

BRIEF REPORT

Not Telehealth: Which Primary Care Visits Need In-Person Care?

Yalda Jabbarpour, MD, Anuradha Jetty, MPH, Matthew Westfall, BA, and John Westfall, MD, MPH

The Coronavirus disease 2019 (COVID 19) pandemic has resulted in a rapid shift to telehealth and many services that need in-person care have been avoided. Yet, as practices and payment policies return to a new normal, there will be many questions about what proportion of visits should be done in-person vs telehealth. Using the 2016 National Ambulatory Medical Survey (NAMCS), we estimated what proportion of visits were amenable to telehealth before COVID-19 as a guide. We divided services into those that needed in-person care and those that could be done via telehealth. Any visit that included at least 1 service where in-person care was needed was counted as an in-person only visit. We then calculated what proportion of reported visits and services in 2016 could have been provided via telehealth, as well as what proportion of in-person only services were done by primary care. We found that 66% of all primary care visits reported in NAMCS in 2016 required an in-person service. 90% of all wellness visits and immunizations were done in primary care offices, as were a quarter of all Papanicolaou smears. As practices reopen, patients will need to catch up on many of the in-person only visits that were postponed such as Papanicolaou smears and wellness visits. At the same time, patients and clinicians now accustomed to telehealth may have reservations about returning to in-person only visits. Our estimates may provide a guide to practices as they navigate how to deliver care in a post-COVID-19 environment. (J Am Board Fam Med 2021;34:S162–S169.)

Keywords: COVID-19, Health Policy, Pandemics, Primary Health Care, Surveys and Questionnaires, Telemedicine

Introduction

A recent shift from in-person visits to telehealth throughout the country has patients and clinicians questioning whether a return to medicine as we know it is possible. Many patients find telehealth more convenient and many clinicians and health care systems see the benefit of being able to treat patients while keeping them safe at home.^{1–3} At the same time, this conversion to telehealth has been a financial burden for offices without the infrastructure or capability to quickly transform to telehealth, and the drop in in-person visits has been devastating for these

practices and their communities.^{4,5} While it is still unknown whether telehealth will remain widespread as stay-at-home orders are lifted, it is certain that medicine as we know it will have changed.

As communities begin reopening, practices need a guide or benchmark as to what proportion of visits should be done via telehealth and what proportion need in-person care. The answer to this question is elusive and will require a combination of evidence on the effectiveness of telehealth versus in-person visits and data on patient preferences and office capabilities. The literature on telehealth efficacy for certain conditions exists, as does the literature on patient and provider preferences regarding telehealth.^{6–10} Yet, to our knowledge, no nationally representative estimate exists of the proportion of outpatient visits that require in-office care. Using the National Ambulatory Medical Care Survey (NAMCS) we estimate the proportion of outpatient visits that needed in-person care before COVID-19. This analysis provides an estimate of in-person visit need for practices as they begin to adjust care delivery post-COVID-19.

This article was externally peer reviewed.

Submitted 21 May 2020; revised 10 July 2020; accepted 13 July 2020.

From the Robert Graham Center for Policy Studies in Primary Care, Washington, DC (YJ, AJ, JW); Virginia Commonwealth University School of Medicine, Richmond, VA (MW).

Funding: No funding received for this study.

Conflicts of interest: We have no conflicts of interest to disclose.

Corresponding author: Yalda Jabbarpour, MD, 1133 Connecticut Ave NW, Suite 1100, Washington DC, 20036 (E-mail: yjabbarpour@aafp.org).

Study Data and Methods

Data Source

NAMCS is an annual survey that provides nationally representative estimates of the utilization and provision of ambulatory care services. The primary sampling unit is the patient-physician encounter in an ambulatory care setting. The physician reports data on all the ambulatory care visits that may have occurred during a week of reporting period. The response rate was 39.3% for physicians who provided data for at least 1 encounter. The survey methodology including sampling design, data instruments, and data collection procedures are described elsewhere.¹¹

Analyses

We used 2016 NAMCS data to estimate the proportion of patient-physician encounters that require the physical presence of the physician. Primary care specialty included general practice, family medicine, internal medicine, and pediatrics. We did not count any visits done by nonphysicians such as Nurse Practitioners (NP) or Physician Assistants (PA). NPs and PAs make up only 2% of the total outpatient visits in the NAMCS data. All services provided by the physician in an office-based visit were classified by NAMCS: (1) examinations/screening, (2) lab tests, (3) imaging, (4) procedures, (5) treatment, and (6) health education/counseling (Appendix Table 1).

We determined whether physician physical presence was required to conduct at least 1 service in the visit. For many of these services, determining whether physical presence was required was straightforward because it required a physician to be present to “do” something, such as casting or Papanicolaou smear. For other services, such as behavioral health counseling or ordering lab tests this was less straightforward. To determine whether these services could be done via telehealth we used evidence from an environmental scan of the peer-reviewed literature and created a list of services that were appropriate for telehealth. Our list was then confirmed by a group of primary care physicians who either had used telehealth modalities in the past or were currently using video-enabled or telephone only telehealth during the COVID pandemic. Of note, when considering whether a service was amenable to telehealth, we considered all modalities, such as telephonic only as well as video-enabled. We coded visits that needed to be in-

person as ‘1’ and others as ‘0’. We calculated the total number and proportion of in-person visits to all the physician specialties and for those provided by primary care physicians. Each of the services provided by the physician at a visit was recoded as binary measures and the total number and proportion for each of the services were calculated as well. Finally, we calculated the proportion provided by primary care physicians for each of the services.

The distribution of patient socio-demographic characteristics of those requiring in-person visits was also examined. We used patient weights and survey design variables to obtain nationally representative estimates of the patient-physician encounters.

The study was approved by the Institution Review Board, American Academy of Family Medicine. We used Stata 16.0 for data analysis (StataCorp, College Station, Texas).

Results

Of the 850 million patient-physician encounters represented in NAMCS (all specialties), 69% required the physical presence of the physician. Of all the ambulatory primary care visits, 66% required the patient to visit the office in-person (Table 1).

A detailed look at in-person services provided by primary care demonstrates that most in-person need is driven by wellness visits, though treatment of certain acute and chronic conditions also require in-person visits. Nearly 95% of immunizations and annual wellness visits occurred in primary care offices. A quarter of pelvic exams and a third of Papanicolaou tests are provided in primary care offices. Overall, about 400,000 (0.1%) sigmoidoscopies were performed and primary care physicians provided a large percentage (84%). Presumably, for chronic conditions such as diabetes, primary care physicians provide nearly 70% of foot exams and just over 50% of neurological exams and retinal exams. In terms of

Table 1. Proportion of Encounters That Require Physician Presence (Includes Immunizations and Well Child Visits)

Physician Presence Required	All Physicians (n = 850,695,621)		Primary Care Physicians (n = 394,218,001)	
	N	%	N	%
Yes	580,027,034	69	258,431,199	66
No	266,748,176	31	134,797,218	34

Source: National Ambulatory Medical Care Survey 2016.

acute needs, more than 90% of all rapid strep tests and throat cultures were provided by primary care in office-based settings. Similarly, primary care physicians provided two-thirds of tuberculosis skin testing (PPD). One in 4 casts, splints, or wraps were conducted in primary care offices.

Patients who were 65 years and older, non-Hispanic Black, or with hypertension or a diagnosis of coronary artery disease had a lower likelihood of having a visit amenable to telehealth. Whereas patients diagnosed with depression were more likely to receive services that were amenable to telehealth (Table 2).

Discussion

Before the COVID-19 pandemic, an estimated 69% of office visits required an in-person encounter. Much of this was being driven by immunizations and wellness visits, although a majority of acute care and chronic condition management required in-person care as well. Currently, visits for preventive needs and chronic care have decreased as the need for triaging patients with influenza-like illness via telehealth has increased.^{12,13} Many of the visits that have been avoided during the first phase of the pandemic such as wellness visits, Papanicolaou smears, adult and pediatric immunizations, and chronic disease management will need to be prioritized during the next phase of COVID-19 recovery. Our data suggest that as this happens, in-person encounters will increase but it may be possible to prepare patients and practices for both in-person and telehealth visits. Combining all the elements that require in-person components into 1 visit may make it possible to provide more visits via telehealth. Wellness visits, which were deemed telehealth reimbursable by CMS during the COVID-19 outbreak, may continue to be done for some populations via telehealth.¹⁴ Innovative models for delivery of in-person care outside a traditional clinical setting may also emerge creating a hybrid model of telehealth and in-person wellness visits. Immunizations, for example, require limited physical presence and might be a service that practices continue to provide with very little physical presence in curbside drive-through clinics or mobile immunization units.¹⁵ As practices evolve, so will the health care team, and considering the role of other team members such as the medical assistant and registered nurse in these hybrid models will also need to be a future area of study.

Finally, the need for in-person visits may differ based on patient demographics and comorbidities. As we saw from 2016, patients with chronic diseases such as hypertension and coronary artery disease were less likely to have visits amenable to telehealth modalities, as were older patients and non-Hispanic Black patients. Past studies have cited multiple reasons for demographic differences in telehealth use including mistrust of the use of technology for health care, poor health literacy, or poor technology literacy^{16,17}. Yet differences in access to technology also play a large role. National-level data confirms that Black and Hispanic patients are less likely to own a smartphone or have home broadband access than non-Hispanic whites.¹⁸ In addition, a survey on the use of telehealth in the Kaiser Permanente system showed that older patients (>75 years old) and Black, Latino/a and Philipino/a patients were less likely to own digital devices, use the internet and e-mail, and be able and willing to use digital technology to perform health care-related tasks.¹⁹ This is particularly concerning given that COVID-19 disproportionately affects older Americans and Black Americans. If we continue a telehealth-only system of medicine in the post-COVID-19 pandemic we have the potential to exacerbate the already present inequities in health care. Understanding the impact of telehealth on health equity will be crucial as virtual visits may improve access to care or marginalize more vulnerable patients with less access to the technology required for high-quality video visits.

Limitations

The major limitation to our study is the NAMCS data categories services provided during the visit. It is not possible to identify within categories every element of an individual visit that might necessitate an in-person encounter. Along the same lines, there is currently no set guideline for which services must be done in-person and which can be safely done via telehealth. Obvious examples such as a pelvic examination or casting were easier to categorize than less straightforward services such as wellness visits. While some education and counseling may be amenable to telehealth, it may be better to deliver some education in-person. Furthermore, our definition of telehealth included any modality (ie, telephone only, video-enabled, e consults) which was in line with the existing literature. It may be argued that

Table 2. Distribution of Services That Require Physical Presence of Physician

Services	All Specialties		Primary Care Physician (PCP)		% provided by PCP
	N = 850,695,621		N = 394,218,001		
	N	%	N	%	
Examinations					
Breast exam	30,023,008	4.0	10,623,691	3.1	35.4
Foot exam	27,548,654	3.7	19,086,460	5.6	69.3
Neurologic	117,668,320	15.7	60,303,232	17.7	51.2
Pelvic	37,347,152	5.0	8,589,812	2.5	23.0
Rectal	14,871,202	2.0	6,556,628	1.9	44.1
Retinal	135,895,104	18.2	67,560,992	19.8	49.7
Lab tests					
Throat culture	7,938,989	1.0	7,641,945	2.0	96.3
Rapid strep test	19,126,744	3.0	17,694,128	5.0	92.5
Pap test	22,644,400	2.6	7,096,681	1.7	31.3
Procedures					
	N	%	N	%	
Audiometry	10,834,229	1.4	1,087,799	2.2	10.0
Biopsy provided	7,845,335	1.8	124,399	0.3	1.6
Cardiac stress test	7,060,085	0.9	1,823,223	0.5	25.8
Cryosurgery (cryotherapy)/destruction of tissue	11,794,685	1.6	914,758	0.3	7.8
Electrocardiogram (ECG or EKG)	41,185,744	5.5	11,221,429	3.3	27.2
Electroencephalogram (EEG)	1,363,278	0.2	169,962	0.0	12.5
Electromyogram (EMG)	3,469,610	0.5	478,096	0.1	13.8
Excision of tissue provided	4,605,407	5.6	544,502	0.2	11.8
Fetal monitoring	6,696,867	0.9	0	0.0	0.0
Peak flow	2,483,494	0.3	851,863	0.3	34.3
Sigmoidoscopy provided	426,670	0.1	360,196	0.1	84.4
Spirometry	12,203,933	1.6	3,851,841	1.1	31.6
Tonometry	4,594,317	0.6	122,730	0.0	2.7
Tuberculosis skin testing (PPD)	1,881,207	0.3	1,202,398	0.4	63.9
Upper gastrointestinal endoscopy/EGD provided	1,054,786	0.1	536,697	0.2	50.9
Treatments					
	N	%	N	%	
Cast/splint/wrap	5,824,030	0.8	1,429,863	0.4	24.6
Complementary and alternative medicine (CAM)	682,921	0.1	297,218	0.1	43.5
Durable medical equipment	8,054,456	1.1	1,635,665	0.5	20.3
Home health care	2,254,939	0.3	1,804,907	0.5	80.0
Occupational therapy	848,840	0.1	227,204	0.1	26.8
Physical therapy	22,295,332	3.0	5,587,039	1.6	25.1
Radiation therapy	252,660	0.0	0	0.0	0.0
Wound care	12,809,593	1.7	2,551,871	0.7	19.9
Immunizations	9,370,390	1.1	8,852,057	2.0	94.0
Annual wellness visits	77,700,000	9.0	73,800,000	19.0	95.0

Source: National Ambulatory Medical Care Survey 2016.

video-enabled visits provide more diagnostic accuracy or that telephone only visits reduce the digital divide. We used the extant literature on telehealth to determine which visits in the NAMCS data needed to be in-person and confirmed this list with primary care physicians who were practicing telehealth, though our study points out the fact that more research is needed on the comparative effectiveness of telehealth visits. Second, we did not include NPs or PAs in our study sample. Yet, given that NPs and PAs account for only 2% of the visits in NAMCS, this likely did not have a major effect on our results. Finally, NAMCS is a survey of physicians and is therefore subject to bias of the respondents. This bias is minimized through a sophisticated data collection process that allows for validation from multiple sources.

Conclusion

Although telehealth is appropriate for certain visits and likely will be integrated into practice post-COVID-19, it cannot replace traditional care for all primary care sensitive issues. As patients emerge from their homes, so will the need for in-person visits. We need to be ready to recalibrate to the new normal. Using data from telehealth providers pre-COVID 19 may help us understand what that should be. Our estimates are not meant to be absolute metrics for practices to follow as they adjust their methods of care delivery, but they can serve as a guide. Certainly, rapid innovation in telehealth may allow some visits that we categorized as needing inpatient care to be done virtually. On the other hand, concerns regarding the security of telehealth visits and patient desires for in-person, face-to-face contact may mean that some of the visits we deemed amenable to telehealth will be done in-person. Currently, we are in a state of emergency, and as such we are appropriately shifting our care virtually when possible. Health care providers, health systems, and policymakers should not confuse our current state of “telehealth whenever possible” with good evidence-based medicine.

To see this article online, please go to: <http://jabfm.org/content/34/Supplement/S162.full>.

References

- Hollander JE, Carr BG. Virtually perfect? telemedicine for Covid-19. *N Engl J Med* 2020;382:1679–81.
- Duffy S, Lee TH. In-person health care as option b. *N Engl J Med* 2018;378:104–6.
- Non-emergent, elective medical services, and treatment recommendations. Center for Medicare and Medicaid Services. <https://www.cms.gov/files/document/cms-non-emergent-elective-medical-recommendations.pdf>. Published April 7, 2020. Accessed July 3, 2020.
- The Larry A. Green Center. Quick COVID-19 primary care weekly survey, week 9. Available at: <https://deepblue.lib.umich.edu/handle/2027.42/155365>. Accessed May 18, 2020.
- Norvell K, O'Donnell J. Thousands of US medical workers furloughed, laid off as routine patient visits drop during coronavirus pandemic. *USA TODAY*. Available at: <https://www.usatoday.com/story/news/health/2020/04/02/coronavirus-pandemic-jobs-us-health-care-workers-furloughed-laid-off/5102320002/>. Published April 2, 2020. Accessed May 18, 2020.
- Trettel A, Eissing L, Augustin M. Telemedicine in dermatology: findings and experiences worldwide - a systematic literature review. *J Eur Acad Dermatol Venereol* 2018;32:215–24.
- Portnoy JM, Waller M, De Lurgio S, Dinakar C. Telemedicine is as effective as in-person visits for patients with asthma. *Ann Allergy Asthma Immunol* 2016;117:241–5.
- Mohr DC, Ho J, Duffecy J, et al. Effect of telephone-administered vs face-to-face cognitive behavioral therapy on adherence to therapy and depression outcomes among primary care patients. *JAMA* 2012;307:2278–85.
- Totten AM, Womack DM, Eden KB. Telehealth: mapping the evidence for patient outcomes from systematic reviews | effective health care program. Available at: <https://effectivehealthcare.ahrq.gov/products/telehealth/technical-brief>. Published June 30, 2016. Accessed April 9, 2020.
- Liaw WR, Jetty A, Coffman M, et al. Disconnected: a survey of users and nonusers of telehealth and their use of primary care. *J Am Med Inform Assoc* 2019;26:420–8.
- Centers of Disease Control and Prevention. NAMCS/NHAMCS - About the ambulatory health care surveys. Available at: https://www.cdc.gov/nchs/ahcd/about_ahcd.htm. Published September 6, 2019. Accessed May 18, 2020.
- Hoffman J. Vaccine rates drop dangerously as parents avoid doctor's visits. *The New York Times*. Available at: <https://www.nytimes.com/2020/04/23/health/coronavirus-measles-vaccines.html>. Published April 23, 2020. Accessed May 18, 2020.
- Santoli JM. Effects of the COVID-19 pandemic on routine pediatric vaccine ordering and administration — United States, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:591–3.
- Telehealth Services. Medicare Learning Network. Available at: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/>

- MLNProducts/Downloads/TelehealthSrvcfsctsht.pdf. Published March 30, 2020. Accessed July 3, 2020.
15. Bebinger M. Doctors try out curbside vaccinations for kids to prevent a competing pandemic. Available at: <https://www.wbur.org/commonhealth/2020/04/24/pediatric-mobile-bmc-vaccines-nurses-coronavirus>. Published April 24, 2020. Accessed May 21, 2020.
 16. Nouri SS, Avila-Garcia P, Cembali AG, Sarkar U, Aguilera A, Lyles CR. Assessing mobile phone digital literacy and engagement in user-centered design in a diverse, safety-net population: mixed methods study. *JMIR Mhealth Uhealth* 2019;7:e14250.
 17. Nouri S, Khoong EC, Lyles CR, Karliner L. Addressing equity in telemedicine for chronic disease management during the Covid-19 pandemic. *catalyst non-issue content. N Engl J Med Catalyst* 2020;1.
 18. Pew Research Center. Mobile technology and home broadband 2019. Available at: <https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/>. Published June 13, 2019. Accessed July 3, 2020.
 19. Gordon NP, Hornbrook MC. Differences in access to and preferences for using patient portals and other eHealth technologies based on race, ethnicity, and age: a database and survey study of seniors in a large health plan. *J Med Internet Res* 2016;18:e50.

Appendix Table 1. Physical Presence Not Required (Telehealth Capacity = 1)

Examination/Screening	Lab Tests	Imaging	Treatments	Health Education/ Counseling
Alcohol Misuse Screening	Basic Metabolic Panel	Any Image		
Depression screening	CBC	Bone Mineral density		Alcohol abuse counseling
Domestic violence screening	Chlamydia Test	CT Scan		Asthma education
Substance abuse screening	Comprehensive metabolic panel (CBP)	Echocardiogram		Asthma action plan given to patient
	Creatinine/Renal Function Panel	Other Ultrasound	Mental health counseling, excluding psychotherapy	Diabetes education
	Culture, blood	Mammography		Diet/Nutrition
	Culture, throat	MRI		Exercise
	Culture, urine	Radiograph	Psychotherapy	Family planning/ Contraception
	Culture, other	Other Imaging		Growth/development
	Glucose, serum			Injury prevention
	Gonorrhea test			STD prevention
	HbA1c (Glycohemoglobin)			Stress management
	Hepatitis testing/panel			Substance abuse counseling
	HIV test			Tobacco use/Exposure
	HPV DNA test			Weight reduction
	Lipid profile/panel			Other services
	Liver enzymes/Hepatic function panel			
	Pregnancy/HCG test			
	PSA			
	Rapid Strep test			
TSH/Thyroid				
Urinalysis/Urine dipstick				
Vitamin D test				
Cholesterol				
Triglycerides				
Fasting blood glucose				

Physical Presence required (Telehealth Capacity = 0)

Examination/Screening	Procedures	Lab Tests	Treatments
Breast Exam	Audiometry	Pap test	Cast/splint/wrap
Foot Exam	Biopsy provided		Complementary and alternative medicine (CAM)
Neurologic	Cardiac stress test		Durable medical equipment
Pelvic	Colonoscopy		Home health care
Rectal	Cryosurgery(cryotherapy)/ destruction of tissue		
Retinal	EKG/ECG		Occupational therapy
Skin	Electroencephalogram (EEG) Electromyogram (EMG)		Physical therapy

Continued

Appendix Table 1. Continued

Physical Presence required (Telehealth Capacity = 0)

Examination/Screening	Procedures	Lab Tests	Treatments
	Excision of tissue provided		Radiation therapy
Fetal monitoring	Peak flow Sigmoidoscopy provided Spirometry Tonometry Tuberculosis skin testing (PPD) Upper gastrointestinal endoscopy/EGD provided	Wound care	

CBC, Complete blood count; HIV, Human Immunodeficiency Virus; HPV, Human Papillomavirus; PSA, Prostate Specific Antigen; CT, Computed Tomography; MRI, Magnetic Resonance Imaging; STD, Sexually Transmitted Disease; EKG, electrocardiogram.