

IDENTIFICATION OF RISK FACTORS ASSOCIATED WITH COVID-19 HOSPITALIZATION

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Introduction	Method	Results																																																
- Coronavirus disease 2019 (COVID-19) has infected more than millions across the world. Disease control and management would not be possible without understanding risk factors associated with COVID-19 - The published evidence on risk factors for hospitalization because of COVID-19 are mostly based on claims data - Proper understanding of risk factors for hospitalization will help improve clinical management and help in formulating prevention strategies including vaccination and diseases management strategy - Risk factors can also fuel further research in disease activity and mechanism	- We conducted a retrospective database analysis from the Optum Health Care Claims database, which includes 130 million covered lives from Commercial and Managed Medicare plans - Patients diagnosed with COVID-19 infection between 1st April 2020 to 30th September 2020 were included - International Classification of Disease, Tenth Revision (ICD-10) diagnosis codes for COVID-19 were used to identify the cohort - Patients having continuous enrollment between 1 year before (baseline period) to 3 months post (follow up period) first diagnosis of COVID-19 (index date) were included - Clinical risk factors were identified from the list of 27 chronic comorbid conditions included in the Chronic Condition Data Warehouse (CCW) during the 1-year baseline period - Key patient demographic data was also included as risk factors in the study - Primary outcome (independent variables) variable was the inpatient admission in the follow up period due to COVID-19 - Multivariate regression model was used to evaluate the association between sociodemographic characteristics, baseline comorbid conditions and hospitalization events related to COVID-19	- The study included 176,284 patients with diverse race/ethnicity ([47.6%] White, [10.6%] African-American, and [15.4%] Hispanic), a mean (SD) age of 55.5 (21.9) years and 44% males - Regression adjusted clinical predictors for hospitalization included asthma (OR: 1.27 CI: 1.21-1.32), chronic kidney disease (OR: 1.38 CI: 1.34-1.43), chronic obstructive pulmonary disease (OR: 1.20 CI: 1.16-1.25), diabetes (OR: 1.30 CI: 1.26-1.34), hyperlipidemia (OR: 1.12 CI: 1.09-1.16), hypertension (OR: 1.54 CI: 1.49-1.60), ischemic heart disease (OR: 1.15 CI: 1.11-1.19), rheumatoid arthritis / osteoarthritis (OR: 1.09 CI: 1.06-1.13), prostate cancer (OR: 1.11 CI: 1.03-1.20), endometrial cancer (OR: 1.29 CI: 1.05-1.57) and lung cancer (OR: 1.35 CI: 1.18-1.54) - Demographics related risk factors included male sex (OR: 1.29 CI: 1.25-1.33) older age->=55 years (OR: 1.77 CI: 1.70-1.85) and African-American race (OR: 1.58 CI: 1.51-1.65) and Hispanic race (OR: 1.25 CI: 1.20-1.30)																																																
Discussion & Limitations																																																		
- The data suggests that COVID-19 hospitalizations were significantly associated with older age, male sex, and comorbidity burden - This study uses data from a single payer so prospective studies with multiplayers data are needed to understand mechanism and causality																																																		
Figure 1. Odds Ratio for clinical & demographics related risk factors																																																		
<table border="1"><thead><tr><th>Risk Factor</th><th>Odds Ratio (OR)</th><th>95% CI</th></tr></thead><tbody><tr><td>Hispanic Race</td><td>1.25</td><td>1.20-1.30</td></tr><tr><td>African American Race</td><td>1.58</td><td>1.51-1.65</td></tr><tr><td>Age >=55</td><td>1.77</td><td>1.70-1.85</td></tr><tr><td>Male Sex</td><td>1.29</td><td>1.25-1.33</td></tr><tr><td>Lung Cancer</td><td>1.35</td><td>1.18-1.54</td></tr><tr><td>Endometrial Cancer</td><td>1.29</td><td>1.05-1.57</td></tr><tr><td>Prostate Cancer</td><td>1.11</td><td>1.03-1.20</td></tr><tr><td>Rheumatoid Arthritis / Osteoarthritis</td><td>1.09</td><td>1.06-1.13</td></tr><tr><td>Ischemic Heart Disease</td><td>1.15</td><td>1.11-1.19</td></tr><tr><td>Hypertension</td><td>1.54</td><td>1.49-1.60</td></tr><tr><td>Hyperlipidemia</td><td>1.12</td><td>1.09-1.16</td></tr><tr><td>Diabetes</td><td>1.30</td><td>1.26-1.34</td></tr><tr><td>Chronic Obstructive Pulmonary Disease</td><td>1.20</td><td>1.16-1.25</td></tr><tr><td>Chronic Kidney Disease</td><td>1.38</td><td>1.34-1.43</td></tr><tr><td>Asthma</td><td>1.27</td><td>1.21-1.32</td></tr></tbody></table>			Risk Factor	Odds Ratio (OR)	95% CI	Hispanic Race	1.25	1.20-1.30	African American Race	1.58	1.51-1.65	Age >=55	1.77	1.70-1.85	Male Sex	1.29	1.25-1.33	Lung Cancer	1.35	1.18-1.54	Endometrial Cancer	1.29	1.05-1.57	Prostate Cancer	1.11	1.03-1.20	Rheumatoid Arthritis / Osteoarthritis	1.09	1.06-1.13	Ischemic Heart Disease	1.15	1.11-1.19	Hypertension	1.54	1.49-1.60	Hyperlipidemia	1.12	1.09-1.16	Diabetes	1.30	1.26-1.34	Chronic Obstructive Pulmonary Disease	1.20	1.16-1.25	Chronic Kidney Disease	1.38	1.34-1.43	Asthma	1.27	1.21-1.32
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