the COVID-19 pandemic, Medicaid enrollment offset employer-based insurance losses precipitated by the recession. The aim of this study was to evaluate whether Medicaid expansion may have impacted COVID-19 mortality.

**Methods.** We conducted an ecologic study that included all US counties in the 50 states and District of Columbia. County-specific Medicaid expansion status was based on whether expansion was adopted within the state. COVID-19 cases and deaths for each county were obtained from the Centers of Disease Control (CDC). Unadjusted and multivariable negative binomial regression with robust standard errors to account for clustering of counties within each state were used to evaluate the association of COVID-19 inpatient admittance and Medicaid expansion status. Adjusted models included the addition of four sets of county-level covariates thought to influence the association of Medicaid status and COVID-19 fatality rate: demographics, comorbidities, economic indicators, and physician density. These analyses were then performed in subgroups of counties defined by urbanicity (metro, suburban or rural) and quartiles of poverty rates. Incidence Rate Ratios (IRR) and 95% confidence intervals (CI) are reported.

**Results.** A total of 1,814 Medicaid expansion and 1,328 non-expansion counties were included in the analysis. crude case fatality rates were 2.1% (non-expansion) and 1.8% (expansion). Medicaid expansion was not associated with a significantly lower COVID-19 case fatality rate in either the unadjusted (IRR: 0.86; 95% CI: 0.74, 1.01) or fully adjusted (IRR: 1.02; 95% CI: 0.90, 1.16) models. In adjusted models, Medicaid expansion status was also not associated with differences in COVID-19 case-fatality rate when counties were stratified by either urbanicity or percent of individuals living below the poverty line.

**Conclusion.** In this county-level analysis, Medicaid expansion status was not associated with a significant difference in county-level COVID-19-related case fatality rates among people of all ages. Future individual-level studies are needed to better characterize the effect of Medicaid on COVID-19 mortality.

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445. COVID-19 Pharmacotherapy Was Not Associated with Mortality in a Community Teaching System

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**Session:** P-21. COVID-19 Research

**Background.** During the COVID-19 pandemic, a task force was assembled to collect data on patient characteristics and treatment exposures to assess what factors may contribute to patient outcomes, and to help develop institutional treatment guidelines. Pharmacotherapies were performed on COVID-19 inpatient admissions within a four-hospital community health system over a six-month period from April-October 2020. Positive COVID-19 immunology results and/or in conjunction with an inpatient admission was criteria for inclusion. Covariates for age, gender, race were added. Patients were assigned to one of COVID-19-related subgroups of counties defined by baseline comorbidities, admission level-of-care, vital signs, mortality outcomes, need for intubation, and specific pharmacological treatment exposures. Logistic regression was performed on our final model and reported as OR +/- 95% CI.

**Results.** A total of 349 patients met inclusion criteria. Pharmacotherapies included were also assessed. COVID-19 inpatient admittance was criteria for inclusion. Covariates for age, gender, race, hypertension, diabetes, chronic obstructive pulmonary disease, chronic kidney disease, coronary artery disease, malignancy, obesity, and smoking.

**Conclusion.** In this county-level analysis, Medicaid expansion status was not associated with a significant difference in county-level COVID-19-related case fatality rates among people of all ages. Future individual-level studies are needed to better characterize the effect of Medicaid on COVID-19 mortality.

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446. Prognostic Value of Absolute Lymphocyte Count for Disease Severity and Clinical Outcomes in Adult COVID-19 Patients

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**Session:** P-21. COVID-19 Research

**Background.** Lymphopenia has been reported as a relatively frequent finding in patients with coronavirus disease 2019 (COVID-19). This study aimed to assess the use of absolute lymphocyte count (ALC) as a prognostic biomarker for disease severity and clinical outcomes.

**Methods.** A cohort of adult patients with COVID-19 admitted to Memorial Healthcare System, Hollywood, Florida from March 7, 2020 to January 18, 2021 was retrospectively analyzed. An absolute lymphocyte count (ALC) < 1.1 x 10^7/L was used as cutoff point to define lymphopenia. Correlations of ALC upon admission with age and serum levels of C-reactive protein, interleukin-6, lactate dehydrogenase, and creatinine were analyzed. Univariate and multivariate regression models were developed to assess the association of lymphopenia with the risk of ICU admission and clinical outcomes.

**Results.** 4,485 hospitalized patients were included in the final analyses. Median age was 61 (interquartile range, 47-73) years and 2,311 (51.5%) were men. Lymphopenia was more frequent in patients admitted to the ICU compared to those that were not admitted to the ICU, with an odds ratio of 2.14 (95% confidence interval [CI], 1.78-2.56, p < .0001) (Figure 1). The actual value of the ALC was negatively correlated with age and serum levels of C-reactive protein, interleukin-6, lactate dehydrogenase, and creatinine (all p < .005). Patients with lymphopenia (n=2,409) compared to those without lymphopenia (n=2,076) had multivariable-adjusted odds ratios of 1.85 (95% CI, 1.53-2.24) for ICU admission, 2.08 (95% CI, 1.67-2.58) for intubation, 1.98 (95% CI, 1.31-3.00) for development of acute kidney failure, and 2.23 (95% CI, 1.79-2.79) for in-hospital mortality (Table 1). Analyses were adjusted for age, gender, race, hypertension, diabetes, chronic obstructive pulmonary disease, chronic kidney disease, coronary artery disease, malignancy, obesity, and smoking.

**Conclusion.** Lymphopenia in adult COVID-19 hospitalized patients was associated with increased risk of disease severity (as evidenced by need for ICU admission) and poor clinical outcomes. Absolute lymphocyte count may help with prognostication in individuals hospitalized with COVID-19.

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447. An Ordinal Scale Assessing SARS-CoV-2 Infected Patient Outcomes Using Electronic Health Records

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**Session:** P-21. COVID-19 Research

**Background.** Use of SARS-CoV-2 infected patient outcomes using Electronic Health Records.
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Session: P-21. COVID-19 Research

Background. A major challenge to identifying effective treatments for COVID-19 has been the conflicting results offered by small, often underpowered clinical trials. The World Health Organization (WHO) Ordinal Scale (OS) has been used to measure clinical improvement among clinical trial participants and has the benefit of measuring effect across the spectrum of clinical illness. We modified the WHO OS to enable assessment of COVID-19 patient outcomes using electronic health record (EHR) data.

Methods. Employing the National COVID Cohort Collaborative (NCCC) database of EHR data from 50 sites in the United States, we assessed patient outcomes, April 1, 2020 to March 31, 2021, among those with a SARS-CoV-2 diagnosis, using the following modification of the WHO OS: 1=Outpatient, 3=Hospitalized, 5=Required Oxygen (any), 7=Mechanical Ventilation, 9=Organ Support (pressors, ECMO), 11=Death. OS is defined over 4 weeks beginning at first diagnosis and recategorized each week using the patient’s maximum OS value in the corresponding 7-day period. Modified OS distributions were compared across time using a Pearson Chi-squared test.

Results. The study sample included 1,446,831 patients, 54.7% women, 14.7% Black, 14.6% Hispanic/Latina. Pearson Chi-Sq P = 0.0001 was obtained comparing the distribution of 2nd Quarter 2020 OS with the distribution of later time points for Week 4.

Table 1. OS at week 1 and 4 by quartier

| Week 1  | Week 4  |
|---------|---------|
| OS   | N (%)   | OS   | N (%)   |
| 1 Output | 775,953 | 115,056 | 79.7% | 90.72 |
| 3 Hospitalized | 16,369 | 17,612 | 10.4% | 9.93 |
| 5 Oxygen | 2,903 | 2,706 | 7.9% | 7.93 |
| 7 Ventilation | 4,032 | 3,848 | 2.7% | 3.03 |
| 9 Support | 205 | 219 | 0.1% | 0.13 |
| 11 Death | 5 | 4 | 0.0% | 0.03 |

Conclusion. The original OS definitions were modified to capture improving outcomes among COVID-19 patients. The modified OS is associated with improved outcomes across all quartiles of the OS distribution.

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449. Performance of the Brighton Case Definition for Multisystem Inflammatory Syndrome in Children (MIS-C) Among a Large Single Center Cohort

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Session: P-21. COVID-19 Research

Background. Multisystem Inflammatory Syndrome in Children (MIS-C) is a rare, life-threatening, hyperinflammatory condition presumed to follow SARS-CoV-2 infection. Whether MIS-C can also follow SARS-CoV-2 vaccination is not clear, making MIS-C an adverse event of special interest following immunization. Monitoring for post-vaccine MIS-C is complicated by the clinical overlap of MIS-C with numerous other inflammatory conditions including Kawasaki Disease, toxic shock syndrome, and viral myocarditis. A case definition for MIS-C was recently created with the Brighton Collaboration (BC) to define and determine the performance of the BC MIS-C case definition among a large, single-center MIS-C cohort.

Methods. Retrospective review was performed for the first 100 MIS-C cases at our institution (May 2020–February 2021). All cases met the Centers for Disease Control and Prevention (CDC) MIS-C definition. Laboratory and cardiology studies were collected and used to determine cases that fulfilled the BC case definition for MIS-C (see figure).

Case Definition: Definitive Case

Results. Of 100 children (age <21 years) diagnosed with MIS-C using the CDC case definition, 93 patients also fulfilled the BC definition. All 100 patients had elevated laboratory markers of inflammation and positive SARS-CoV-2 antibodies. However, 1 patient was excluded for significant respiratory symptoms (pulmonary hemorrhage), 5 were excluded due to only one clinical feature, and an additional patient was excluded for having none of the measures of disease activity. Among the 93 patients fulfilling the revised case definition, 88 (95%) met criteria for a definite case. Five of the 93 patients (5%) were considered probable cases, 1 reported only 1 day of fever and had only 1 measure of disease activity.

Conclusion. The original case definitions for MIS-C were created rapidly following the first emerging reports of this hyperinflammatory state. Knowledge of the varied clinical presentations of this disorder has grown substantially. Modification of the case definition to include features typically seen in MIS-C results in a more precise definition of disease activity in the face of conditions which mimick MIS-C, and for accurate and reliable monitoring for adverse events following immunization.

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450. Type I Interferon Autoantibodies Are Detected in Those with Critical COVID-19, Including a Young Female Patient

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