**Characterization of COVID-19 Vaccination in the Virginia Commonwealth University Medical Center Clinical Decision Unit**

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**Practice Site**: Virginia Commonwealth University (VCU) Medical Center

**Background**: The COVID-19 pandemic began in the United States at the start of 2020. The first vaccines developed by Pfizer and Moderna gained Food and Drug Administration (FDA) emergency use authorization (EUA) in December 2020 with the Johnson & Johnson single dose vaccine following in February 2021. Virginia Commonwealth University (VCU) medical center is an urban academic medical center with a level 1 trauma designation. The clinical decision unit (CDU) within the emergency department (ED) at VCU Medical Center began offering the Johnson & Johnson vaccine Monday through Friday 8 AM to 4 PM on May 5, 2021 and to all emergency department patients on June 10, 2021. The CDU is a 24-hour observation unit for ED patients who require additional monitoring before either hospital admission or discharge from the CDU.

**Objective**: The primary outcome of this study was identifying the proportion of unvaccinated patients considered high risk for severe COVID-19 infection per Center for Disease Control (CDC) guidance. The secondary outcome was to characterize the unvaccinated patient population accepting or declining COVID-19 vaccination in the VCU Medical Center CDU.

**Methods**: This was a retrospective cohort study conducted via electronic medical record review of CDU patients screened for COVID-19 vaccination status from May 5, 2021 through August 5, 2021. Patients were automatically screened by medical staff for COVID-19 vaccination status upon CDU admission. The Johnson & Johnson vaccine was automatically ordered to be administered at discharge if the patient was unvaccinated. If patients were discharged outside of the vaccine availability hours or declined the vaccine, the order was nullified. Patients were included if they were 18 years and older, admitted to the CDU, and had a completed COVID-19 vaccine screening form. Patients with incomplete vaccine screening forms or vaccine forms completed in other areas of the ED were excluded. Descriptive statistics were used to evaluate the baseline data. For two-group analysis, descriptive statistics and student t-tests were used to report normally distributed continuous data, while incidence and Chi-squared tests were performed for dichotomous categorical variables. ANOVA was utilized when there were three or more groups.

**Results**: One thousand and forty-nine patients were screened for eligibility. Nine-hundred and eighty-two met inclusion criteria, with 603 patients being vaccinated (61.4%) and 379 patients being unvaccinated (38.6%). The mean age of the entire patient population was 52.7 years old (standard deviation, 16.8), 43% were male, and 56.7% were African American and 36.4% Caucasian. For the primary outcome, 94.2% of unvaccinated patients were considered high risk for severe COVID-19 infection. The most common risk factors were body mass index >25 kg/m2 (65%), smoking history (52.2%) and hypertension (40.5%). Only 7% of patients offered the COVID-19 vaccine accepted and received the vaccine. No statistically significant differences were identified between patients who accepted and declined the COVID-19 vaccine.

**Conclusion**: The results show a majority of unvaccinated patients presenting to the CDU were considered high risk for severe COVID-19 infection. While the vaccine acceptance rate was low, the results show that offering vaccines to this population reaches patients at high risk of morbidity and mortality from COVID-19. Implementation of COVID-19 vaccination in emergency departments is a vital step in improving public health, especially during a global pandemic.