

# Outbreak of SARS-CoV-2 among Migrant Farm Workers in South Florida

Dushyantha Jayaweera<sup>1</sup>, Khalil Nasser<sup>2</sup>, Vanneza Tobon<sup>2</sup>, Tiffany Elias<sup>3</sup>, Kavya Jasti<sup>2</sup>, Raja Talati<sup>2</sup> & Moti Ramgopal<sup>2</sup>

<sup>1</sup>U. of Miami School of Medicine, Miami, FL <sup>2</sup>Midway Specialty Care, Fort Pierce, FL <sup>3</sup>Midway Specialty Care, West Palm Beach, FL

## BACKGROUND

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the virus that causes Coronavirus Disease 2019 (COVID-19)<sup>1</sup> has infected >35,000,000 people worldwide with >1,000,000 deaths<sup>2</sup> affecting the affluent and the indigent communities equally. We describe a cluster of SARS-CoV-2 infection in a Florida migrant farming community. A projected 2.5-3 million migrant farm workers in the U.S. travel throughout the U.S. serving as the mainstay of a \$985 billion agricultural industry which is almost 5% of the U.S. economy. A study from North Carolina in 2008 found that 89% of the migrant farmer worker camps had more than one violation against the Migrant Housing Act of North Carolina<sup>3</sup>. This study also reported that up to 78% of residents felt they lived in crowded living spaces. Healthcare of migrant farm workers was also studied and found to be underprivileged, uneducated, undocumented, uninsured and employed to perform strenuous physical labor. They live in rural areas with minimal health services and rarely members of any established community. Such challenges make them extremely vulnerable to infectious diseases<sup>4</sup>.

## OBJECTIVES

Detect the SARS-CoV-2 infection status among 262 migrant farm workers in South Florida. Determine difference in symptomatology, recorded temperatures, hospitalization rates and vaccine status between SARS-CoV-2 (+) and SARS-CoV-2 (-) subjects.

## METHODS

This is a retrospective analysis of information gathered from migrant workers referred by the Florida Dept. of Health for evaluation by Midway Specialty Care Center. A standardized source document was generated for use by the abstractor to capture the required information. The abstracted data was deidentified and entered into Microsoft Excel for easier centralization and data analysis. Due to the urgency of returning to Mexico, subjects with whom SARS-CoV-2 was detected were reevaluated for detailed medical history. SARS-CoV-2 (+) subjects who were symptomatic remained in quarantine until at least 14 calendar days have lapsed since the date of the last reported symptom. The subjects that tested negative were released following CDC guidelines. SARS-CoV-2 status was determined using an RNA qualitative nucleic acid amplification test (NAAT) from nasopharyngeal swabs collected over a three-day period. Variables collected include demography, symptoms, temperature, comorbidities, medication use, and vaccine status. Statistical significance for categorical variables was assessed using  $\chi^2$  test or Fisher's exact test where appropriate. Remaining variables were assessed using basic descriptive analysis.

## RESULTS

From 262 subjects tested, 6 missed follow-up visit and data was unavailable. All were Mexican males with SARS-CoV-2 positivity rate of 35.1%. Among the 92, SARS-CoV-2 (+) subjects, the average age was 34.1 years with a range of 19 to 57 years. The symptoms and temperatures are given in Table 1. Three of the 92 (+) subjects were hospitalized, not admitted to an ICU and made an uneventful recovery. The two most common symptoms reported were subjective fever and headache. Majority of the SARS-CoV-2 (+) subjects were completely asymptomatic (59.8%). The most commonly reported comorbidity was being a former/current smoker, at 12.0% & 4.3% respectively.

**Table 1:** Characteristics of migrant workers with and without SARS-CoV-2 infection

	Migrant Workers (n=92) SARS-CoV-2 (+)	Migrant Workers (n=164) SARS-CoV-2 (-)	P value
Age, years	..	..	<0.77
Mean (SD)	34.1 (9.04)	34.5 (10.44)	..
Range	19-57	18-67	..
Symptoms Reported	37 (40.2%)	19 (11.9%)	<0.01
Subjective Fever	20 (21.7%)	6 (3.6%)	<0.01
Headache	14 (15.2%)	3 (1.8%)	<0.01
Cough	13 (14.1%)	8 (4.9%)	<0.01
Rhinorrhea	13 (14.1%)	3 (1.8%)	<0.01
Myalgia	12 (13.0%)	2 (1.2%)	<0.01
Chills	9 (9.8%)	0	<0.01
Diarrhea	6 (6.5%)	0	<0.01
Pleurodynia	5 (5.4%)	1 (0.6%)	<0.03
Sore Throat	5 (5.4%)	0	<0.01
Dyspnea	4 (4.3%)	1 (0.6%)	<0.06
Sneezing	2 (2.2%)	0	<0.13
Vomiting	1 (1.1%)	0	<0.36
Temperature Recorded	81 (88.0%)	146 (89.0%)	..
95.0-95.9	1 (1.2%)	1 (0.7%)	<0.59
96.0-96.9	4 (4.9%)	16 (10.9%)	<0.13
97.0-97.9	24 (29.6%)	50 (34.2%)	<0.48
98.0-98.9	24 (29.6%)	50 (34.2%)	<0.48
99.0-99.9	28 (34.6%)	28 (19.2%)	<0.01
100.0-100.9	0	1 (0.7%)	<0.65
Hospitalizations	3 (3.3%)	0	<0.05
Recovered	3 (100%)	0	..
Comorbidities Reported	19 (20.6%)	N/A	..
Former Smoker	11 (12.0%)	N/A	..
Current Smoker	4 (4.3%)	N/A	..
Chronic Lung Disease	2 (2.2%)	N/A	..
Cardiovascular Disease	1 (1.1%)	N/A	..
Seasonal Allergies	1 (1.1%)	N/A	..
Medication Use Reported	22 (23.9%)	N/A	..
Acetaminophen	19 (20.7%)	N/A	..
Naproxen	1 (1.1%)	N/A	..
Multivitamin	2 (2.2%)	N/A	..
Vaccination Status	84 (91.3%)	N/A	..
Unvaccinated	11 (13.1%)	N/A	..
Mono-Vaccinated	48 (57.1%)	N/A	..
Dual-Vaccinated	25 (29.8%)	N/A	..

## CONCLUSIONS

The COVID-19 pandemic has highlighted migrant farm workers as a vulnerable population with an exorbitant SARS-CoV-2 infection rate of 35.1/100 compared to others in FL (14/100,000). This is the highest incidence we have seen in a single community and it is higher than in meat packing plants in the US. In meat packing plants workers congregate at work and after hours due to poor housing and overcrowding, there is increased risk of transmission. CDC reporting on COVID-19 in this population of 115 meat and poultry processing facility with approximately 130,000 workers, there were 4,913 cases and 20 deaths<sup>5</sup>. In our cohort, There were no deaths and only 3.3% hospitalizations. Perhaps, it may be postulated that this cohort had a lower mortality because they were younger (mean age 34 years) and had less comorbidities than most people with severe COVID-19. Additionally, it may be postulated that excessive continuous sun exposure increased this cohorts Vitamin D levels which may be protective. However, the later needs further evaluation. Since this study is a retrospective analysis of deidentified data, some of the important information such as comorbidities, vaccination status, detailed hospitalization and long-term follow-up are absent in many participants. Although, BCG vaccine was considered protective by some, so far there has been no evidence supporting this concept<sup>6</sup>. Due to overcrowding, quarantining infected farm workers may not eliminate the risks of spreading COVID-19; it behooves us to provide adequate housing and healthcare to prevent the spread of COVID-19. It is essential to provide basic healthcare to migrant farm workers and other vulnerable groups who are uninsured to prevent the spread of COVID-19, including pre exposure prophylaxis or vaccines when they become available.

## REFERENCES

- <sup>1</sup> Coronaviridae Study Group of the International Committee on Taxonomy of V. The species Severe acute respiratory syndrome-related coronavirus: classifying 2019-nCoV and naming it SARS-CoV-2. *Nat Microbiol.* 2020;5(4):536-44.
- <sup>2</sup> Dong DH, Gardner L. An interactive web-based dashboard to track COVID-19 in real time. *Lancet Infect Dis*; published online Oct 05 2020.
- <sup>3</sup> Vallejos QM, et al. Migrant farmworkers' housing conditions across an agricultural season in North Carolina. *Am J Ind Med.* 2011;54(7):533-44.
- <sup>4</sup> Bhopal RS. COVID-19: Immense necessity and challenges in meeting the needs of minorities, especially asylum seekers and undocumented migrants. *Public Health.* 2020;182:161-2.
- <sup>5</sup> JW Dyal et al. COVID-19 Among Workers in Meat and Poultry Processing Facilities MMWR-USDHHS/CDC. 2020;69(18):557-61.
- <sup>6</sup> RG Matteo, et al. Stop Playing with Data-There is no sound evidence that Bacille Calmette-Guerin May Avoid SARS-CoV-2 infection. *Acta Biomed.* 2020;91(2):207-13.