CASES

Daily average new cases in Greater Houston Area¹ (Monday-Sunday)



^{1.} Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller

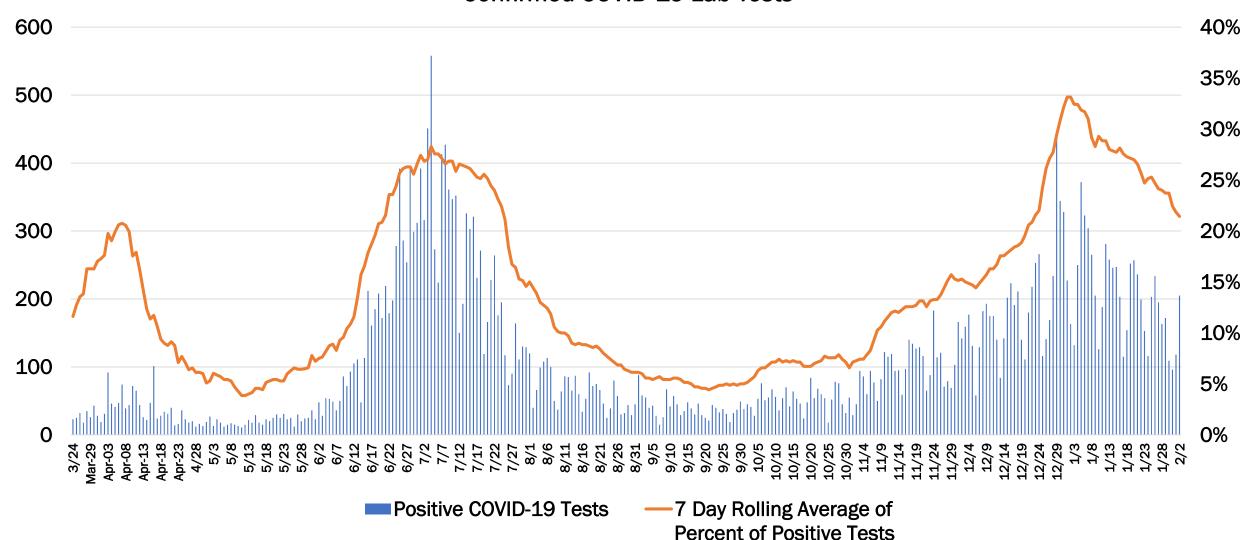
^{2.} Includes only net new cases. Excludes 4,135 cases reported by the state as "old" cases during week of 9/14



Houston Methodist Testing Trend



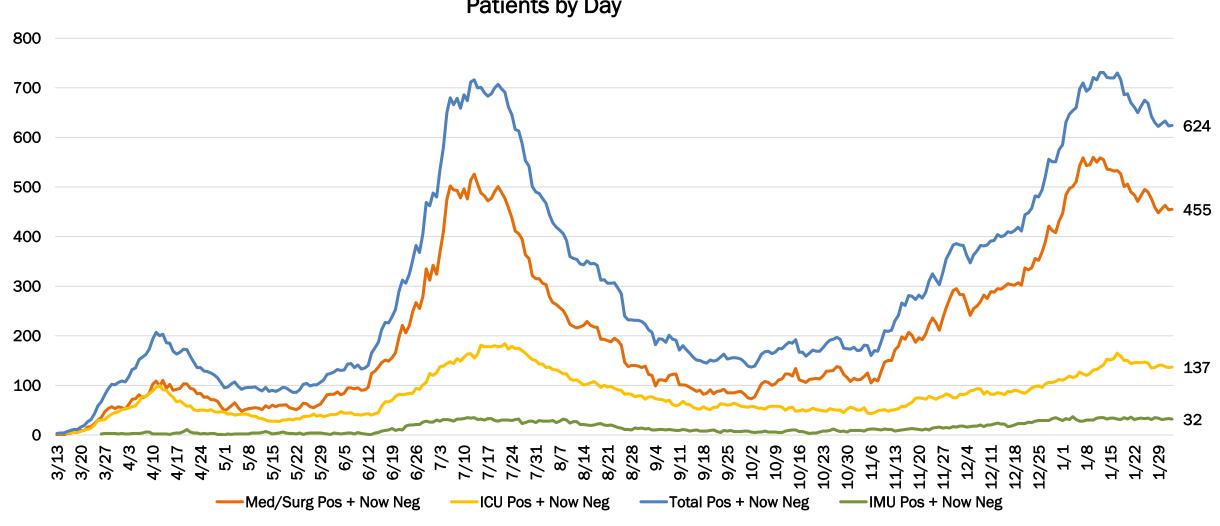




Houston Methodist COVID-19 Cases by Day



Houston Methodist COVID-19 Patients by Day



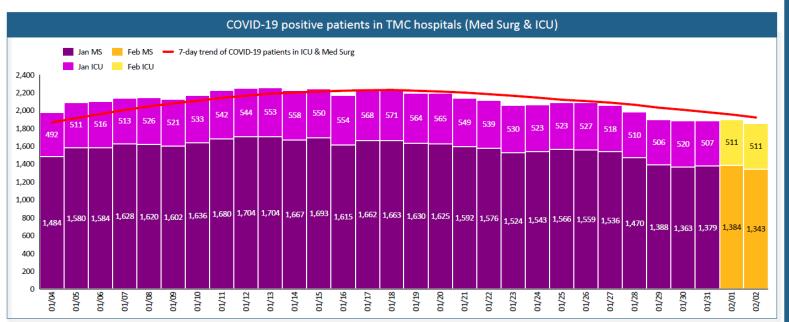
TMC Dashboards

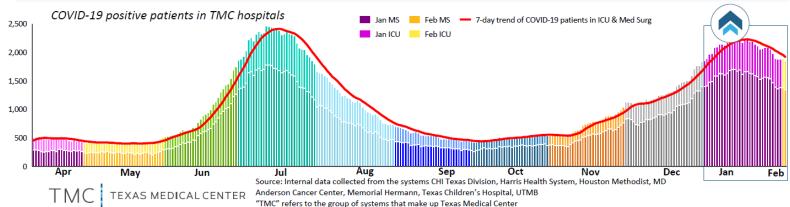




COVID-19 TMC HOSPITALIZATION

TOTAL TMC COVID-19 POSITIVE PATIENTS IN HOSPITAL





All guidelines should be in accordance with CDC guidelines

February 2, 2021

Current status:

- -1.5% total daily growth rate (averaged over 7 days) in COVID-19 patients TMC hospitals
- -0.4% ICU daily growth rate
- -1.9% Med Surg daily growth rate

Notes:

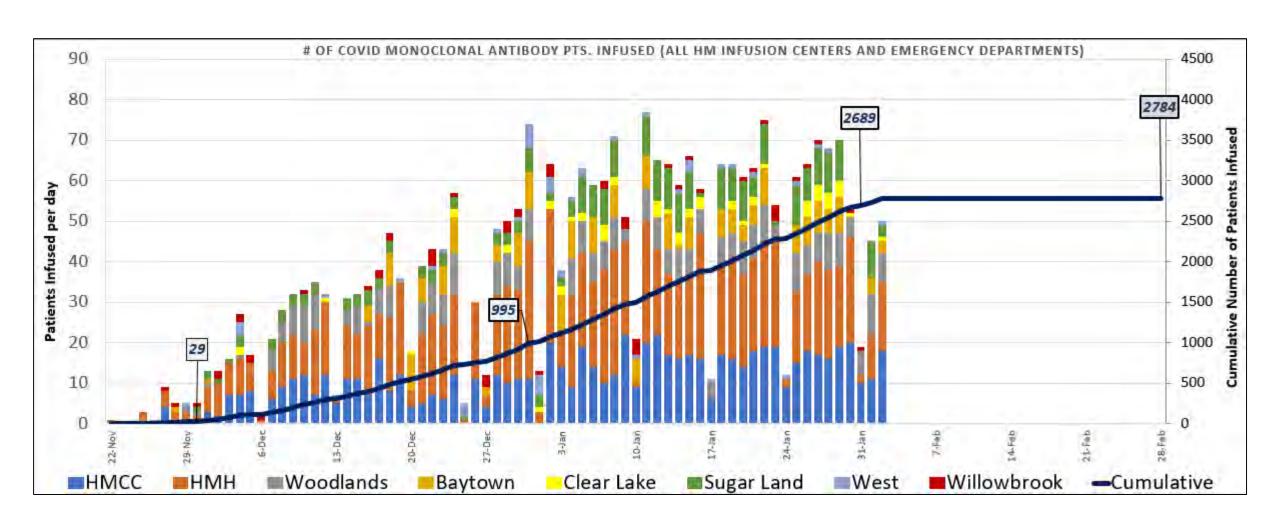
While new daily cases may fluctuate for a variety of reasons (e.g., testing), the number of COVID-19 positive patients being treated in med surg and ICU shows an objective view of how COVID-19 impacts hospital systems

lote: Data for MHHS current as of 12/7 pending update

This document is solely intended to share insights and best practices rather than specific recommendations. 13 Individual institution data is shown as reported and has not been independently verified

Monoclonal Antibodies



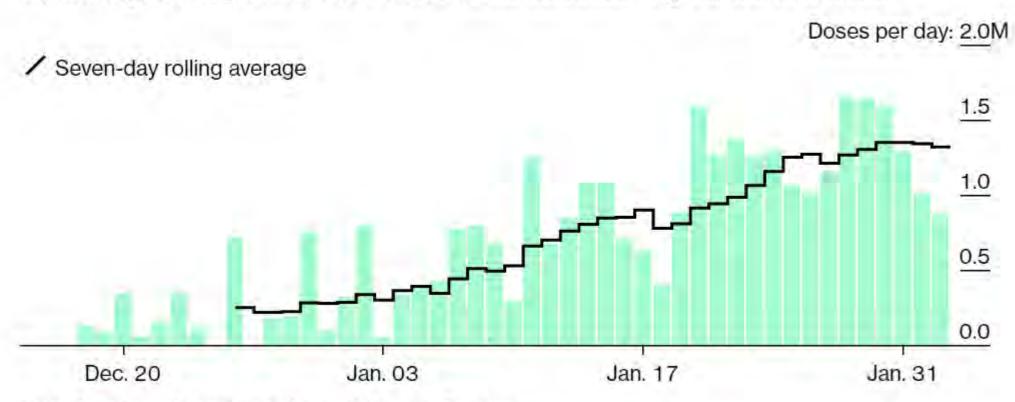


Daily COVID-19 Vaccinations in the U.S.



Daily Vaccinations in the U.S.

An average of 1.32 million shots were recorded each day for the last week

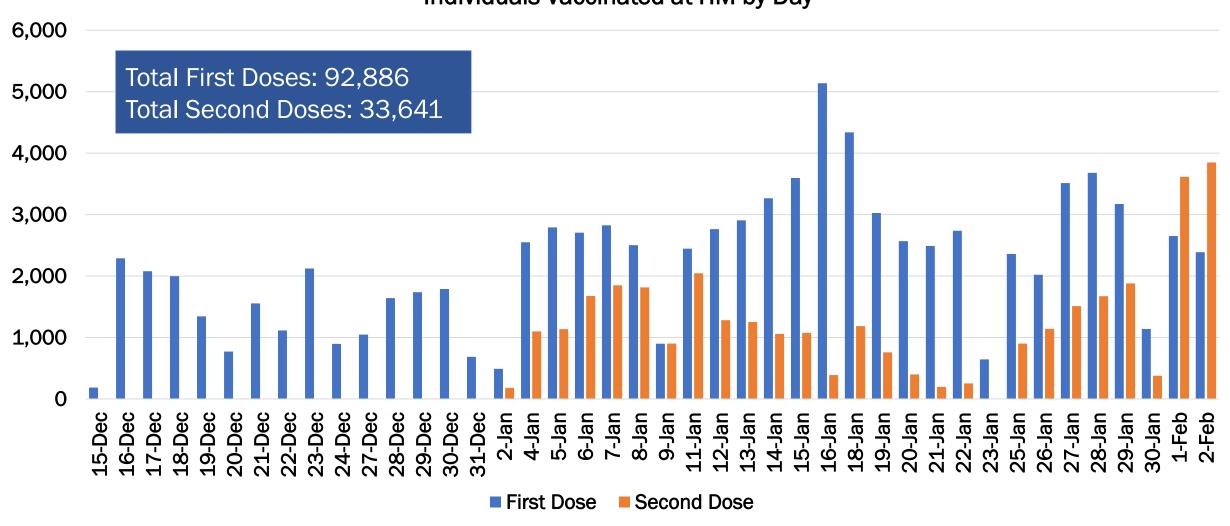


Note: Data from Bloomberg's Covid-19 Vaccine Tracker

HM COVID-19 Vaccines Administered



Individuals Vaccinated at HM by Day



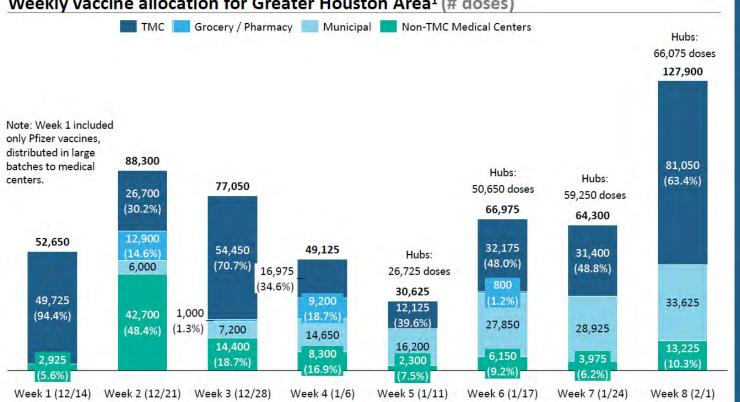
TMC Vaccination Statistics



January 31, 2020

COVID-19 VACCINE ALLOCATIONS FOR GREATER HOUSTON

Weekly vaccine allocation for Greater Houston Area¹ (# doses)



DSHS Allocation Week 81

In Week 8, TX will receive 520,425 first doses of Pfizer and Moderna vaccines, distributed to:

- 82 large vaccination hubs² (13 in Houston MSA)
- 262 other providers

The state will be allocated equivalent amounts of second dose vaccine, made available for order 21 days after the corresponding first dose shipment.

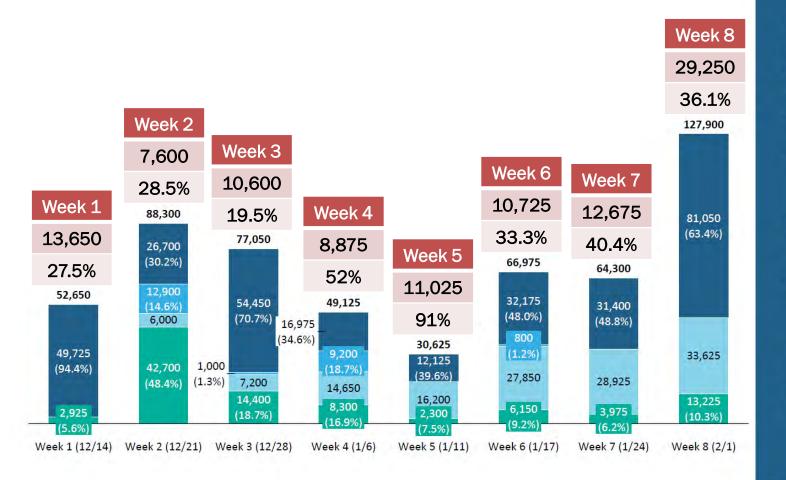
"The purpose of hubs are to provide as many eligible people the vaccine as quickly as possible." - DSHS

Individual institution data is shown as reported and has not been independently verified

TMC Vaccination Statistics



Houston Methodist COVID-19 Vaccine Received and Percent of TMC Allocation



January 31, 2020

DSHS Allocation Week 81

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10

Vaccination Hubs for the State Expanded



"State health officials have announced 79 hub providers that are expected to receive allotments of COVID-19 vaccine this week."

Hub providers include:

- 6 Harris County
- 2 Galveston County
- 1 Chambers County
- 1 Fort Bend County
- 1 Liberty County
- 2 Montgomery County

Suburbs to become hubs for vaccine

By Alejandro Serrano STAFF WRITER

State health officials have announced 79 hub providers that are expected to receive allotments of CO-VID-19 vaccines this week, including newly designated hubs in some suburbs of Houston.

The hub providers include two in Galveston County, one each in Fort Bend County, Montgomery County and Liberty County and six in Harris County, according to a list of the hubs that are intended to focus on mass vaccination efforts.

Governor Hosts Roundtable at Houston Methodist





GOVERNOR GREG ABBOTT

For Immediate Distribution | January 19, 2021 | (512) 463-1826

Governor Abbott Hosts Roundtable Discussion, Provides COVID-19 Vaccine Update With Houston Healthcare Professionals

AUSTIN - Governor Greg Abbott today held a roundtable discussion alongside healthcare professionals at Houston Methodist Hospital to highlight his legislative priorities to ensure a healthier future for the state of Texas. Following the roundtable, the Governor provided an update on the State's COVID-19 vaccination efforts. The Governor was joined by Texas Division of Emergency Management (TDEM) Chief Nim Kidd, Texas Department of State Health Services (DSHS) Commissioner John Hellerstedt, MD, Executive Vice Chancellor for Health Affairs of the University of Texas System John Zerwas, MD, and Houston Methodist President and CEO Marc Boom, MD.





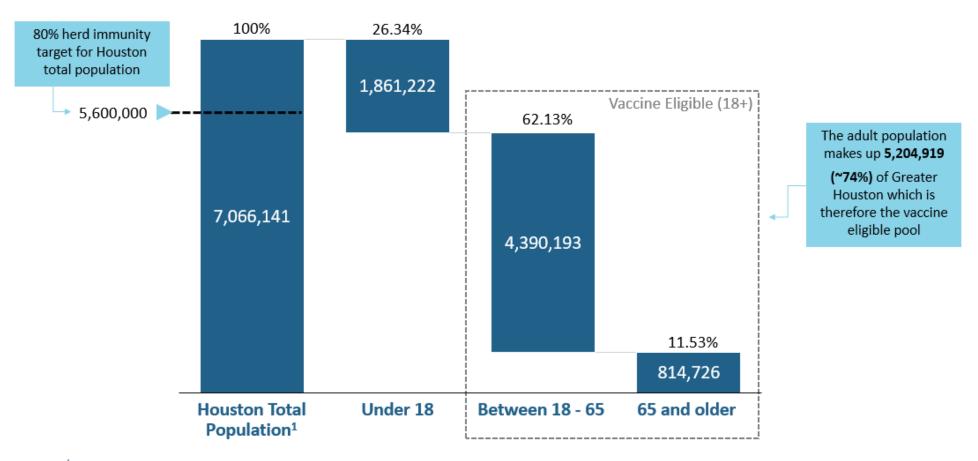
"Today is a day we celebrate and highlight the role that Houston Methodist has played, and we encourage others to copy their example."

"We came here to learn from them why they are succeeding so well in vaccinating people and in controlling this pandemic."

TMC Analysis: Vaccine Needed for Greater Houston



ACHIEVING HERD IMMUNITY IN HOUSTON



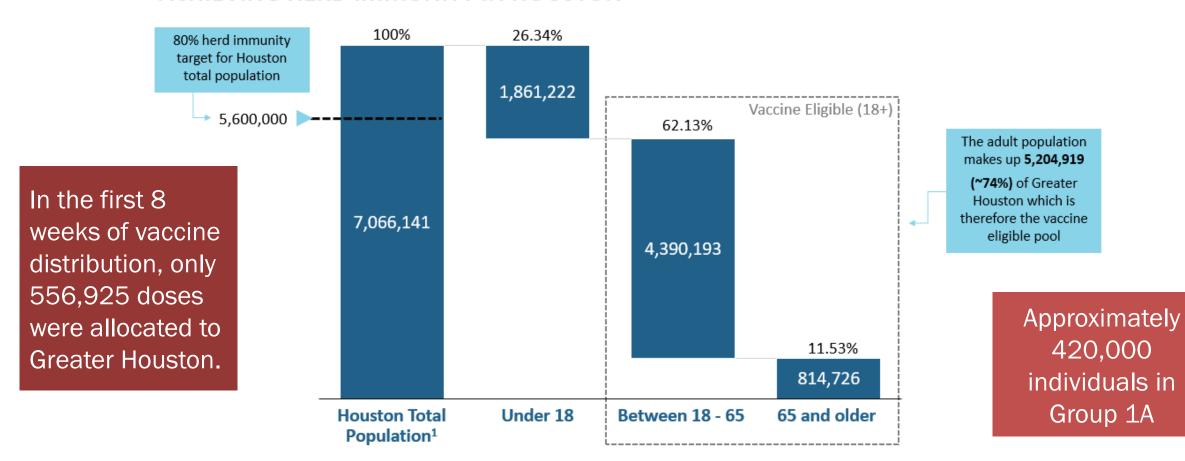
TMC TEXAS MEDICAL CENTER

^{1.} Source: US Census. Houston MSA includes 9 counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller

TMC Analysis: Vaccine Needed for Greater Houston



ACHIEVING HERD IMMUNITY IN HOUSTON



TMC TEXAS MEDICAL CENTE

Source: US Census. Houston MSA includes 9 counties: Austin. Brazoria. Chambers. Fort Bend. Galveston. Harris. Liberty. Montgomery and Walle

TMC Analysis: Vaccine Needed for **Greater Houston**



THREE POTENTIAL SCENARIOS FOR REACHING HERD IMMUNITY IN HOUSTON

Estimated vaccination rate and workforce needed to achieve herd immunity in set timeline

Current rate

10,964 vaccines / day 2.34 years to herd immunity

Requires full utilization of:

- 91 vaccinators / day
- 161 support staff / day

Current rate estimate is based on actuals observed at TMC institutions, plus assumption that all other Houston sites are distributing their full inventory allocation as it is received.

240-day

39,037 vaccines / day 240 days to herd immunity

Requires full utilization of:

- 325 vaccinators / day
- 575 support staff / day

Follows timeline broadly talked about by Dr. Fauci targeting herd immunity by September 2021

180-day

52,049 vaccines / day 180 days to herd immunity

Requires full utilization of:

- 434 vaccinators / day
- 766 support staff / day

Israel, with a similar population, has achieved 150,000 vaccinations per day with sufficient supply, plans to reach herd immunity in several months.

Note: Israel has a centralized healthcare system.

TMC Analysis: Reaching At-Risk Populations

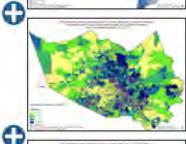


THE AT-RISK POPULATION FOR HOUSTON IS ESTIMATED TO BE ~944K PEOPLE; WE HAVE A 4-PART PLAN TO REACH THEM

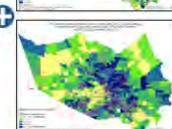
Heatmaps of at-risk population provide planning data



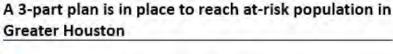
 Identifying zip codes with highest infections per 100k population over the last month



 Overlaying the highest concentrations of Low-to-Moderate Income



Overlaying highest CDC Social Vulnerability Index areas



- City of Houston has identified 37 distribution sites targeting zip codes with highest density of at-risk population and is partnering with pharmacy network to focus on them directly
- Harris County is deploying up to 6 mobile sites to target highest concentration of atrisk population, and plans to adjust dynamically to the virus spread pattern
- 3 Harris Health System will leverage hospital, clinic locations, and mobile units throughout the county to directly serve our at-risk population including the home-bound.
- 4 Coordinated Vaccine Education Campaign by City and County Public Health and TMC leaders

943,739 estimated at risk people in Greater Houston (~13% of total Houston MSA population)

TMC TEXAS MEDICAL CENTER

Advice Around COVID-19 Vaccine



- The vaccines are safe and effective; get it immediately when it is your turn.
- Please be patient.
- The state creates the prioritization; please wait your turn.
- Recognize that side effects, while mild, are common; they are much better than getting COVID.
- Take the first vaccine you are offered anywhere, anytime.
- Even after vaccination, please continue wearing a mask and physical distancing.



Fighting COVID-19: Using the Immune System

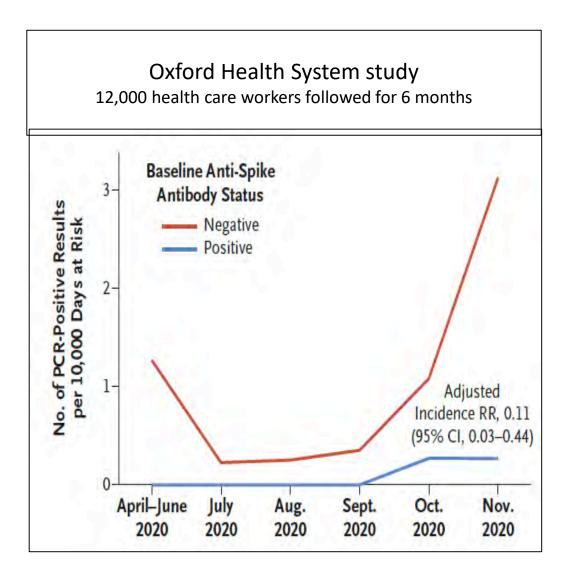
February 3, 2021

H. Dirk Sostman, MD FACR
Ernest Cockrell, Jr. Presidential Distinguished Chair
EVP & Chief Academic Officer



Protection by Previous Infection





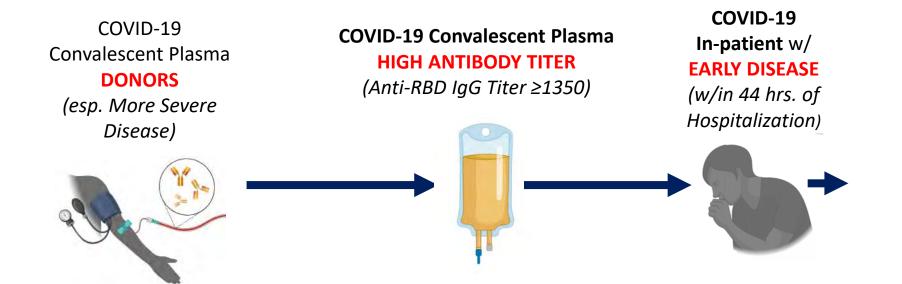
- Public Health England SIREN Study
- Regular antibody and PCR testing of 20,000 health care workers
- Of those without antibodies at baseline
 - 409 were infected
 - 79% had symptoms
- Of those with antibodies
 - 44 were re-infected
 - 83% reduction in likelihood of infection
 - only 12% had symptoms
- But, even with antibodies, some had high levels of virus – could be infectious

COVID-19 Antibody Treatments



Convalescent Plasma: Houston Methodist Cohort Research Confirmed by RCT





Outcome:

DECREASED
MORTALITY
HR = .38
at 28 days

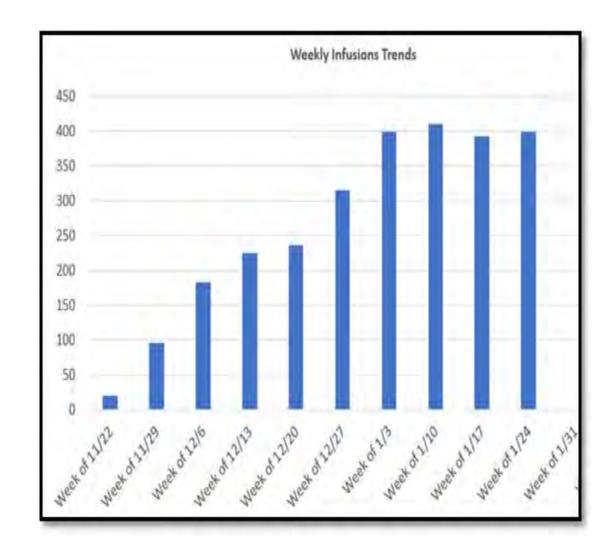
Libster et al NEJM January 2021: Randomized placebo-controlled trial found HR of 0.48

Courtesy of Dr. Eric Salazar Images adapted from Biorender.com

Monoclonal Antibodies for COVID-19



- EUA for early, mild moderate COVID-19
 - -Lilly and Regeneron
 - Positive SARS-CoV-2 test + high risk
 - **-60 65%** reduction in hospitalization
 - -Single mAb → 6% resistant mutants
 - -Dual mAb \rightarrow 0% resistant mutants
- Studies in hospitalized patients showed little or no efficacy
 - Important to treat early



Recent Data on mAb Therapy for COVID-19



- Lilly Long-Term Care Prevention Study
 - 80% reduction in symptomatic infection in 299
 Nursing Home residents who tested negative at study initiation
 - In 41 who tested positive at study start, 0/21 in treatment group died, 4/20 in placebo
- Lilly Early Treatment Study (mAb "cocktail")
 - 1,035 high-risk patients with COVID
 - mAb group 2.1% events, placebo group 7%
 - mAb group 0 deaths, placebo 10 deaths
- Now exploring lower doses, sub-cutaneous administration

- Regeneron Household Contacts Prevention
 - 100% prevention of symptomatic infection in people with household exposure to COVID
 - Reduction in asymptomatic infection (5.4% in mAB group versus 6.7% in placebo group)
 - Lower viral load and shorter duration of viral shedding
- Action versus viral variants
 - Dual mAb cocktail is active against UK and SA variants

COVID-19 Vaccines



Approved or To-Be-Approved Vaccines



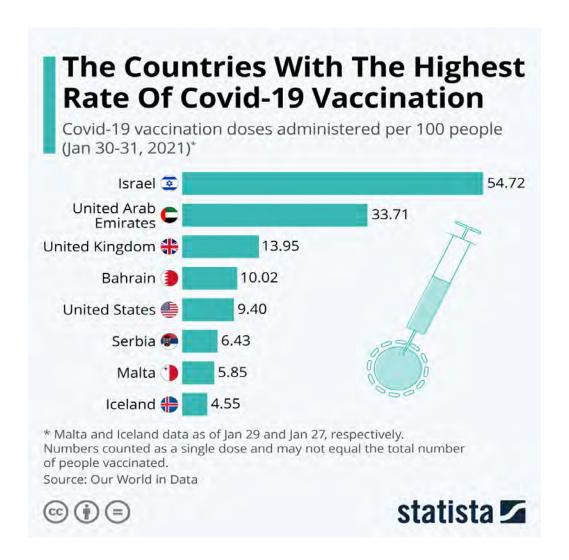
CP = convalescent plasma

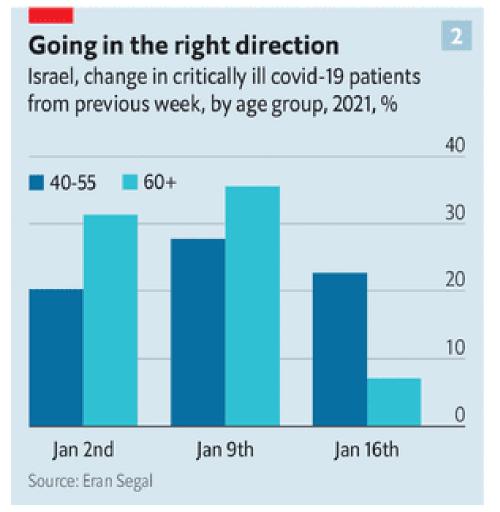
Vaccine	Technology	Antibody Response	Protection from Infection (Monkeys)	Protection from Symptomatic / Severe Illness in Humans	Protection from Asymptomatic Infection In Humans
Moderna (US, UK, EU)	mRNA	Much >> than CP	"Sterilizing immunity"	94% / 100%	66% after dose 1 Preliminary
Pfizer (US, UK, EU)	mRNA	Much >> than CP	"Sterilizing immunity"	95% / 90%	No data
J & J Not yet approved	Viral Vector Ad26	1-2x CP	"Sterilizing immunity"	72% / 85%	No data
AstraZeneca (UK, EU)	Viral Vector Ad5	= CP	Monkeys did not become ill but still carried virus	70% / 100%	66% Preliminary
Novavax Not yet approved	Protein subunit nanoparticle	2x CP	Sterilizing immunity (mice)	89% in UK 60% in SA	No data

Vaccination in the Real World



Israeli Experience





The Economist

Vaccine Safety



Reactogenic effects

- Fever, muscle aches, fatigue, headache, joint pain, injection site pain, etc.
- Seen in more than 50% in total
- Short-term, treatable with Tylenol or Motrin
- Can be more severe in a minority, e.g. high fever
 - 2% 4% with Pfizer
 - 2% to 10% with Moderna
- NOT a contraindication to second dose

Pregnancy – talk to Ob-Gyn

- Not studied yet, but other vaccines safe
- ACOG and SMFM recommend vaccination
- WHO does not recommend (no data)
- COVID is high risk in pregnancy
- COVID vaccine may protect fetus

Severe allergy – anaphylaxis

- Pfizer = 6.2 / million
- Moderna = 2.5 / million
- Almost all have history of allergy, 30-50% have history of anaphylaxis
- Treat with Epinephrine
- No deaths

Other

- ITP, Bell's Palsy, etc. Monitoring so far no real signal
- Deaths in Norway nursing homes No increase in baseline death rate of these old and frail people





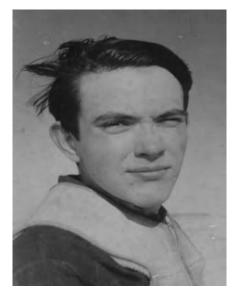
Viral mutations

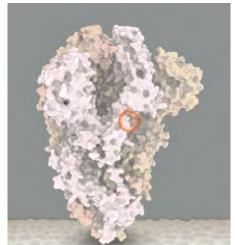
- All viruses mutate and evolve with selective pressure
- Coronavirus mutates 3x slower than Influenza
 - But every infected person is a living test tube
- Possible concerns
 - Resistance to antibodies
 - Vaccines
 - Monoclonals
 - Drug resistance

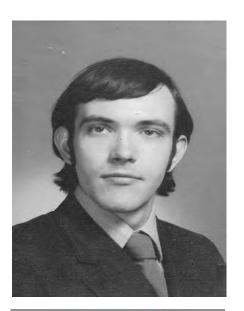
Viral Variants	Amino Acid Change in S Protein	UK B.1.1.7	SA B.1.351
	N501Y	X	X
	E484K		X
	K417T/N		X
	Other	7	7

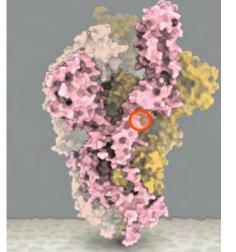
Antibodies May Not "Recognize" Spike Protein with Too Much Change



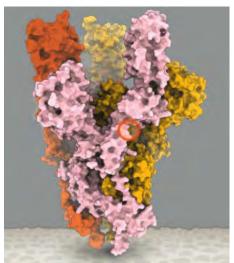






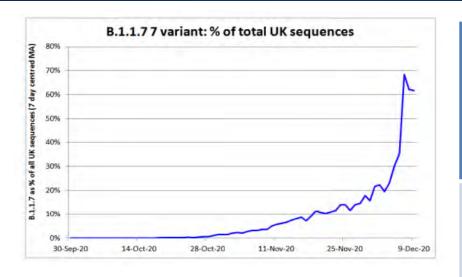








Viral mutations



- Why do viral variants spread?
 - Random "founder effects"
 - Selective advantage, e.g.
 - ACE2 binding efficacy
 - Evading antibodies

Vaccine Efficacy	UK B.1.1.7	SA B.1.351
Pfizer	1.4x reduction	6x reduction
Moderna	89%	8.6x reduction
Novavax	86%	60% (non HIV)



Mutations

- Viral mutations occur continuously
 - Selective pressure and random effects affect spread of mutants
 - Transmissibility and lethality not connected but still bad news
- SARS-CoV-2 mutates more slowly than influenza
 - S protein mutations over time may require updated vaccines
 - mRNA technology well-suited to respond to viral mutations
- What does the future hold?
 - Acute need for surveillance of COVID mutations
 - We don't know what the cut-off is for protection
 - Flu: new vaccine when new strain 8x less sensitive to old vaccine
 - Annual COVID vaccination likely for at least the next several years
 - Once primary exposure to COVID is in childhood, it probably will become a mild endemic illness

Viral Transmission in Winter





COVID-19 Winter Tips



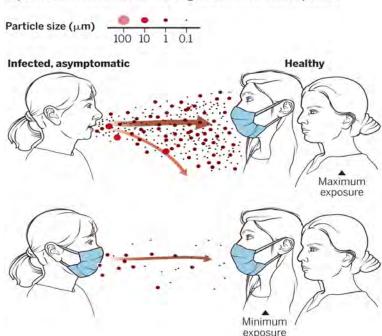
- Masks, hand hygiene, distancing with extra care
- Spend time outdoors
- Condition indoor air
 - Humidify indoor air (50% relative humidity at 70 75 F)
 - Ventilate indoor spaces
 - Air filters for indoor spaces (MERV 13 or HEPA)
- Vitamin D supplements if levels low
 - Irish Med J April 2020
 - Meltzer et al, JAMA September 2020
 - Maghbooli et al, PLOS One September 2020
 - Kaufman et al, PLOS One September 2020
- Get extra sleep
- Get flu vaccine
- Get COVID vaccine

Masks Work!



Masks reduce airborne transmission

Infectious aerosol particles can be released during breathing and speaking by asymptomatic infected individuals. No masking maximizes exposure, whereas universal masking results in the least exposure.



Variolation?

100 micron droplet settles in 5 sec 1 micron aerosol takes 12 hours

Misconceptions

- Masks do not work
 - Masks protect healthy people from infected people!
 - Reduce egress / ingress of infected droplets and aerosols
- The virus is smaller than the pores in the mask
 - Droplets are larger than pores
 - Aerosols are trapped by other mechanisms
- Masks restrict oxygen supply
 - Measurements show <u>no effect</u> on oxygen or carbon dioxide
- Masks are not needed with social distancing
 - Wrong! Sneezes and coughs can travel 30 feet
- Masks are not needed outdoors
 - The risks are lower outdoors but transmission still possible
 - Use your judgement
- Masks not needed after vaccination
 - Vaccines only 95% protective
 - Possibility of transmission to vulnerable people

Masks

Types of Masks



Recommended



Non-medical disposable masks



Masks that fit properly (snugly around the nose and chin with no large gaps around the sides of the face)



Masks made with breathable fabric (such as cotton)



Masks made with tightly woven fabric (i.e., fabrics that do not let light pass through when held up to a light source)



Masks with two or three layers



Masks with inner filter pockets

Not Recommended



Masks that do not fit properly (large gaps, too loose or too tight)



Masks made from materials that are hard to breathe through (such as plastic or leather)



Masks made from loosely woven fabric or that are knitted, i.e., fabrics that let light pass through



Masks with one layer



Masks with exhalation valves or vents



Wearing a scarf/ski mask as a mask

Masks

Types of Masks





NIOSH Certified Makrite 9500-N95 Pre-Formed Cone Particulate Respirator Mask. M/L Size (Pack of 20 Masks)

★★★☆☆~

\$69⁹⁷ (\$3.50/ FREE Shipping



0.000

KF94 - Face Protective Mask for Adult (White) [Made in Korea] [20 Individually Packaged] KN FLAX 4-Layers Premium KF94 Certified Face...

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Powecom FFP2 Protective Face Masks (Headband), ≥ 94%+ Filtration Efficiency, Disposable Particulate Respirator - CE 2834 NB certified,...

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\$2720

FREE Shipping



https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/personal-protective-equipment-euas#respirators



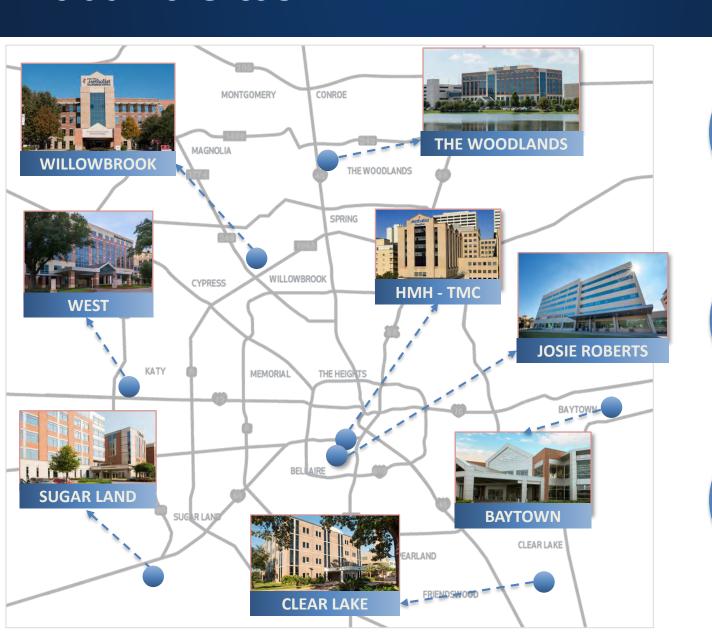
Vaccine Distribution Plan

Roberta L. Schwartz, PhD February 3, 2021



Vaccine Sites







7 Sites



7a-p, M-F, 8a-12p Sat



7,200 Daily Capacity

Vaccine Sites







55,000 scheduled vaccine appointments*



30,000 scheduled vaccine appointments*



20,000 scheduled vaccine appointments*

^{*}Have additional capacity if increased vaccine inventory is received As of 2/2/2021

HM Vaccination Hub





Vaccine Hub

Houston Methodist was selected as one of the vaccine hubs in the Greater Houston region.

Learn More



Expand Reach

Vaccine hub at JRB on mega Saturday, January 16th targeted the underserved.



Hours of Operations

7:30 AM - 7:30 PM



Vaccinations

4,300 patients vaccinated





Volunteers

~400 THANK YOU!

Included 40
Physician Volunteers



Booster Shots

Vaccine hub at JRB this weekend Saturday, February 6th for mega booster event.

Vaccine Distribution Plan at Houston Methodist



1A

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

1B (Part One)

 Patients 75+ being scheduled

Patients invited to schedule now.

To date, 35,000 completed with 15,000 more scheduled.

1B (Part Two)

Patients 65+
 being scheduled

Those with medical conditions invited to schedule this week.

Starting with 60,000 invitations Thursday.

1B (Part Three)

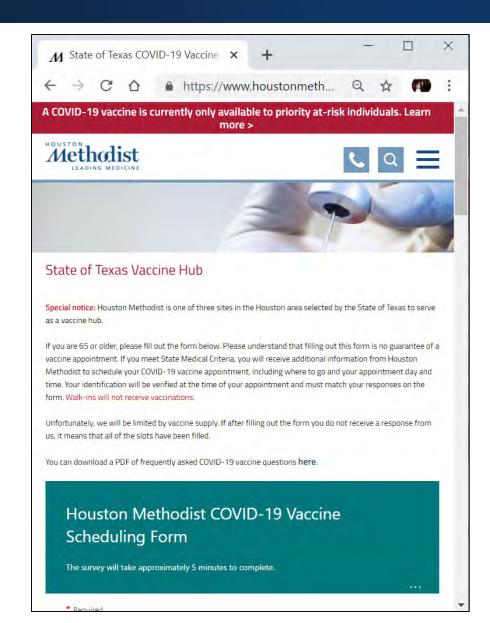
 Patients 16+ with a medical condition

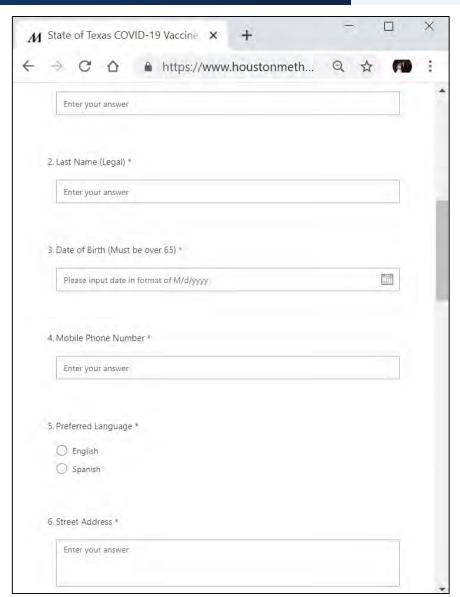
Adults with medical conditions will be invited to schedule when there is sufficient supply of vaccine.

Healthy adults will be invited to schedule vaccine appointments once there is sufficient supply and it is authorized by the State.

HM Vaccine Distribution - Public Form







Houston Methodist is starting this week to schedule members of the public who are 65+ with high-risk medical conditions.

HM Vaccine Distribution



Home > For Patients > Coronavirus Disease

COVID-19 Vaccine Information

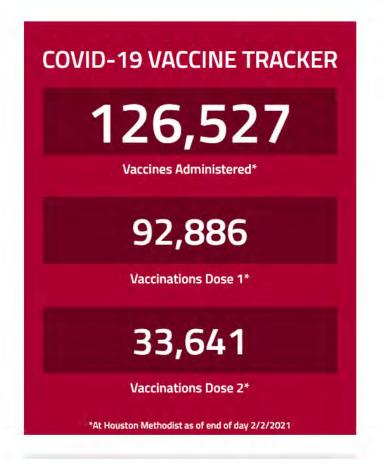
Welcome to Houston Methodist's COVID-19 vaccine information page. Here you will find information on patient vaccinations, answers to frequently asked questions, helpful resources and a link to Governor Greg Abbott's COVID-19 vaccine allocation process.

Please check back here often for vaccine updates and share this page with family and friends who also may have questions about the COVID-19 vaccine.

Special notice: Houston Methodist is a state-designated vaccine hub for the at-risk public. We had an overwhelming response and due to the limited vaccine supply, we unfortunately have no more appointments available at the present time.

We appreciate your patience and understanding as we follow state guidelines to be sure we vaccinate the most vulnerable among us. We are working very hard to vaccinate our community as supplies allow. We will advise the community when we can repost the form for more registrants.

If you have accessed a Houston Methodist doctor or service in the past two years, please do not use the hub to sign up for a vaccine. Instead, we will contact you by text, email or phone when we reach your vaccine priority group, based on the criteria listed below.



COVID Vaccine Tracker



Completed Vaccinations January 4th – January 31st

	Week of Jan 4th	Week of Jan 11th	Week of Jan 18th	Week of Jan 25th
PO	9,528	19,894	14,451	19,406
Hospital	13,338	7,356	4,136	3,947
Total	22,866	27,250	18,587	23,353
	Launch of PO Vaccine Sites	Mega Event Week	4 New Sites Added	Updated thi "Hospital" Includes Employee H Transplant, and 1A Healti

Messages from Patients



You did a fantastic job administering vaccinations today. So organized and professionally executed! Thank you! Thank you so much. Everything else has been perfect.

Good job Methodist Hospital!

That was an incredible experience you guys are so kind and so organized, and I was so excited to get my shot I had tears in my eyes so thank you thank you thank you.

It was very organized! Thanks much.

I would like to give a GREAT BIG SHOUT OUT TO ALL THE STAFF WHO WERE INVOLED IN TODAY'S MASS VACCINATION EVENT. The lines moved quickly and efficiently, and I know the organization skills were well thought out. I'll be back on Feb. 6th to get my 2nd inoculation. Thank you for taking the stress off me and I wish everyone good health! WELL DONE!

Thank you. We sincerely appreciate the great job all of you did today. Right from the time we drove into the parking garage to the time we drove out everything went so smoothly. So well organized, hats off to you all. God's Blessings upon all of you.

Hundreds of complimentary messages from our patients!

Everything was so well organized. We were very impressed. Thanks so much and God bless!

Thank you for all your help.

Have a peaceful and fulfilling day!

Excellent!! The staff was amazing and very helpful and kind!! Thank you for everything!!

I appreciate all of you. Thank you very much for informing me. May God keep you and yours safe.

How can you help?



- Please encourage patients to be patient with us and help them understand we are working diligently to schedule them as the state's guidelines and our vaccine inventory allow.
- There is still very little vaccine inventory available.
- We are unable to accommodate walk-ins or waitlists.
- We are unable to vaccinate individuals for their 2nd dose if we didn't provide their 1st dose.
- Understand that we are not vaccinating acute inpatients.

Resources



Houston Methodist Vaccine Website

https://www.houstonmethodist.org/coronavirus/vaccine-updates/

Epic Smartphrase

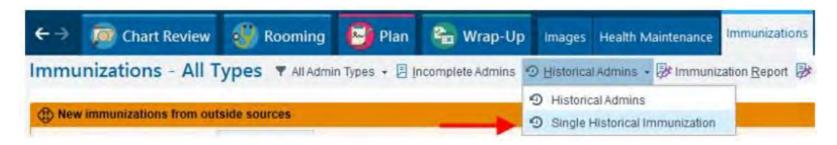


Covid Vaccine Patient Response

Patient Inquiries

https://www.houstonmethodist.org/covid-vaccination-team/

Entering COVID-19 vaccine if obtained externally





THANK YOU FOR ATTENDING OUR TOWN HALL CONVERSATION

If you would like more information about The Society for Leading Medicine, please contact foundation@houstonmethodist.org

Take care and be well

