Introduction: The COVID pandemic effects on the control of chronic diseases such as diabetes has been a growing concern. UK based studies have shown that during the pandemic, there were unfortunate reductions in A1c testing, an increase in diabetes related mortality, and an increased concern of subpar care in the outpatient setting. With the pandemic currently present in the US over a year, we retrospectively analyzed the trends of diabetic emergencies as it relates to A1c ordering frequency and telemedicine utilization.

Methods: Using the EPIC database, patients with type 1 and type 2 diabetes that were affiliated with the institution’s primary care and endocrinology outpatient centers were selected. From this patient population, diabetes related ER visits/admissions (hyperglycemia, DKA, HHS), A1c ordering frequency, average A1c and telemedicine utilization (telephone visits/virtual visits) were reviewed under the following phases from January 1, 2019 - August 31, 2021: PRE-COVID (January 1, 2019 - February 29, 2020); COVID (March 1, 2020 - December 31, 2020) and VACCINATION (Jan 1, 2021 - August 31, 2021). Generalized linear models were used to assess the impact of COVID-19 on ED visits/admissions, telemedicine and A1c ordering frequency; while their numbers were compared between the three phases. Spearman correlation was used to assess correlation between variables of interest.

Results: A total of 10,083 patients were included in the study. There were statistically significant differences in the average monthly ED visits and admissions between the phases COVID and VACCINATION as compared to PRE-COVID with an average increase of 4 visits during COVID as compared to PRE-COVID (p = 0.0061) and an average increase of 5 visits during VACCINATION as compared to PRE-COVID (p = 0.0048). Telemedicine utilization increased by an average of 284 during COVID as compared to PRE-COVID (p < 0.0001). On the other hand, there was a significant decrease in A1c ordering during the COVID phase as compared to PRE-COVID by an average of 294 (p = 0.0003) which returned to similar ordering frequencies to PRE-COVID during the VACCINATION phase. Of note there were no statistically significant differences of average A1c throughout each phase. There was significant positive correlation between telemedicine visits and ED visits/admission where hospital visits increased with increased telemedicine utilization (ρ = 0.49; p = 0.0049). On the other hand there was significant negative correlation between telemedicine and A1c ordering frequency (ρ = -0.46; p = 0.0076). There was no significant correlation between ED visits/hospital admissions with A1c ordering frequency however.

Conclusion: Correlations between telemedicine utilization, hospital visits and A1c monitoring suggest a negative impact of telemedicine utilization on A1c monitoring and the frequency of acute diabetic complications during the COVID pandemic.