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Internal Medicine

6-2022

Impact of Serum IGG Levels Against SARS-COV-2 on Clinical Outcomes for Hospitalized COVID Patient

Bipin Ghimire

Bijaya Thapa

Nishant Aggarwal

Luai Madanat

Melinda Sager

See next page for additional authors

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Authors

Bipin Ghimire, Bijaya Thapa, Nishant Aggarwal, Lui Madanat, Melinda Sager, Daniel O'Connor, and Alexandra Halalau

Participants with PTSD symptoms were more likely to be very worried about getting COVID (65% vs. 33%, $p=0.007$), more likely to think that $\geq 10\%$ of people with COVID would die (75% vs. 40%, $p=0.006$), and that it was very likely that they or someone they know will get sick from COVID (64% vs. 23%, $p=0.006$). As the pandemic drew on, cancer survivors' beliefs about COVID changed such that fewer respondents reported that COVID changed their daily routine a lot in season 4 compared to season 1 (88% vs 65%, $p < 0.001$), and fewer were very worried about getting COVID (38% vs. 19%, $p=0.056$). Temporality was also significantly associated with a decrease in PTSD symptoms with average PCL-5 scores decreasing from 14.2 to 8.9 in season 1 compared to season 4 ($p < 0.0001$).

CONCLUSIONS: As the pandemic progressed, cancer survivors tended to have decreased levels of PTSD symptoms, were less likely to have their routines disrupted and were less worried about getting COVID. However, among participants who had PTSD symptoms, concerns about COVID were significantly higher than among those without PTSD symptoms, emphasizing the need for mental health screening and counseling to better support survivors' coping with the impacts of the pandemic.

IMPACT OF COVID-19-RELATED REGULATORY CHANGES ON NATIONWIDE ACCESS TO BUPRENORPHINE AND TREATMENT DISRUPTIONS

Payel J. Roy¹; Katherine C. Kim²; Katie Suda³; Jing Luo¹; Xiaoming Wang⁴; Jane Liebschutz¹

¹Medicine, UPMC/University of Pittsburgh, Pittsburgh, PA

²Center for Pharmaceutical Policy and Prescribing, University of Pittsburgh Schools of the Health Sciences, Pittsburgh, PA

³Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA

⁴National Institute on Drug Abuse, Bethesda, MD. (Control ID #3688925)

BACKGROUND: The intersection of the opioid overdose epidemic and COVID-19 pandemic has prompted major regulatory changes to ease access to medications for opioid use disorder via telemedicine. We examined the impact of COVID-19-related health care changes on access to buprenorphine (BUP) by age, gender, insurance category, and prescriber specialty using a nationwide longitudinal prescription database.

METHODS: We used an interrupted time series design with IQVIA LRx, a longitudinal database with $>90\%$ of all prescriptions dispensed in the US. The study timeline included BUP prescriptions from 52 weeks before (2/23/19-2/21/20) to 52 weeks after (3/28/20-4/2/21) the initial pandemic period (2/22/20-3/27/20). The outcome of interest was total milligrams (MG) of BUP available per week nationwide. We used the CMS NPI database to assign prescriber specialty. Segmented regression was used to estimate relative changes in BUP prescribing at 1, 26, and 52 weeks post- initial-pandemic period compared to the expected baseline trend. We also evaluated treatment disruptions (a gap of 28 days) in previously stable patients, defined as ≥ 6 months of BUP prescriptions without a treatment disruption.

RESULTS: A total of 31,801,061 prescriptions were included. The number of patients with an active BUP prescription was increasing in the 52 weeks pre-pandemic (trend: 1252 pat./wk.) and increased significantly in the 1st week post- initial-pandemic period (level change: 25786, $p < 0.001$). The total MG BUP dispensed increased at 1, 26, and 52 weeks compared to the expected baseline trend (5.3% [4.9, 5.7], 3.3% [2.8, 3.8], 1.2% [0.48, 1.9]), as did the mean days supplied (9.3% [8.7, 9.9], 4.9% [4.3, 5.5], 6.3% [5.4, 7.3]). Stably-treated patients saw a significant decrease in treatment disruptions at 52 weeks post-initial-pandemic period (-28.4% [-33.7, -23.0]) compared to the expected baseline trend. Older age groups (40+) experienced an increase in MG BUP at 52 weeks (40-49: 4.9 [3.9, 5.9]; 50-64: 3.0 [0.75, 5.2]; 65+: 4.5 [3.4, 5.6]), while people aged 18-29 saw a significant decrease in MG BUP (-16.5 [-24.1, -8.8]). Men retained a significant increase in MG BUP compared to women at 52 weeks (1.7% [1.0, 2.4] v 0.5% [-0.34, 1.3]). People with Medicaid had a significant increase in MG BUP at 52 weeks (9.6% [7.7, 11.6]) while people paying with cash (-10.1 [-12.3, -7.9]) and commercial insurance (-4.6 [-5.7, -3.4]) saw significant decreases compared to the expected baseline trend. APPs, compared to physician specialties, had a notable increase in MG BUP dispensed at 1, 26, and 52 weeks (10.0 [8.8, 11.2], 7.1 [5.9, 8.4], 2.8 [0.13, 5.4]).

CONCLUSIONS: In the year after the initial COVID-19 pandemic period, patients received longer prescriptions of BUP and overall increased total MG BUP. Stably-treated patients experienced fewer treatment disruptions. Regulatory changes around BUP prescribing may have helped patients maintain access to MOUD during the pandemic.

IMPACT OF HIGH DEDUCTIBLE HEALTH PLANS ON OPIOID ADDICTION CARE

Bryant Shuey¹; James Frank Wharam²; Hefei Wen³; Fang Zhang³; Dennis Ross-Degnan³; Stephanie Argetsinger³; Rebecca Costa³

¹Department of Population Medicine, Harvard Medical School Department of Population Medicine, Boston, MA

²Margolis Center for Health Policy, Duke University, Durham, NC

³Health Policy and Insurance Research, Harvard Pilgrim Health Care Institute, Boston, MA. (Control ID #3710673)

BACKGROUND: Deaths due to opioids are on the rise. Recommended opioid use disorder (OUD) care includes prompt assessment, diagnosis, initiation of medication for opioid use disorder (MOUD), and MOUD retention to prevent downstream catastrophic events such as opioid overdose. However, only 20% of OUD patients receive treatment, and buprenorphine costs are frequently cited as a barrier to MOUD initiation.

In 2018, nearly 45% of privately insured persons under age 65 were enrolled in high deductible health plans (HDHPs). HDHPs require members to pay \$1000 to \$7000 annually for most non-preventive care and could delay OUD diagnosis and buprenorphine initiation.

METHODS: We conducted a longitudinal study comparing HDHP and traditional low-deductible plan groups using national health insurance claims data from 2003-2017. We included adults age 18 to 64 years old with continuous enrollment for 12 baseline months in low deductible ($\leq \$500$) plans. At the index date, the intervention group then experienced employer-mandated switches to HDHPs for 1 to 48 follow-up months while the control pool remained in low-deductible plans for 1 to 48 follow-up months by employer choice. We excluded patients with evidence of OUD before baseline then matched the contemporaneous control group using multiple baseline characteristics. We ran a match on 10% of our sample. Our event measure comprised the first instance of any office-based OUD diagnosis or buprenorphine prescription fill. We used a controlled before-after time-to-event analysis with Cox proportional hazards models to assess the timing of measures in the HDHP group relative to the control group following the index date.

RESULTS: After matching, our final sample included 19,813 HDHP and 530,005 traditional plan group members. At baseline, HDHP and traditional plan groups had no differences in event rates (hazard ratio 1.00, 95% CI 0.14-7.10). The hazard ratio for the HDHP compared to control group for experiencing an event was 0.95 (95% CI 0.53-1.73).

CONCLUSIONS: HDHPs are increasingly prevalent insurance designs. We found that mandated HDHP enrollment was not significantly associated with a delay in important opioid-related care. These findings provide evidence that cost may delay the opioid "Cascade of Care." Policy makers should consider reducing out-of-pocket costs for OUD services.

IMPACT OF SERUM IGG LEVELS AGAINST SARS-COV-2 ON CLINICAL OUTCOMES FOR HOSPITALIZED COVID PATIENTS

Bipin Ghimire¹; Bijaya Thapa¹; Nishant Aggarwal¹; Luai Madanat¹; Melinda Sager¹; Daniel O'connor¹; Alexandra Halalau²

¹Internal Medicine, Beaumont Hospital - Royal Oak, Royal Oak, MI

²Internal Medicine, Beaumont Health, Royal Oak, MI. (Control ID #3716156)

BACKGROUND: The SAR-CoV-2 pandemic continues to negatively impact the healthcare system globally with over 800,000 deaths in the United States and millions more worldwide. The cases are rising despite availability of vaccines. For most immunocompetent patients these vaccines will generate a humoral response and also a memory T-cell response. Few if any studies have reported data that measure anti-spike IgG titers and also correlate those titers with clinical outcomes in the instance of breakthrough infection.

METHODS: We conducted a pilot prospective observational clinical study enrolling 30 immunocompetent patients who were admitted with a positive SARS-CoV-2 PCR. Leftover blood from admission was used to obtain anti-spike and anti-nucleocapsid antibody levels. Baseline characteristics were collected and patients were divided into two categories based on anti-spike antibody level and vaccination status. Clinical outcomes including mortality, major adverse cardiac events (MACE), overall length of stay (LOS), ICU LOS, maximum oxygen support needs, and mechanical ventilation needs were analyzed on day 28 in both categories.

RESULTS: On analyzing the patients enrolled, the median age was 59 years, 56.67% were female and 73.3% were Caucasian. 6 patients (20%) were asymptomatic, and 63.3% patients had hypertension. Among all patients, the median duration of symptoms was 7 days, and the median LOS was 7 days as well. Anti-spike antibody was detected in 22 patients (73.33%), and the median value was 956. Anti-nucleocapsid antibody was positive only in 9 patients (30%).

Three patients (10%) were admitted to ICU, and all 3 were mechanically ventilated. Four patients (13.33%) had a MACE event in those 28 days, and 5 patients (16.67%) died. Comparing vaccinated vs unvaccinated: 3/5 deceased patients were unvaccinated, and 2/3 mechanically ventilated were unvaccinated as well but these were not statistically significant. 0.6% patients were asymptomatic in unvaccinated group versus 33% in the vaccinated group. Among the 7 patients with high oxygen needs (fio2 100%), 5 had undetectable anti-spike antibodies, and one had low value (89.6). 2 out of 3 mechanically ventilated and 3 out of 5 deceased patients had undetectable anti-spike antibodies.

CONCLUSIONS: Our pilot study did not show significance in outcomes between vaccinated and unvaccinated patients, but this relation has been verified in multiple larger studies. We also noted patients with undetectable/low anti-spike antibody levels had increased fio2 needs, ICU admission, and mortality. However, it was not feasible to compare both these findings between groups due to less number of patients. This demands a larger study to better describe these relations.

IMPACT OF THE CAREGIVER ADVICE, RECORD, ENABLE (CARE) ACT ON QUALITY OF PATIENT COMMUNICATION AND PATIENT EXPERIENCE AT US HOSPITALS

Courtney R. Lee²; Elizabeth Taggart¹; Norma B. Coe³; Paula Chatterjee²

¹University of Pennsylvania, Philadelphia, PA

²Medicine, University of Pennsylvania, Philadelphia, PA

³Medical Ethics and Health Policy, University of Pennsylvania, Philadelphia, PA. (Control ID #3711017)

BACKGROUND: Hospitalization represents a time of vulnerability and transition for patients and caregivers, as it is often associated with new home-based care plans and nursing procedures upon discharge. The Caregiver Advice, Record, Enable (CARE) Act is a state policy designed to facilitate communication between providers, patients, and caregivers during hospitalization to improve discharge planning. Since 2014, 41 states have implemented this policy, yet, whether it has been associated with improvements in quality and patient experience remains unknown. To compare differential changes in the quality of communication and patient experience between hospitals in states that enacted the CARE Act compared to those in states that did not.

METHODS: Using a difference-in-differences analysis, we conducted a retrospective cohort study of all US short-term, acute-care hospitals between 2013-2019. A total of 4,241 hospitals were included, with 1,075 hospitals in non-CARE Act states and 3,166 in CARE Act states. The exposure was a time-varying indicator for passage of the CARE Act. The primary outcomes were two hospital-level measures of quality of communication between physicians and nurses, each measured by the percent of patients reporting physicians or nurses "Always" communicated well. The secondary outcomes were two patient-reported experience measures, defined as the percent of patients overall hospital rating 9 or 10 on a 1-10 scale, and the percent of patients who would recommend the hospital to others. All measures were obtained from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). Regressions included state- and year-fixed effects,

with standard errors clustered at the state-level to reflect the level of policy exposure.

RESULTS: A total of 21,208 hospital-years were included in the analysis, with 5,216 in non-CARE Act states and 15,992 in CARE Act states. There were no differential changes in quality of nurse communication. There was a modest differential improvement in physician communication (mean [SD] non-CARE Act states 80.7% [4.9%] vs 81.0% [4.5%]; CARE Act states 80.3% [4.6%] vs 79.7% [4.6%]; differential change=0.51 percentage points; $p=0.02$) in CARE Act states. There were no significant differential improvements in overall hospital rating, but there was a differential increase in the percent of patients that would recommend the hospital to others (non-CARE Act states 70.5% [8.5%] vs 69.4% [9.0%]; CARE Act states 70.2% [9.2%] vs 69.9% [9.0%]; differential change=1.2 percentage points; $p<0.01$).

CONCLUSIONS: This difference-in-differences study found that hospitals in states that enacted the CARE Act had differential improvements in the quality of communication with physicians and the likelihood of patients recommending a hospital to others compared to hospitals in states that did not. Developing policies that require hospitals to more actively facilitate post-discharge communication can translate to better quality and experience for patients.

IMPACT OF VIRTUAL DIABETES GROUP VISITS ON PATIENT OUTCOMES DURING THE COVID-19 PANDEMIC IN MIDWESTERN HEALTH CENTERS

Arshiya A. Baig¹; Tracy Dinh⁷; Daisy S. Nuñez⁸; Erin Staab¹; Mengqi Zhu²; Wen Wan⁴; Cynthia Schaefer⁶; Amanda Campbell⁵; Michael T. Quinn³

¹Department of Medicine, University of Chicago, Chicago, IL

²Division of the Biological Sciences, University of Chicago Division of the Biological Sciences, Chicago, IL

³Medicine, University of Chicago, Chicago, IL

⁴Section of General Internal Medicine, University of Chicago, Chicago, IL

⁵MidWest Clinicians' Network, Lansing, MI

⁶Research, MidWest Clinicians Network, Evansville, IN

⁷General Internal Medicine, University of Chicago Pritzker School of Medicine, Chicago, IL

⁸Section of General Internal Medicine, University of Chicago Division of the Biological Sciences, Chicago, IL. (Control ID #3715742)

BACKGROUND: Diabetes group visits (GVs) or shared medical appointments have been shown to improve clinical outcomes, but few have reported results from virtual diabetes GV. No studies have evaluated virtual GV among community health center patients across a region of the U.S.

METHODS: Six health center sites across five states conducted six monthly virtual GV with up to 12 adult patients with type 2 diabetes and suboptimal glycemic control (glycosylated hemoglobin (A1C) $\geq 8\%$). Virtual group visits consisted of six monthly 60 to 90 minute-long diabetes education sessions led by health center staff via a videoconferencing platform. GV patients enrolled at the site also had an appointment with their primary care physician within two weeks of each monthly virtual group visit. Primary outcome was change in patients' A1C from baseline to 6-months. Secondary outcomes were changes in patients' blood pressure, low density lipoproteins (LDL) and weight. Patients also completed surveys at baseline and 6-months describing their diabetes self-care behaviors and satisfaction with the virtual GV. Generalized linear mixed models and linear mixed models were used to test the effects of GV, time points and their interaction.

RESULTS: Forty eight patients were enrolled (mean age 55 ± 12 years, 67% female, 63% black/African American, 32% white/Caucasian, and 8% Hispanic/Latino, 88% had public health insurance, mean baseline A1C of $9.84\% \pm 1.78\%$, 35% with A1C $< 9\%$). 34 patients completed one or more virtual GV; 14 patients attended no virtual group visits. At 6-months, average A1C was 8.96 ± 1.82 ; A1C decreased by $-0.56\% \pm 0.31$ compared to baseline which was borderline significant ($p=0.08$). At 6-months, 58% of patients had an A1C $< 9\%$ which was borderline significantly decreased ($p=0.055$) compared to baseline. For patients with an A1C at baseline $> 9\%$, there was a significant decrease in A1C at 6 months (-1.06 ± 0.45 , $p=0.03$). There was no significant difference in blood pressure, LDL or weight from baseline to 6-