

# Letters

## RESEARCH LETTER

### Association of Medical Assistant-Supported Virtual Rooming With Successful Video Visit Connections

COVID-19 pandemic-related increases in physician video visit availability have created new opportunities but may engender inequities. Patients who have lower socioeconomic status (SES), low English proficiency, or are African American or Black or Latino are less likely to use video visits successfully.<sup>1-3</sup> Limited information exists to guide systems on bridging this “digital divide.” Medical assistant (MA)-supported virtual rooming has been suggested to facilitate patient access<sup>4,5</sup> but to our knowledge has not been systematically evaluated.

**Methods** | This retrospective cohort study evaluated factors associated with successful video visit connections in Kaiser Permanente Northern California, an integrated system with 4.5 million members served by The Permanente Medical Group. Medical assistants conduct virtual rooming by telephoning patients before visits to facilitate connecting and administer rooming procedures.

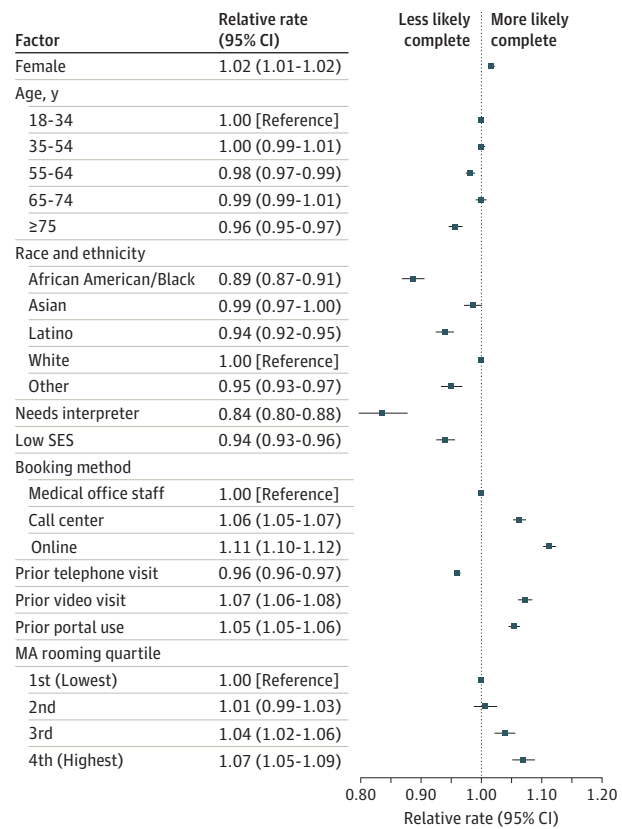
We analyzed video visits to adult and family medicine physicians from October 1 through October 31, 2020, retaining each patient’s first video visit during this period. The MA virtual rooming rate for each of the 61 medical offices was the percentage of scheduled video visits with an MA involved; to avoid circularity, this was calculated for September 2020. We evaluated correlates of successful connection via Poisson regression models using generalized estimating equations.

A research determination official for Kaiser Permanente Northern California determined that this project did not meet the regulatory definition of research involving human participants per the Common Rule (45 CFR §46). Analyses were conducted in SAS, version 9.4 (SAS Institute Inc).

**Results** | Of the 136 699 video visits studied, 114 214 (83.6%) had successful connections. Of patients making these visits, 14.2% had low neighborhood SES, 3.6% needed interpreters, 20.1% were Latino, and 7.9% were African American or Black. African American or Black race (relative rate [RR], 0.89; 95% CI, 0.87-0.91), Latino ethnicity (RR, 0.94; 95% CI, 0.92-0.95), needing an interpreter (RR, 0.84; 95% CI, 0.80-0.88), and living in a low SES neighborhood (RR, 0.94; 95% CI, 0.93-0.96) were associated with a lower likelihood of connecting (Figure 1).

Medical office MA virtual rooming rates varied, with ranges in the first through fourth quartiles of 4.6% to 30.9%, 35.9% to 50.6%, 52.4% to 72.0%, and 72.3% to 97.2%, respectively. Unadjusted rates of successful connection in these quartiles were 79.8%, 81.2%, 85.7%, and 88.1%, respectively. The MA virtual rooming rates were not statistically significantly associated with medical office-level measures of SES or interpreter need.

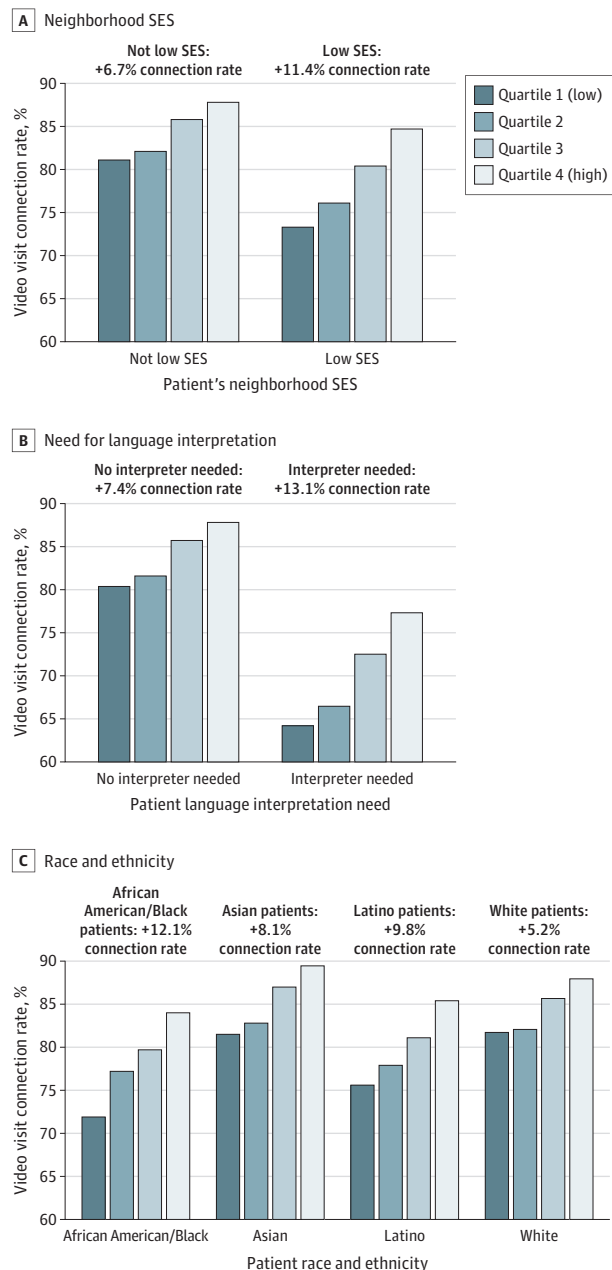
Figure 1. Factors Associated With Successful Connection of Scheduled Video Visits at Kaiser Permanente Northern California, October 2020



A successful connection was defined as both the patient and physician connecting for 1 minute or longer. Low neighborhood socioeconomic status (SES) was defined by patient residential US Census tract with 20% or more households in poverty or 25% or more residents without a high school education. The final multivariable model also included comorbidity burden (high comorbidity burden: relative rate [RR], 0.95; 95% CI, 0.93-0.96; moderate comorbidity burden: RR, 0.99; 95% CI, 0.98-1.00; low comorbidity burden: reference), imputed comorbidity burden (RR, 0.84; 95% CI, 0.79-0.88), Medicaid insurance (RR, 0.93; 95% CI, 0.91-0.95), and any patient portal access by a proxy in the prior year (RR, 1.02; 95% CI, 1.01-1.03). The unadjusted RRs, taking into account clustering of patients by physician, were 1.02 (95% CI, 1.00-1.03), 1.07 (95% CI, 1.05-1.08), and 1.10 (95% CI, 1.08-1.12) in the second through fourth quartiles for medical assistant (MA) rooming, respectively.

After adjustment, patients of medical offices with high MA virtual rooming rates were more likely to connect (RR, 1.07; 95% CI, 1.05-1.09) (Figure 1). Medical assistant virtual rooming was associated with higher increases in connection rates among groups with the lowest connection rates in interaction term analyses (Figure 2). Between the lowest and highest quartiles for MA rooming, connection rates increased by 11.4% for patients in low SES neighborhoods vs 6.7% for others. High MA rooming rates were associated with higher connection rate increases for African American or Black (12.1%) or

**Figure 2. Association of Medical Assistant Virtual Rooming With Predicted Video Visit Connection Rates by Risk Groups at Kaiser Permanente Northern California, October 2020**



Predicted percentages are based on interaction terms between medical assistant rooming quartile and patient characteristics from final multivariable models, including patient demographics and experience variables. Estimates were generated using the least-square means procedure. The unadjusted video visit connection rate estimates from this model, taking into account clustering of patients by physician, were 80.0%, 81.2%, 85.2%, and 87.7% in the first through fourth quartiles for medical office medical assistant virtual rooming rates, respectively. Rates of medical assistant virtual rooming for video encounters at 61 medical offices during September 2020 were 4.6% to 30.9%, 35.9% to 50.6%, 52.4% to 72.0%, and 72.3% to 97.2% in the first through fourth quartiles, respectively. SES indicates socioeconomic status.

Latino (9.8%) patients compared with Asian (8.1%) or White (5.2%) patients. For patients needing interpreters, the predicted connection rate increase associated with high MA rooming was 13.1% compared with 7.4% for others.

**Discussion** | Medical assistant-supported virtual rooming was associated with successful video visit connections in this diverse population. High MA rooming rates were associated with larger connection improvements for patients at higher risk of not connecting, including those with lower SES, of Latino ethnicity or African American or Black race, or needing interpreters.

This observational design cannot exclude unmeasured confounding by other factors (eg, other effective practices) as potentially explaining these associations. However, MA virtual rooming rates were not associated with medical office-level population SES. The variation observed in MA virtual rooming rates aligns with anecdotal reports that implementation can be variable owing to multiple factors.

These findings suggest that medical office practices may play a role in facilitating video visits for patients at risk of inequitable access to care. Medical assistant-supported virtual rooming merits further testing as a possible means of narrowing the digital divide.

Tracy A. Lieu, MD, MPH  
 E. Margaret Warton, MPH  
 Christine Levan, MD  
 Karen San, MS  
 Loretta Hsueh, PhD  
 Sameer Awsare, MD  
 Mary E. Reed, DrPH

**Author Affiliations:** The Permanente Medical Group, Oakland, California (Lieu, Levan, Awsare); Division of Research, Kaiser Permanente Northern California, Oakland (Warton, Reed); TPMG Consulting Services, Oakland, California (San); Delivery Science Fellowship Program, Kaiser Permanente Northern California, Oakland (Hsueh).

**Accepted for Publication:** February 20, 2022.

**Published Online:** April 11, 2022. doi:10.1001/jamainternmed.2022.1032

**Corresponding Author:** Tracy A. Lieu, MD, MPH, Division of Research, Kaiser Permanente Northern California, 2000 Broadway, Oakland, CA 94611 (tracy.lieu@kp.org).

**Author Contributions:** Ms Warton had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

**Concept and design:** Lieu, Warton, Levan, San, Awsare, Reed.

**Acquisition, analysis, or interpretation of data:** Lieu, Warton, Hsueh, Reed.

**Drafting of the manuscript:** Lieu.

**Critical revision of the manuscript for important intellectual content:** All authors.

**Statistical analysis:** Warton, Reed.

**Obtained funding:** Lieu.

**Administrative, technical, or material support:** Levan, San, Awsare.

**Supervision:** Lieu.

**Conflict of Interest Disclosures:** None reported.

**Funding/Support:** This study was funded by The Permanente Medical Group via its Delivery Science and Applied Research Program. Dr Reed was supported in part by the Agency for Healthcare Research and Quality (R01HS25189).

**Role of the Funder/Sponsor:** The sponsor was involved in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, and approval of the manuscript via the coauthors.

**Additional Contributions:** We thank our collaborators on this project, including Matthew Dixon, MD, Yi-Fen Irene Chen, MD, and Edward R. Lee, MD, of The Permanente Medical Group, as well as Andrea Altschuler, PhD, of the Division of Research, Kaiser Permanente Northern California. We acknowledge Craig Wargon, MD, for his early and ongoing leadership in video care implementation, Sara Mayo-Rex, BA, for her regional leadership of medical assistant and physician partnership structures, and Khai Tran, MD, and Thao Huynh, MD, for leading adult and family medicine and its technology integration. All are affiliated with The Permanente Medical Group. We are very appreciative of the many clinicians, staff members, managers, and leaders who implemented video care and advised us as we designed this study. None of the contributors were compensated for their contributions.

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