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### **Social Determinants of Health Correlating with Mechanical Ventilation of COVID-19 Patients; A Multi-center Observational Study**

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## ACP Michigan Chapter Scientific Meeting 2021

Oral# 10

Category: Research

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### **Social Determinants of Health Correlating with Mechanical Ventilation of COVID-19 Patients; A Multi-center Observational Study**

**Importance:** Several studies have relayed the disproportionate impact of COVID-19 on marginalized communities, however few have specifically examined the association between social determinants of health and mechanical ventilation (MV).

**Objective:** To determine which demographics impact MV rates among COVID-19 patients.

**Design:** This observational study included COVID-19 patient data from eight hospitals' EMR between February 25, 2020 to December 31, 2020. Associations between demographic data and MV rates were evaluated using uni- and multivariate analyses.

**Setting:** Multicenter (8 hospitals), largest health system in Southeast Michigan

**Participants:** Inpatients with a positive RT-PCR for SARS-CoV-2 on nasopharyngeal swab. Exclusion criteria were missing demographic data or non-permanent Michigan residents.

**Exposure:** Patients were divided into two groups: MV and non-MV.

**Main Outcome and Measures:** The primary outcome was MV rate per demographic. A multivariate model then predicted the odds of MV per demographic descriptor. Hypotheses were formulated prior to data collection.

**Results:** Among 11,304 COVID-19 inpatients investigated, 1,621 (14.34%) were MV, 49.96% were male with a mean age of 63.37 years (17.79). Significant social determinants for MV included Black race (40.19% MV vs. 31.31% non-MV,  $p < 0.0001$ ), poverty (18.87% vs. 17.06%,  $p < 0.0001$ ), and disability (12.65% vs. 9.14%,  $p < 0.0001$ ). Black race AOR 1.61(CI 1.41-1.83), median income AOR 1.01(CI 1.01-1.01), disability AOR 1.55(CI 1.26, 1.90), and non-English speaking status AOR 1.26 (CI 1.05, 1.53) had significantly higher odds of MV.

**Conclusions and Relevance:** Black race, low socioeconomic class, disability, and non-English speaking status were significant risk factors for MV from COVID-19. An urgent need remains for a pandemic response program that strategizes care for marginalized communities.