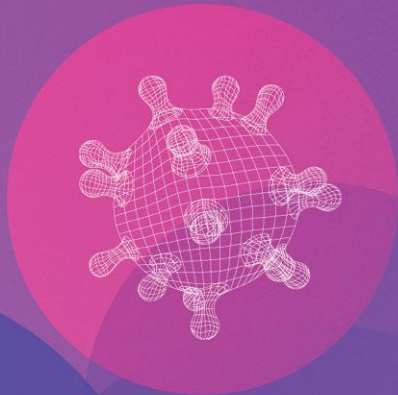


Post Vaccination COVID Infections

QMC Townhall

April 22, 2021

Erlaine Bello, MD



**THE QUEEN'S
HEALTH SYSTEMS**

CDC Monitoring as of 4/15/ 2021

5,800 COVID 19 “breakthrough” infections reported after about 76,700,000 fully vaccinated nationwide 0.008 %

396 required hospitalization and 74 died

Post vaccination infections:

- Occur in all ages but 40% in those 60 yo or greater
- 65% female
- 29% asymptomatic

States Data

STATE	Number of Infections	Number of Fatal Infections	Number fully vaccinated	Incidence
Michigan, Jan-Mar	246	3	1,700,000	0.01%
Washington, Feb-Mar	102	2	>1, 000, 000	0.01%
Minnesota, by end of Mar	89	0	1, 454, 834	0.006%

COVID 19 Outbreak in Kentucky SNF with R1 Variant, CDC MMWR (4/21/21)

- Vaccination rate in SNF
 - 83 residents (90.4%)
 - 116 HCPs (52.6%)
- 46 Breakthrough infections
 - 26 residents
 - 20 HCPs
- Unvaccinated had attack rates 3-4x higher than vaccinated
- Vaccinated were 87% less likely to have symptomatic infection
- Whole gene sequencing showed R1 Variant with multiple spike protein mutations

Post-vaccination SARS-CoV-2 Infections Among SNF Residents and Staff Members — Chicago (Dec 2020 – Mar 2021)

- 627 COVID Infections in 75 SNFs in Chicago
 - 447 in unvaccinated
 - 145 in partially vaccinated, i.e. one dose
 - 13 in vaccinated but not immune
 - 22 in fully vaccinated, >14days after second dose
 - 12 residents
 - 10 staff
- Severity of infection in 22 fully vaccinated
 - 14 asymptomatic
 - 2 hospitalized
 - 1 death

Post Vaccination COVID Infections PB

- Employees = 5
- Non-employees = 2 (HRP resident, IT Mainland Consultant*)
- QMC Vaccinated = 6 All received 2 dose of Pfizer vaccine
 - Male = 1 , Female = 5
 - Ages 23, 27, 32, 35, 37, 62
 - Known Community exposures = 5 (2 travel), Unknown exposure = 1
 - RN = 2, NA = 2, SW associate = 1, resident MD = 1
 - All symptomatic, but none admitted, no deaths
 - No secondary infections

* This consultant had no risk factors except travel and had only one dose of Pfizer vaccine before infection, she had mild to moderate symptoms. No secondary infections.

Post Vaccination COVID Infections PB

Date of Second Vaccine	Date of Positive Test	Days Between Vaccine and Test
1/12/21	3/19/21	67
1/12/21	3/27/21	75
2/13/21	3/27/21	39
1/16/21	4/2/21	76
1/6/21	4/4/21	88
1/9/21	3/28/21	78

Antibody Results in 3 Patients

Patient	Total Nucleocapsid Antibody	Spike Antibody
1 QUASAR, S drop, likely B117	1.89	>250
2	54.8	>250
3	3.13	>250

Post Vaccination COVID Infection WEST

- 60+ yo employee with multiple chronic illnesses
- 7/29/20-8/20/20 hospitalized for acute COVID with acute hypoxic respiratory failure, ARDS, MSSA septicemia
- 9/28/20 NP RNA not detected
- Pfizer second vaccine 1/14/21
- 4/9/21 new onset dry cough, 4/13/21 Routine NP RNA presumptive positive and confirmed by DOH as positive

Possible Explanations for Breakthrough Infections

- Vaccines are not 100% effective in preventing COVID infection
 - Pfizer 95% in 38,000 person trial (1900 persons not effective)
 - Moderna 94% in 30,000 person trial
 - J and J 40,000 person trial
 - 100% effective in preventing hospitalization, death
 - 85% effective in preventing severe illness
 - 72% effective at preventing moderate illness
- Variable immune response : age, underlying medical illness, therapy
- Variants may have reduced neutralization by antibodies generated by both natural infection and vaccination

CDC Recommendations for the Fully Vaccinated in Public Places

- Wear a Mask
- Stay at least 6 feet apart from others
- Avoid crowds and poorly ventilated spaces
- Frequent hand washing

“Avoid Crowds and Poorly Ventilated Spaces”



Takeaways

- Vaccination lessens severity of disease
- Vaccination decrease infectiousness, transmissibility
- Vaccination does not 100% prevent infection
- Duration of vaccine protection
 - 3 mos yes
 - 6 mos likely
 - > 6mos unknown
- Until we reach herd immunity, safeguards are still required in public places, workplace
 - Wear a mask
 - Stay 6 feet apart
 - Wash your hands
 - Avoid crowds and poorly ventilated spaces

“Avoid Crowds and Poorly Ventilated Spaces”



IF YOU MUST TRAVEL, GET VACCINATED