



CDC/IDSA COVID-19 Clinician Call

June 5, 2021

Welcome & Introduction

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HSWS Task Force COVID-19 Response
Associate Director for Policy & Extramural Program
Division of Vector-Borne Diseases
National Center for Emerging and Zoonotic Infectious
Diseases
Centers for Disease Control and Prevention

- 68th in a series of weekly calls, initiated by CDC as a forum for information sharing among frontline clinicians caring for patients with COVID-19
- The views and opinions expressed here are those of the presenters and do not necessarily reflect the official policy or position of the CDC or IDSA. Involvement of CDC and IDSA should not be viewed as endorsement of any entity or individual involved.
- This webinar is being recorded and can be found online at www.idsociety.org/cliniciancalls.

TODAY'S TOPIC: Update on Breakthrough Infections



Debbie Dowell, MD, MPH, CAPT, USPHS
Deputy Chief Medical Officer
COVID-19 Response
Centers for Disease Control and Prevention



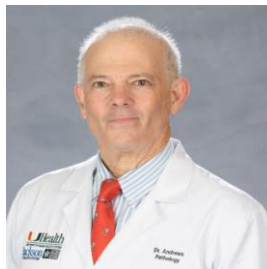
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Lilian Abbo, MD, FIDSA
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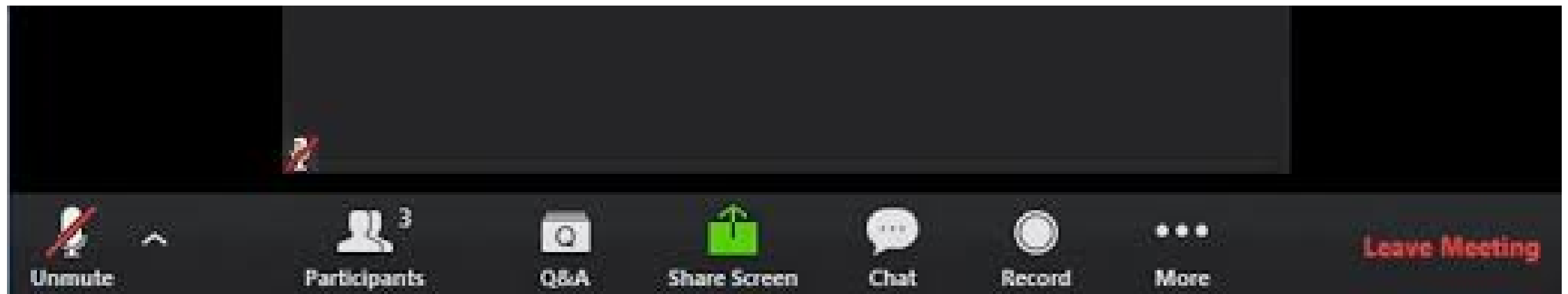


David Andrews, MD
Associate Professor of Clinical Pathology
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Question?
Use the "Q&A" Button



Comment?
Use the "Chat" Button



CDC Science Brief: COVID-19 Vaccines and Vaccination

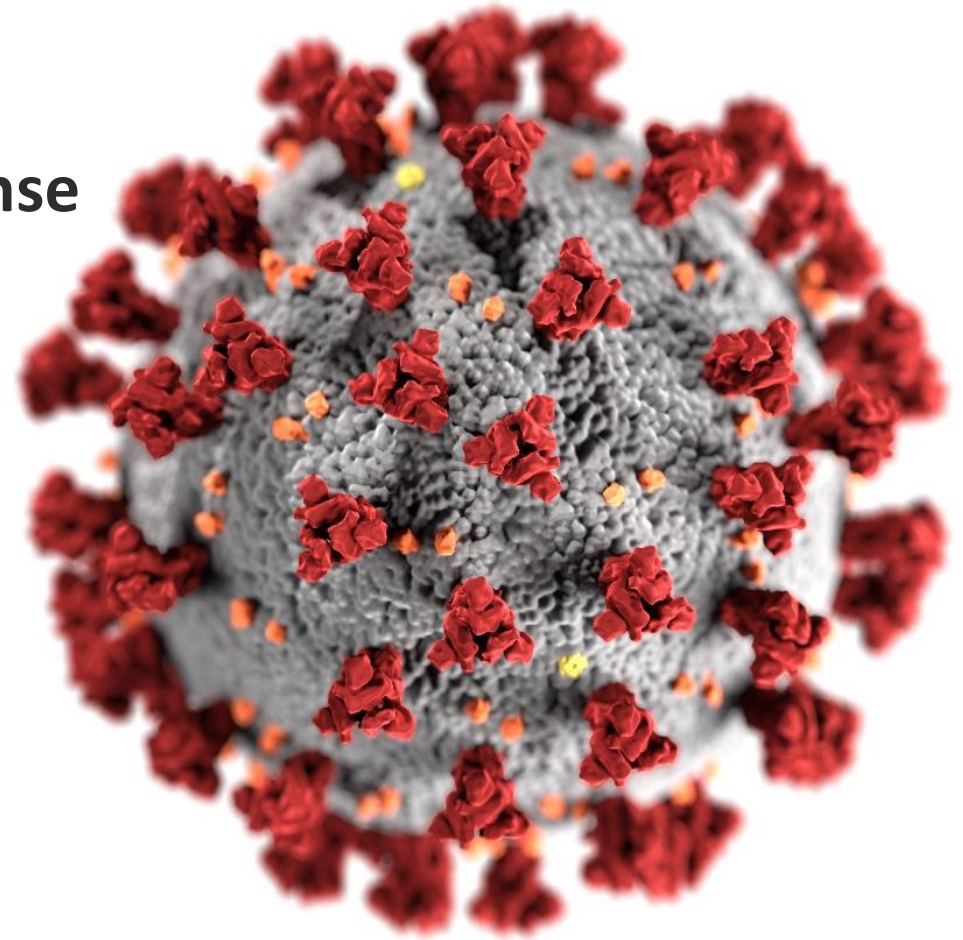
Debbie Dowell, MD, MPH

Deputy Chief Medical Officer, COVID-19 Response

CDC/Infectious Diseases Society of America

Clinician Call

June 5, 2021



cdc.gov/coronavirus

CDC Science Brief: COVID-19 Vaccines and Vaccination

- Available at www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html
- Purpose: to summarize the evidence supporting CDC's Interim Public Health Recommendations for Fully Vaccinated People
- Last updated April 2, 2021
 - Guidance update released April 27
 - Guidance update released May 13
 - Substantial increase in the evidence base



Summary of Major Updates to Science Brief

- 17 new studies showing effectiveness of COVID-19 vaccination
 - First real-world study of Johnson & Johnson's Janssen vaccine
- 9 new studies supporting reductions in transmission of SARS-CoV-2 by vaccinated people who become infected
 - 3 new studies of vaccine effectiveness against asymptomatic infection
 - 4 new studies showing reduced viral load among infected vaccinated people
 - 2 new studies directly documenting reduced transmission
- More data on effectiveness of mRNA vaccines against variants of concern
- Streamlined content to focus on robust body of vaccine evidence
 - Created separate brief for evidence supporting travel recommendations



Summary of Current Evidence (1st of 2 summary slides)

- Effectiveness of COVID-19 vaccines ≥ 7 days post-vaccination
 - mRNA vaccines 85%-99% effective against symptomatic disease
 - One study from Denmark estimating 64% effectiveness in long-term care residents
 - mRNA vaccines 92%-98% effective against severe disease and 87%-97% against hospitalization
 - J&J/Janssen vaccine 77% effective against symptomatic disease



Summary of Current Evidence (2nd of 2 summary slides)

- Effectiveness of COVID-19 vaccines against transmission
 - mRNA vaccines 65%-92% effective against asymptomatic infection
 - Transmission risk to household contacts approximately halved by vaccination
- Effectiveness of COVID-19 vaccines against variants
 - mRNA vaccines: >85% overall when B.1.1.7 prevalent
 - Pfizer-BioNTech: 90% against B.1.1.7; 75% against B.1.351
 - J&J/Janssen: reduced VE when B.1.351 prevalent but $\geq 73\%$ vs. severe disease



What We're Still Learning

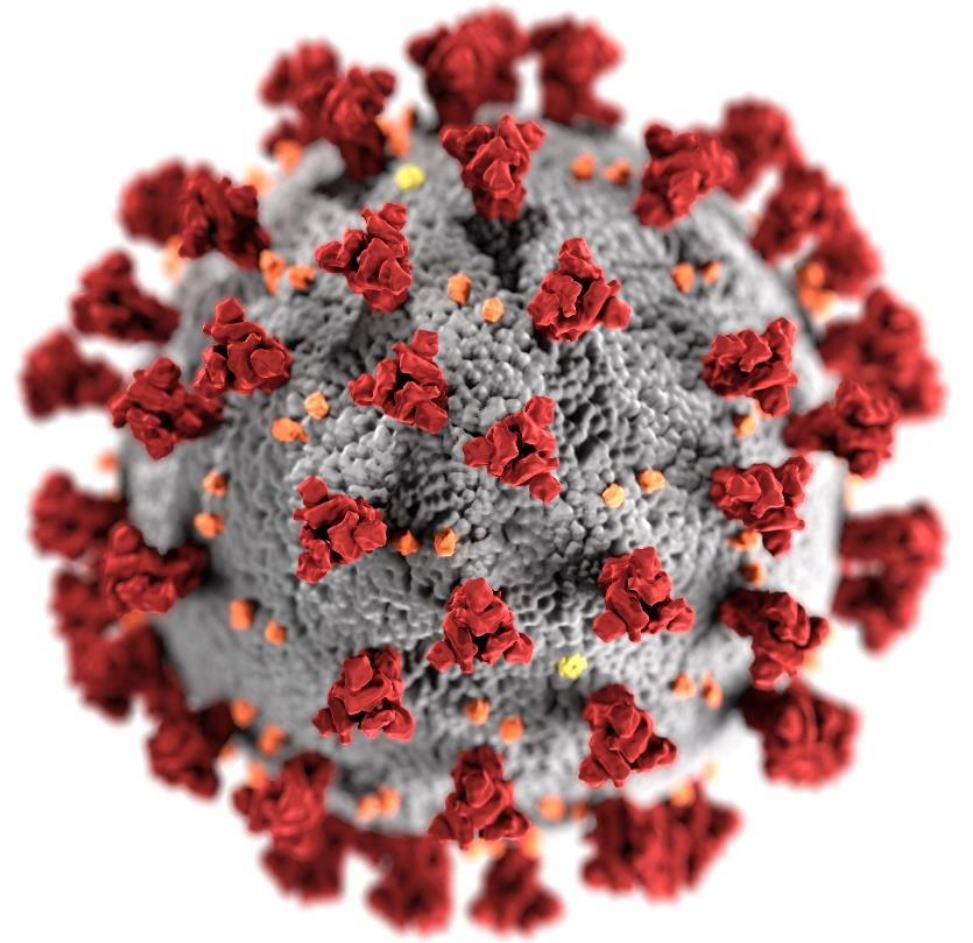
- Effectiveness of vaccination among immunosuppressed populations
 - Reduced immunogenicity of vaccination observed among several groups
- Duration of immunity
- Level of population immunity needed for community protection
- Real-world effectiveness of Johnson & Johnson's Janssen vaccine on outcomes including severe disease, hospitalization and death.
- More about effectiveness against viral transmission and infection with variants of concern



Key Points

- All COVID-19 vaccines currently authorized in the United States are effective against COVID-19, including serious outcomes like severe disease, **hospitalization, and death**.
- A growing body of evidence **indicates** that people fully vaccinated with an mRNA vaccine are less likely to have asymptomatic infection or to transmit SARS-CoV-2 to others. Studies are underway to learn more about the benefits of Johnson & Johnson/Janssen vaccine.
- Available evidence suggests the currently authorized mRNA COVID-19 vaccines **provide protection** against a variety of strains, including B.1.1.7 and B.1.351; other vaccines show reduced efficacy against B.1.351 but may still protect against severe disease.





For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

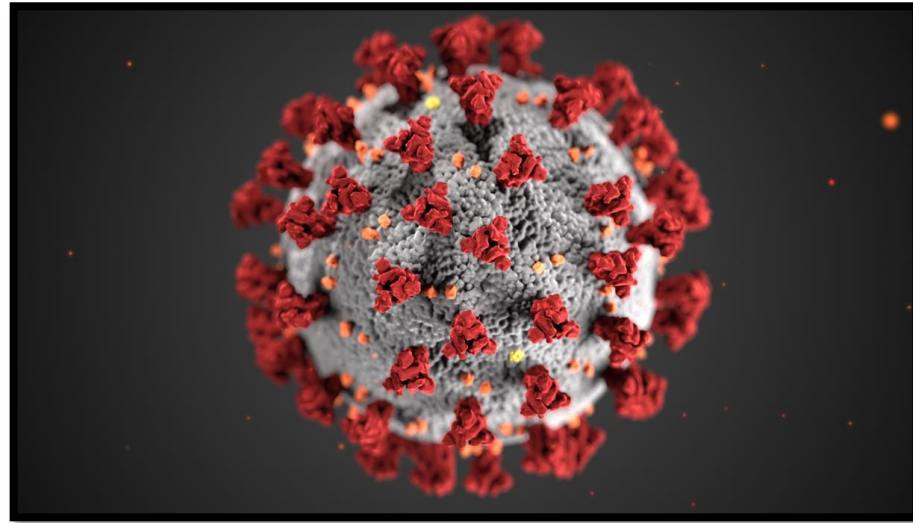
The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



The Miami Experience at Jackson Health System

Variants, Vaccinations and COVID-19

Breakthrough Infections



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Disclosure

- No conflicts of interest to disclose



Miami Transplant Institute

**JMH licensed
1550 beds
270 ICU beds**



2 Community Hospitals

**2 Long Term Care
Facilities**

**4 Miami-Dade
Corrections/ Jails**

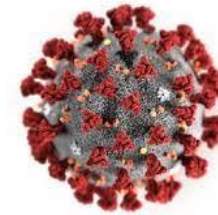
**12,000 employees
500 University of Miami Faculty**



What about our Healthcare workers?



As of June 3, 2021
7401 vaccinated



**19 vaccine
breakthrough
cases identified
(rate 0.25%)**

Case Presentation

- 61-year-old male
- Past Medical history: HTN, Nephrotic Syndrome, ESRD on hemodialysis since 6/2020
- Received 2 doses of mRNA vaccine (Pfizer-BioNTech) 78 days prior

- Presented with fever, cough, dyspnea, nausea, and diarrhea for 3 days
- No prior COVID-19 infection and no severe reactions to the vaccine
- On physical exam: patient was in distress, with decreased breath sounds bilaterally

Labs and Imaging

WBC 19.9
10(3)/mcL
ANC: 17.8
ALC: 1.2

Platelets: 235

D-dimer: 1.57
mcg/ml

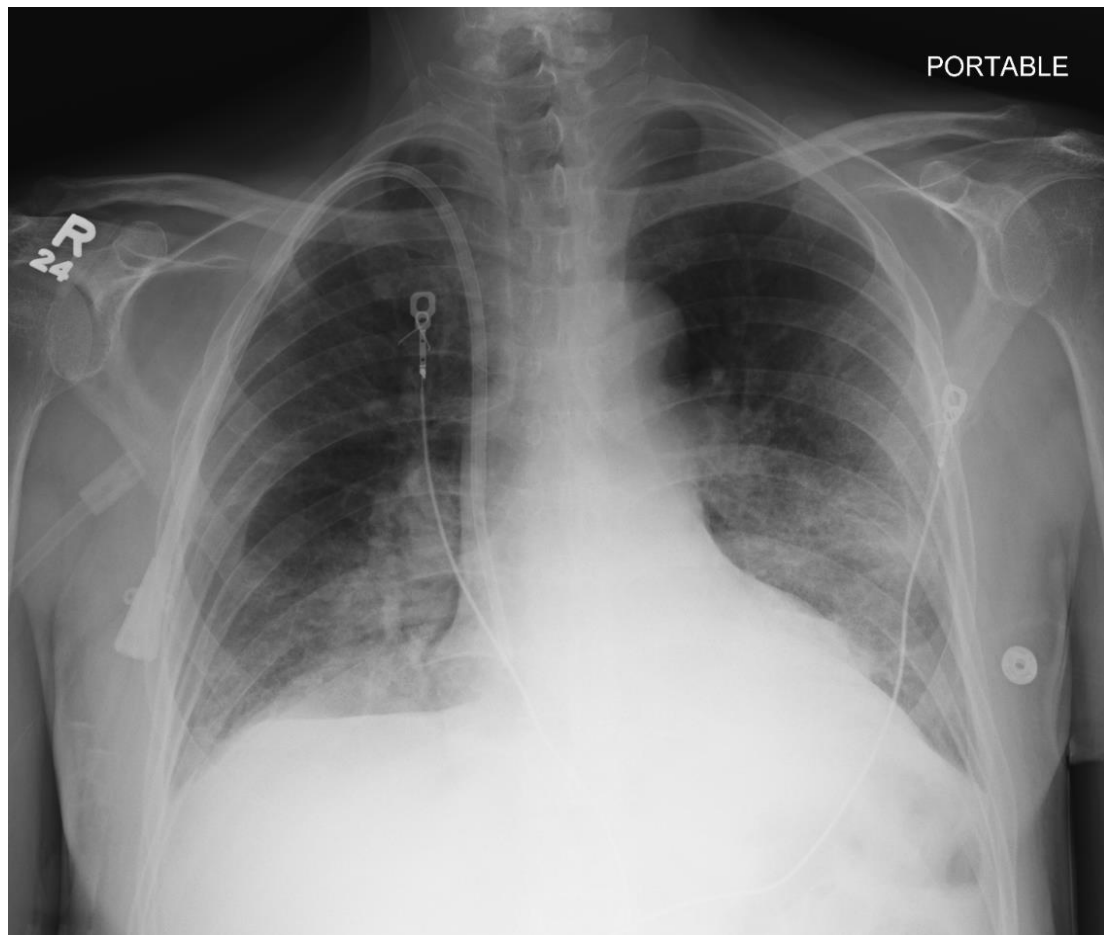
CRP: 8.2
mg/dl

Ferritin: 2094
ng/ml

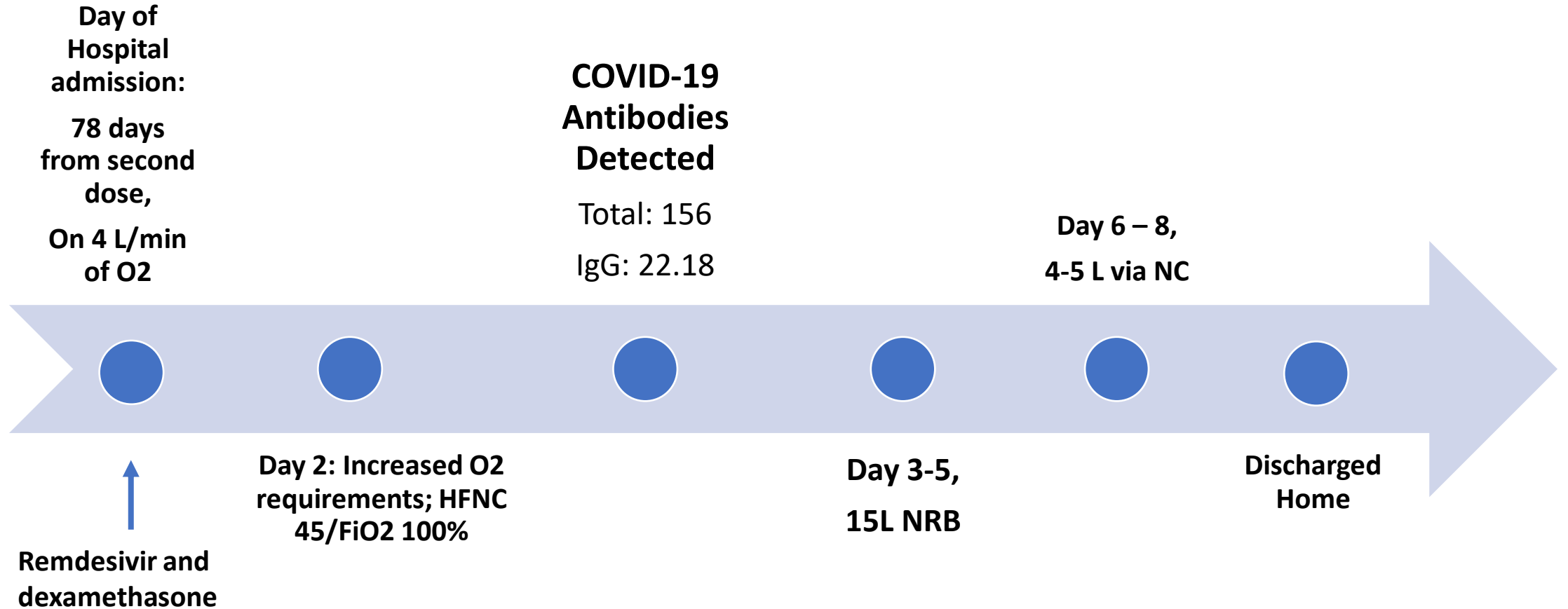
LDH: 1042
unit/L

Troponin:
0.027 ng/ml

Blood
Cultures:
Negative



Hospital Course



Acknowledgments

- **ID Colleagues**

Drs Laura Beauchamps, Jovanna Bertran, Foluaskin Ayoade, Stephen Morris, Yoichiro Natori, Jacques Simkins, Shweta Anjan

- **University or Miami Pathology/Genetics/Cancer Center Colleagues**

Drs. Merce Jorda (Chair), Emmanuel Thomas, Sion Williams (Cancer Center), Yi Zhou, Anthony Griswold (Genetics), Jacob McCauley (Genetics), Octavio Martinez, Ranjini Valiathan, Ms. Yamina Caratini

- **JHS Antimicrobial Stewardship and Pharmacy Teams**

Venessa Goodnow, Ennie Cano, Ana Vega, Kailyn Deronde, Meshell Maxam, Christine Vu, Julio Simon, Renata Boatright, Veronica Salazar.

- **JHS Infection Prevention Team**

Kathleen Sposato, Maribel Ruiz, Adriana Jimenez, Javier Cardozo, Regina McDade, Natalia Fadul, Jolie Dobson, Paula Weisberg, Regina Williams, Kelley Manzanillo, Christopher Christy, Delia Roberts, Olga Orozco, Doreen Amarsingh

- **JHS Microbiology Lab Team**

- Huy Dinh, Biaggio di Pascale, Clara Prado, Sallie Wright, Katuska Parra, Joanna Danton

- **JHS Information and Technology**

- Dr. Alina Brebene, Dr. Joseph Zeitouini, Jermaine Allen, Donna Benjamin

Thank you



@liliabbo

Updates on COVID-19 Vaccine breakthrough infections: Clinical perspective from Miami

Shweta Anjan, MD

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Miami Transplant Institute

Disclosure

- No conflicts of interest to disclose



Miami Transplant Institute

Vaccine breakthrough
infections

Immunocompetent
N=9

Immunocompromised
N=18

Immunocompetent

Demographics

- Mean Age: 70 years (58 - 89)
- 67% Male
- 78% Hispanic

Co-morbidities

- 67% HTN
- 89% BMI >25
- 22% DM

Median time from vaccine to COVID diagnosis: 67 days (9-115) (56% mRNA, 44% Ad26.COVS)

All required hospital admission (67% ICU, 33% COVID-19 Ward)

Management

- Remdesivir + dexamethasone 55%
- Convalescent plasma, tocilizumab 11%
- Supportive care 11%



Outcomes

- 89% recovered and discharged home
- 11% (n=1) mortality



Immunocompromised: Solid organ transplant recipients

- Antibody response lower than general population
- Severe immunosuppression has been linked to Chronic COVID-19 and Virus variants

1. Boyarsky BJ et al. Antibody Response to 2-Dose SARS-CoV-2 mRNA Vaccine Series in Solid Organ Transplant Recipients. *JAMA*. 2021;325(21):2204–2206.
2. 2. Abbasi J. Researchers Tie Severe Immunosuppression to Chronic COVID-19 and Virus Variants. *JAMA*. 2021;325(20):2033–2035.



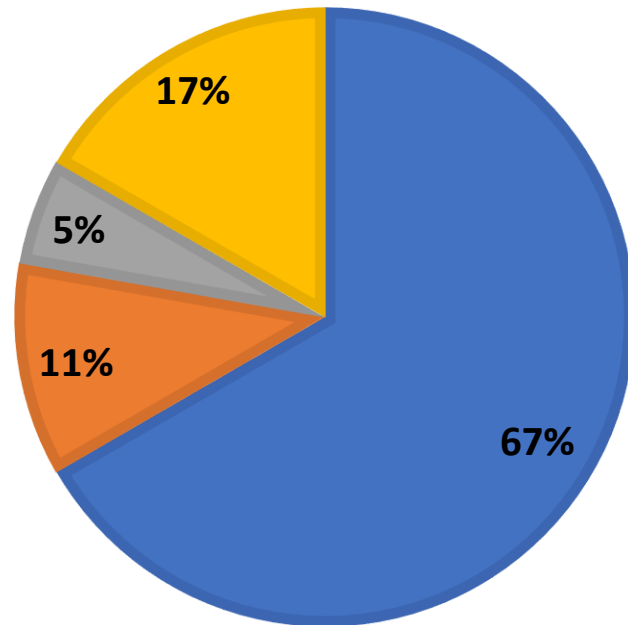
Miami Transplant Institute

Immunocompromised: Solid organ transplant recipients

- As of April 30, 2021, **2957 SOTR have been vaccinated** → 18 cases (breakthrough rate 0.60%)
- 83% were fully vaccinated
- Demographics
 - 58 (41 – 81) years
 - 50% Female
 - 72% Hispanic ethnicity
- 50% → exposed to an unvaccinated family member with COVID-19

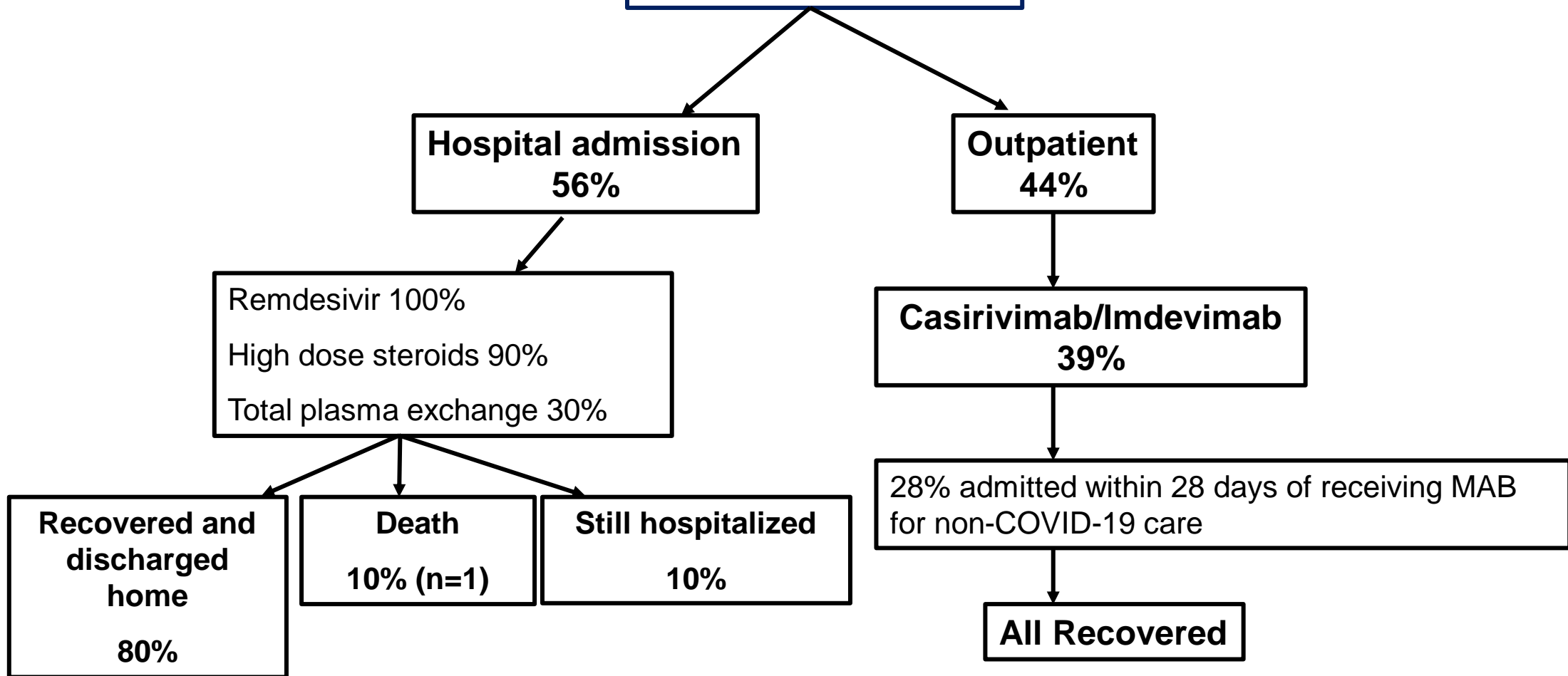
TYPE OF ORGAN TRANSPLANT

■ Kidney ■ Liver ■ Lung ■ Combined



- Time from transplant to first dose of the vaccine →26 (range 2 - 90) months
 - 3/18 within 6 months of transplant
- Time from vaccine to diagnosis →25 days (range, 4 – 96)

Clinical Course



In Summary

- Severe COVID-19 and mortality can occur in vaccine breakthrough cases
- Encourage patients to seek medical care early while they may qualify for MAB
- Immunocompromised individuals should continue wearing a mask
- Vaccine breakthrough data comparing available vaccines (mRNA, viral vector and adjuvanted protein platforms) are needed
- Vaccine protocols may need to be tailored by State, population and predominant variant

Questions?

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 @shwetanjana

 **UHealth Jackson**

Miami Transplant Institute

SARS-CoV-2 gene variant trends from patient and student samples in Miami-Dade County, Florida

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Vice-chief, Pathology, Jackson Health System Hospitals

CLIA Lab Director, Jackson Memorial, Jackson North, Jackson South Hospitals

June 5, 2021

Disclosure

- No conflicts of interest to disclose



Miami Transplant Institute

Study Design

Non-HSRO/deidentified samples for Surveillance effort

- Beginning mid-January 2021, residual clinical samples were retrieved from the lab after Positive SARS-CoV-2 molecular results obtained.
- Samples initially screened in Pathology by qPCR with the TaqPath (TaqPath COVID-19 PCR, Thermo Fisher Scientific) assay to detect the B.1.1.7 UK Variant as manifested by the S-Gene target failure (SGTF)
- Sequencing methods developed in our Cancer Center (Sylvester Comprehensive Cancer Center) Oncogenomics Core facility, where the NEB Biolabs ARTIC method of multiplexed amplicon-based whole viral genome sequencing was implemented on the Illumina NovaSeq platform. Program overseen by Dr. Sion Williams.
- Bioinformatics pipeline was handled by Dr. Anthony Griswold in our UM Genetics Institute (Hussman Institute for Human Genomics)

Sample sources – weekly collections



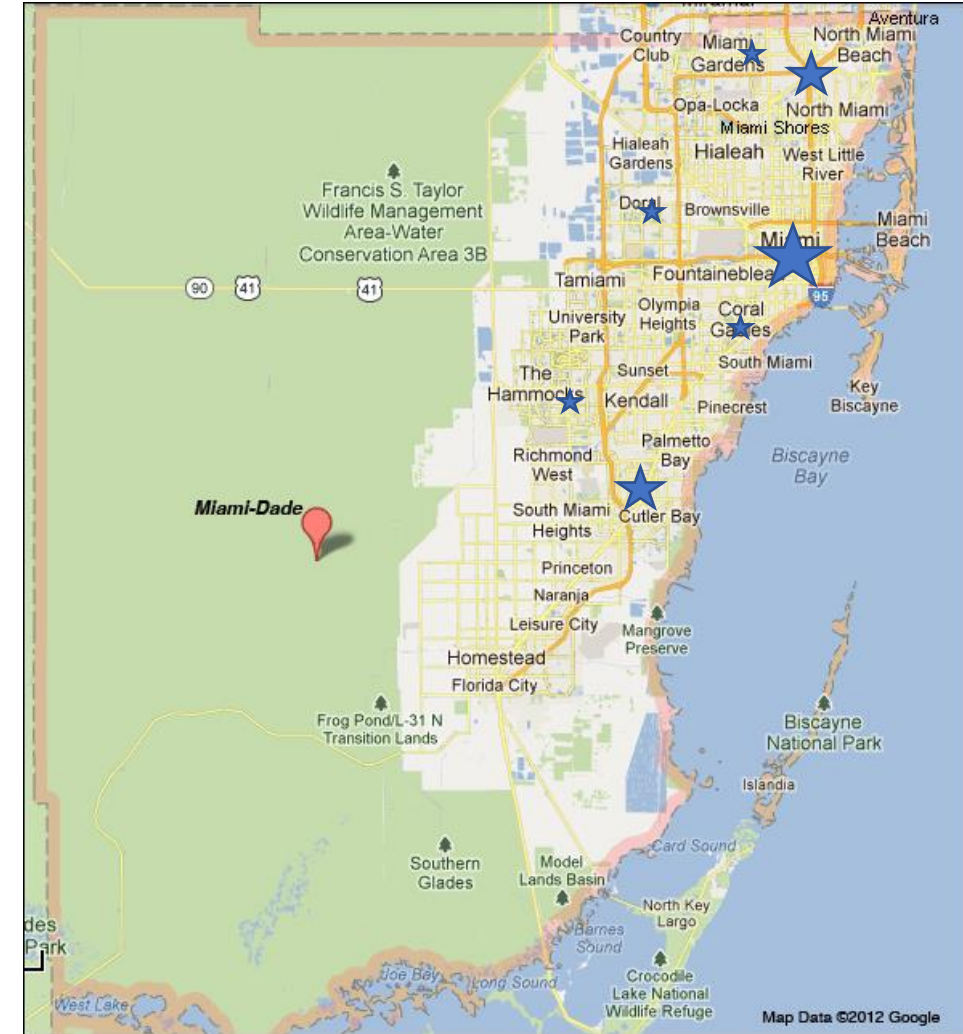
Jackson Memorial Hospital
Jackson North Medical Center
Jackson South Medical Center
Ambulatory Urgent Care Centers



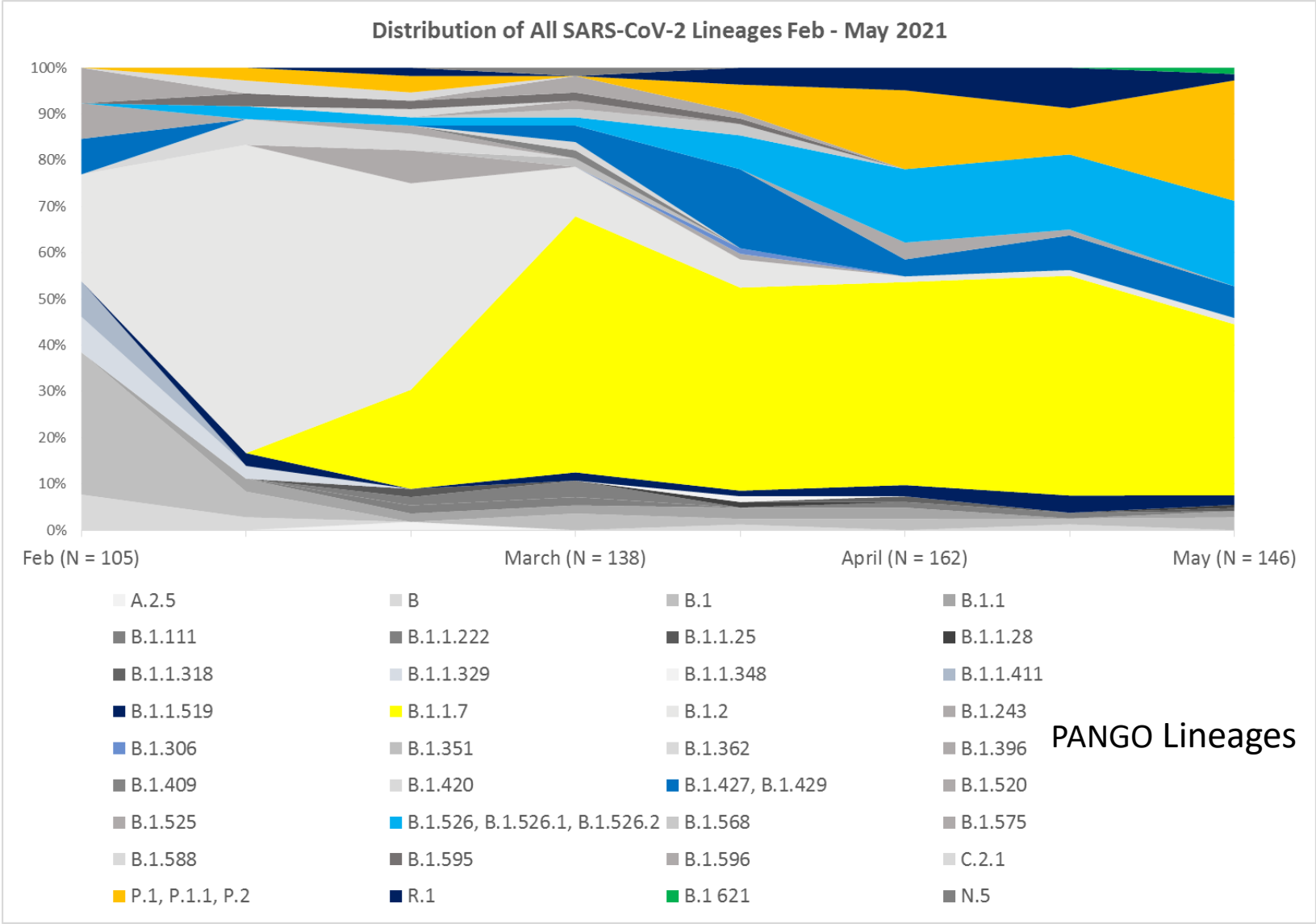
UHealth Tower
(University of Miami Hospital)
Sylvester Cancer Center



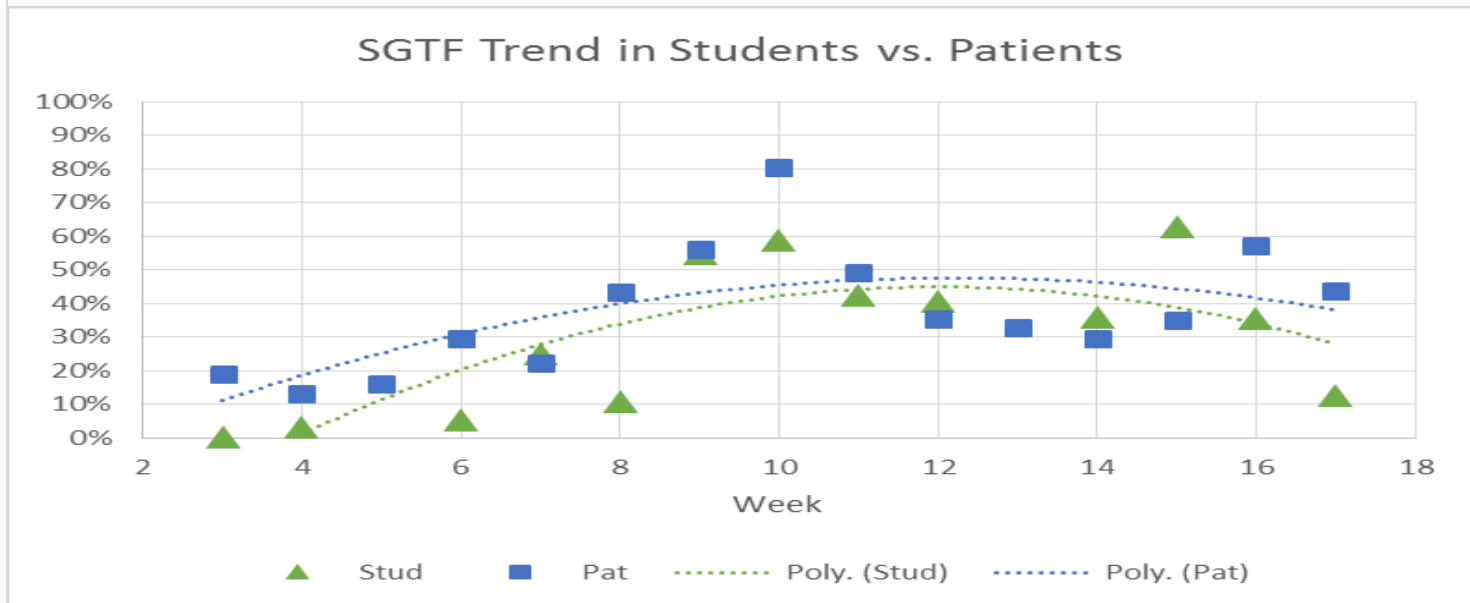
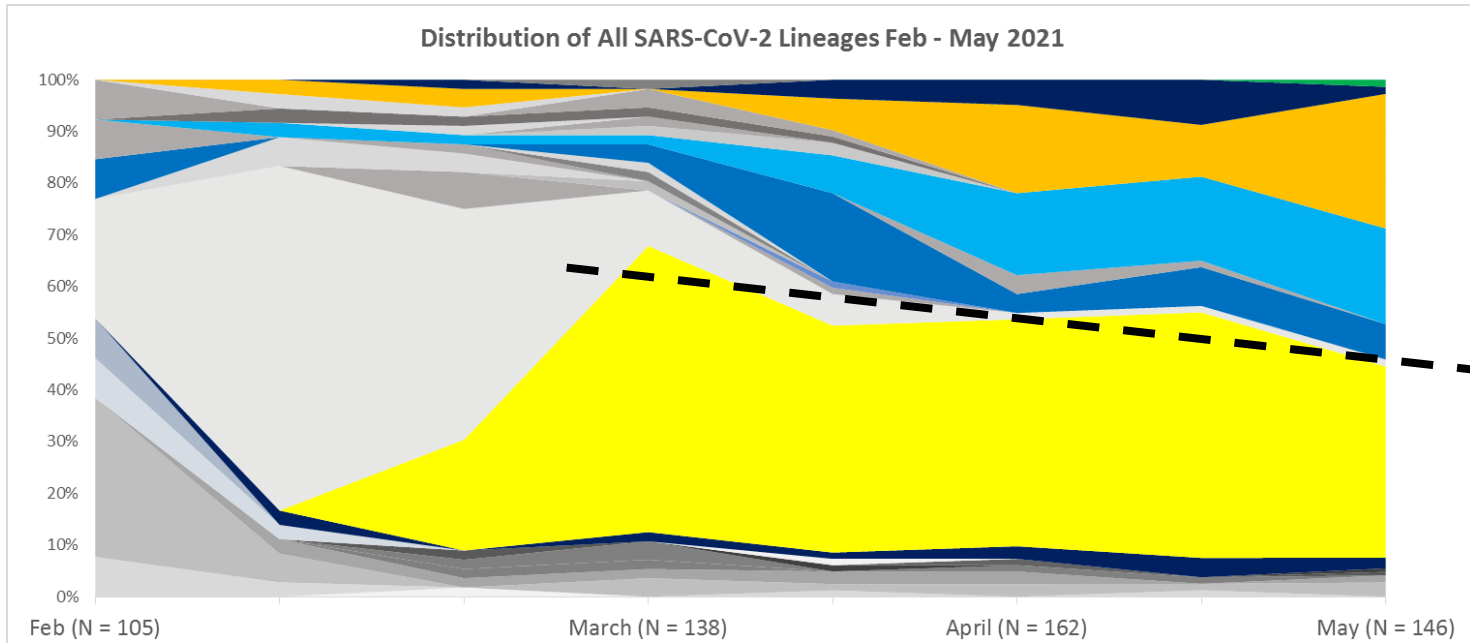
Undergraduate Students
Active SARS-CoV-2
screening program



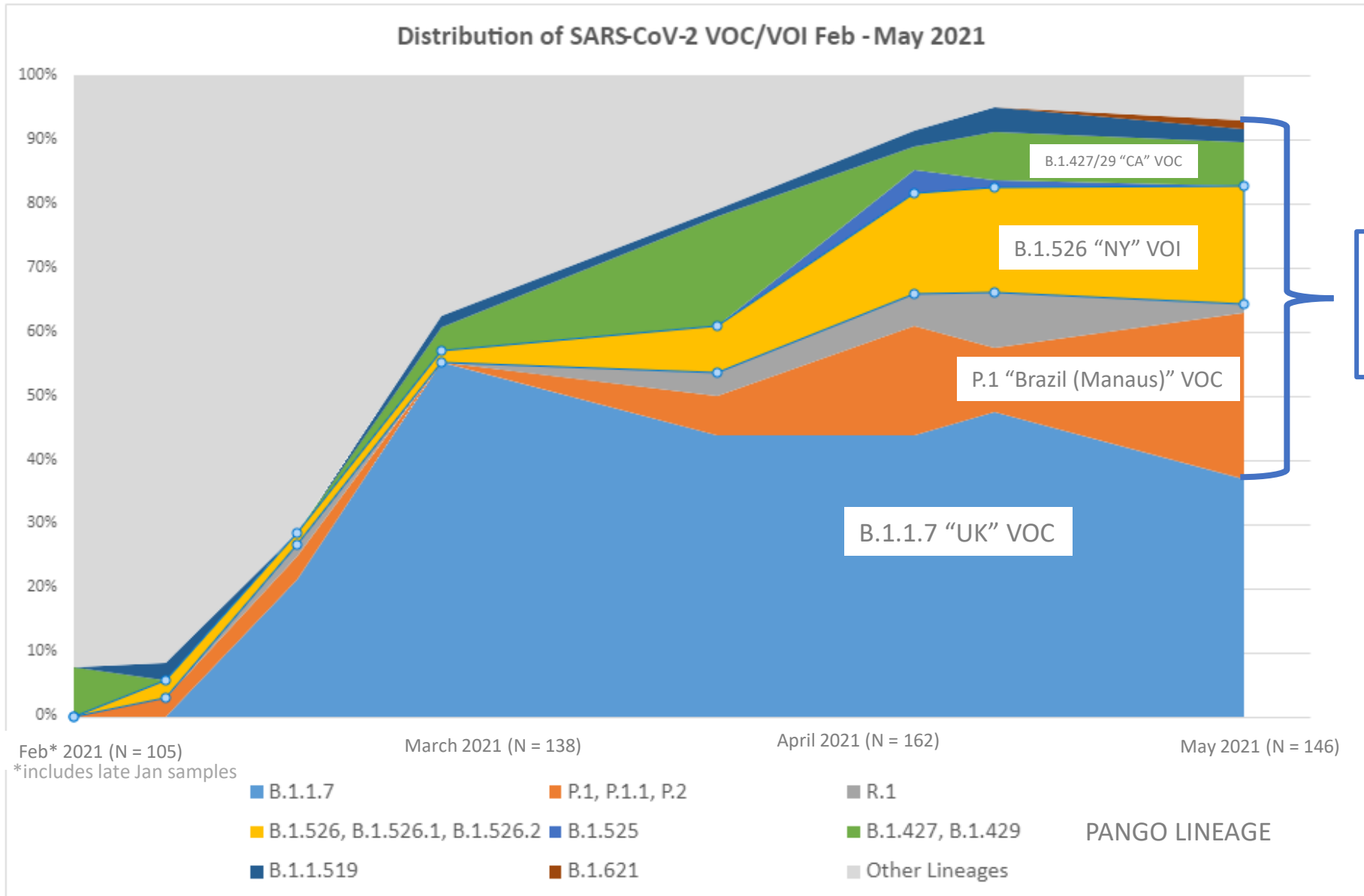
Overall lineage trends: Varied & Diverse, like Miami!



B.1.1.7 trending down



Increasing prevalence Jan -> May 2021
 Variants of Concern, Variants of Interest, *emerging* Variants of interest.



VOC, VOI,
 emerging VOI,
other than B.1.1.7

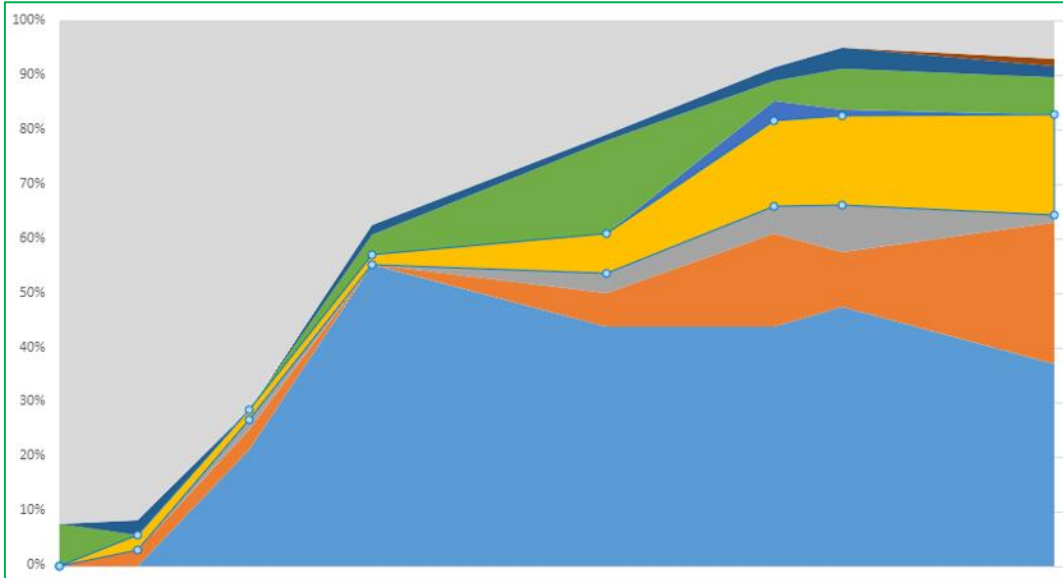
May 2021 NGS (SARS-Cov-2)					VOC = Variant of Concern VOI = Variant of Interest
lineage	# VOC **VOI ^^emerging VOI	Total Students & Patients N=146	Students n=73	Patients n=73	Student % vs patient % Statistically different? (Y/N)
B.1.1.7	UK Variant#	54 (36.9%)	22 (30.1%)	32 (43.8%)	N
P.1, P.1.1, B.1.1.28	Brazil#, including B.1.1.28 (n=1)	39 (26.7%)	20 (27.3%)	19 (26%)	N
B.1.526, B.1.526.1, B.1.526.2	New York**	27 (18.5%)	17 (23.3%)	10 (13.7%)	N
B.1.427, B.1.429	California#	10 (6.8%)	6 (8.2%)	4 (5.5%)	N
B.1, B.1.1, B.1.2, B.1.1.519, B.1.1.25	Not VOC/VOI	12 (8.2%)	6 (8.2%)	6 (8.2%)	N
B.1.621	Colombia^^	2 (1.4%)	0	2 (2.7%)	N
R.1	USA/Japan^^	2 (1.4%)	2 (2.7%)	0	N
Total		146	73	73	

May 2021 NGS summary:
Approximately 88% of samples sequenced revealed a PANGO lineage associated with a VOC, VOI, or an emerging variant of interest.

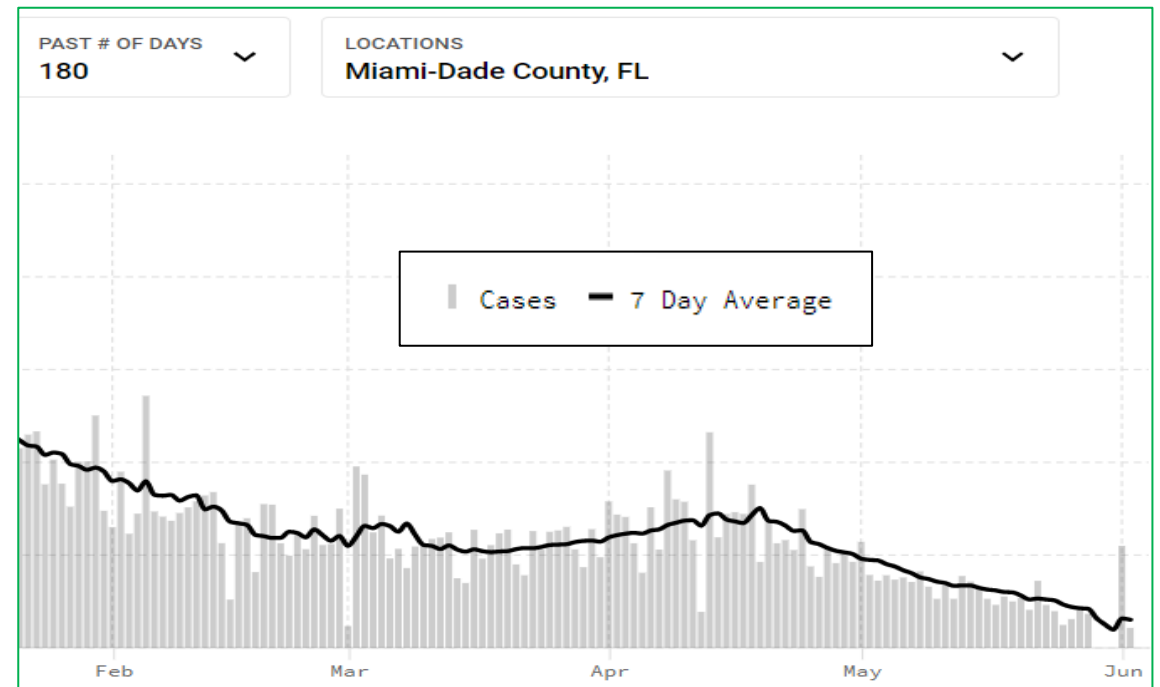
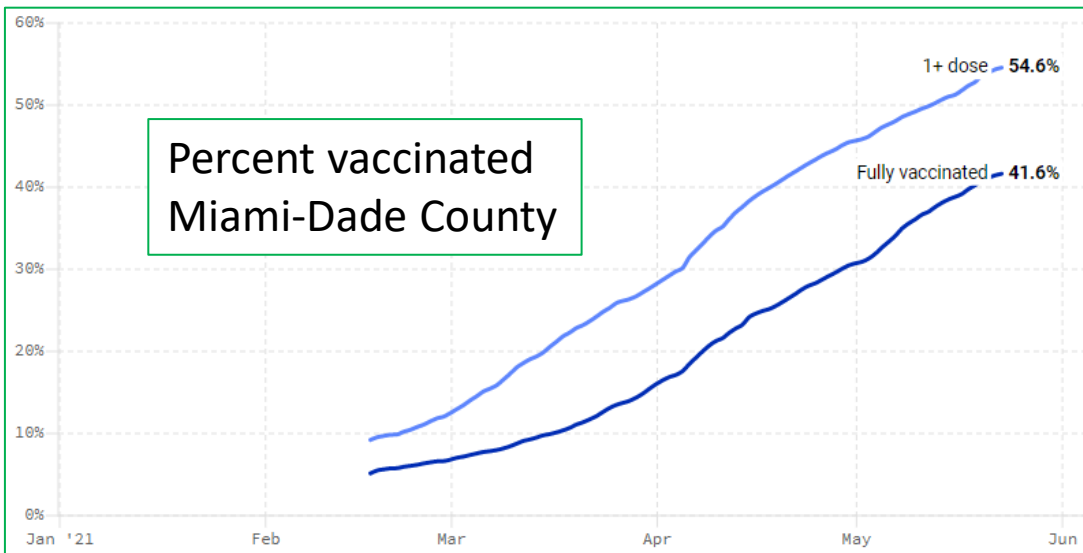
Conclusion from above: Approximately 90% of all PCR-Positive samples are VOC or VOI

Stats calculated with this tool: https://www.medcalc.org/calc/comparison_of_proportions.php

Feb → early May VOC/VOI expansion



Conclusion: Despite significant expansion of VOC/VOI, case numbers are falling in association with increased vaccination rate. The data suggests vaccines provide good protection.



graphs retrieved 6-4-2021 from covidactnow.org (source data from Florida Dept. of Health)

EDITORIALS



**Interplay between Emerging SARS-CoV-2 Variants
and Pandemic Control**

Kathleen M. Neuzil, M.D., M.P.H.

Quote:

Vaccine evaluations against new variants will be more challenging going forward as data from randomized, placebo-controlled clinical trials become less common owing to enhanced availability of vaccines.

A global scientific agenda that encompasses extensive genomic surveillance, detailed “correlate of protection” evaluations, and robust post-introduction surveillance and sequencing is necessary to measure the effect of new and current vaccines against SARS-CoV-2 variants.

Thank you!
dandrews@miami.edu

Acknowledgments:

UM: Dr. Merce Jorda (Pathology chair) and Dr. Stephen Nimer (Cancer Center director)

JHS: Dr. Peter Paige, CMO

Q&A and Discussion

Links and Resources

- Slide 5 - CDC Science Brief: COVID-19 Vaccines and Vaccination www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html
- Slide 37 – Calculator https://www.medcalc.org/calc/comparison_of_proportions.php

COVID-19 Real-Time Learning Network

Brought to you by CDC and IDSA

An online community bringing together information and opportunities for discussion on latest research, guidelines, tools and resources from a variety of medical subspecialties around the world.

Specialty Society Collaborators

American Academy of Family Physicians
 American Academy of Pediatrics
 American College of Emergency Physicians
 American College of Physicians
 American Geriatrics Society
 American Thoracic Society
 Pediatric Infectious Diseases Society
 Society for Critical Care Medicine
 Society for Healthcare Epidemiology of America
 Society of Hospital Medicine
 Society of Infectious Diseases Pharmacists

www.COVID19LearningNetwork.org

@RealTimeCOVID19

#RealTimeCOVID19

CDC-IDSA Partnership: Clinical Management Call Support

FOR WHOM?

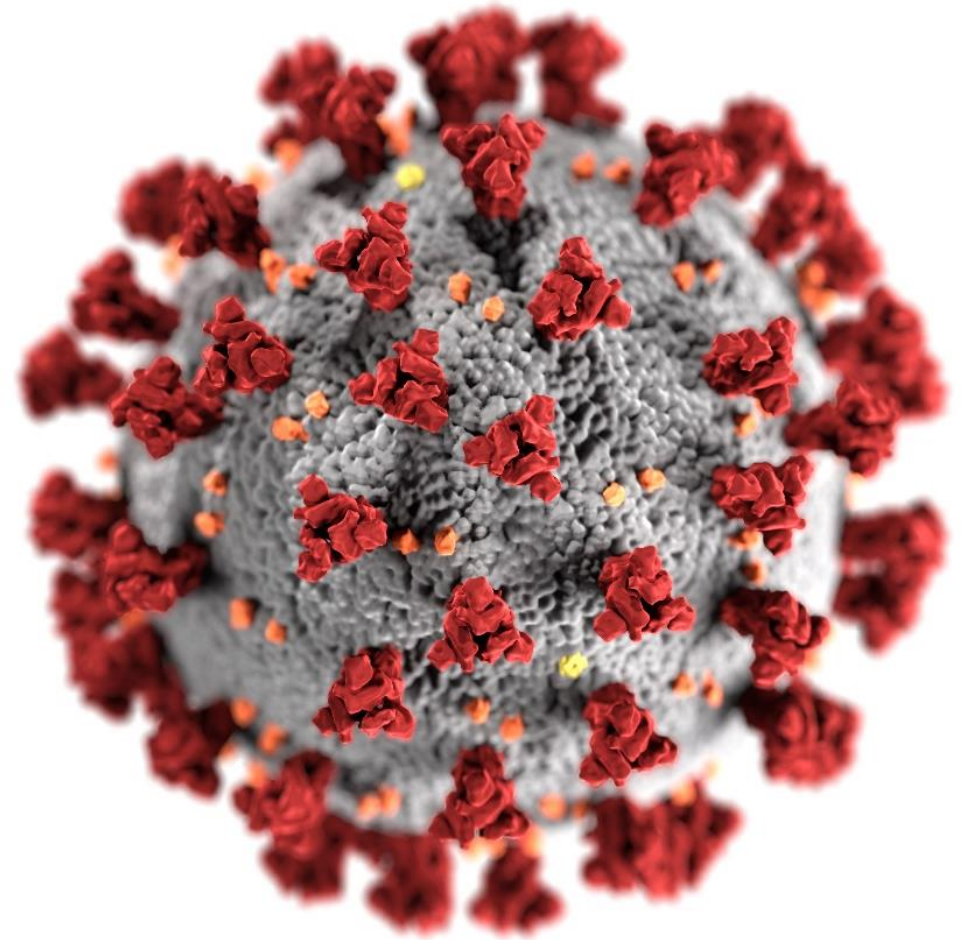
- Clinicians who have questions about the clinical management of COVID-19

WHAT?

- Calls from clinicians will be triaged by CDC to a group of IDSA volunteer clinicians for peer-to-peer support

HOW?

- Clinicians may call the main CDC information line at 800-CDC-INFO (800-232-4636)
- To submit your question in writing, go to www.cdc.gov/cdc-info and click on Contact Form



IDSA
Infectious Diseases Society of America

cdc.gov/coronavirus



idweek.org
Virtual Conference



Save the Date
Sept. 29 – Oct. 3, 2021

Attend, Learn & Collaborate.

Advancing Science, Improving Care

Important Dates:

- Registration is Open
- Abstract Submission Deadline – June 9
- Case Submission Deadline – June 9

Continue the
conversation on Twitter

@RealTimeCOVID19
#RealTimeCOVID19



We want to hear from you!

Please complete the post-call survey.
Starting in June the calls will be held the
twice a month:

Next Call

Saturday, June 19

Topic: Myocarditis

A recording of this call will be posted at
www.idsociety.org/cliniciancalls

-- library of all past calls available --

Contact Us:

Dana Wollins (dwollins@idsociety.org)

Deirdre Lewis (dlewis@idsociety.org)