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# Assessment of Different Etiologies of Patients Mechanically Ventilated with COVID-19 from 7/1/2022 to 6/31/2023

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#### Introduction

- COVID-19 is a respiratory disease that may require the utilization of mechanical ventilation
- Mechanical ventilation is a life support device that is utilized to help the patient breathe and it provides oxygen to them
- The objective of this data review was to determine if patients diagnosed with COVID-19 are mechanically ventilated for COVID-19 pneumonia or for some other etiology
- The vaccination status and mortality rate was also assessed for those patients who were intubated for COVID-19 pneumonia
- The COVID-19 results were stratified by variant type and time frame:

Alpha - 3/1/2020 to 10/31/2020 Delta - 11/1/2020 to 8/31/2021 Omicron BA.1 - 9/1/2021 to 1/31/2022 Omicron BA.2 - 2/1/2022 to 6/30/2022

Omicron BA.2.12.1 – 7/1/2022 to 9/31-2022 Omicron BQ.1/BQ.1.1 – 10/1/2022 to 1/31/2023 Omicron XBB.1.5 – 2/1/2023 to 6/31/2023

### **Methods**

- DATA COLLECTION
- Patient data was collected via the five Lehigh Valley Health Network (LVHN) locations for patients that were ventilated with COVID-19 using EPIC data
- The data was stratified into specific categories based on admission/discharge diagnosis
- Resp\*, Neuro\*, Cardiac, Sepsis, Inc.\*, Misc\*
- DATA ANALYSIS
- Those patients admitted for respiratory sequala were further analyzed for specific etiologies during their hospitalization
- COVID-19 variants patient outcomes were analyzed from both previous and current data collection

#### Results

esp.	Neuro.	Cardiac	Sepsis	Inc.	Misc.	Pts.	Pts.	Pts.	Pts.
⁄₀,n)	(%,n)	(%,n)	(%,n)	(%,n)	(%,n)	Survival	Exp.	Vax.	Unvax.
39.3	19.0	13.1	9.5	8.3	10.7	51.0	49.4	62.7	37.3
(33)	(16)	(11)	(8)	(7)	(9)	(42)	(41)	(52)	(31)

Table 1. Patients' Principal Diagnosis upon Admission and Clinical Characteristics 7/1/2022 to 6/31/2023

COVID Pneumonia (%,n)	Pneumonia Viral/Bacteria (%,n)	ARDS (%,n)	COPD/Asthma (%,n)	Aspiration (%,n)	Upper Airway Obstruction (%,n)
33.3 (11)	9.1 (3)	3.0 (1)	24.2 (8)	24.2 (8)	6.1 (2)

Table 2. Respiratory Patient Breakdown of Specific Conditions 7/1/2022 to 6/31/2023

COVID-19 Variant	Patients Survived (%,n)	Patients Expired (%,n)	Survived Vaccinated (%,n)	Expired Unvaccinated (%,n)
Alpha	48.7 (94)	51.3 (99)	N/A **	N/A **
Delta	33.1 (136)	66.9 (275)	42.5 (58)	92.8 (255)
Omicron BA.1	23.7 (76)	76.3 (245)	30.4 (23)	83.1 (204)
Omicron BA.2	60.0 (30)	40.0 (20)	32.1 (10)	66.7 (13)

Table 3. COVID-19 Variant Breakdown 3/1/2020 to 6/30/2022 of 975 Patients

COVID-19 Variant	Patients Survived (%,n)	Patients Expired (%,n)	Survived Vaccinated (%,n)	Expired Unvaccinated (%,n)
Omicron BA.2.12.1	N/A	N/A **	N/A **	N/A **
Omicron BQ.1/BQ.1.1	25.0 (2)	75.0 (6)	89.0 (2)	100.0 (6)
Omicron XBB.1.5	33.0 (1)	67.0 (2)	33.0 (1)	50.0 (1)

Table 4. COVID-19 Pneumonia Variant Breakdown from 7/1/2022 to 6/31/2023 of 11 Patients

#### **Conclusions**

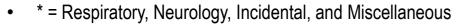
- Patients Intubated for Respiratory Disease from 7/1/2022 to 6/31/2023
  - Of the 84 patients with COVID-19, 39.7% (33 patients) were intubated due to respiratory disease
  - Of the 33 patients with respiratory disease, 33.3% (11 patients) were intubated due to COVID-19 pneumonia
  - The incidence of mechanical ventilation during the most recent variants is much lower than the historical variants
- · Vaccination Status & Mortality Rate
  - Unvaccinated patients mechanically ventilated for COVID-19 pneumonia had a higher degree of mortality compared to patients vaccinated
- COVID-19 Variant Mutation
  - Delta and Omicron BA.1 had the worst mortality rate of all the variants
  - Omicron BQ.1/BQ.1.1 continued to show a high mortality rate due to its low sample size (n=11)

#### **Future Directions**

- Educate the community on the importance of getting vaccinated to reduce the incidence of mortality associated with COVID-19
- Assess patient demographics and clinical characteristics for COVID-19 pneumonia patients for an increased factor of morbidity and mortality
- Compare LVHN statistics to similar medical centers using Vizient

#### **Clinical Observations**

 Clinical rounds: NICU/PICU, MICU/SICU, Trauma Neuro ICU, Inpatient Rehabilitation Center. Open Heart Surgery, Emergency Department, PFT Lab, Respiratory Services, MSICU discharge planning meeting



• \*\* = Not Applicable (No Data Available)

• ARDS = Acute Respiratory Distress Syndrome

• COPD = Chronic Obstructive Pulmonary Disorder

Patients Expired, Vaccinated

