

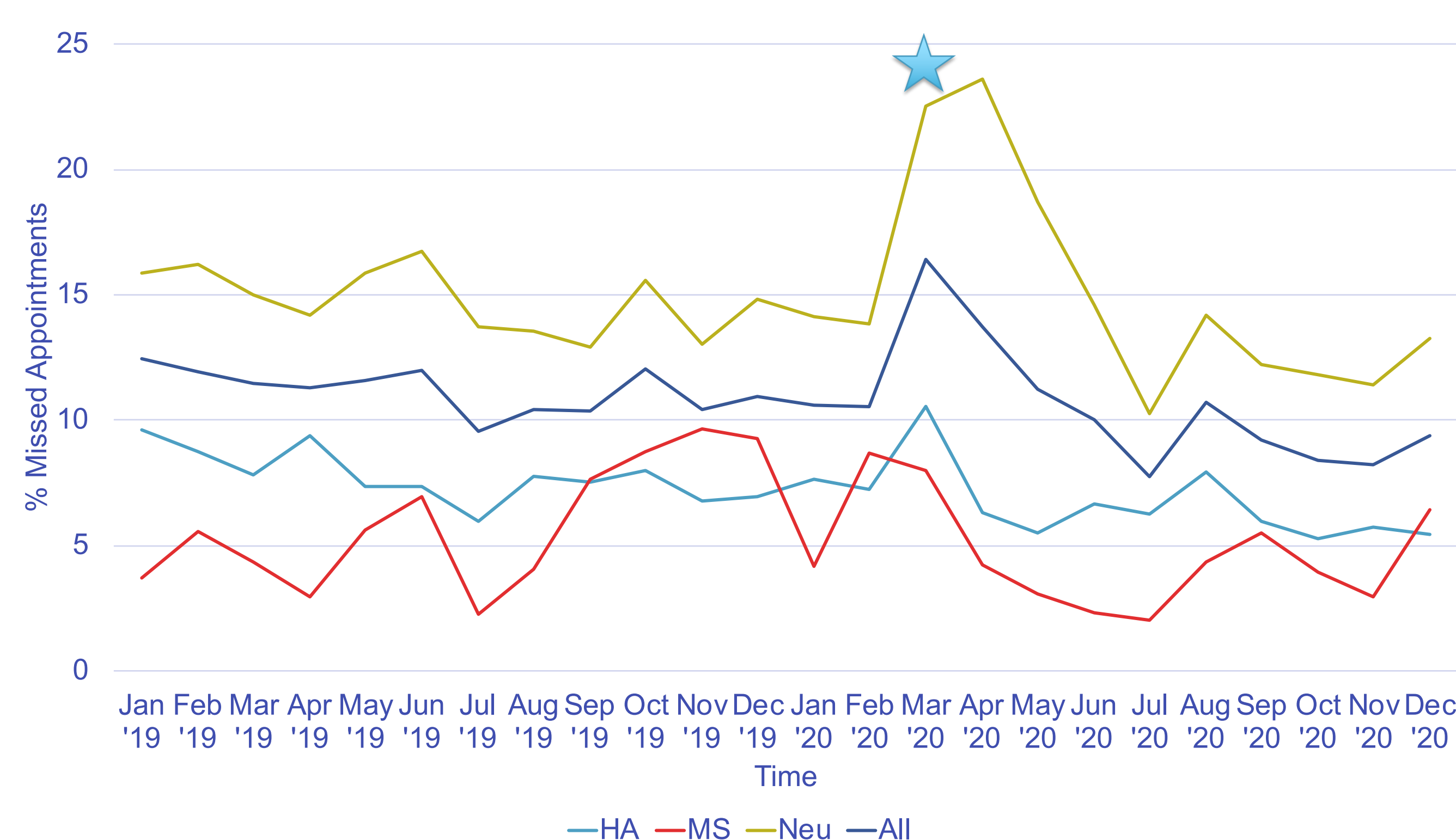
## INTRODUCTION

In an effort to adapt to the COVID-19 pandemic, many outpatient practices across a variety of departments in the United States have expanded telehealth usage and incorporated telemedicine into routine practice.<sup>1-4</sup> Prior studies have demonstrated increased implementation of telemedicine without significant differences in use by age or gender.<sup>1</sup> There have been varying results demonstrated with respect to missed appointment rates, with some studies concluding no change in missed appointment rates<sup>1</sup> and others demonstrating decrease in missed appointment rates with telehealth visits compared to in-person visits.<sup>4,5</sup> Still other studies have demonstrated demographic and socioeconomic disparities associated with telemedicine usage.<sup>5,7</sup> A large study of pediatric and adult patients within an Otolaryngology Practice at a tertiary academic hospital demonstrated increased propensity to pursue telemedicine visits, as well as lower missed appointment rates, among individuals in higher median household income categories and those with private insurance as compared to those with lower median household income and those with Medicaid or no insurance<sup>5</sup>. Furthermore, this same study demonstrated decreased telemedicine usage among patients of older age and non-White race, as well as lower no-show rates among females and married individuals compared to males and single individuals.<sup>5</sup>

## OBJECTIVE AND METHODS

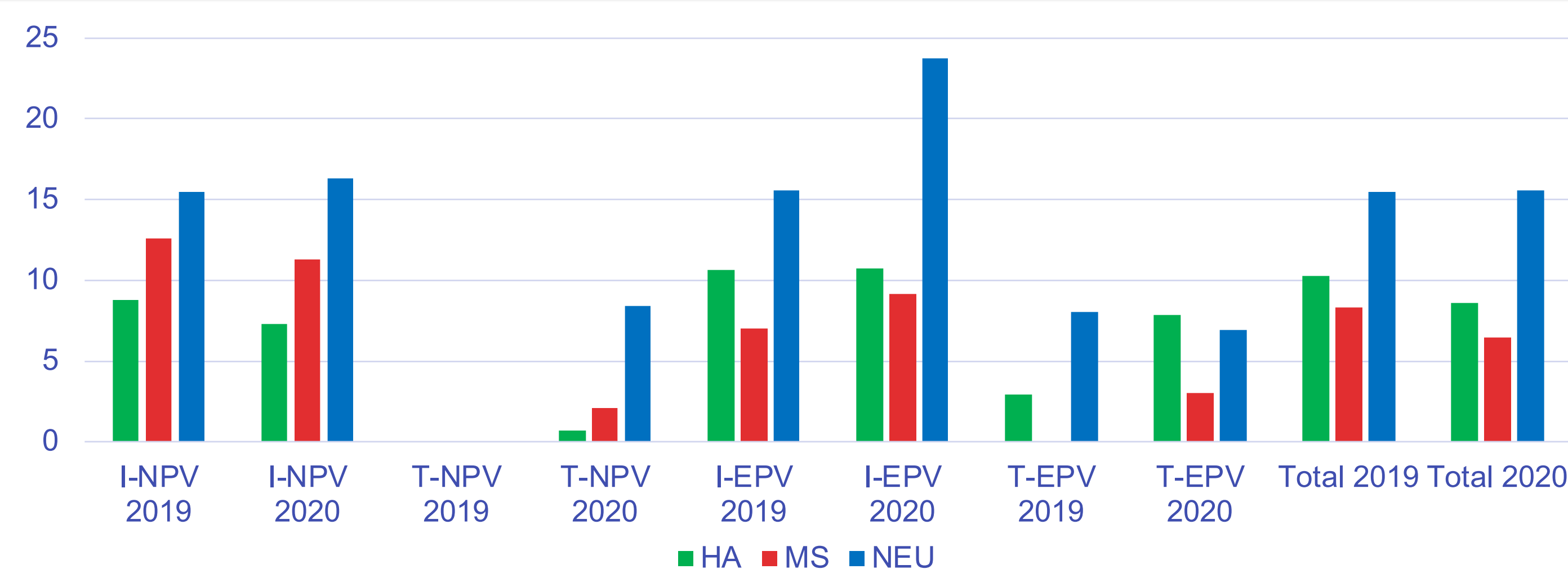
Neurology, a largely outpatient specialty, has joined many other fields in the endeavor of incorporating telemedicine.<sup>4,6,7</sup> We present the results of analysis of the Epic Electronic Medical Record (EMR) of all outpatient visits from the Thomas Jefferson University Hospital Department of Neurology from 2019 to 2020 in order to identify areas of ethnic minority and geographic disparities with regards to usage of telemedicine. For our analyses, we have included Neurology patients across the General Neurology (JUP Neurology 909 Walnut NEU), Headache Center (HA), and Multiple Sclerosis Center (MS). Additionally, based on patient surveys from a subset of our outpatient population within General Neurology sampled over one week on a voluntary opt-in basis, we identified a need for further education about and introduction to the telemedicine process. We intend to outline plans for future intervention and analysis.

## RESULTS

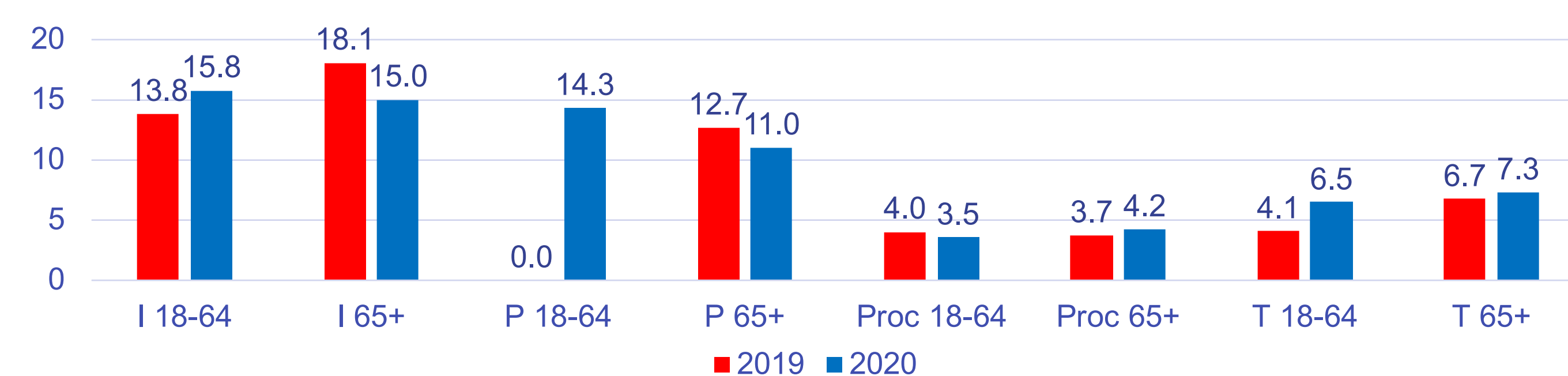


**Fig 1. Missed Appointment Rates (for any visit type) across Neurology departments 2019-2020, \* - March 2020 start of COVID-19 Pandemic**  
Abbreviations: (HA – Headache Center, MS – JUP Multiple Sclerosis, NEU – JUP 909 Neurology, General Neurology including Resident Clinic)

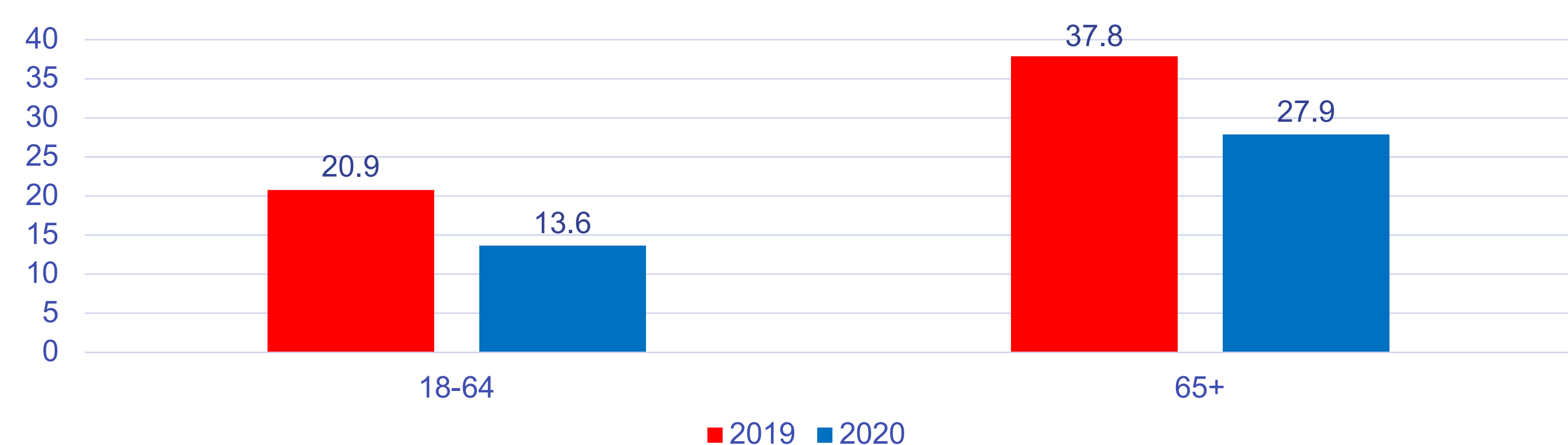
## RESULTS



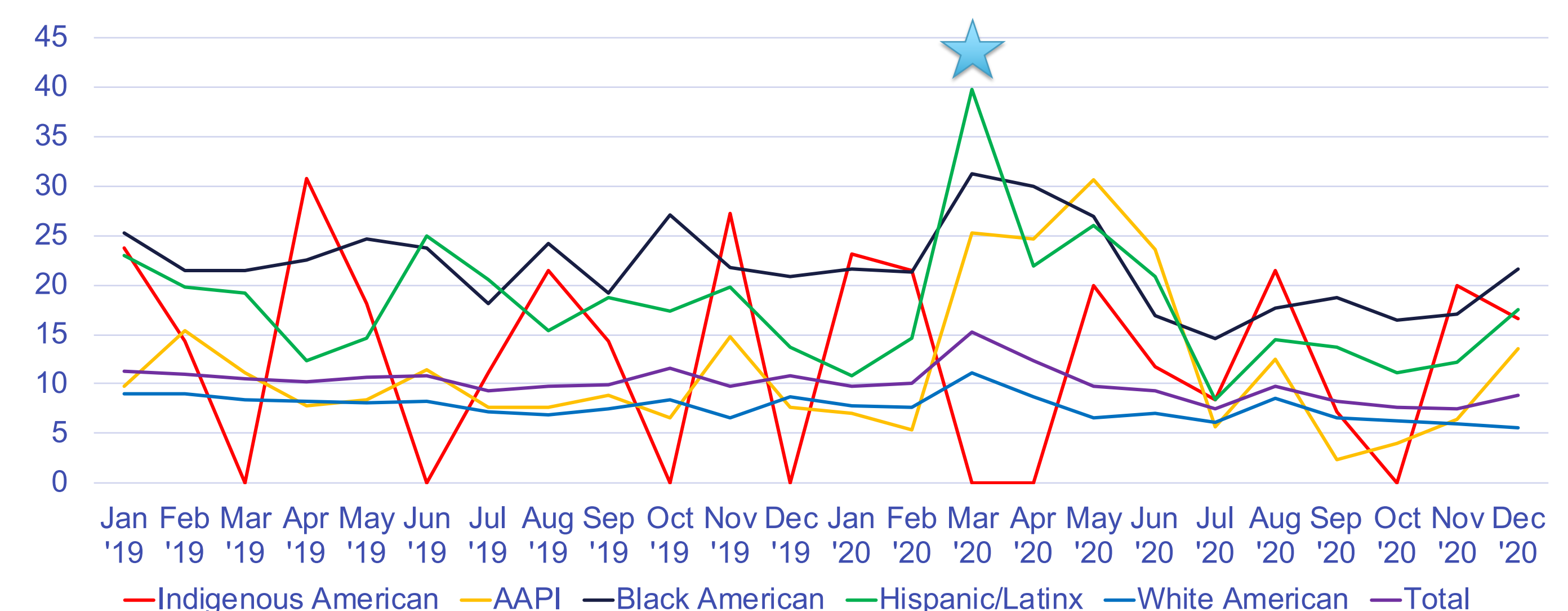
**Fig 2. Missed Appointment Rates across Neurology Departments based on In-Person (I), Telemedicine (T), New Patient Visit (NPV), and Established Patient Visit (EPV) in 2019 and 2020. Missed Appointment Rates in Telemedicine EPV visits consistently lower compared to In-Person visits.**  
Abbreviations: (HA – Headache Center, MS – JUP Multiple Sclerosis, NEU – JUP 909 Neurology, General Neurology including Resident Clinic)



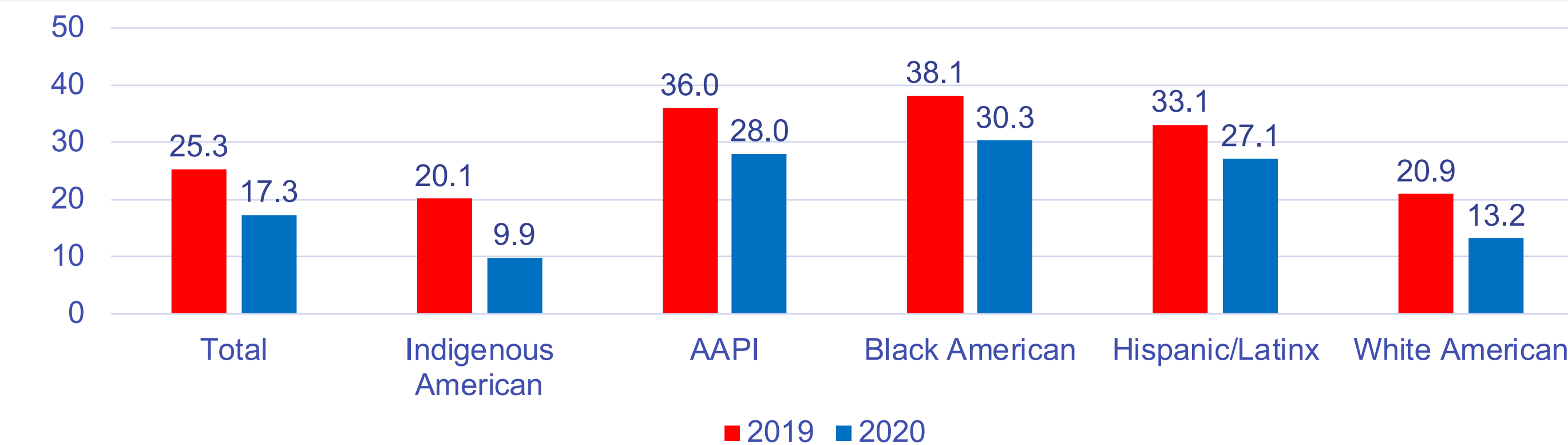
**Fig 3. Missed Appointment rates for In-Person visits are highest compared to other appointment types**  
Abbreviations: I – In-person, P – Phone, Proc – Procedure visit, T – Telemedicine. Note, 1 outlier (Phone in 2019 was removed, as there was only 1 coded Phone visit)



**Fig 4. MyChart Inactivity is higher in older populations (Age >=65+) in 2019 and 2020**



**Fig 5. Non-Caucasian racial-ethnic groups demonstrate higher Missed Appointment Rates (any visit type, all departments) over time compared to Caucasian groups, \* - March 2020 start of COVID-19 Pandemic**  
Indigenous American/Alaska Native; Asian American/Pacific Islander (AAPI); Black or African American; Hispanic/Latinx, White American or Caucasian



**Fig 6. Higher rates of MyChart Inactive Rate in AAPI, Black American and Hispanic/Latinx groups compared to Caucasian**  
Indigenous American/Alaska Native; Asian American/Pacific Islander (AAPI); Black or African American; Hispanic/Latinx, White American or Caucasian

## PATIENT SURVEY RESULTS

- Survey Demographic Data: Most patients > age 50, English-speaking, live alone or with family nearby, average commute to clinic about 42 minutes.
- Older age was a predictor for not having MyChart (OR 13.3, p = 0.01), but not a predictor for having missed a prior appointment (OR 1.22, p = 0.78).
- Commute to clinic was not a predictor for having missed prior appointments.
- Reasons cited for not having a MyChart:
  - Not knowing how to use MyChart
  - Not knowing how to set up MyChart
  - Not having access to a computer/internet/Email
  - Not understanding the purpose of MyChart
- Most patients felt that they had not been oriented to Telemedicine or were not specifically told they could schedule Telemedicine appointments
- Consistent Theme: Patients self-reported that they felt they required an in-person visit if there were any new concerns and amenable to telemedicine for established concerns

## DISCUSSION / FUTURE DIRECTIONS

- The COVID-19 pandemic affected all departments within Neurology, often General Neurology more so than the Headache and Multiple Sclerosis Centers (Fig 1).
- Telemedicine visits for Established Patient Visits had lower Missed Appointment Rates compared to In-Person Visits (Fig 2)
- Older age is a predictor for not having MyChart (Fig 4, Survey)
- MyChart Inactivity could be due to inability to set up the platform and may represent a potential target for future intervention (Survey)
- Non-Caucasian racial ethnic minorities have higher Missed Appointment Rates (Fig 5) and higher MyChart Inactive Rates (Fig 6) compared to Caucasian patients
- Future interventions to improve Missed Appointment Rates can be tailored to improve Telemedicine usage, especially in patients of Older Age and patients who identify as Racial-Ethnic minorities
- Isolation of highest Missed Appointment Rates by Zip Code has demonstrated a potential area for targeted messaging and outreach (Not Depicted).
- We hope to incorporate Telemedicine handouts into the After Visit Summary for outpatient visits and discuss with ancillary staff how to improve work-flow for prompting patients and providers to consider Telemedicine.

## REFERENCES

- 1) Slow MY, Walker JT, Britt E, et al. What was the change in telehealth usage and proportion of no-show visits for an orthopaedic trauma clinic during the COVID-19 pandemic? *Clin Orthop Relat Res.* 2020;478(10):2257-2263.
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