Special Edition
Telehealth

Patient and Physician

CLINIC
20XX
DESIGNING FOR AN EVER-CHANGING PRESENT

2020: A YEAR OF TELEHEALTH ACCELERATION AND WHAT THIS COULD MEAN FOR OUTPATIENT FACILITIES

In an era of unprecedented change, we are all thinking about futureproofing. Why? Advances in the field of medicine and medical technology, changes to both patient expectations and caregiver profiles, evolving reimbursement structures, and new players in the health arena were just a few of the changes in healthcare that prompted many health systems to think long and hard about what the future of clinics would look like. Everyone was looking into a crystal ball- trying to foretell a future. Yet, no one predicted the circumstances we find ourselves in today.

Crystal balls are tricky. Trying to predict a future is tricky. And trying to design facilities, based on a predicted future, is perhaps the trickiest of all.

Back in 2015, along with our colleagues at JE Dunn, CADRE conducted a study on how do we design outpatient clinics, not for a faceless future, but for an ever-changing present. We called this report Clinic 20XX [see original report here]. It was a prompt that would prove prescient in 2020.

Our research involved a wide review of the literature and a nationwide poll of boomers and Millennials, as well as 103 family/internal medicine physicians. A key trend identified in our research was telehealth, which physicians also identified as the most sustainable trend in the future as compared to retail health, mobile health, coordinated health and population health. Even so, physicians reported that although they were open to the idea of telehealth, they did not believe it could replace face-to-face consults. According to physicians, the challenge was trusting the accuracy of the technology, trusting patients are able to use the technology, and having the connectivity needed. Technology used to enable telehealth, meanwhile, was also seen on the rise with 51% of physicians reporting using more than one device (laptop/phone/desktop/tablet) for patient engagement. This rate is no doubt higher today.

Five years later, just as we were getting ready for a refresh of our research, COVID-19 struck. Telehealth received a boost where a majority of non-critical care moved to an online platform. On the heels of the pandemic, we repeated our surveys with 330 patients (January 2021) and 103 physicians (May 2020) from internal and family medicine. In this report we share a section of those findings as they relate to telehealth, the rapid adoption of it during COVID-19, and predictions for how sustained this change may be. We further investigate how telehealth will impact the physical design of clinic facilities, and the fundamental duality that will drive design as a digital/physical hybrid.

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Telehealth: A Brief History

Telehealth has been poised to revolutionize the healthcare industry for over a decade. Proponents have advocated that telehealth has the potential to increase access to care, provide greater convenience to consumers and providers, reduce overall costs of care, and improve health outcomes.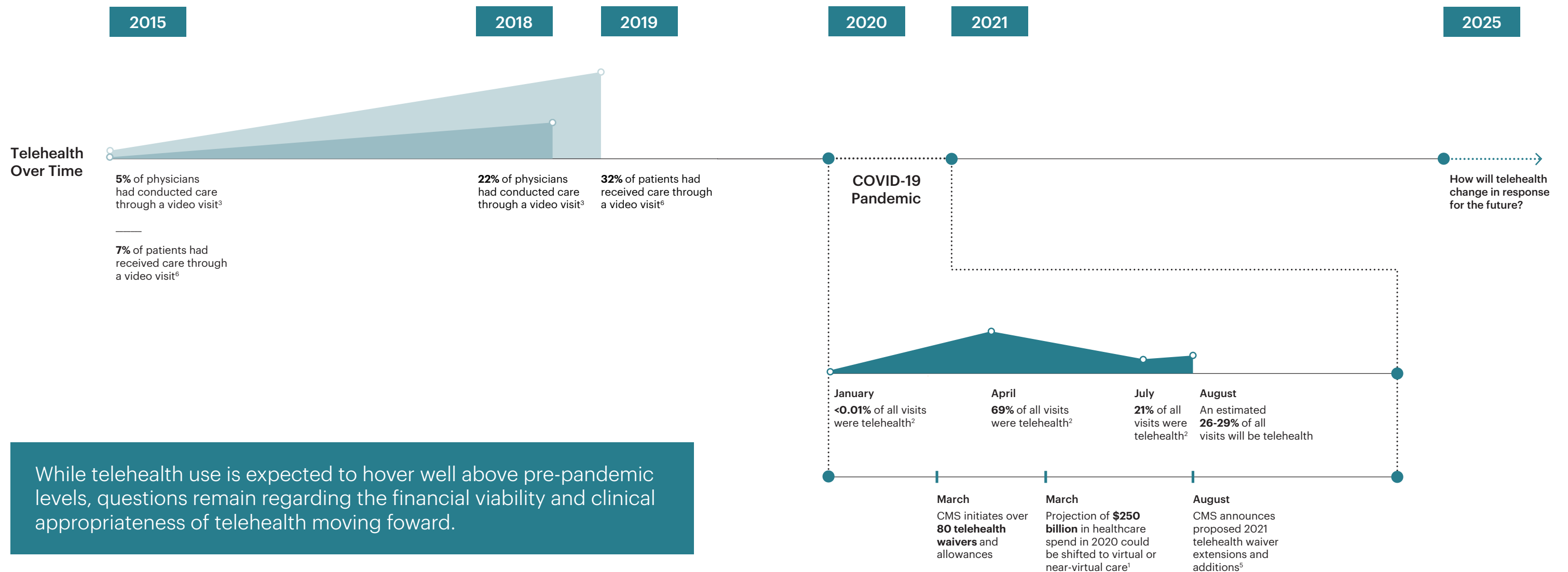 [1] Yet, providers, consumers, payers, and policy makers have resisted widespread adoption, limiting its application and effectiveness until now.

A 2018 America Well survey of 800 physicians found that physician use of telehealth was on the rise, up from 5 percent of physicians who had previously used video visits to 22 percent in 2018.[2] Similarly, according to a 2019 survey of 1000 patients conducted by Stanford Medicine's Center for Digital Health and Rock Health, patient use of telehealth had increased from 7 percent of patients who had received care through a video visit in 2015 to 32 percent in 2019. [3]

While these reports suggested that telehealth had reached an inflection point and was set for rapid expansion over the next several years, as of January 2020 according to EPIC health research, still less than 0.01 percent of all outpatient visits were conducted using telehealth. [4]

With the emergence of COVID-19, telehealth saw an unprecedented uptake in use. At its height, telehealth was projected to transform what was an estimated $3 billion in total annual revenue to a projected $250 billion in US healthcare spending post COVID-19 . [4] According to national data from Epic, telehealth use peaked in mid-April 2020 at 69 percent of total outpatient encounters.[4] However, by mid-July 2020, telehealth use had sharply declined to 21 percent of total visits, creating uncertainty within the healthcare industry as to whether the strides made in telehealth adoption during COVID-19 could be sustained long-term.[4] Recent projections, suggest that telehealth use will level out in the short-term to around 26-29 percent of all outpatient visits.[5] While these levels are well above those seen pre-pandemic, questions remain regarding the financial viability and clinical appropriateness of telehealth moving forward.

Telehealth Over Time

2015
5% of physicians had conducted care through a video visit[3]

7% of patients had received care through a video visit[6]

2018
22% of physicians had conducted care through a video visit[3]

2019
32% of patients had received care through a video visit[6]

2020
COVID-19 Pandemic

January
<0.01% of all visits were telehealth[2]

April
69% of all visits were telehealth[2]

July
21% of all visits were telehealth[2]

August
An estimated **26-29%** of all visits will be telehealth

March
CMS initiates over **80 telehealth waivers** and allowances

March
Projection of **$250 billion** in healthcare spend in 2020 could be shifted to virtual or near-virtual care[1]

August
CMS announces proposed 2021 telehealth waiver extensions and additions[5]

2021

2025
How will telehealth change in response for the future?[3]

While telehealth use is expected to hover well above pre-pandemic levels, questions remain regarding the financial viability and clinical appropriateness of telehealth moving foward.

Emerging Challenges:
Payment and Policy are Still Catching Up to Technology

	✓ Added	✕ Removed
WHO	+ Payment extended to all medical professionals eligible to bill Medicare for their services	+ Audits confirming existing relationships between patient and provider put on hold
WHERE	+ Providers allowed to utilize personal devices such as smartphones for visits	+ Pause HIPPA violations for non-HIPPA compliant communication technology
HOW	+ Temporary reimbursement approval for over 80 types of services; fully parity of payment	+ Removal of penalties eliminating co-pays or deductibles for telehealth services

At the forefront of this rapid change and ensuing uncertainty, are policy changes that were initiated on March 6, 2020 by the Centers for Medicare and Medicaid Services (CMS) to broaden patient access to Medicare telehealth services, promote individual and public safety, and maintain business continuity during the pandemic. [6] Temporary waivers were put in place to allow all patients, especially vulnerable individuals at high-risk of complications due to the virus, to receive routine care, while limiting exposure to other patients and staff and helping to mitigate community spread.

These temporary waivers lifted restrictions regarding how virtual services could be delivered, allowing health care providers to utilize personal devices such as smart phones and non-HIPPA compliant communication technology platforms such as Skype, FaceTime or Zoom for telehealth visits without being penalized for HIPPA violations. Allowances were also made for providers to receive payment for telehealth services that are received in a patient's home, as well as in any healthcare facility. Additionally, payment for telehealth services was extended to all medical professionals eligible to bill Medicare for their professional services, and audits to confirm existing relationships between patients and providers were placed on hold for the duration of the pandemic. Furthermore, CMS temporarily approved over 80 types of services for reimbursement at the same rate as an in-person visit during COVID-19, allowing for full parity of payment for those services.

Penalties for limiting or eliminating co-pays or deductibles for telehealth services were also removed.

In August, CMS released its proposal for the 2021 Medicare fee schedule.[7] The proposal includes a list of additional services to be considered for reimbursement at the same rate as an in-person visits, as well as a recommendation for the continuation of all existing COVID-19 waivers for the duration of the pandemic. While it is expected that many of these waivers will be in place for the next 12-18 months, it is unclear to what extent the allowances will be rescinded post COVID-19. Recommendations to resume audits confirming existing relationships between patients and providers following the pandemic and restrictions on reimbursement for some virtual visits post pandemic are already being considered, making full parity of payment in the long-term unlikely.

Due to this uncertainty, physicians' estimates on the viability of telehealth use long term continue to diminish, while patient satisfaction with virtual care and desire for virtual services continues to increase.[8] Further, the rapid uptake in telehealth services and then subsequent decline has challenged health systems and providers to recalibrate their service offerings and strike a new balance between physical and virtual care. A balance that can rapidly respond to shifting market demands and meet evolving patient preferences and needs.

Emerging Challenges:
Digital Equity is Not a Given

The pandemic has also highlighted a less obvious challenge to widespread adoption and use of telehealth – its potential to exacerbate health disparities.[9] It has become evident during COVID-19 that a digital divide exists within the United States, creating barriers to accessing telehealth. These barriers include: the absence of technology, reliable internet coverage, and digital literacy, which disproportionately affect older people of color, individuals who live in rural areas, and those with low socioeconomic status.[10][11][12] In the shift to telehealth, it is essential to ensure that access to virtual care is not compromised for those who need it the most. While reforms aimed at improving digital equity are being discussed by lawmakers, it will take time for those efforts to be actualized.[13] In the meantime, healthcare organizations are being challenged to find sustainable avenues for addressing these disparities.

Given the speed and magnitude of change that has occurred in care delivery since the onset of COVID-19, and the global impact the pandemic has had on individuals, industries and economies, health systems, care providers, and the design community at large have been compelled to reimagine how telehealth will impact the products, platforms, processes, and environments that support care delivery moving forward.

As healthcare organizations explore how they will integrate telehealth into their current service offerings moving forward, it is critical to understand both patient and care providers' perspectives on how they want to experience, deliver, and utilize virtual care in the future. To give new insight into patient and physician preferences and perceptions of virtual care and the greatest challenges and opportunities for telehealth moving forward, online surveys were conducted with a nationwide panel of 330 patients who had engaged in at least one telehealth visit during the pandemic and 103 providers who had utilized telehealth to deliver virtual care during the height of the pandemic. For purposes of this study, telehealth was defined as the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration. The surveys focused on obtaining patient and provider perspectives as well as the implications for clinic design moving forward.
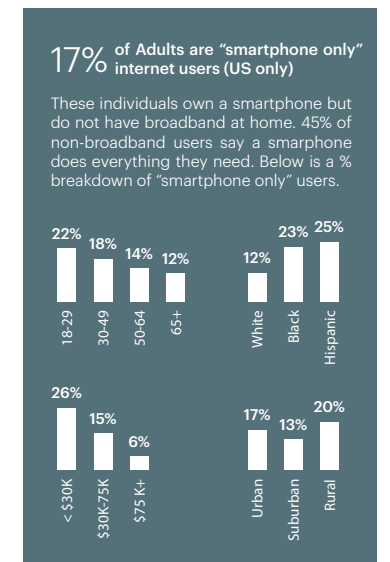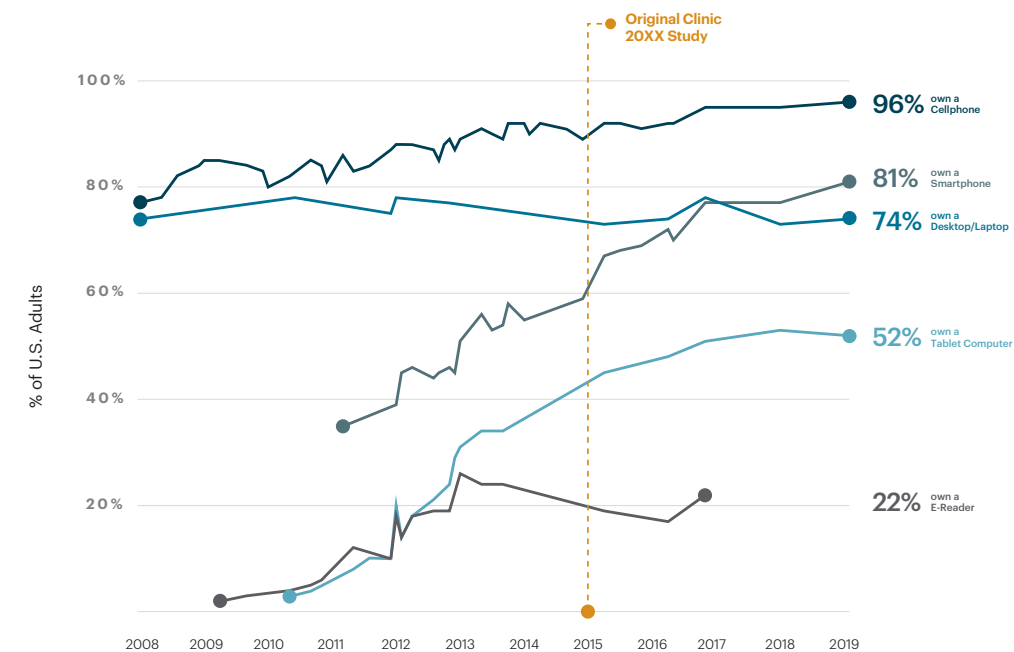
Adapted from Pew Research Center [14]

PATIENT SURVEY

To give new insight into patient preferences and perceptions on telehealth – an online survey was conducted with a nationwide panel.
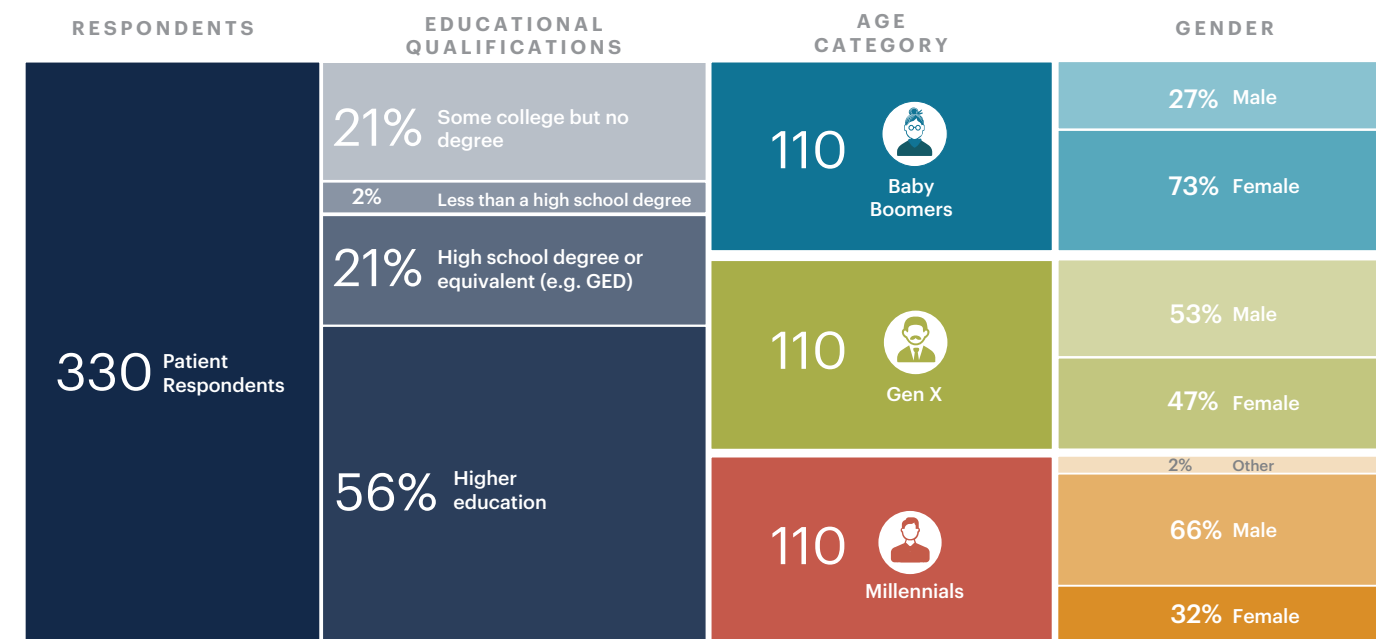
Methodology

An unbiased, third-party independent vendor conducted this panel survey. The survey was sent to patients in the United States, with responses evenly divided across three generations – Baby Boomers, Generation X, and Millennials. All respondents were directly compensated by the survey vendor upon the return of complete survey responses to ensure that responses were complete in both qualitative and quantitative information.

The sample (N = 330) included 33.3 percent each for Baby Boomers, Gen Xers and Millennials. The majority of Baby Boomers (73 percent) were female and 27 percent were male. For Gen Xers, 47 percent were female, while 53 percent were male. The majority of Millennials who participated in the survey were male (66 percent), while 32 percent were female and 2 percent identified as other.

Participants were also asked about the highest level of educational attained. The findings showed that the majority of participants (56 percent) earned a higher education degree (Bachelors, Associate, Masters, Doctorate or professional degree), 21 percent obtained a high school degree or equivalent, and 21 percent went to college but did not obtain a degree. Only 2 percent of patients surveyed earned less than a high school degree.

Quantitative analysis was conducted using Excel and SPSS software. Qualitative data was exported to Excel and analyzed via a thematic content analysis.

RESPONDENTS	EDUCATIONAL QUALIFICATIONS	AGE CATEGORY	GENDER
330 Patient Respondents	21% Some college but no degree	110 Baby Boomers	27% Male
	2% Less than a high school degree		73% Female
	21% High school degree or equivalent (e.g. GED)	110 Gen X	53% Male
	56% Higher education		47% Female
		110 Millennials	2% Other
			66% Male
			32% Female

What type of visits do patients want? How does this change with age?

To investigate differences between Baby Boomers, Generation X and Millennials, participants were asked three forced-choice questions. These questions compelled respondents to choose whether their expectations for healthcare delivery changed in 2020 or remained the same; if they would rather have a virtual visit for their primary care needs or an in-person visit, and if telehealth is an essential component of good healthcare experience or is only required in situations like the pandemic.

Virtual visit versus in-person visit

The majority of Baby Boomers (70 percent) and Gen Xers (55 percent) reported that given a choice they would rather have an in-person visit for their primary care needs vs. a virtual visit. Conversely, the majority of Millennials (58 percent) would have a virtual visit over an in-person visit if given a choice.
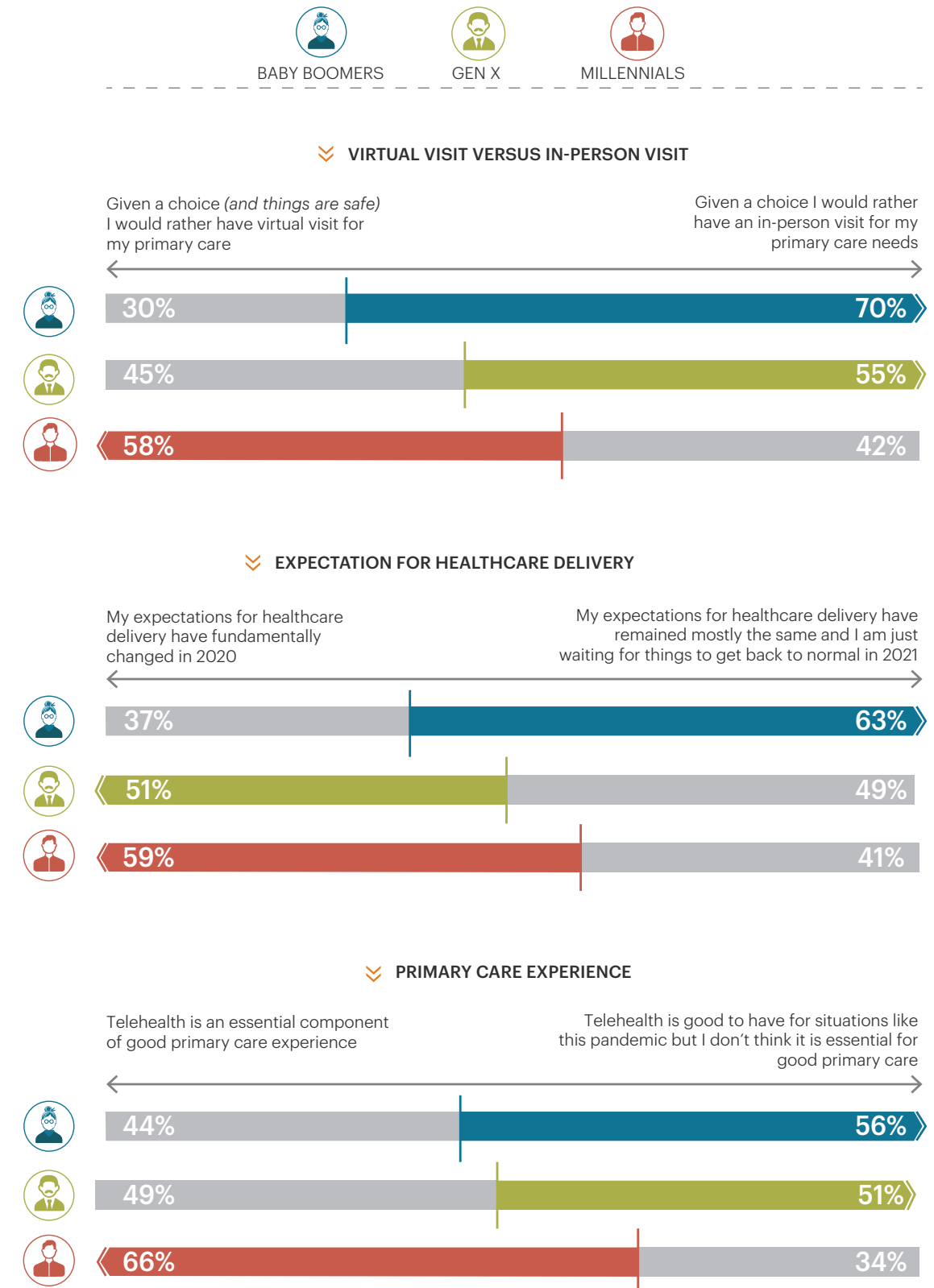
Expectations for healthcare delivery

For the majority of Baby Boomers (63 percent), their expectations for healthcare delivery have remained the same, with the hope of getting back to normal in 2021, whereas 37 percent reported that their expectations for healthcare delivery fundamentally changed in 2020. Responses were divided for Gen Xers, with the majority (51 percent) reporting that their expectations had fundamentally changed in 2020 and 49 percent expressing that their expectations for healthcare have remained mostly the same. Interestingly, the majority of Millennials (59 percent) reported that their expectations had fundamentally changed, while 41 percent expressed that their expectation for healthcare delivery had remained mostly the same.
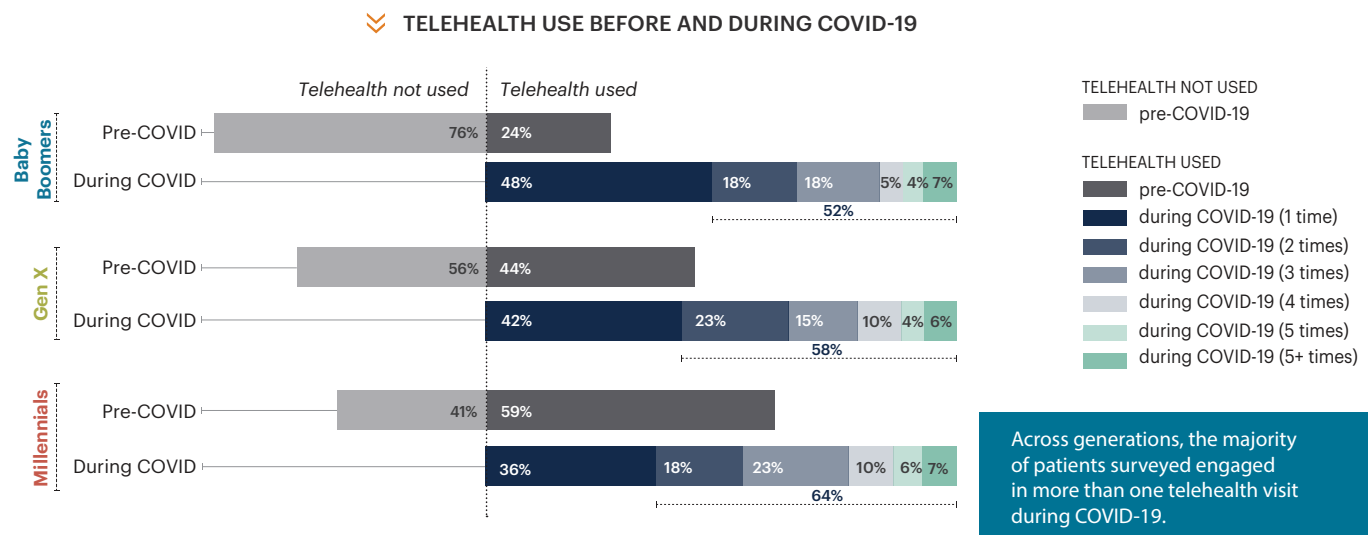
Primary care experience

The majority of Baby Boomers (56 percent), felt that telehealth is good to have in situations like the pandemic, but don't think its essential for good primary care, whereas 44 percent felt that telehealth is an essential component of good primary care experience. expectations for healthcare delivery fundamentally changed in 2020. Responses were divided for Gen Xers, with the majority (51 percent) reporting that telehealth is good for situations like the pandemic, but not essential and 49 percent expressing that telehealth is an essential component of a good primary care experience. Conversely, the majority of Millennials (66 percent) felt telehealth is an essential component of a good primary care experience, while 34 percent thought telehealth was not essential to good primary care.

As age decreases, patients lean towards having a virtual visit vs. an in-person visit for their primary care needs.

BABY BOOMERS GEN X MILLENNIALS

VIRTUAL VISIT VERSUS IN-PERSON VISIT

Given a choice (and things are safe) I would rather have virtual visit for my primary care

Given a choice I would rather have an in-person visit for my primary care needs

Baby Boomers: 30% | 70%
Gen X: 45% | 55%
Millennials: 58% | 42%

EXPECTATION FOR HEALTHCARE DELIVERY

My expectations for healthcare delivery have fundamentally changed in 2020

My expectations for healthcare delivery have remained mostly the same and I am just waiting for things to get back to normal in 2021

Baby Boomers: 37% | 63%
Gen X: 51% | 49%
Millennials: 59% | 41%

PRIMARY CARE EXPERIENCE

Telehealth is an essential component of good primary care experience

Telehealth is good to have for situations like this pandemic but I don't think it is essential for good primary care

Baby Boomers: 44% | 56%
Gen X: 49% | 51%
Millennials: 66% | 34%

Did patients use telehealth for primary care needs prior to and during COVID-19?

⌄ TELEHEALTH USE BEFORE AND DURING COVID-19

Telehealth not used   *Telehealth used*

Baby Boomers
Pre-COVID   76%   24%
During COVID   48%   18%   18%   5% 4% 7%
52%

Gen X
Pre-COVID   56%   44%
During COVID   42%   23%   15%   10% 4% 6%
58%

Millennials
Pre-COVID   41%   59%
During COVID   36%   18%   23%   10% 6% 7%
64%

TELEHEALTH NOT USED
■ pre-COVID-19

TELEHEALTH USED
■ pre-COVID-19
■ during COVID-19 (1 time)
■ during COVID-19 (2 times)
■ during COVID-19 (3 times)
■ during COVID-19 (4 times)
■ during COVID-19 (5 times)
■ during COVID-19 (5+ times)

Across generations, the majority of patients surveyed engaged in more than one telehealth visit during COVID-19.

To understand patient's use of telehealth prior to the pandemic, patients were asked whether they had engaged in a telehealth visit for primary care needs prior to March 2020. The majority of Baby Boomer (76 percent) and Gen X (56%) patients reported that they had not engaged in a telehealth visit prior to the pandemic. Conversely, the majority of Millennials (59%) reported that they had previously engaged in a telehealth visit prior to COVID-19.

Patients were also asked how many times they had engaged in a telehealth visit during the pandemic. Of the Baby Boomers surveyed, 48 percent reported having one telehealth visit during COVID-19. Of those who had engaged in more than one telehealth visit, 18 percent of Baby Boomers reported having 2 visits and another 18 percent reported having 3 visits. Additionally, 5 percent of Baby Boomers reported having 4 visits, 4 percent reported having 5 visits, and 7 percent reported having more than 5 visits.

Of the Gen Xers surveyed, 42 percent reported having one telehealth visit during COVID-19. Of those who had engaged in more than one telehealth visit, 23 percent of Gen Xers reported having 2 visits and another 15 percent reported having 3 visits. Additionally, 10 percent of Gen Xers reported having 4 visits, 4 percent reported having 5 visits, and 6 percent reported having more than 5 visits.

For Millennials, 36 percent reported having one telehealth visit during COVID-19. Of those who had engaged in more than one telehealth visit, 18 percent of Millennials reported having 2 visits and another 23 percent reported having 3 visits. Additionally, 10 percent of Millennials reported having 4 visits, 6 percent reported having 5 visits, and 7 percent reported having more than 5 visits.

Despite limited telehealth experience among Baby Boomers and Gen Xers prior to COVID-19, telehealth use dramatically increased across all generations during the pandemic.

How did patients use telehealth during the pandemic?

Patients were asked the nature of their telehealth visit. The majority of patients (57 percent) reported the purpose of their visit was for follow-up care, while 21 percent were seen for a wellness visit (preventative care) and 18 percent received a new diagnosis via telehealth. Patients also identified other reasons (3 percent) for telehealth visits such as receiving medical advice for a sprained foot and urinary tract infection, receiving lab results and information prior to surgery, getting prescription refills, and for mental health visits.
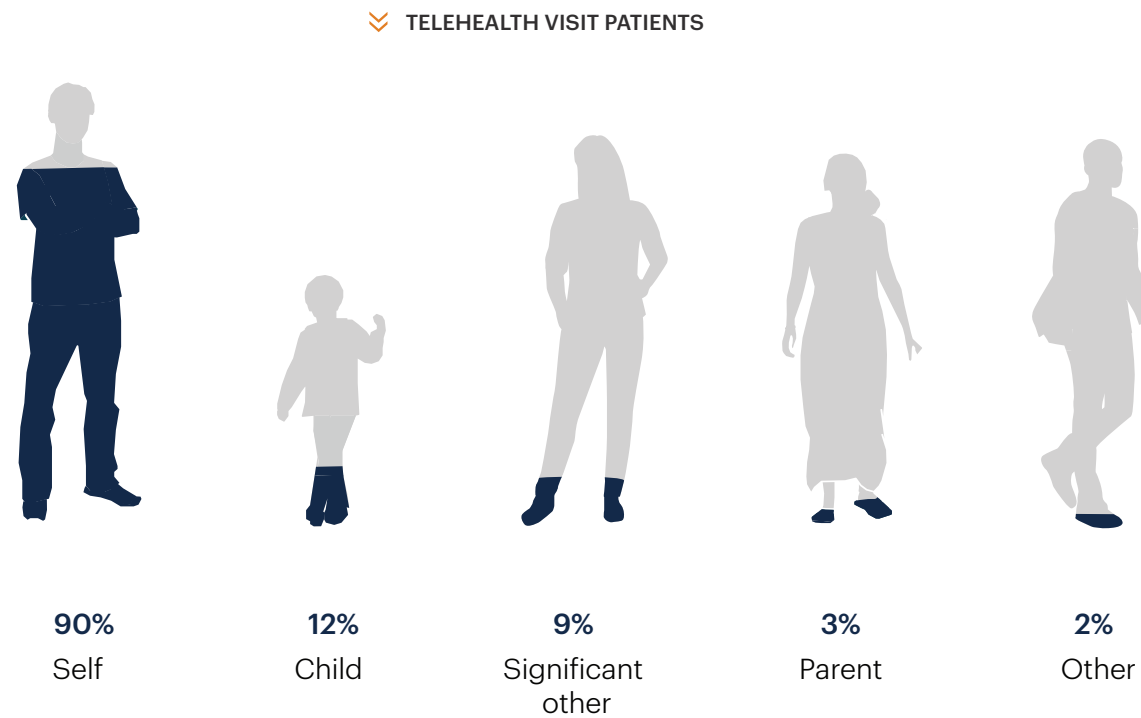
⌄ TELEHEALTH VISIT PURPOSE

57%
22%
18%
3%

■ Follow-up Care
■ Wellness Visit (preventative care)
■ New Diagnosis
■ Other
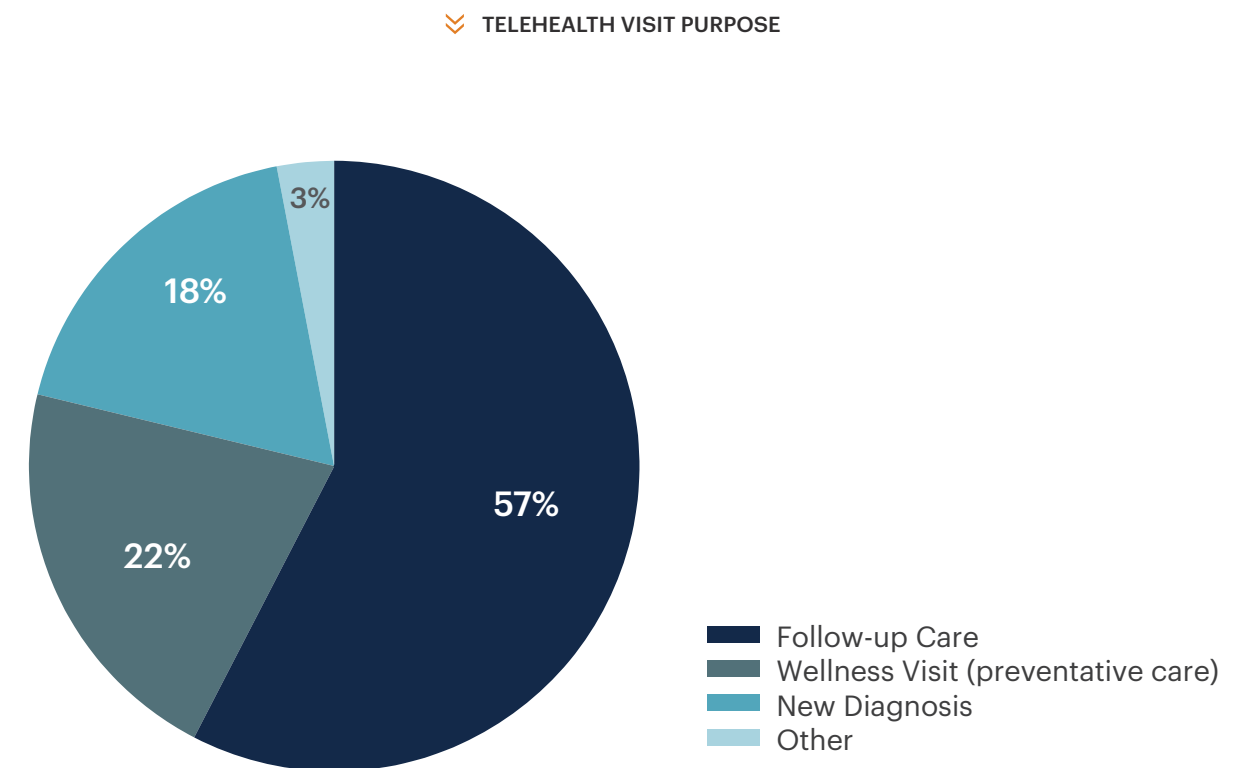
Patients mostly engaged in telehealth visits for follow-up care during COVID-19.

Who did patients book a telehealth visit for?

Patients were asked who their telehealth visits were for. The majority of patients (90 percent) reported that their telehealth visits were predominately for themselves. Of those who reported their telehealth visit was for someone else, 12 percent were for the respondent's child, 9 percent for their significant other, and 3 percent for their parent. Other individuals (2 percent) for whom telehealth visits were provided were noted by respondents as their siblings, grandparents, and friends.

A higher percentage of Gen Xers (15 percent) and Millennials (19 percent) as compared to baby boomers (4 percent) reported that the visits were for their children. Similarly, a higher percentage of Gen Xers (12 percent) and Millennials (19 percent) as compared to Baby Boomers (4 percent) reported that the visits were for their significant other. Interestingly, 6 percent of Millennials reported engaging in a telehealth visit for their parent.
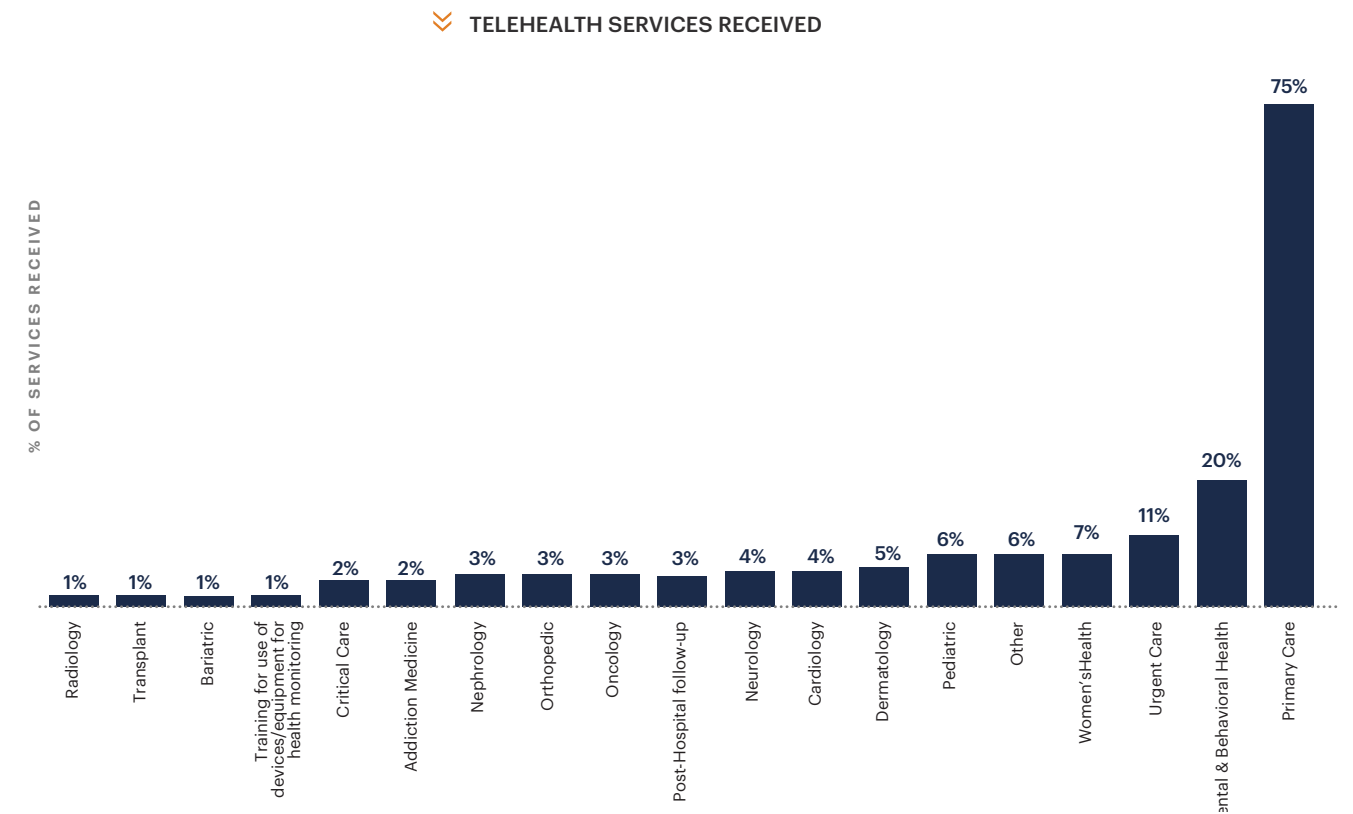
What types of services did patients receive via telehealth?

Patients were asked what types of services they received via telehealth. The majority of patients surveyed (75 percent) had a telehealth visit for primary care needs, followed by 20 percent of patients who received mental and behavioral health services via telehealth. Urgent care services were provided to 11 percent of patients surveyed using telehealth, and 7 percent engaged a telehealth visit for women's health.

Patients engaged in fewer telehealth visits for specialty services such as bariatric (1 percent), critical care (2 percent), and oncology (3 percent). Patients also identified other services (6 percent) that they received via telehealth such as pulmonary, pain management, rheumatology, urology, endocrinology, and gastrology.
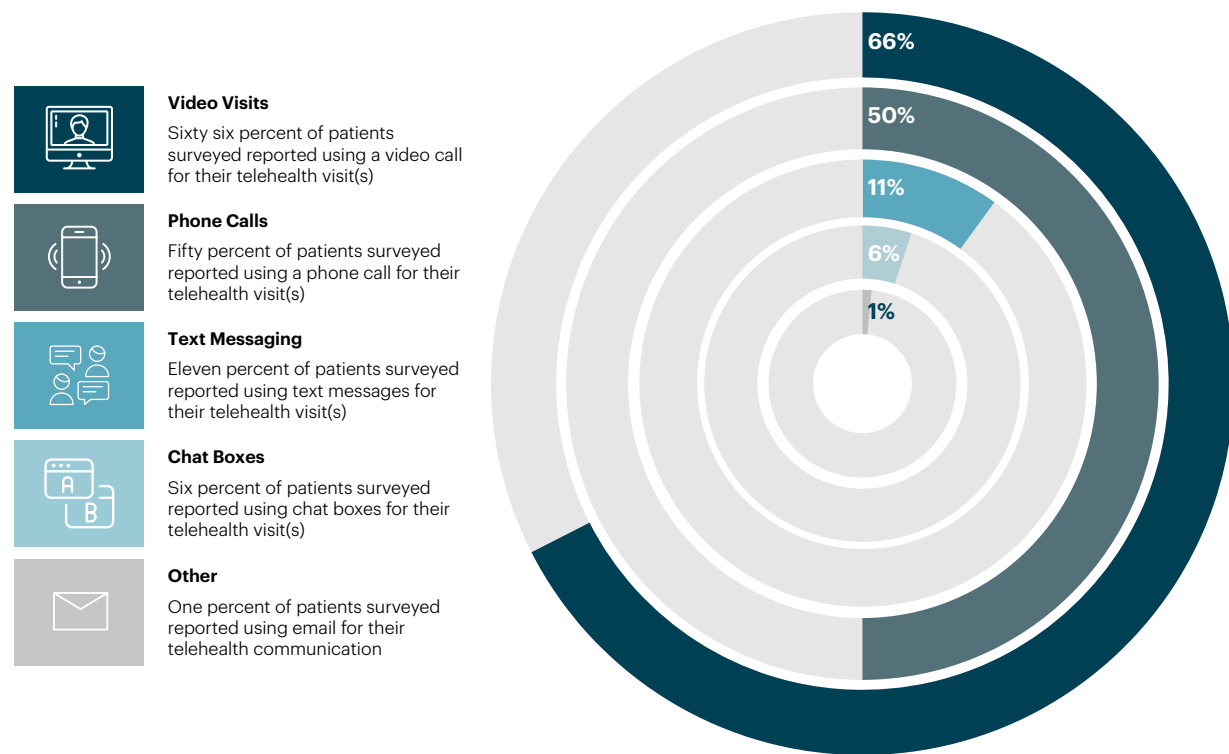
⌄⌄ TELEHEALTH VISIT PATIENTS

90%
Self

12%
Child

9%
Significant
other

3%
Parent

2%
Other

Patients predominately engaged in
telehealth visits for themselves.

⌄⌄ TELEHEALTH SERVICES RECEIVED

% OF SERVICES RECEIVED

Radiology	Transplant	Bariatric	Training for use of devices/equipment for health monitoring	Critical Care	Addiction Medicine	Nephrology	Orthopedic	Oncology	Post-Hospital follow-up	Neurology	Cardiology	Dermatology	Pediatric	Other	Women's Health	Urgent Care	Mental & Behavioral Health	Primary Care
1%	1%	1%	1%	2%	2%	3%	3%	3%	3%	4%	4%	5%	6%	6%	7%	11%	20%	75%

During COVID-19, patients most frequently received
primary care, mental and behavioral health,
and urgent care services via telehealth.

What medium did patients use for their primary care telehealth visits?

Patients were asked what type telehealth visit they engaged in. Over 60 percent of patients surveyed reported having a video visit (66 percent), while 50 percent had a phone call for their telehealth visits. Text messaging was used for 11 percent of patients surveyed and chat boxes were used for 6 percent. One participants (less than 1 percent of the patients surveyed) noted that all communication for their telehealth visit was conducted through email.

What type of device did patients use for their telehealth visits?

Patients were also asked what type of device they used for their telehealth visits. The majority of patients surveyed (71 percent) used a phone for their telehealth visit, with 38 percent using a computer and 15 percent using a tablet.

Further analysis was conducted to understand whether participants predominately used one or multiple types of devices for their telehealth visit. Of the patients surveyed, the majority (79 percent) reported using only one device, while 21 percent reported using multiple devices for their telehealth visits.

⌄ **TYPE OF TELEHEALTH VISITS PATIENTS ENGAGED IN**

⌄ **TYPE OF DEVICE USED**

Video Visits
Sixty six percent of patients surveyed reported using a video call for their telehealth visit(s)

Phone Calls
Fifty percent of patients surveyed reported using a phone call for their telehealth visit(s)

Text Messaging
Eleven percent of patients surveyed reported using text messages for their telehealth visit(s)

Chat Boxes
Six percent of patients surveyed reported using chat boxes for their telehealth visit(s)

Other
One percent of patients surveyed reported using email for their telehealth communication
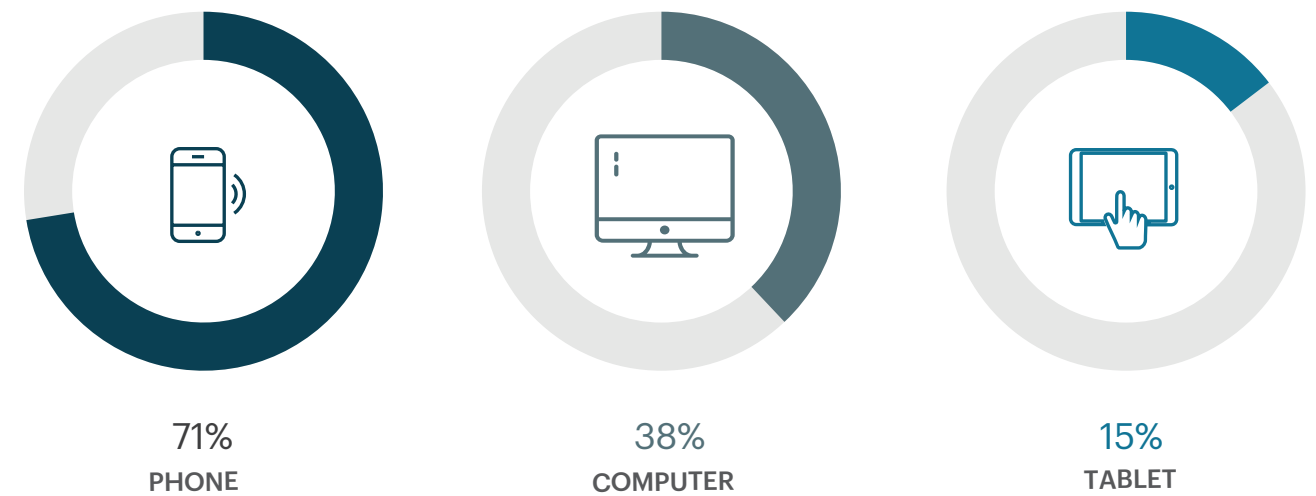
66%

50%

11%

6%

1%

71%
PHONE

38%
COMPUTER

15%
TABLET

Patients predominately used video as a means for communicating with their provider during their telehealth visit.
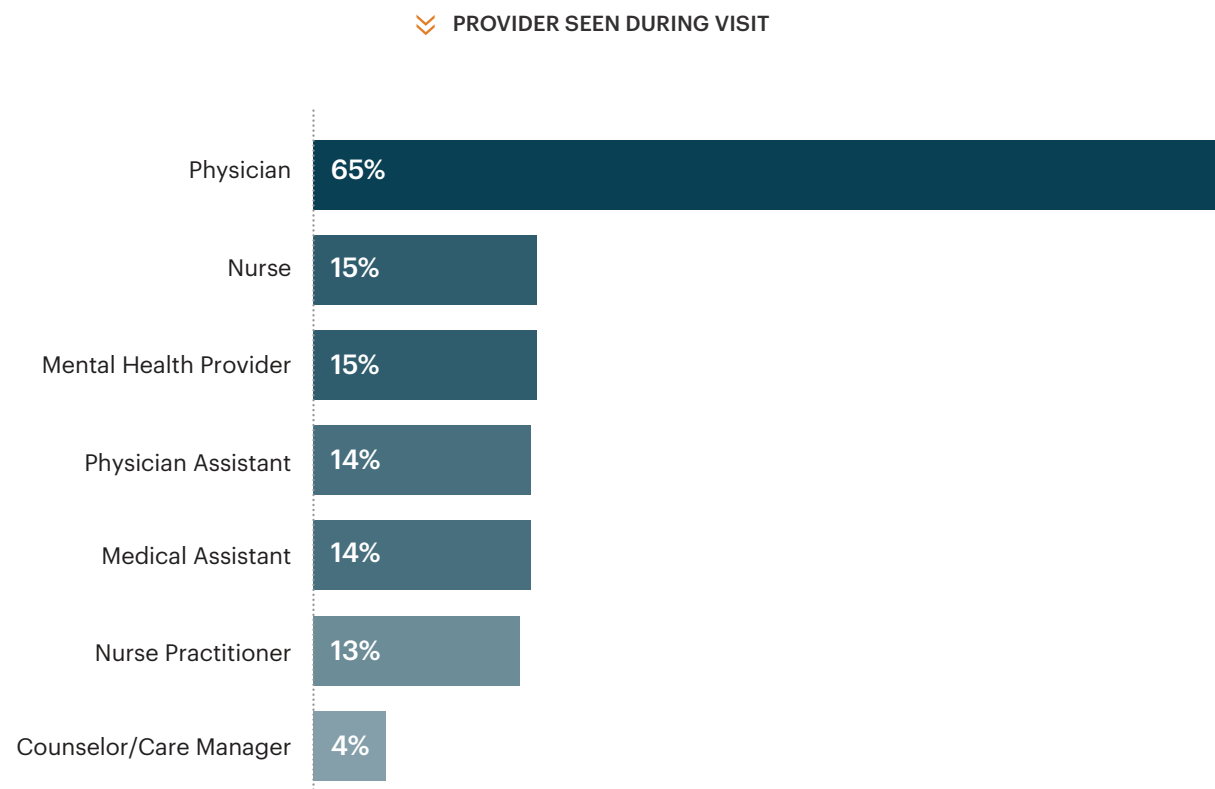
Patients most frequently used a phone for their telehealth visit.

Who did patients see during their telehealth visits?

Patients were asked who they saw during their telehealth visit. The majority of patients surveyed (65 percent) saw a physician during their telehealth visit. Additionally, 15 percent of patients reported seeing a nurse or a mental health provider, 14 percent saw a physician assistant or a medical assistant, and 13 percent saw a nurse practitioner during their telehealth visit.
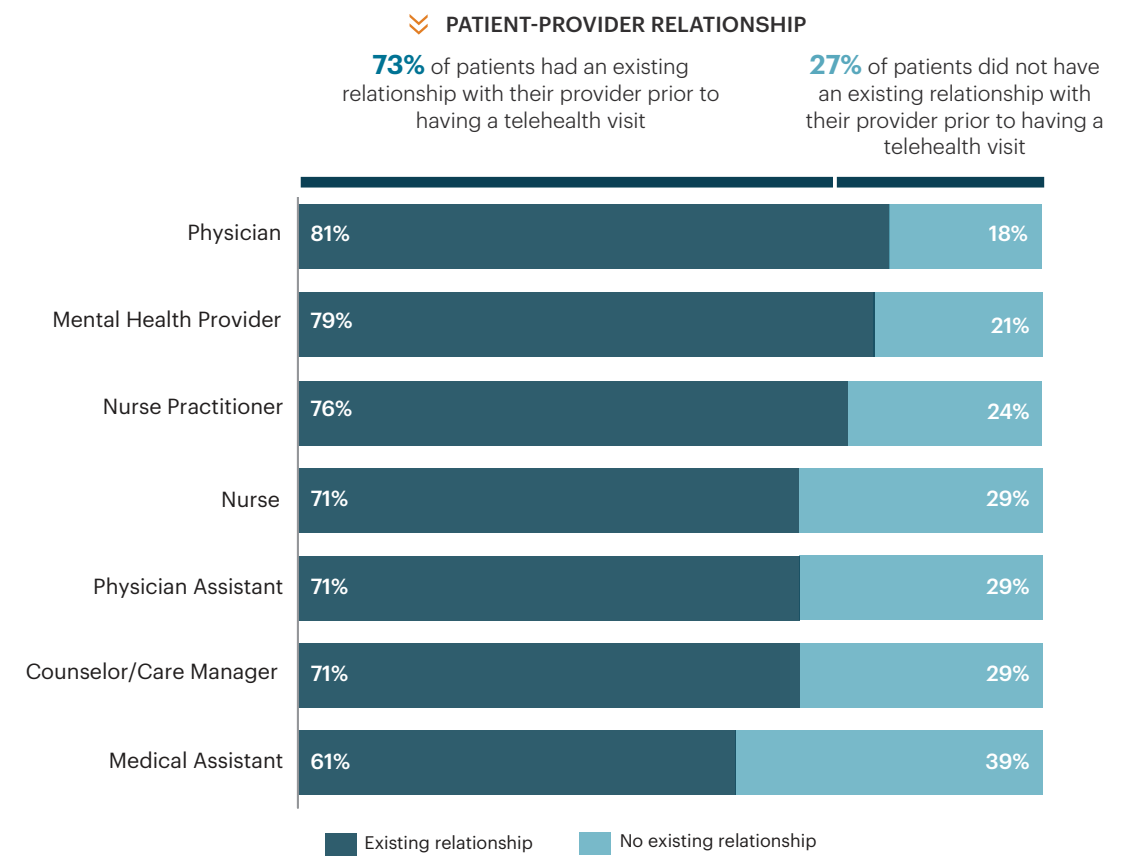
∨ **PROVIDER SEEN DURING VISIT**

Provider	Percent
Physician	65%
Nurse	15%
Mental Health Provider	15%
Physician Assistant	14%
Medical Assistant	14%
Nurse Practitioner	13%
Counselor/Care Manager	4%

Physicians, as compared to other care team members, were most often seen by patients during their telehealth visits.

Did patients have a prior relationship with the provider they saw for their telehealth visit?

Patients were asked if they had a prior relationship with the provider they had seen for their telehealth visit. The majority of patients (73 percent) indicated that they did have an existing relationship with the provider prior to their telehealth visit.

Further analysis was conducted to understand if the existing relationship between patients and the provider seen during during their telehealth visit differed based on provider type. The majority of patients reported having an existing relationship with their mental health provider (79 percent), counselor/care manager (71 percent), nurse practitioner (76 percent), physician assistant (71 percent), physician (81 percent), and nurse (71 percent) prior to their telehealth visit. Interestingly, almost 40 percent of patients who interacted with a medical assistant during their telehealth visit did not have an existing relationship.

∨ **PATIENT-PROVIDER RELATIONSHIP**

73% of patients had an existing relationship with their provider prior to having a telehealth visit

27% of patients did not have an existing relationship with their provider prior to having a telehealth visit

Provider	Existing relationship	No existing relationship
Physician	81%	18%
Mental Health Provider	79%	21%
Nurse Practitioner	76%	24%
Nurse	71%	29%
Physician Assistant	71%	29%
Counselor/Care Manager	71%	29%
Medical Assistant	61%	39%

■ Existing relationship ■ No existing relationship

Over 70% patients had an existing relationship with their provider prior to having a telehealth visit with them.
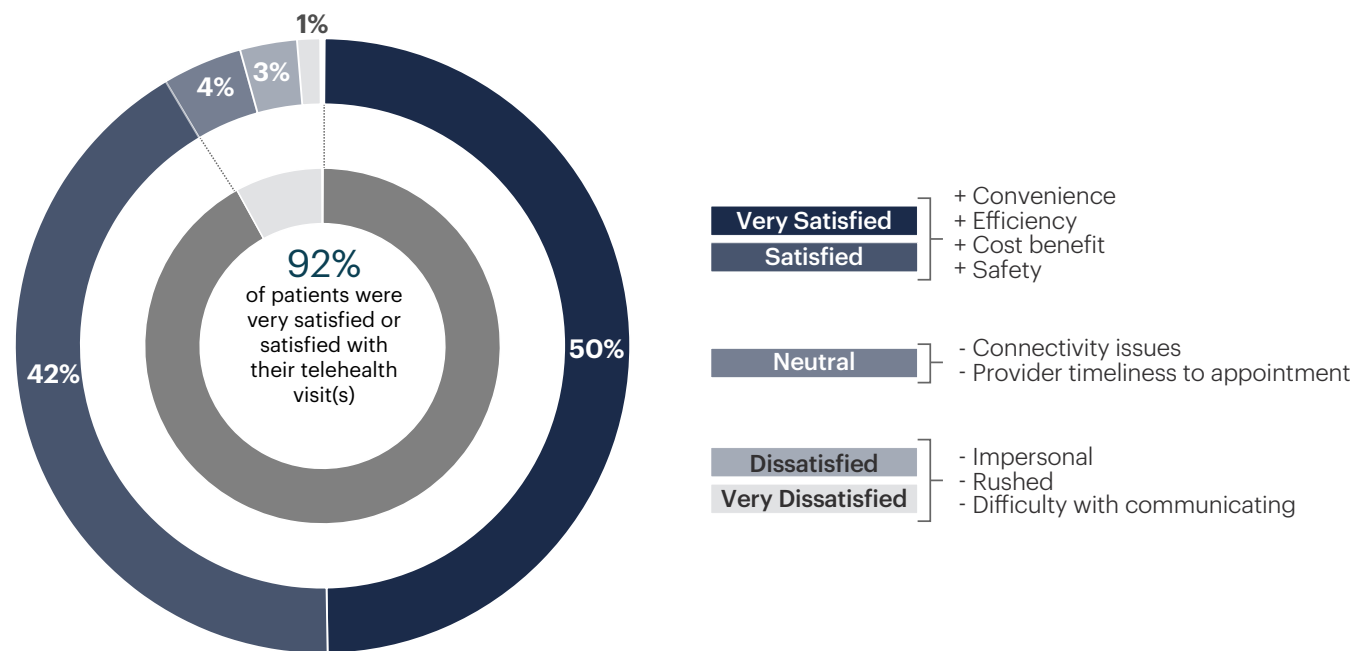
How satisfied or dissatisfied are patients with their telehealth visits overall?

Patients were also asked how satisfied or dissatisfied they were with their telehealth visits. The overwhelming majority of patients (92%) reported being either very satisfied or satisfied with their telehealth visits.

Patients were also provided an opportunity to state why in their own words. Those who were very satisfied or satisfied noted increased convenience and efficiency as key drivers for satisfaction due to the saving of time and money in terms of gas and parking and reduced stress from not having to drive to the doctor's office, as well as increased safety from limiting exposure to others. Patients who were unsure expressed a preference for in-person visits, noting their telehealth visit felt incomplete and challenges with connectivity and provider timeliness to the appointment diminished the other potential benefits associated with telehealth. Those who were dissatisfied expressed that their telehealth visit felt impersonal and rushed, which contributed an inability to fully communicate their needs to their provider.

⌄ **OVERALL PATIENT SATISFACTION WITH CURRENT TELEHEALTH SERVICES**

92%
of patients were very satisfied or satisfied with their telehealth visit(s)

Very Satisfied / Satisfied	+ Convenience + Efficiency + Cost benefit + Safety
Neutral	- Connectivity issues - Provider timeliness to appointment
Dissatisfied / Very Dissatisfied	- Impersonal - Rushed - Difficulty with communicating

Overall, Gen Xers are less satisfied with telehealth than Baby Boomers or Millennials.

How does satisfaction differ across different generations?

BABY BOOMERS

A majority of Baby Boomers (90 percent) were very satisfied or satisfied with their telehealth visits, whereas 5 percent were dissatisfied or very dissatisfied, and additional 5 percent were unsure.

GEN X

Most Gen Xers (87 percent) were very satisfied or satisfied with their telehealth visits. While 6 percent were unsure, 7 percent were very dissatisfied or dissatisfied with their telehealth visit.
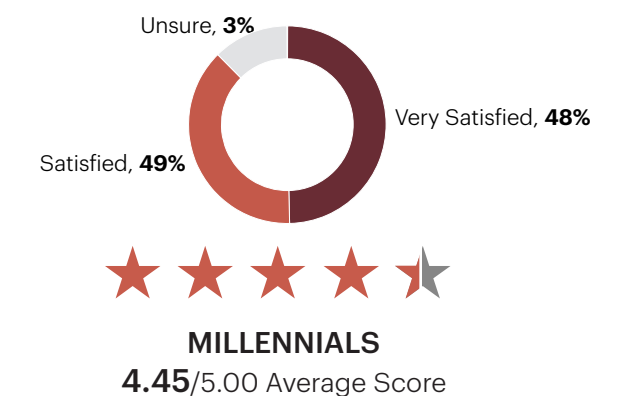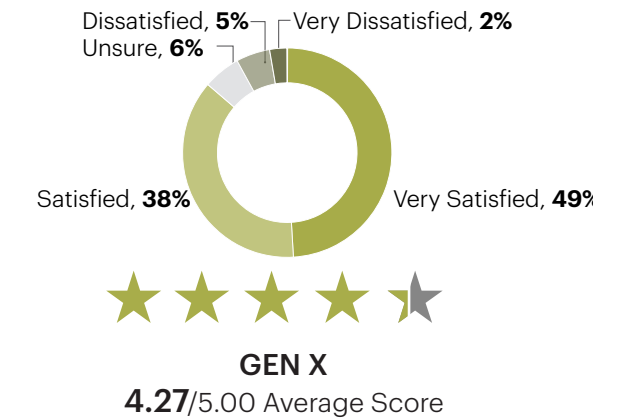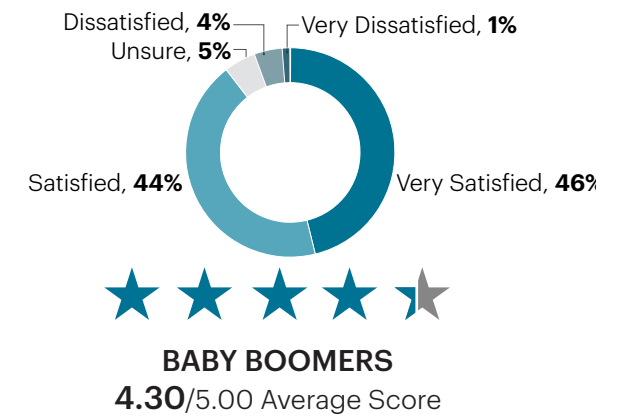
MILLENNIALS

An exceeding high number of Millennials (97 percent) were very satisfied or satisfied with their telehealth visits, while only 3 percent respondents were unsure. None of the Millennials were dissatisfied or very dissatisfied with their telehealth visit.

Further analysis was conducted to understand differences in satisfaction by age category. Based on t-test analysis Millennials (M = 4.45, SD = 0.55) were significantly more satisfied with their telehealth visits (p = 0.03*, Δ = 0.18) than Gen Xers (M = 4.27, SD = 0.93). No significant differences were found in satisfaction between Baby Boomers and Gen Xers or Baby Boomers and Millennials.

⌄ **PATIENT SATISFACTION WITH CURRENT TELEHEALTH SERVICES BY AGE**

Dissatisfied, **4%** — Very Dissatisfied, **1%**
Unsure, **5%**
Satisfied, **44%** — Very Satisfied, **46%**

★★★★⯪
BABY BOOMERS
4.30/5.00 Average Score

Dissatisfied, **5%** — Very Dissatisfied, **2%**
Unsure, **6%**
Satisfied, **38%** — Very Satisfied, **49%**

★★★★⯪
GEN X
4.27/5.00 Average Score

Unsure, **3%**
Satisfied, **49%** — Very Satisfied, **48%**

★★★★⯪
MILLENNIALS
4.45/5.00 Average Score

How satisfied or dissatisfied were patients with various aspects of their telehealth visits?

BABY BOOMERS

An exceptionally high number of Baby Boomers were satisfied or very satisfied with the ease of scheduling (94 percent), audio quality (94 percent), ease of payment (90 percent) and level of privacy during the telehealth visit (96 percent). In addition, over three-fourths of the Baby Boomers were satisfied or very satisfied with the video quality (79 percent), ease of talking with the provider over video (82 percent) and follow-up after visit (81 percent). None of the participants surveyed were dissatisfied or very dissatisfied with ease of payment. Additionally, only 6 percent of the Boomers or less were dissatisfied or very dissatisfied with any of the factors. A few respondents were unsure of the video quality (18 percent), ease of talking with the provider over video (13 percent), follow-up after the visit (16 percent) and ease of payment (10 percent).

GEN X

Similar to Baby Boomers, a high number of Gen Xers were satisfied or very satisfied with the ease of scheduling (91 percent), audio quality (91 percent), and level of privacy during the telehealth visit (90 percent). In addition, over three-fourths of the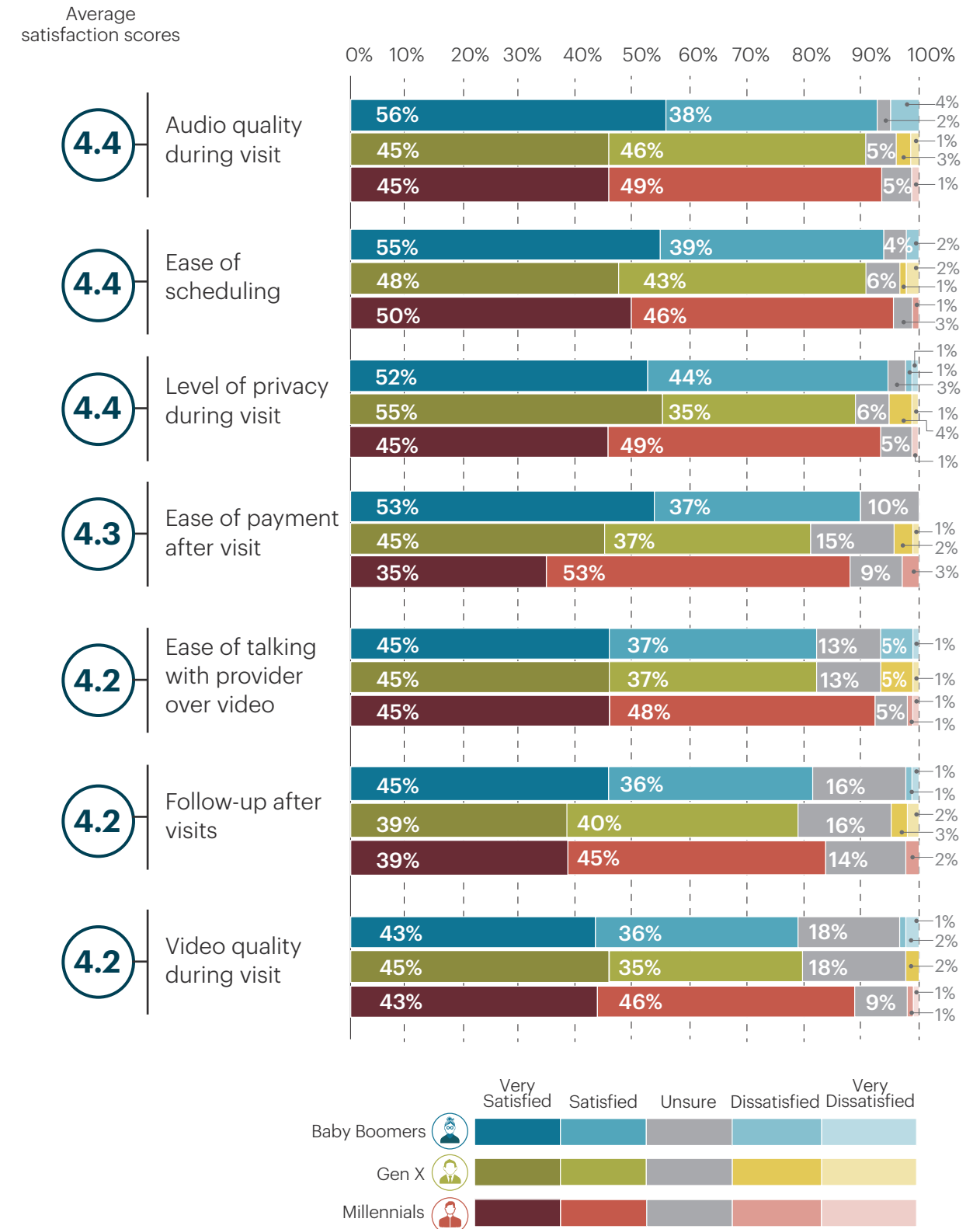 Gen Xers surveyed were satisfied or very satisfied with the video quality (80 percent), ease of talking with the provider over video (82 percent), follow-up after visit (79 percent), and ease of payment (82 percent). While 6 percent or less of the Gen Xers were dissatisfied or very dissatisfied with any of the factors, few respondents were unsure of ease of scheduling (6 percent), video quality (18 percent), ease of talking with the provider over video (13 percent), follow-up after the visit (16 percent), ease of payment (15 percent), and level of privacy during the visit (6 percent).

MILLENNIALS

A substantial amount of Millennials were also satisfied or very satisfied with the ease of scheduling (96 percent), audio quality (94 percent), ease of talking with the provider over video (93 percent), and level of privacy during the telehealth visit (94 percent). In addition, over three-fourths of the respondents were satisfied or very satisfied with the video quality (89 percent), follow-up after visit (84 percent), and ease of payment (88 percent). While 3 percent of the Millennials or less were dissatisfied or very dissatisfied with any of the factors, a few respondents were unsure of video quality (9 percent), follow-up after the visit (14 percent), and ease of payment (9 percent).

Regardless of age, most patients are highly satisfied with multiple aspects of their telehealth visits

SATISFACTION WITH DIFFERENT ASPECTS OF TELEHEALTH VISITS

Average satisfaction scores

Audio quality during visit — 4.4
- 56% | 38% | 4% | 4% | 2%
- 45% | 46% | 5% | 1% | 3%
- 45% | 49% | 5% | 1%

Ease of scheduling — 4.4
- 55% | 39% | 4% | 2% | 2%
- 48% | 43% | 6% | 1% | 1%
- 50% | 46% | 3%

Level of privacy during visit — 4.4
- 52% | 44% | 1% | 1% | 3%
- 55% | 35% | 6% | 1% | 4%
- 45% | 49% | 5% | 1%

Ease of payment after visit — 4.3
- 53% | 37% | 10%
- 45% | 37% | 15% | 1% | 2%
- 35% | 53% | 9% | 3%

Ease of talking with provider over video — 4.2
- 45% | 37% | 13% | 5% | 1%
- 45% | 37% | 13% | 5% | 1%
- 45% | 48% | 5% | 1% | 1%

Follow-up after visits — 4.2
- 45% | 36% | 16% | 1% | 1%
- 39% | 40% | 16% | 2% | 3%
- 39% | 45% | 14% | 2%

Video quality during visit — 4.2
- 43% | 36% | 18% | 1% | 2%
- 45% | 35% | 18% | 2%
- 43% | 46% | 9% | 1% | 1%

Legend:
Very Satisfied | Satisfied | Unsure | Dissatisfied | Very Dissatisfied
- Baby Boomers
- Gen X
- Millennials

Average satisfaction scores are rated out of 5.0
Average satisfaction scores are cumulative across all generations

What predicts patient satisfaction with their telehealth visit(s)?

Analysis was also conducted to understand in greater detail how different aspects of a telehealth visit impact patient satisfaction, as well as how the number of telehealth visits, the purpose of the visit, and whether an existing relationship between patient and provider impact patient satisfaction with telehealth. Linear regression analysis showed ease of scheduling (p = 0.000**, r = 0.38), follow-up after the visit (p = 0.000**, r = 0.21), and level of privacy (p= 0.003**, r = 0.175) as top predictors for patient satisfaction with telehealth visits overall. Additionally, an ANOVA test revealed that the

purpose of the visit is a predictor of patient satisfaction with telehealth. Based on t-test analysis, patients who had received a diagnosis (M = 4.58, SD = 0.69) during their telehealth visit were significantly more satisfied overall (p = 0.005**, Δ= 0.31) than those who had a follow-up visit (M = 4.27, SD = 0.84) . Patients who received a diagnosis (M = 4.58, SD = 0.69) were also significantly more satisfied (p = 0.03*, Δ = 0.21) than those who had a wellness visit (M = 4.37, SD = 0.61). No significant difference found between those who had follow-up and wellness visits.

⌄ PREDICTORS OF SATISFACTION

FACTORS	BABY BOOMERS	GEN X	MILLENNIALS	OVERALL
Ease of scheduling		✓	✓	✓
Audio quality during visit	✓			
Video quality during visit				
Ease of talking with provider over video				
Follow-up after visit	✓	✓	✓	✓
Ease of payment after visit				
Level of privacy during visit			✓	✓

Across generations, ease of scheduling, the follow-up visit, level of privacy, and purpose of visit predict patient satisfaction with telehealth. Audio quality is more important for boomers than other generations.

How likely are patients to opt for telehealth visit over an in-person visit post pandemic?

👩 **BABY BOOMERS**

Baby Boomers were divided as to how likely they were to have a telehealth visit over an in-person visit post pandemic, with 43 percent very likely or likely, 22 percent unsure in their choice between a telehealth visit or in-person visit, and 35 percent not likely or highly unlikely to have one.

👨 **GEN X**

The majority of Gen Xers (57 percent) were very likely or likely to have a telehealth visit post pandemic. While 22 percent patients were unsure or their choice between a telehealth visit or in-person visit, 21 percent were not likely or highly unlikely to have one.
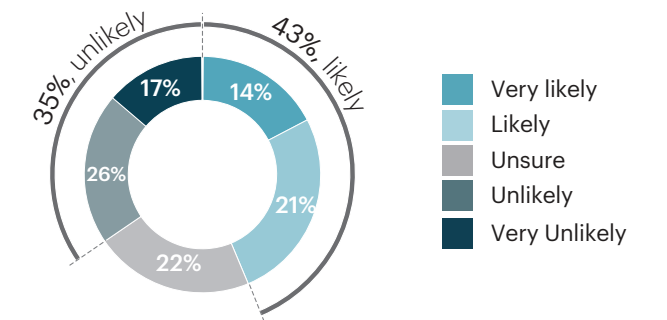
🧑 **MILLENNIALS**

The majority of Millennials (74 percent) were very likely or likely to have a telehealth visit post pandemic. While 15 percent patients were unsure or their choice between a telehealth visit or in-person visit, only 11 percent were not likely or highly unlikely to have one.
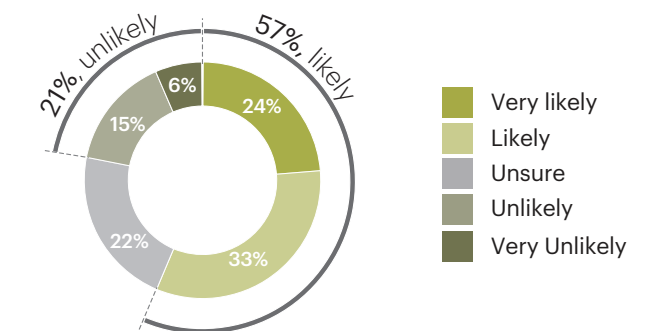
Further analysis was conducted to understand differences in likelihood of having a telehealth visit over an in-person visit by age category. Based on t-test analysis, the likelihood of Millennials (M = 3.90, SD = 1.04) having a telehealth visit over an in-person visit was significantly higher (p<0.001, Δ = 0.77) than Baby Boomers (M = 3.13, SD = 1.31). The likelihood of Millennials having a telehealth visit over an in-person visit was also significantly higher (p=0.02, Δ = 0.38) than Gen Xers (M=3.52, SD=1.19). Additionally, the likelihood of Gen Xers having a telehealth visit over an in-person visit was significantly higher (p=0.01; Δ = 0.39) than Baby Boomers.

⌄ LIKELIHOOD OF HAVING A TELEHEALTH VISIT OVER IN-PERSON VISIT

BABY BOOMERS
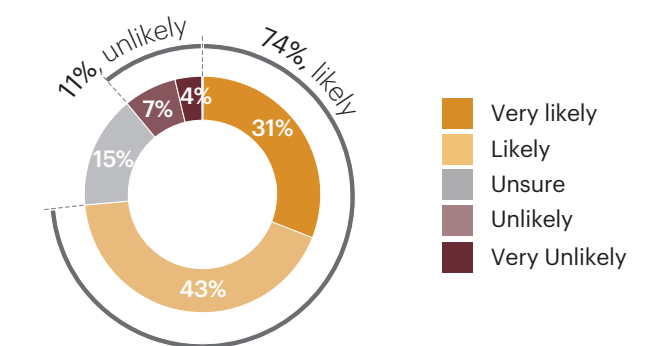
35% unlikely — 43% likely
17% / 14% / 21% / 22% / 26%

Very likely
Likely
Unsure
Unlikely
Very Unlikely

GEN X

21% unlikely — 57% likely
6% / 24% / 15% / 33% / 22%

Very likely
Likely
Unsure
Unlikely
Very Unlikely

MILLENNIALS

11% unlikely — 74% likely
7% / 4% / 31% / 15% / 43%

Very likely
Likely
Unsure
Unlikely
Very Unlikely

Millennials have the highest likelihood of opting for a telehealth visit post-pandemic.

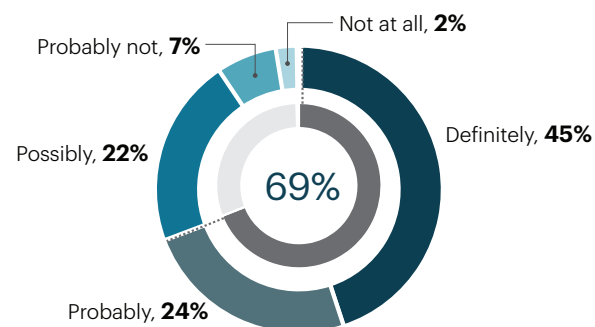# How likely are patients to have another telehealth visit for a similar health issue?

BABY BOOMERS

The majority of Boomers (69 percent) were likely to have another telehealth visit if they had a similar health issue. Patients suggested that it is 'convenient' to not have to drive to and from the clinic and is a 'safe option' to avoid patients and providers from being exposed to undiagnosed individuals. While 22 percent were neutral in their response of possibly having another telehealth visit, 9 percent were not likely to have one. These participants suggested that they would not opt for exclusive telehealth visits, rather would prefer face-to-face meetings with their providers periodically.

"My needs were met without leaving my home and I have balance issues, so telehealth was a wonderful tool."
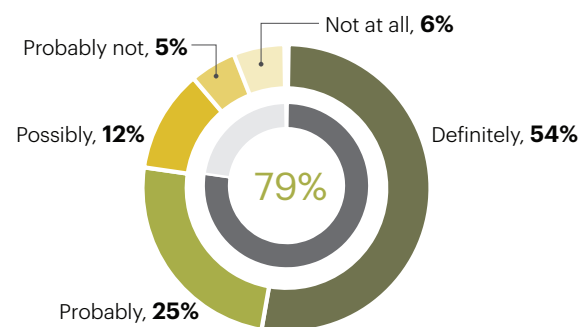
GEN X

The majority of Gen X patients (79 percent) were likely to have another telehealth visit if they had a similar health issue, while 12 percent were neutral in their response and 10 percent were not likely to have a telehealth visit. Ease of use, convenience, efficiency, safety were reasons highlighted by Gen X for using telehealth in future.

"I think the services are good enough, The physician is able to treat properly, cost effective as well "
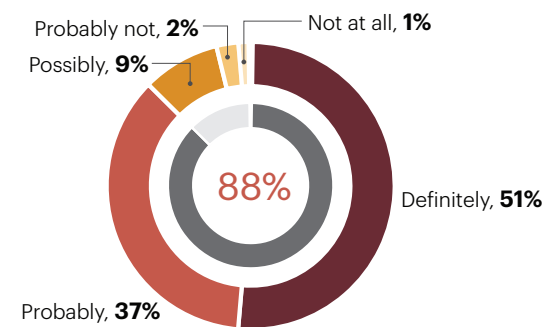
MILLENNIALS

Of the patients surveyed, 88 percent of Millennials were likely to have another telehealth visit if they had a similar health issue. In addition to convenience and safety, participants highlighted the experience and quality of service as positive aspects of their telehealth visits. Nine percent of Millennials were neutral in their response, and only 3 percent were not likely to have a telehealth visit in the future.

"I would do this without reservation as it was easy to do and thorough enough for my needs."

DIFFERENCE BY GENERATION

Further analysis was conducted to understand differences in likelihood of having another telehealth visit by age category. Based on t-test analysis the likelihood of Millennials (M = 4.35, SD = 0.80) returning for a telehealth visit for a similar type of visit in the future was significantly higher (p = 0.006***, Δ = 0.32) than Baby Boomers (M = 4.04, SD = 1.07). No significant differences were found in the likelihood of having another telehealth visit between Baby Boomers and Gen Xers or Millennials and Gen Xers.

BOOMER LIKELIHOOD OF RETURN

Not at all, **2%**
Probably not, **7%**
Possibly, **22%**
Probably, **24%**
Definitely, **45%**
69%

GEN X LIKELIHOOD OF RETURN

Not at all, **6%**
Probably not, **5%**
Possibly, **12%**
Probably, **25%**
Definitely, **54%**
79%

MILLENNIALS LIKELIHOOD OF RETURN

Not at all, **1%**
Probably not, **2%**
Possibly, **9%**
Probably, **37%**
Definitely, **51%**
88%

AVERAGE LIKELIHOOD OF RETURN SCORES BY GENERATION

BABY BOOMERS **4.04**/5.00

GEN X **4.19**/5.00

MILLENNIALS **4.35**/5.00

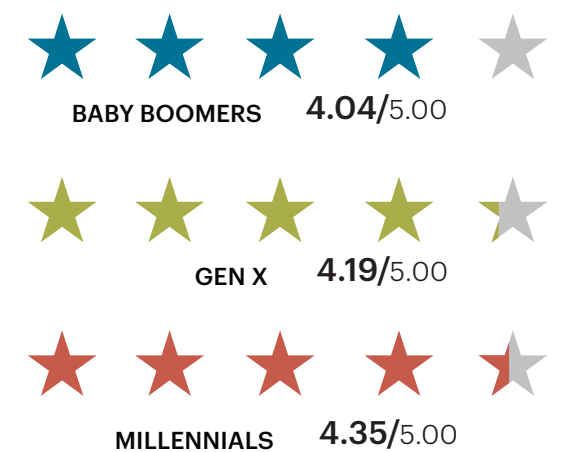Baby Boomers and Gen Xers are most likely to return for another telehealth visit due to convenience and efficiency.

Millennials have the highest likelihood of returning for another telehealth visit for a similar issue especially compared to Baby Boomers.

How do patients perceive the impact of telehealth on long-term relationships with physicians?

Patients were asked to rate what type of impact telehealth would have on their long-term relationships with their physicians. Overall, the majority of patients surveyed (85 percent) felt telehealth would have some impact on long-term relationship with their physicians, while 15 percent of patients felt there would be no impact. Of those who felt there would be an impact, the majority of patients (45 percent) felt telehealth would have a positive impact, 30 percent felt it would have a neutral impact, while 10 percent felt it would have a negative impact.

"I think it's important to have and maintain a relationship. I'm more than my data, and my case is far from ordinary. So I'd like to see telehealth for nonemergency, minor things. Not even to replace routine check ups."

GEN X

BABY BOOMERS

The majority of Baby Boomers surveyed (80 percent) felt telehealth would impact long term relationship with their physician, while 20 percent felt there would be no impact. Of those who felt there would be an impact, 36 percent felt that telemedicine will have a positive impact on long term relationship, 9 percent felt it would have a negative impact, and 35 percent were neutral.

GEN X

The majority of Gen X patients surveyed (82 percent) felt telehealth would impact long term relationship with their physician, while 18 percent felt there would be no impact. Of those who felt there would be an impact, 48 percent felt that telemedicine will have a positive impact on long term relationship, while 9 percent felt it would have a negative impact, and 30 percent were neutral.
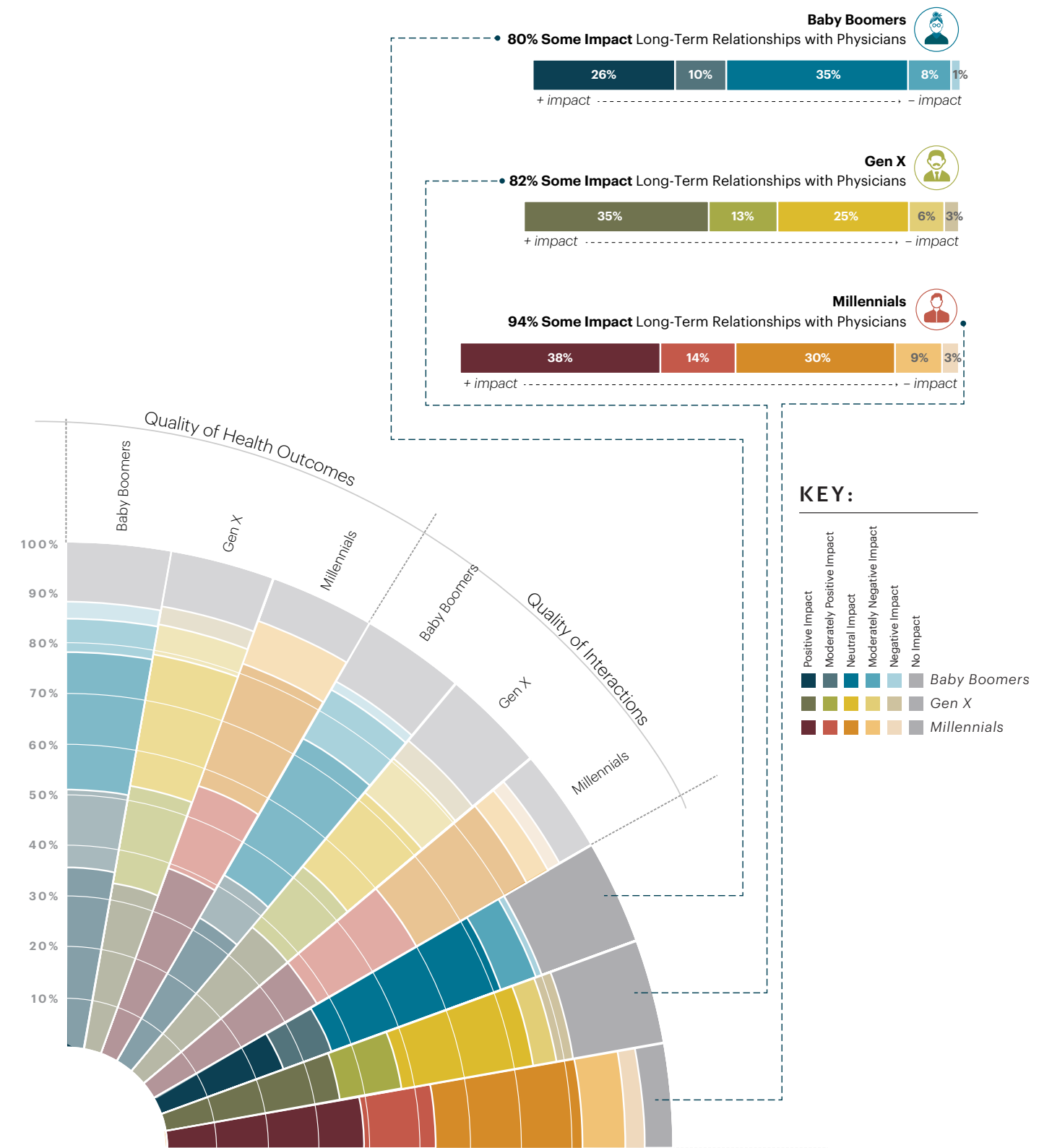
MILLENNIALS

The majority of Millennials surveyed (94 percent) felt telehealth would impact long term relationship with their physician, while only 6 percent felt there would be no impact. Of those who felt there would be an impact, over half of the patients (52 percent) felt that telemedicine will have a positive impact on long term relationship, while 12 percent felt it would have a negative impact, and 30 percent felt were neutral.

Around half of Gen X and Millennial patients believe that telehealth will positively impact long-term relationship with their physicians moving forward.

Baby Boomers
80% Some Impact Long-Term Relationships with Physicians

| 26% | 10% | 35% | 8% | 1% |
+ impact -- – impact

Gen X
82% Some Impact Long-Term Relationships with Physicians

| 35% | 13% | 25% | 6% | 3% |
+ impact -- – impact

Millennials
94% Some Impact Long-Term Relationships with Physicians

| 38% | 14% | 30% | 9% | 3% |
+ impact -- – impact

KEY:

Positive Impact
Moderately Positive Impact
Neutral Impact
Moderately Negative Impact
Negative Impact
No Impact

Baby Boomers
Gen X
Millennials

Quality of Health Outcomes
Quality of Interactions

How do patients perceive the impact of telehealth on quality of interaction with their physicians?

Patients were asked to rate what type of impact telehealth would have on the quality of interaction with their physicians. Overall, the majority of patients surveyed (89 percent) felt telehealth would have some impact on quality of interactions with their physicians, while 11 percent of patients felt there would be no impact. Of those who felt there would be an impact, the majority of patients (52 percent) felt telehealth would have a positive impact, 26 percent felt it would have a neutral impact, while 11 percent felt it would have a negative impact.

"I think that during the pandemic they served the purpose, but I prefer the one on one dynamic with my primary physician. I'd rather see the doctor so he can actually touch and feel me."

BABY BOOMER

BABY BOOMERS

The majority of Baby Boomers surveyed (88 percent) felt telehealth would impact quality of interactions with their physicians, while 12 percent felt there would be no impact. Of those who felt there would be an impact, 43 percent felt that telemedicine will have a positive impact on the quality of interactions, while 13 percent felt it would have a negative impact, and 32 percent were neutral.
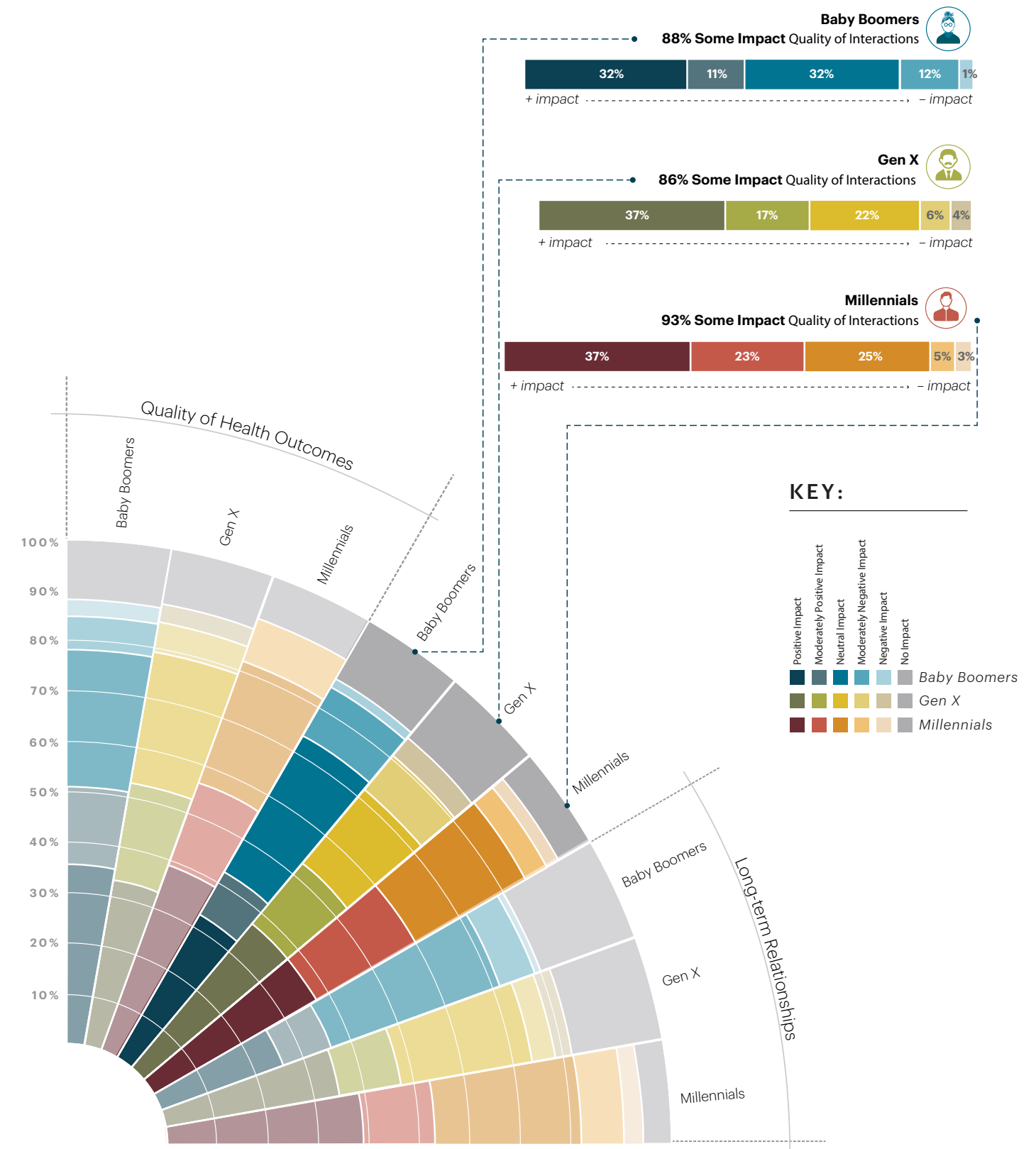
GEN X

The majority of Gen X patients surveyed (86 percent) felt telehealth would impact quality of interactions with their physicians, while 14 percent felt there would be no impact. Of those who felt there would be an impact, 54 percent felt that telemedicine will have a positive impact on the quality of interactions, while 10 percent felt it would have a negative impact, and 22 percent were neutral.

MILLENNIALS

The majority of Millennials surveyed (93 percent) felt telehealth would impact quality of interactions with their physicians, while 7 percent felt there would be no impact. Of those who felt there would be an impact, 60 percent felt that telemedicine will have a positive impact on the quality of interactions, while 8 percent felt it would have a negative impact, and 25 percent were neutral.

The majority of Gen X and millennial patients believe there will be a positive impact on quality of interactions with their physician, whereas most Baby Boomers perceived neutral impact.

Baby Boomers
88% Some Impact Quality of Interactions

| 32% | 11% | 32% | 12% | 1% |

+ impact ———————————————————— − impact

Gen X
86% Some Impact Quality of Interactions

| 37% | 17% | 22% | 6% | 4% |

+ impact ———————————————————— − impact

Millennials
93% Some Impact Quality of Interactions

| 37% | 23% | 25% | 5% | 3% |

+ impact ———————————————————— − impact

KEY:

Positive Impact
Moderately Positive Impact
Neutral Impact
Moderately Negative Impact
Negative Impact
No Impact

Baby Boomers
Gen X
Millennials

Quality of Health Outcomes

Baby Boomers
Gen X
Millennials

Long-term Relationships

Baby Boomers
Gen X
Millennials

Baby Boomers
Gen X
Millennials

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

How do patients perceive the impact of telehealth on quality of health outcomes?

Patients were asked to rate what type of impact telehealth would have on the quality of health outcomes. Overall, the majority of patients surveyed (88 percent) felt telehealth would have some impact on quality of interactions with their physicians, while 12 percent of patients felt there would be no impact. Of those who felt there would be an impact, the majority of patients (54 percent) felt telehealth would have a positive impact, 26 percent felt it would have a neutral impact, while 8 percent felt it would have a negative impact.

"It [telehealth] seems like a good way to get healthcare - provide more preventative care and improve outcomes."

BABY BOOMER

BABY BOOMERS

The majority of Baby Boomers surveyed (86 percent) felt telehealth would impact quality of health outcomes, while 14 percent felt there would be no impact. Of those who felt there would be an impact, half of the patients (51 percent) felt that telemedicine will have a positive impact on health outcomes, while 9 percent felt it would have a negative impact, and 26 percent were neutral.
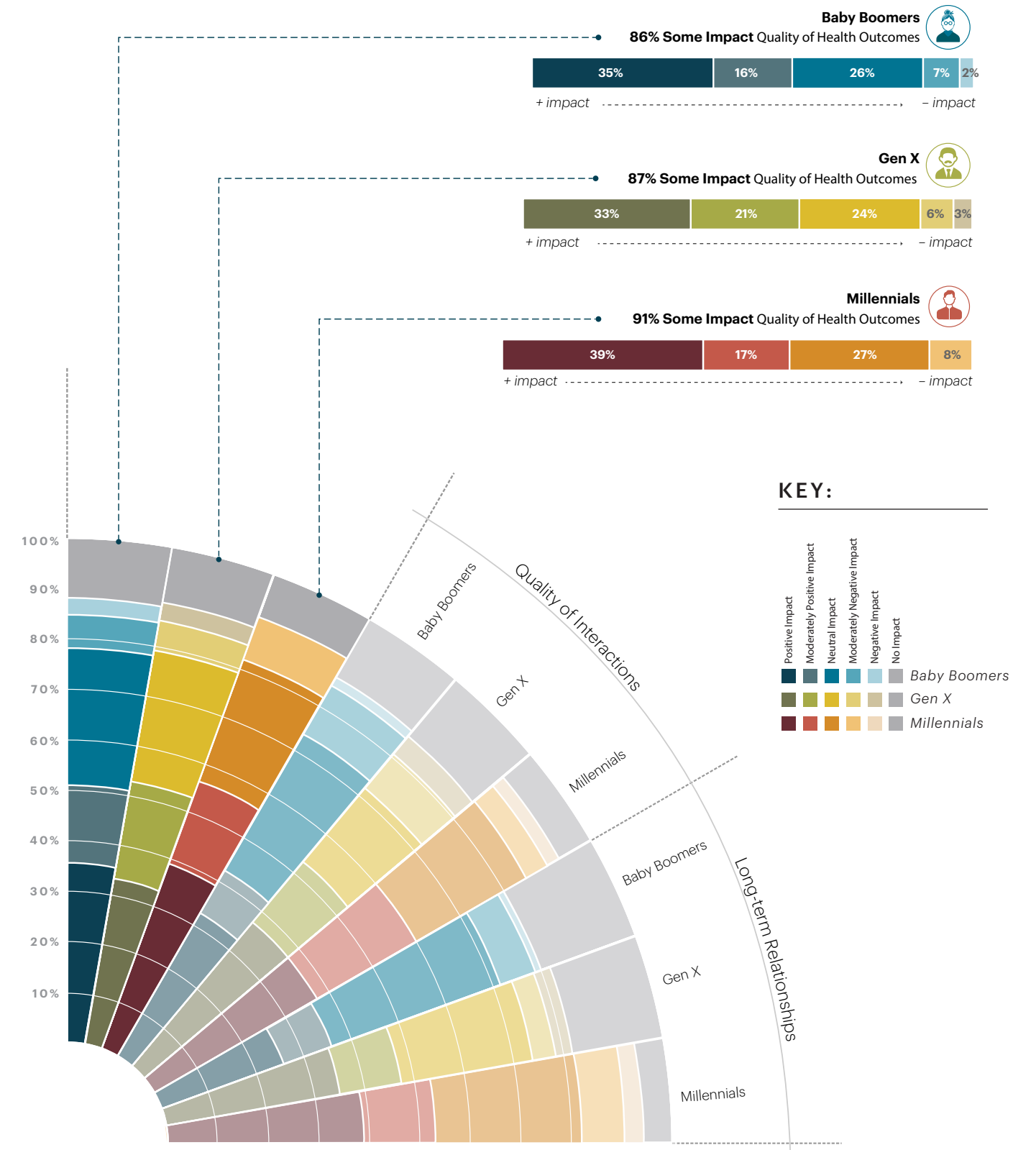
GEN X

The majority of Gen X patients surveyed (87 percent) felt telehealth would impact quality of health outcomes, while 13 percent felt there would be no impact. Of those who felt there would be an impact, 54 percent felt that telemedicine will have a positive impact on health outcomes, while 10 percent felt it would have a negative impact, and 24 percent were neutral.

MILLENNIALS

The majority of Millennials surveyed (91 percent) felt telehealth would impact quality of health outcomes, while 9 percent felt there would be no impact. Of those who felt there would be an impact, 56 felt that telemedicine will have a positive impact on health outcomes, while 8 percent felt it would have a negative impact, and 27 percent were neutral.

Patients across all three generations believe telehealth will have a positive impact on the quality of health outcomes moving forward.

Baby Boomers
86% Some Impact Quality of Health Outcomes

| 35% | 16% | 26% | 7% | 2% |

+ impact — impact

Gen X
87% Some Impact Quality of Health Outcomes

| 33% | 21% | 24% | 6% | 3% |

+ impact — impact

Millennials
91% Some Impact Quality of Health Outcomes

| 39% | 17% | 27% | 8% |

+ impact — impact

KEY:

Positive Impact
Moderately Positive Impact
Neutral Impact
Moderately Negative Impact
Negative Impact
No Impact

Baby Boomers
Gen X
Millennials

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

Baby Boomers
Gen X
Millennials
Quality of Interactions

Baby Boomers
Gen X
Millennials
Long-term Relationships

What percent of visits would patients like to have as a telehealth visits in the short-term (3-6 months), mid-term (1 year) and long-term (2-5 years)?

Patients were asked what percent of visits would they like to have as telehealth visits in the short-term (3-6 months), mid-term (1 year) and long-term (2-5 years).

BABY BOOMERS

In the short-term (3-6 months), 39 percent of Baby Boomers would like a limited amount (20 percent or less) of visits to be telehealth visits. Conversely, 45 percent of patients would like a substantial amount (40 percent or more) of visits to be telehealth visits and 16 percent would like a moderate amount (21-39 percent) of visits to be telehealth visits. In the mid-term (1 year), 45 percent of patients would like only a limited amount of visits to be telehealth visits, 40 percent of Baby Boomers would like a substantial amount visits to be telehealth visits and 15 percent would like a moderate amount of visits to be telehealth visits. In the long-term (2-5 years) an increasing number of Baby Boomers expressed a desire to shift from a having substantial amount of telehealth visits (31 percent) to a limited amount of telehealth services (51 percent) in the long-term.

GEN X

In the short-term, 37 percent of Gen Xers would like a limited amount visits to be telehealth visits. Conversely, 45 percent of patients would like a substantial amount of visits to be telehealth visits and 17 percent would like a moderate amount of visits to be telehealth visits. In the mid-term, 32 percent of patients would like only a limited amount of visits to be telehealth visits, 42 percent of Gen Xers would like a substantial amount of visits to be telehealth visits and 26 percent would like a moderate amount of visits to be telehealth visits. A similar trend continued In the long-term with 40 percent Gen Xers expressing a desire to have limited amount of telehealth visits and 33 percent expressing a desire to have substantial amount of telehealth visits.

MILLENNIALS

In the short-term, 23 percent of Millennials would like only a limited amount of visits to be telehealth visits. Conversely, 40 percent of patients would like a substantial amount of visits to be telehealth visits and 37 percent would like a moderate amount of visits to be telehealth visits. In the mid-term, 25 percent of patients would like only a limited amount of visits to be telehealth visits, 35 percent of Millennials would like a substantial amount of visits to be telehealth visits and 41 percent would like a moderate amount of visits to be telehealth visits. A similar trend continued In the long-term with 25 percent Millennials expressing a desire to have limited amount of telehealth visits. Of the total, 43 percent and 32 percent expressed the desire to have moderate or substantial amount of telehealth visits respectively.
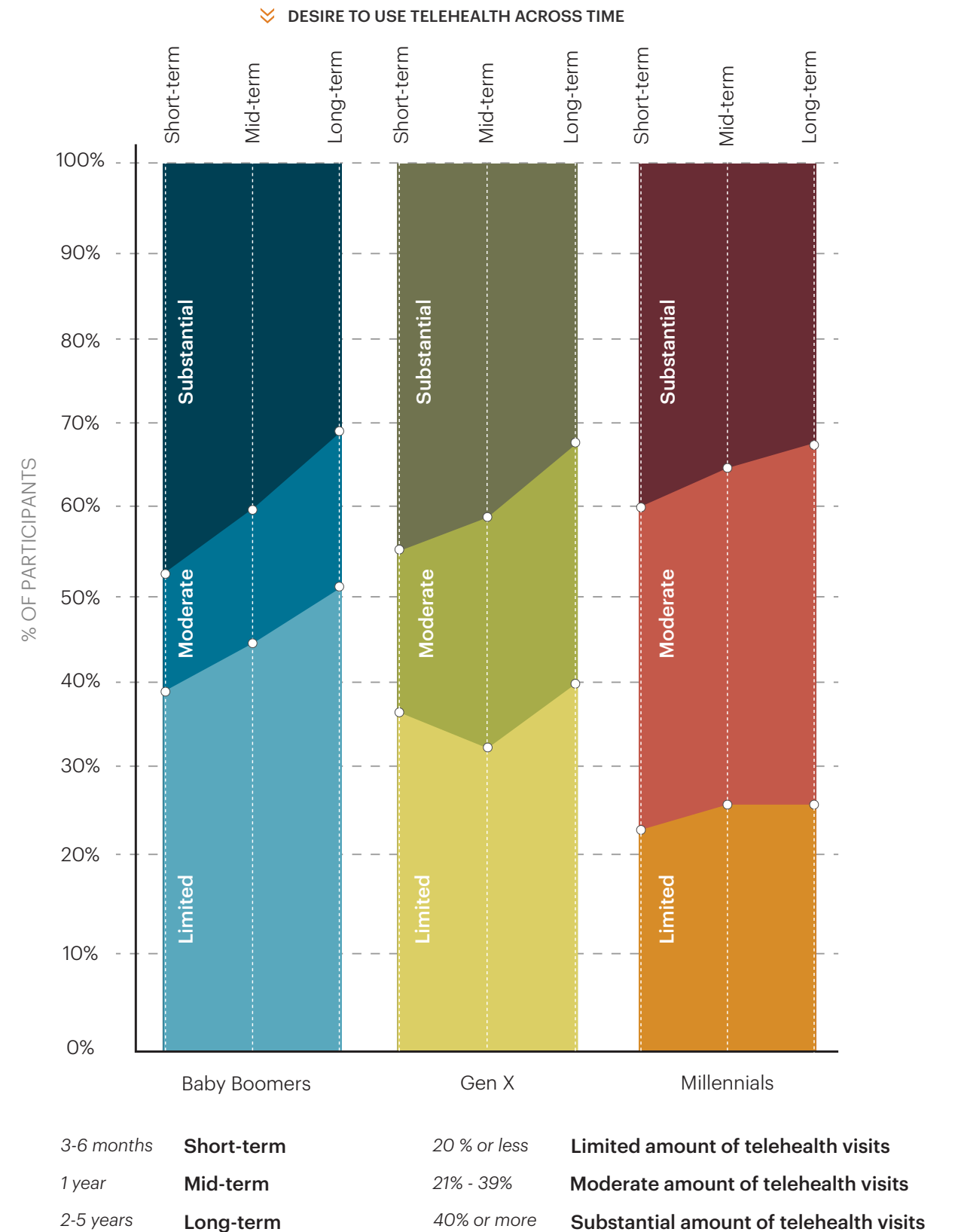
While Boomers and Gen Xers expressed a desire to shift to more limited telehealth use over the long-term, Millennials desire for use of telehealth remained consistent across time.

DESIRE TO USE TELEHEALTH ACROSS TIME

3-6 months	Short-term	20 % or less	Limited amount of telehealth visits
1 year	Mid-term	21% - 39%	Moderate amount of telehealth visits
2-5 years	Long-term	40% or more	Substantial amount of telehealth visits

What were patients' top three considerations for choosing to have a telehealth visit?

Patients were also asked to describe the factors that they considered for choosing to have a telehealth visit. Content analysis revealed that convenience, accessibility, safety, service quality, care quality, provider-related factors and health condition impacted patients' choice of having a telehealth visit.

BABY BOOMERS

About half of the Boomers mentioned convenience as their top consideration for choosing to have a telehealth visit. Convenience included factors like avoiding a commute to the physician's office and the ability to engage in a virtual visit from the comfort of their home. In addition, access was another consideration, highlighted by 36 percent of the Baby Boomers. Access to telehealth compensated for difficulty with obtaining in-person appointments, and lack of access to consultation in rural locations. Participants also highlighted ease of availability for appointments as an important factor. In addition, safety associated with the ability to engage in a telehealth visit from their homes to avoid exposure to COVID-19 or bad weather conditions was another top consideration. About 20 percent of the Boomers also emphasized that telehealth was most efficient when addressing certain medical needs like primary concerns, non-emergency situations, follow-ups or prescription refills.

"Living rurally and using telehealth to close the gap. Being unable to secure specialized treatment near home. (Medicare requires I see a counselor who has a master's in social work) and convenience."

GEN X

About a third of the Gen Xers suggested convenience, access and safety as the top three considerations for choosing to have a telehealth visit. For Gen Xers convenience was linked with avoiding commute to the providers office, not having to arrange for babysitters and the flexibility of scheduling the appointment as per their work schedules. Cost and insurance coverage was a consideration for Gen Xers more than Baby Boomers or Millennials. Safety encompassed the ability to engage in a telehealth visit from their homes to avoid exposure to COVID-19 or to avoid traveling in bad weather conditions.

"During a pandemic, during times when there is snow storms, and during times when I physically don't feel like leaving my home but I need to see my physician."
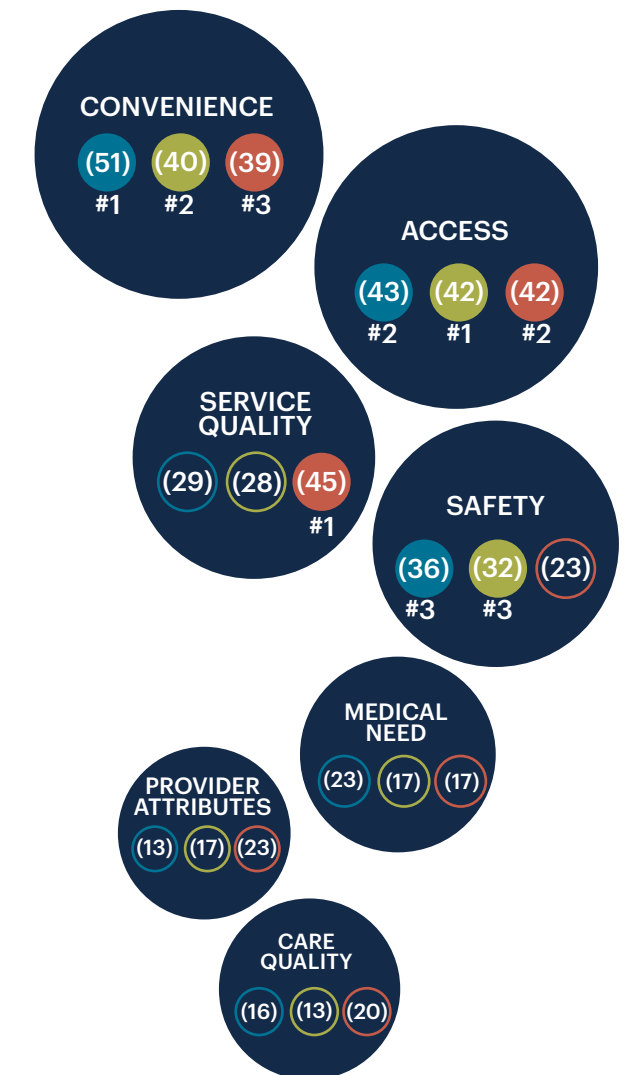
MILLENNIALS

About 40 percent of the Millennials mentioned service quality as their top consideration for choosing to have a telehealth visit. This included access to health information during the telehealth visit, quality of the audio and video during the visit, less waiting time, and efficient use of consultation time. Access and convenience were the other top considerations for Millennials. As compared to boomers and Gen Xers, a higher number of Millennials recognized care quality and provider attributes like 'trust,' 'professionalism', 'helpfulness', 'knowledgeable', 'friendly' and 'reliable' as important considerations.

"Ease of payment, quality of advice given, how long the appointment and wait time are"

Boomers, Gen Xers and Millennials agree - access and convenience are top considerations for choosing to have a telehealth.

CONSIDERATIONS FOR CHOOSING A TELEHEALTH VISIT

Top three considerations for
● Baby Boomers ● Gen X ● Millennials

CONVENIENCE
(51) #1   (40) #2   (39) #3

ACCESS
(43) #2   (42) #1   (42) #2

SERVICE QUALITY
(29)   (28)   (45) #1

SAFETY
(36) #3   (32) #3   (23)

MEDICAL NEED
(23)   (17)   (17)

PROVIDER ATTRIBUTES
(13)   (17)   (23)

CARE QUALITY
(16)   (13)   (20)

Values in parenthesis indicate number of comments by theme in each age category.

How would patients like their telehealth experience to change to better meet their needs in the future?

In an open-ended question, patients were asked to describe how they would like their telehealth experience to change to better meet their needs in the future. Thematic content analysis was used to understand the perception of those who felt no changes were needed due to telehealth already meeting their need, those who desired change and what those changes were, and those who would prefer to have an in-person vs. and telehealth visit moving forward.

BABY BOOMERS

Baby Boomers were divided as to whether changes in telehealth were needed to better meet their needs moving forward. Over 40 percent of Baby Boomers expressed that there was no need to change how telehealth was currently being delivered, as they were satisfied with their telehealth experiences to date and their needs were easily and thoroughly met. Of those who recommended changes (30 percent), increased quality time with their provider, improved access to their own health information and the opportunity for complimentary services such as in home lab draws were noted as changes that would better help meet patient needs in the future. Additionally, 16 percent of Baby Boomers surveyed stated that they did not want to have telehealth visits moving forward and that their preference was for in person visits in the future.

"I appreciate the concept of telemedicine for others who are busy and want to have their appointments from home. I am retired and so I have time to go to doctor appointments and prefer to see them in person"

GEN X

Gen Xers were evenly distributed between those who felt no changes were required for telehealth to meet their future needs (39 percent) and those who expressed changes were needed (36 percent). Changes such as ease of scheduling and technology improvements in terms of better video and audio quality were noted by patients as changes that would provide an enhanced experience. Increased access to appointments and the ability for providers to have additional or alternative means of reaching a patient were also noted. Additionally, patients expressed that lower costs and reduced wait times for telehealth visits would help in removing existing barriers to telehealth. Interestingly, only 8 percent of Gen Xers expressed that they would rather have an in person visit vs. a telehealth visit moving forward.
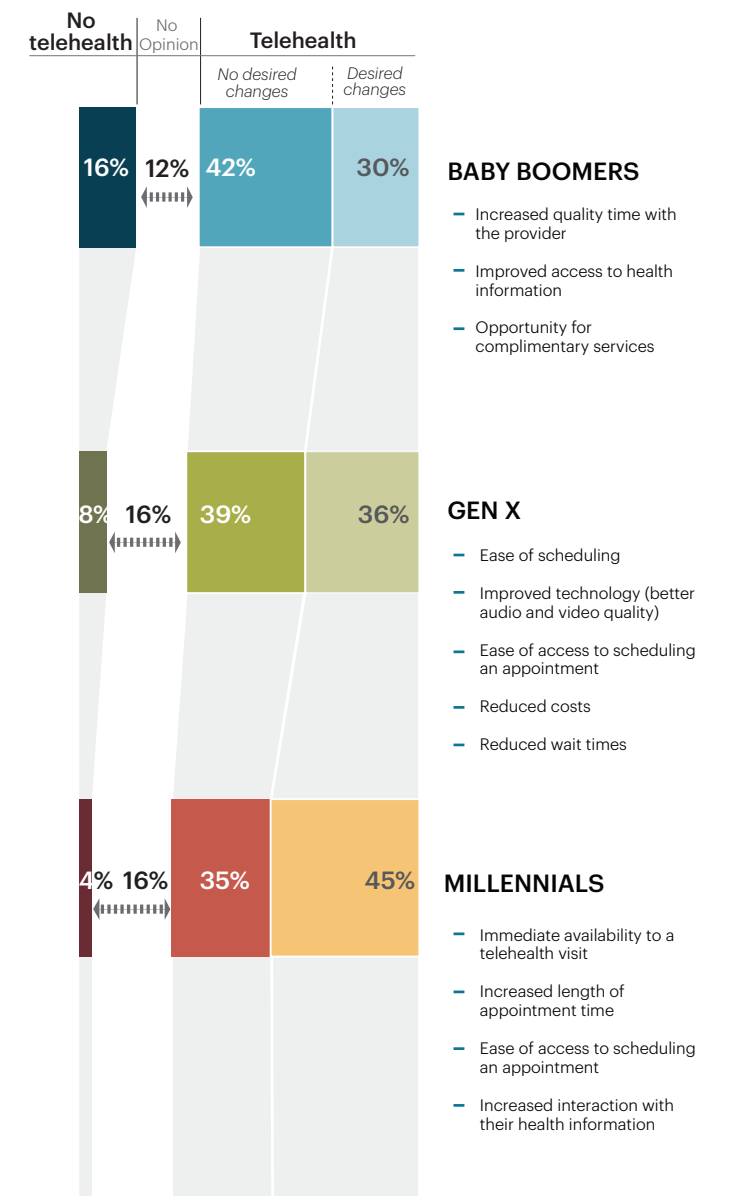
"I want more effective and trusted solutions, I want to be able to schedule more conveniently "

MILLENNIALS

Of the patients surveyed, 35 percent of Millennials felt no changes were needed for telehealth moving forward. However, 45 percent expressed changes were needed to meet their future needs. Unlike Boomers and Gen Xers, Millennials noted experiential attributes such as the need for providers to exhibit more, "empathy", "respect", "understanding", and "sympathy" during their telehealth visit. Immediate availability to a telehealth visit and increased length of appointment time were also noted as changes that would provide an enhanced patient telehealth experience in the future. A desire for apps that would increase ease of access to scheduling an appointment, as well as provide increased interaction with their health information were noted as desired changes. Millennials also expressed the least amount of desire for in person visits, with only 4 percent noting they would prefer an in person visit over a telehealth visit.

"Ways to show health info on screen when doctor is on webcam to point out different information."

CHANGES DESIRED BY PATIENTS IN THEIR TELEHEALTH EXPERIENCE

BABY BOOMERS
- Increased quality time with the provider
- Improved access to health information
- Opportunity for complimentary services

GEN X
- Ease of scheduling
- Improved technology (better audio and video quality)
- Ease of access to scheduling an appointment
- Reduced costs
- Reduced wait times

MILLENNIALS
- Immediate availability to a telehealth visit
- Increased length of appointment time
- Ease of access to scheduling an appointment
- Increased interaction with their health information

Percentages indicate patient responses based on qualitative feedback (Baby Boomers, n=110; Gen X; n=110; Millenials, n=110).

Patients expressed the need for increased quality time with providers, ease of scheduling, and the ability to have immediate access to virtual visits to enhance the telehealth experience moving forward.

How do patients believe their healthcare experience for primary care should change long-term, based on their telehealth experience?

In an open-ended question, patients were asked to describe how they would like their healthcare experience for primary care to change in the long term. Thematic content analysis was used to understand the perception of those who felt no changes were needed for primary care in the long-term, those who desired change and what those recommended changes were, and those who would prefer to have an in-person vs. and telehealth visit moving forward.

BABY BOOMERS

Many Baby Boomers (42 percent) recommended changes to primary care delivery in the long-term based on their telehealth experience. About 26 percent of those who would like changes suggested the implementation of a hybrid model to allow virtual or in-person visits based on the patient needs and 11 percent preferred to shift to virtual visits for primary care. Around 29 percent of Baby Boomers expressed that there were no desired changes as to how primary care should be delivered in the long-term. Additionally, 21 percent of Baby Boomers surveyed stated that they did not want to have telehealth visits moving forward and that their preference was for in person visits for primary care moving forward.

"I think most primary care can be done over the phone or computer but believe serious issues need to be seen in person along with yearly physical's."

GEN X

A large amount of Gen Xers (49 percent) also recommended changes to primary care delivery based on their telehealth experience. About one-third of those who suggested changes preferred a hybrid model to allow virtual or in-person visits based on the patients need, and a third were inclined towards more virtual visits. The remaining suggested hybrid visits with minor changes to telehealth services like the need to further lower costs, better scheduling options, as well as increasing personal connections with providers. Around 21 percent of Gen Xers desired no changes as to how primary care should be delivered in the long-term. Additionally, 15 percent of Gen Xers expressed that they would rather have an in person visit vs. a telehealth visit for primary care moving forward.

"I think they are fine for non urgent care which does not require close examination by a doctor, such as for a sinus infection, or to refill a prescription, or to get an order for a test. However, since this sort of visit costs the physician's office less money, I believe there should be a lower charge for this type of appointment."

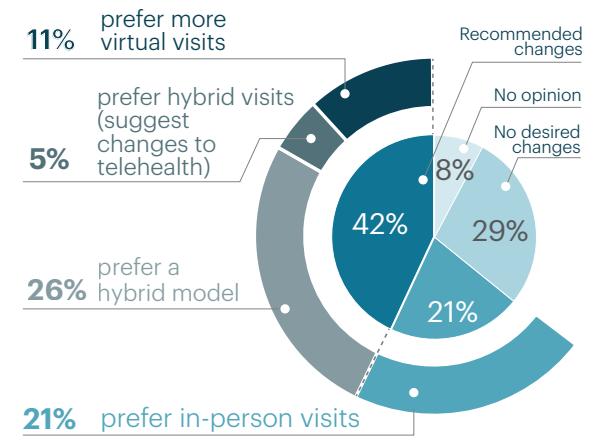### MILLENNIALS

Menting a hybrid model to allow virtual or in-person visits based on the patients needs. The others indicated need for more telehealth service options and the ability to make informed decisions based on provider qualifications. Around 23 percent of Millennials expressed no desired changes as to how primary care should be delivered in the long-term. Millennials also expressed the least amount of desire for in-person visits, with only 6 percent noting they would prefer an in person visit over a telehealth visit for primary care in the long-term.
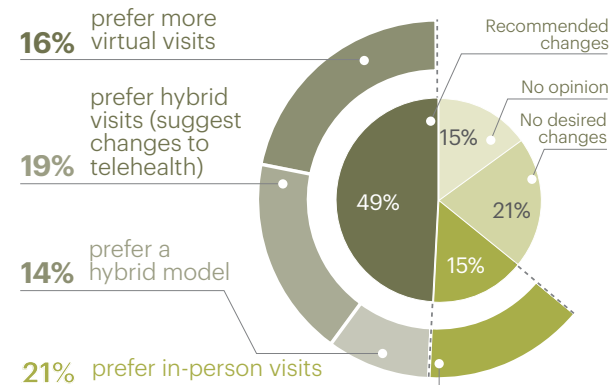
"I think that telehealth should replace in person visits when it's reasonably possible."

Across all generations there is a desire to shift to a hybrid model, with upgrades to telehealth services that can improve health delivery overall.

BABY BOOMERS

11% prefer more virtual visits
Recommended changes
No opinion
No desired changes
5% prefer hybrid visits (suggest changes to telehealth)
8%
42%
29%
26% prefer a hybrid model
21%
21% prefer in-person visits

GEN X

16% prefer more virtual visits
Recommended changes
No opinion
No desired changes
prefer hybrid visits (suggest changes to telehealth)
19%
15%
49%
21%
14% prefer a hybrid model
15%
21% prefer in-person visits

MILLENNIALS

23% prefer more virtual visits
Recommended changes
No opinion
No desired changes
prefer hybrid visits (suggest changes to telehealth)
27%
12%
59%
23%
9% prefer a hybrid model
6%
6% prefer in-person visits
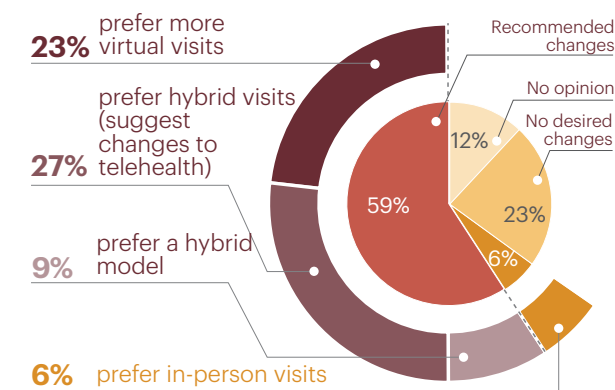
What would the ideal virtual clinic experience look like for primary care?

In an open-ended question, patients were asked to describe what the ideal virtual clinic experience for primary care would look like. Thematic content analysis was used to understand the perception of those who expressed that there is no ideal virtual clinic experience due to their preference for having no telehealth visits in the future, those who felt that an ideal virtual clinic experience included process enhancements, technology enhancements, or improvements to care quality, and those who felt provider characteristics were central to an ideal virtual clinic experience. It is important to note that about one third of the respondents in each generation that they were unsure, as they had not previously considered what the ideal virtual clinic experience for primary care would look like.

BABY BOOMERS

Process enhancements such as on time appointments that are quick and easy to access and the ability for information exchange prior to the appointment were considered by 37 percent of Baby Boomers as a central component to the ideal virtual clinic experience. Many Boomers (22 percent) also expressed the desire for increased personal connection with their provider and the ability to see their physician when needed as crucial to the ideal virtual clinic experience. Boomers also noted technology enhancements (8 percent) such as improved audio and video quality and improved care quality (8 percent) in terms of being seen by a qualified provider and having all of their questions answered and needs met as important components to an ideal virtual clinic experience.

"An email message at least a day before if I needed to provide any specific information and the call to be made on time."

GEN X

Similar to Boomers, many Gen Xers (27 percent) noted process enhancements such as increased accessibility and on time appointments as primary components for an ideal virtual clinic experience. Gen Xers also expressed a desire for technology enhancements (16 percent) such as improved audio and video quality, improved care quality (16 percent) in terms of having a warm and inviting experience, and provider characteristics (16 percent) such as having quality time with their physician to discuss their care needs without feeling rushed as key components for an ideal virtual clinic experience.

"Taking time to evaluate, not rush the appointment, and try to make it feel like my needs are being met."
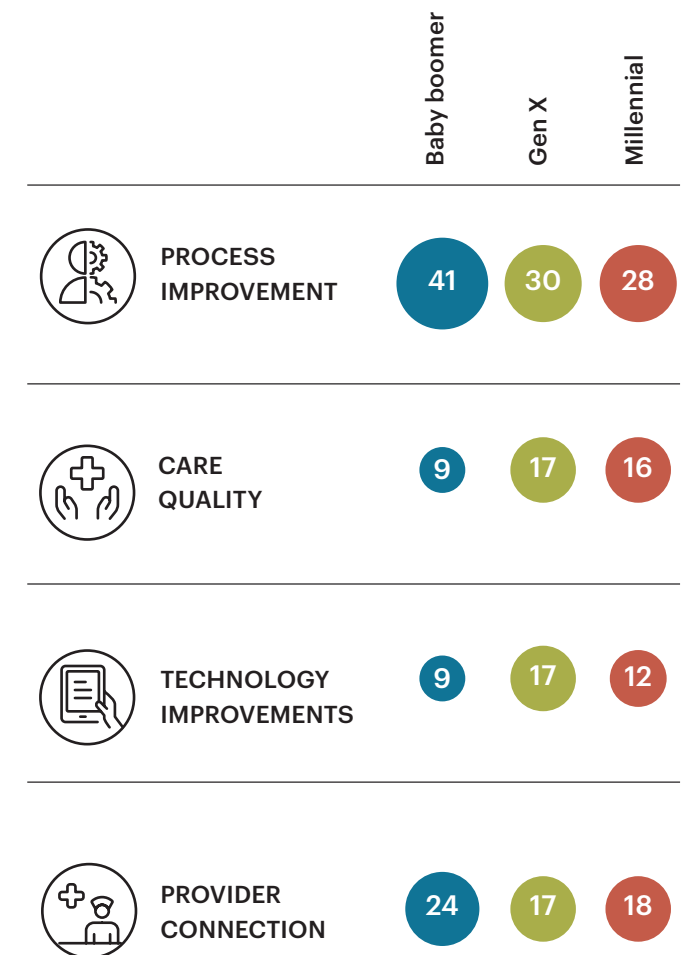
MILLENNIALS

Millennials also considered process enhancements (26 percent) such as the ability to make same day appointments, 24-hour access, and a timely appointment as essential components to an ideal virtual clinic experience. Additionally, Millennials expressed a desire for improved care quality (15 percent) in terms of delivering reliable, effective, high-quality care, as well as provider characteristic (16 percent) related to having an increased personal connection with their provider and feeling respected during the virtual visit as key components for an ideal virtual clinic experience.

"Availability at all times and talking to an efficient physician who understands my needs."

COMPONENTS OF AN IDEAL VIRTUAL CLINIC EXPERIENCE FOR PRIMARY CARE

	Baby boomer	Gen X	Millennial
PROCESS IMPROVEMENT	41	30	28
CARE QUALITY	9	17	16
TECHNOLOGY IMPROVEMENTS	9	17	12
PROVIDER CONNECTION	24	17	18

Values in the circles indicate number of comments by theme in each age category.

Across all generations, on time appointments and quick and easy access are considered essential to the ideal virtual clinic experience.

PHYSICIAN SURVEY

To give new insight into physician preferences and perceptions on telehealth moving forward – an online survey was conducted with a nationwide panel.
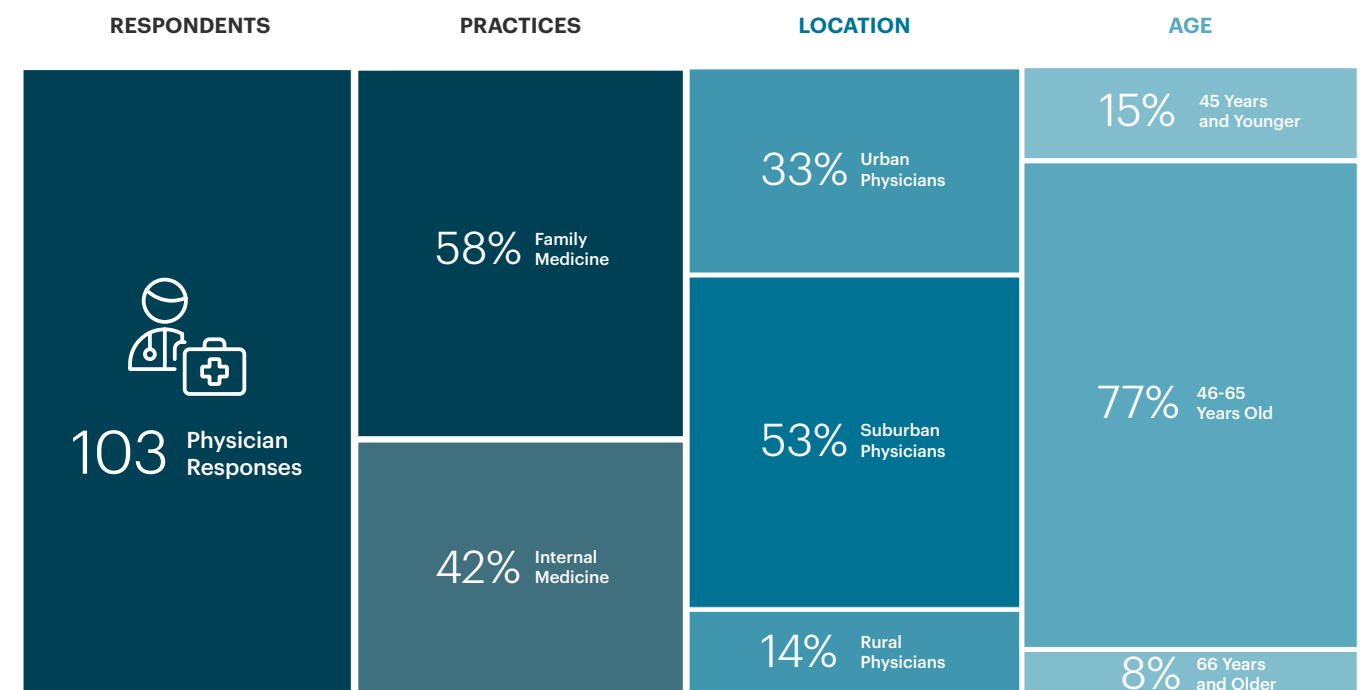
Methodology

An unbiased, third-party independent survey vendor conducted this panel survey. The survey was sent to physicians in the United States with responses split between those in family practice and internal medicine. All respondents were directly compensated by the survey vendor upon the return of complete survey responses. This ensured that the 103 responses were complete in both qualitative and quantitative information.

The sample included 58 percent family medicine and 42 percent internal medicine physicians. The majority of physicians, 60 percent, were employed and 40 percent were independent. Of those who participated in the survey, the majority, 76 percent, were male and 23 percent were female. The majority of participants, 77 percent, were between the ages of 46 and 65, with 15 percent 45 or younger and 8 percent 66 and older. Also, the majority, 71 percent, were involved in primary care practice, while only 7 percent were

with an accountable care organization and 6 percent were part of patient-centered medical home.

Participants were also asked about their practice location and size. The findings showed that the majority of provider practices, 53 percent, were located in a suburban setting, with 33 percent located in urban and 14 percent located in rural settings. The findings also showed 19 percent of physicians were in solo practices, 46 percent in small (2-10 physicians), 22 percent in medium (11-50 physicians), and 13 percent in large (more than 50 physicians) sized practices. Additionally, the majority of physicians surveyed, 93 percent, had been using electronic medical records (EMRs) for a year or more, while only 7 percent had not implemented an EMR system into their practice.

Quantitative analysis was conducted using Excel and SPSS software. Qualitative data was exported to Excel and analyzed via a thematic content analysis.

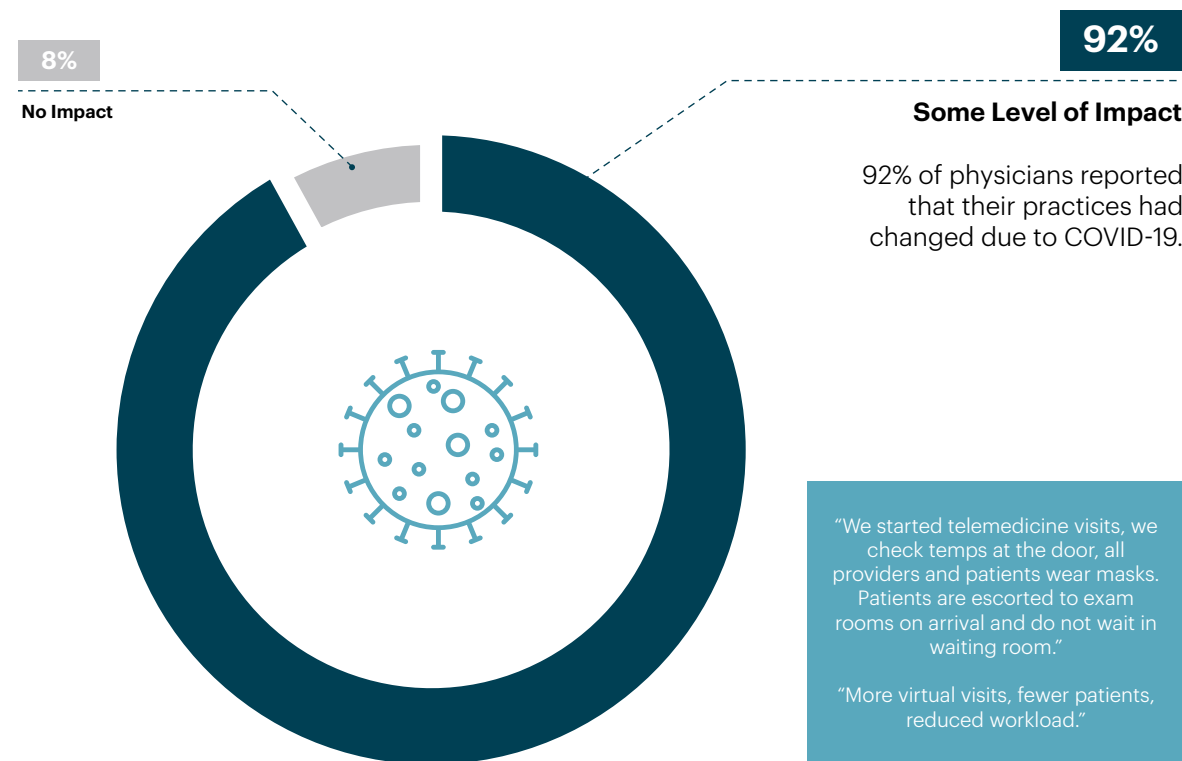| RESPONDENTS	PRACTICES	LOCATION	AGE
103 Physician Responses	58% Family Medicine	33% Urban Physicians	15% 45 Years and Younger
	42% Internal Medicine	53% Suburban Physicians	77% 46-65 Years Old
		14% Rural Physicians	8% 66 Years and Older

How have physician practices changed due to the COVID-19 crisis?

To understand the impact of the current pandemic on physician practices, physicians were asked if COVID-19 had impacted their practice. The majority of physicians (92 percent) reported that their practices had changed due to the pandemic. Physicians were also provided an opportunity to express how their practice had changed in their own words.

They expressed that an increase in telehealth use was the predominate change to practice due to the COVID-19 crisis. Other changes such as a decrease in patient volumes and fewer in-person visits were also noted as contributing to both layoffs and practice closures.

⌄ **PRACTICES THAT HAVE CHANGED DUE TO THE COVID-19 CRISIS**

8%
No Impact

92%
Some Level of Impact
92% of physicians reported that their practices had changed due to COVID-19.

"We started telemedicine visits, we check temps at the door, all providers and patients wear masks. Patients are escorted to exam rooms on arrival and do not wait in waiting room."

"More virtual visits, fewer patients, reduced workload."

Panel survey polling family and internal medicine physicians (n=103).

During COVID-19, the most predominate change to outpatient practices has been the increase in telehealth use.

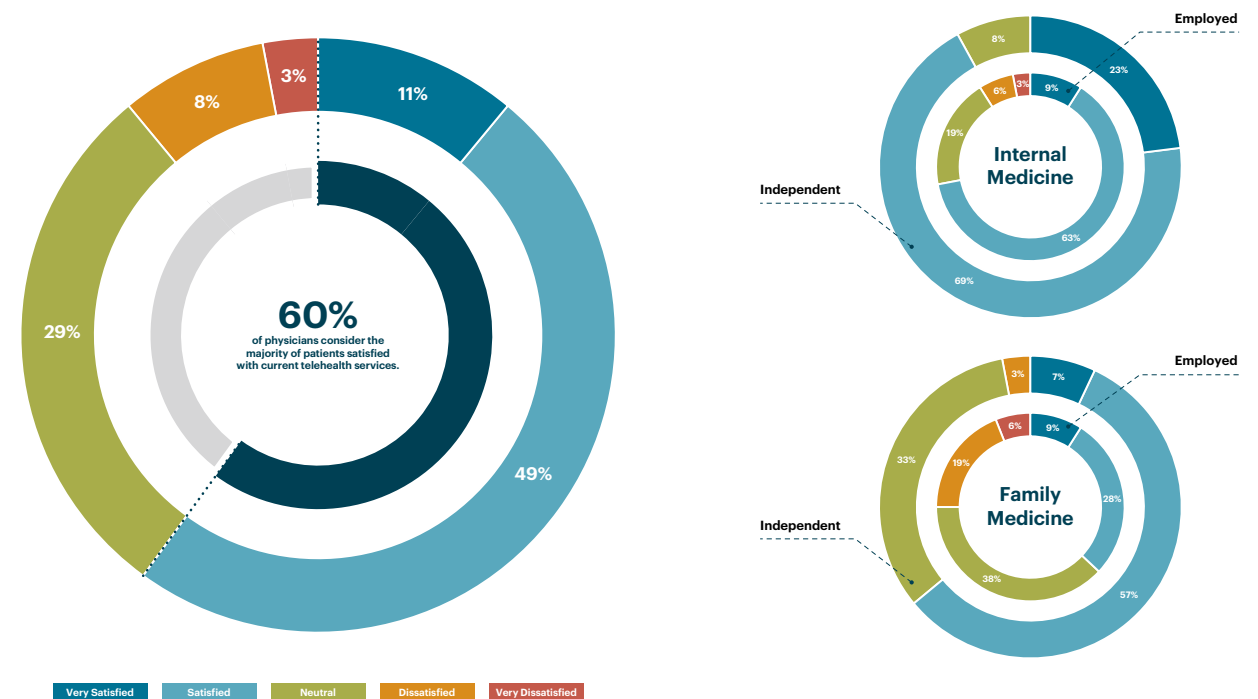# How satisfied or dissatisfied are patients with their physicians current telehealth services?

Providers were also asked to rate from their perspective how satisfied or dissatisfied patients were with their current telehealth services. The majority of physicians (60 percent) considered their patients to be either satisfied or very satisfied with their current telehealth services.

A preliminary analysis using step-wise regression showed that perceived satisfaction of patients was positively correlated with working as an independent physician in internal medicine ($R^2 = 0.13$, $p<0.01$). However, the location of practice (urban vs suburban) did not show any effects.

Further research is needed with family and internal medicine physicians to explore the effect of practice type and physician employment on perceived patient satisfaction.

⌄ **PERCEIVED PATIENT SATISFACTION WITH CURRENT TELEHEALTH SERVICES**

60%
of physicians consider the majority of patients satisfied with current telehealth services.

11%
49%
29%
8%
3%

Internal Medicine
Employed
Independent
8% 23% 9% 3% 6% 19% 63% 69%

Family Medicine
Employed
Independent
3% 7% 9% 6% 28% 19% 33% 57% 38%

Very Satisfied | Satisfied | Neutral | Dissatisfied | Very Dissatisfied

Panel survey polling family and internal medicine physicians (n=103).
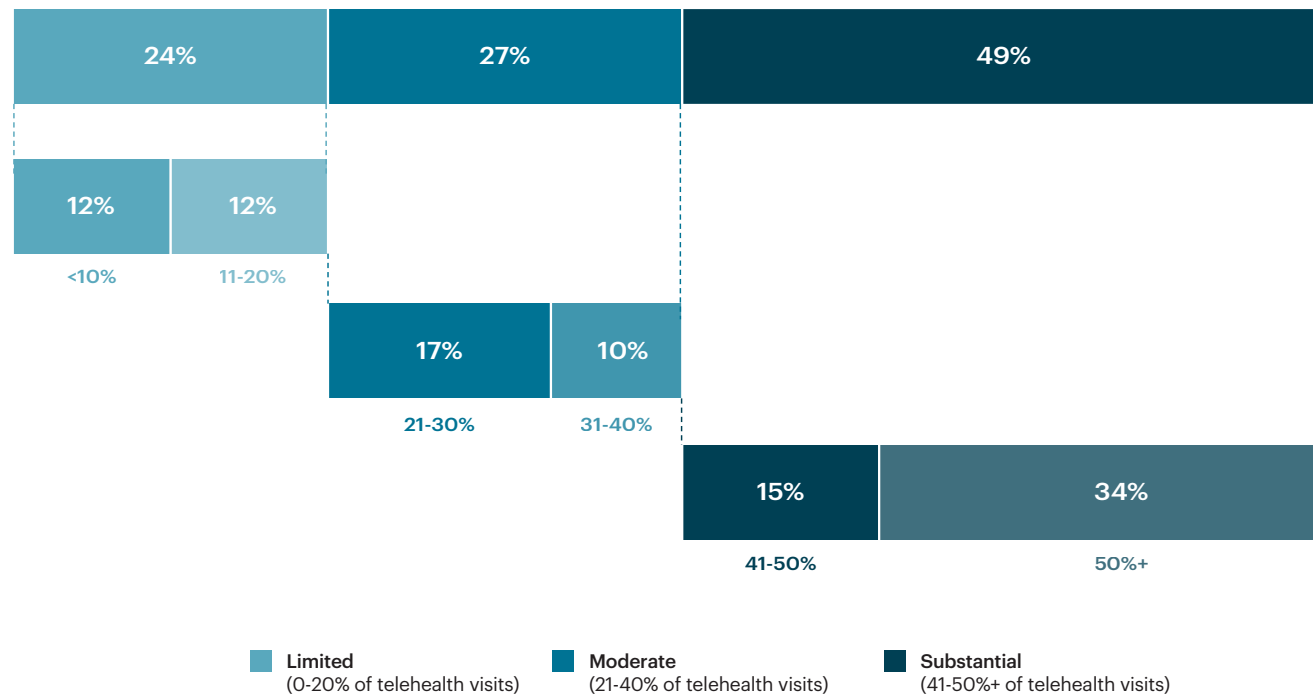
Independent internal medicine physicians reported the highest degree of perceived patient satisfaction with telehealth services.

What percent of visits moved to a telehealth platform during COVID-19?

Physicians were asked what percent of their visits moved to a telehealth platform during COVID-19. Of physicians surveyed, a substantial shift to telehealth services was seen by 49 percent of physicians, with 34 percent of physicians reporting a shift greater than 50 percent reporting a 41-50 percent shift. A moderate shift was seen by 27 percent of physicians, with 10 percent reporting a shift of 31-40 percent and 17 percent reporting a 21-30 percent shift. Some physicians saw a limited amount of services shift to a telehealth platform (24 percent) with 12 percent reporting a 11–20 percent shift and 12 percent reporting a shift of 10 percent or less.

⌄ SHIFT TO TELEHEALTH DURING COVID-19

| | Limited (0-20% of telehealth visits) | Moderate (21-40% of telehealth visits) | Substantial (41-50%+ of telehealth visits) |

Panel survey polling family and internal medicine physicians (n=103).

The majority of internal and family medicine physicians surveyed saw a moderate to substantial shift to telehealth services during COVID-19.

What factors predicted the shift to telehealth for physicians?

⌄ PRACTICES THAT HAVE CHANGED DUE TO THE COVID-19 CRISIS

| | Limited (0-20% of telehealth visits) | Moderate (21-40% of telehealth visits) | Substantial (41-50%+ of telehealth visits) |
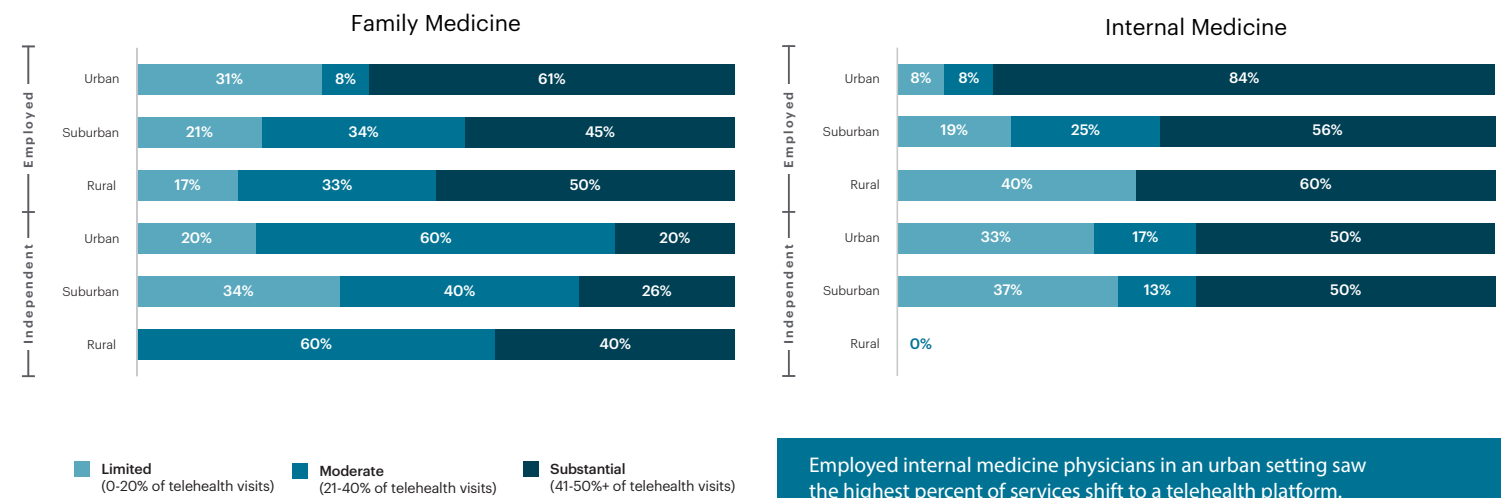
Employed internal medicine physicians in an urban setting saw the highest percent of services shift to a telehealth platform.
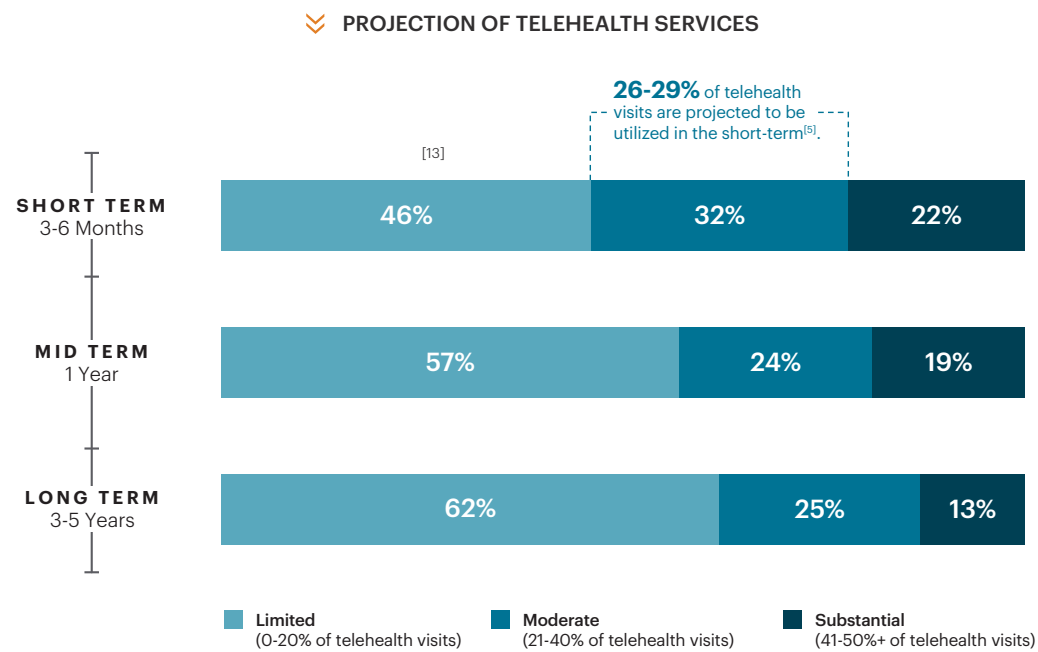
Panel survey polling family and internal medicine physicians (n=103).

Further analysis was conducted to understand in greater detail how practice type, physician employment, and location impacted the shift to telehealth for physicians. Of the physicians surveyed, employed internal medicine physicians in an urban setting reported the highest percent of services that moved to telehealth, with 77 percent physicians reporting 50 percent or more of visits moving to a telehealth platform during COVID-19. Employed family medicine physicians in rural settings saw the second largest shift in services, with 50 percent of physicians reporting 50 percent or more of visits moving to a telehealth platform during COVID-19. Independent family medicine physicians reported the lowest percentage of services that moved to a telehealth platform across all settings.

A step-wise regression analysis showed physician employment as the most important factor predicting the amount of services that moved to telehealth during COVID-19, with employed physicians ($R^2 = 0.07$, $p<0.05$) reporting significantly more services moving to a telehealth platform during this time than independent physicians. The type of practice was also found to be a significant predictor, with internal medicine providers ($R^2 = 0.06$, $p<0.05$) having significantly more services move to a telehealth platform during COVID-19 than family medicine providers. Practice location was not found to show any significance.

Physician employment and type of practice predict the amount of services that moved to telehealth during COVID-19.

What percent of telehealth services do providers predict staying as telehealth services in the short-term (3-6 months), mid-term (1 year) and long-term (3-5 years)?

⌄ **PROJECTION OF TELEHEALTH SERVICES**

26-29% of telehealth visits are projected to be utilized in the short-term[5].

[13]

SHORT TERM
3-6 Months
46% | 32% | 22%

MID TERM
1 Year
57% | 24% | 19%

LONG TERM
3-5 Years
62% | 25% | 13%

■ Limited
(0-20% of telehealth visits)
■ Moderate
(21-40% of telehealth visits)
■ Substantial
(41-50%+ of telehealth visits)

Panel survey polling family and internal medicine physicians (n=103). Call-out telehealth utilization projections are from Advisory Board. [5]

Physicians were asked to predict the percent of services that would remain as telehealth services at three distinct time periods following the COVID-19 crisis. In the short-term (3-6 months), 46 percent of physicians projected only a limited amount (20 percent or less) of services that had moved to telehealth during COVID-19 would remain as telehealth services. Conversely, 22 percent of physicians predicted a substantial amount (40 percent or more) of services would remain as telehealth services and 32 percent predicted a moderate amount (21-39 percent) would remain.

This same trend continued across time, with an increasing majority of physicians predicting that a limited amount of services would remain as telehealth services in the mid-term (57 percent) and over the long-term (62 percent).
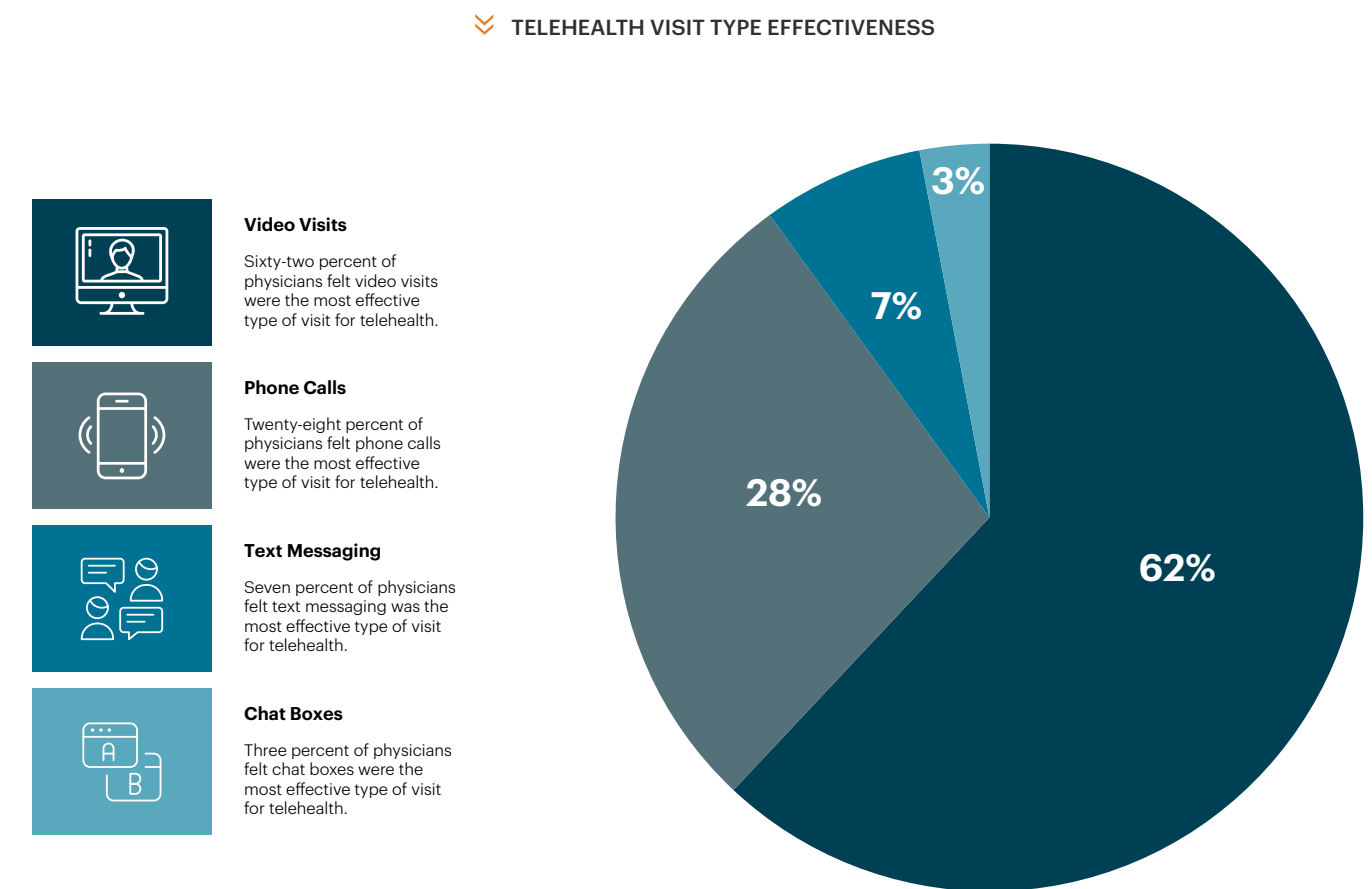
Recent projections from Advisory Board suggest a moderate amount of telehealth services (26-29 percent) will continue in the short-term.[5] While time will tell if these projections hold true, it is important to note that the physicians surveyed made projections at the height of telehealth use, when full parity of payment was temporarily instated due to COVID-19. These findings highlight the importance health policy will have in determining the impact telehealth will have on care delivery now and in the future.

Majority of physicians predict that only a limited percentage of telehealth services being conducted today will remain as telehealth in the mid to long-term.

What types of telehealth visits do physicians consider most effective for conducting virtual care?

Physicians were asked what types of telehealth visits they considered to be most effective when providing virtual care. The majority of phys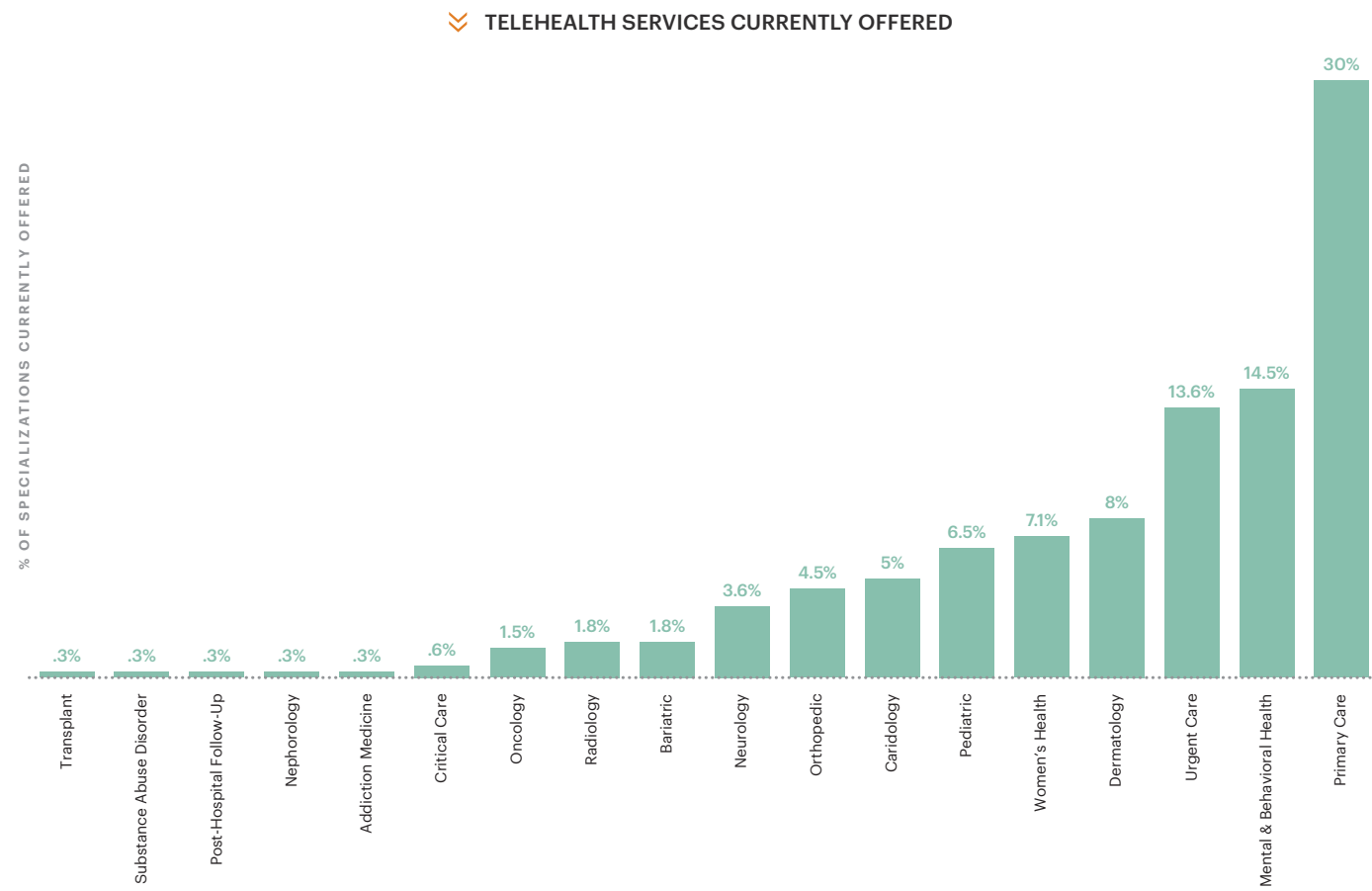icians (62 percent) considered video visits as the most effective type of visit for conducting virtual care, followed by phone calls (28 percent). Chat boxes and text messages were considered the least effective by physicians.

⌄ **TELEHEALTH VISIT TYPE EFFECTIVENESS**

Video Visits
Sixty-two percent of physicians felt video visits were the most effective type of visit for telehealth.

Phone Calls
Twenty-eight percent of physicians felt phone calls were the most effective type of visit for telehealth.

Text Messaging
Seven percent of physicians felt text messaging was the most effective type of visit for telehealth.

Chat Boxes
Three percent of physicians felt chat boxes were the most effective type of visit for telehealth.

3%
7%
28%
62%

Panel survey polling family and internal medicine physicians (n=103).

Physicians consider video visits the most effective way to deliver virtual care.

What types of telehealth services do providers currently offer?

⌄ TELEHEALTH SERVICES CURRENTLY OFFERED

% OF SPECIALIZATIONS CURRENTLY OFFERED

- Transplant .3%
- Substance Abuse Disorder .3%
- Post-Hospital Follow-Up .3%
- Nephrology .3%
- Addiction Medicine .3%
- Critical Care .6%
- Oncology 1.5%
- Radiology 1.8%
- Bariatric 1.8%
- Neurology 3.6%
- Orthopedic 4.5%
- Cardiology 5%
- Pediatric 6.5%
- Women's Health 7.1%
- Dermatology 8%
- Urgent Care 13.6%
- Mental & Behavioral Health 14.5%
- Primary Care 30%

Panel survey polling family and internal medicine physicians (n=103).

Physicians were also asked what types of telehealth services they were currently providing, and which services were best suited to being conducted as a telehealth visit. During COVID-19, 30 percent of physicians surveyed were conducting primary care visits, 15 percent mental and behavioral health,

and 14 percent urgent care services via telehealth. Physicians conducted fewer virtual visits for specialty services such as bariatric (1.8 percent), radiology (1.8 percent), and oncology (1.5 percent).

During COVID-19, physicians most frequently conducted primary care, mental and behavioral health, and urgent care virtual visits.

What services do physicians believe are most suitable for telehealth?

When considering which types of services were best suited to being conducted as a telehealth visit, 88 percent of primary care physicians polled considered telehealth to be a viable option for conducting primary care visits. For mental and behavioral health visits, 78 percent of mental and behavioral physicians considered telehealth a suitable form of conducting visits, while 57 percent of urgent care

physicians and 46 percent of women's health physicians felt telehealth visits were suitable. Specialty services such as neurology, cardiology, oncology, orthopedic and radiology that are technology dependent were rated by physicians who conduct those services as the lowest in terms of applicability for telehealth use.

⌄ SERVICES BEST SUITED FOR TELEHEALTH

Less Suitable for Telehealth - Dependent on Factors | Flexible - May Move to Telehealth | Suitable for Telehealth

% OF PHYSICIANS BELIEVE SPECIALIZATION IS SUITABLE FOR TELEHEALTH

- Critical Care 0%
- Neurology 17%
- Cardiology 18%
- Oncology 20%
- Orthopedic 20%
- Radiology 33%
- Bariatric 33%
- Dermatology 37%
- Pediatric 41%
- Training for Devices/Equipment for Health Monitoring 43%
- Women's Health 46%
- Urgent Care 57%
- Mental and Behavioral Health 78%
- Primary Care 88%

100%

CLOUDPRINT
Digital incorporation of data and activities into the overall process.

FOOTPRINT
Physical space in a clinic facility for activities in the overall process.

100%

Panel survey polling family and internal medicine physicians (n=103).

Physicians believe that primary care, mental & behavioral health, and urgent care are the most conducive to telehealth services.

How will telehealth affect physician work-life balance, quality of interactions with coworkers and external peers?

Additionally, physicians were asked to rate the impact of telehealth on their work-life balance and the quality of interactions with internal coworkers and external peers. They were also asked to state why in their own words.

The majority of physicians felt telehealth would impact their work-life balance (72 percent), while 28 percent thought there would be no impact. Physicians who thought telehealth would positively impact their work-life balance (34 percent) noted the ability to work in the comfort of their own home and the reduced time spent commuting as key drivers. Additionally, physicians found telehealth to support more flexible, efficient care, making care delivery more convenient for both physicians and patients. Many physicians (27percent) also expressed that although working in the comfort of their own home provided some benefits to their work-life balance they were still working the same hours and at times working more hours, making the impact neutral. Physicians who felt telehealth would have a negative impact on their work-life balance (11 percent) noted difficulty in differentiating between work and home and increased workload as key challenges.

Forty-two percent of physicians thought telehealth would have no impact on the quality of interactions with coworkers. Of the remaining 58 percent of physicians who thought there would be some type of impact, 24 percent felt the impact would be neutral, stating that their primary mode of interaction with coworkers was already through technology. Those who felt telehealth would have a negative impact (20

percent) noted interactions with coworkers via telehealth were impersonal, less detailed, and more expedient than when in person. Physicians who felt telehealth could have a positive impact (14 percent) expressed the potential for telehealth to strengthen the quality of interactions with coworkers by increasing the frequency of interactions.

"Quality of coworker interaction has not changed much since we usually communicate and interact with each other with technology anyways."

The majority of physicians (53 percent) thought telehealth would have no impact on the quality of interactions with external peers. Of the remaining 47 percent of physicians who thought there would be some type of impact, 22 percent felt the impact would be neutral due to the ease of keeping in contact with colleagues virtually. Those who felt telehealth would have a negative impact (13 percent) noted maintaining these crucial relationships had become more difficult due to the lack of in person social and professional interactions. Physicians who felt telehealth could have a positive impact (12 percent) expressed that the more targeted interactions with external peers through chat or text could potentially be more effective and efficient.

Majority of the physicians think that there will be a neutral or negative impact on patient interactions, but a neutral or positive effect on work/life balance.

72% Some Impact Work-Life Balance

| 4% | 7% | 27% | 16% | 18% |

Physicians expect the increase in comfort, convenience, and flexibility will improve their work-life balance.

58% Some Impact Quality of Interaction with Coworkers

| 7% | 13% | 24% | 7% | 7% |

Physicians often communicate with colleagues through technology, limiting the amount of change to those interactions.

47% Some Impact Quality of Interaction with External Peers

| 4% | 9% | 22% | 6% | 6% |

Physicians agree interactions with external peers are unlikely to change due to ease of virtual connections.

KEY:

- No Impact
- Negative Impact
- Moderately Negative Impact
- Neutral Impact
- Moderately Positive Impact
- Positive Impact

Panel survey polling family and internal medicine physicians (n=103).

How will telehealth affect patient volumes, spatial needs, and technology needs of clinics moving forward?

Physicians were also asked to rate the type of impact telehealth will have on patient volumes in addition to clinic space and technology needs and were provided an opportunity to state why through an open-ended question.

The majority of physicians felt telehealth would impact patient volumes (70 percent), while 30 percent felt there would be no impact. Physicians who suggested the impact would be positive (29 percent) noted increased service options for visits and the added convenience for patients as key considerations. Physicians also noted telehealth visits can be more efficient, allowing for an increased number of patients to be seen throughout the day. For physicians who thought telehealth would negatively impact patient volumes (19 percent), the potential for a reduction of in office visits was noted as a key concern. Additionally, some physicians (22 percent) expressed telehealth would have a neutral impact on patient volumes, suggesting that regardless of whether physicians conducted the visit in person or virtually their schedules would still be full.

"It [telehealth] is much more efficient. I can see more patients in less time."

The majority of physicians also felt telehealth would impact the spatial needs of clinics (55 percent), while 45 percent of providers suggested there would be no impact. Physicians who thought the impact would be positive (23 percent) noted

that having some staff work from home in combination with providing virtual care could potentially help reduce crowding in spatially constrained clinics, while also improving patient and staff safety. Many physicians (18 percent) also expressed that although spaces may be modified within clinics to meet changing demands, ultimately the footprint of clinics will remain the same. Physicians who felt telehealth would have a negative impact (14 percent) noted the potential for a reduction in exam room utilization as key consideration for understanding spatial needs of clinics moving forward.

Additionally, the majority of physicians felt telehealth would impact the technology needs of clinics moving forward (58 percent), while 42 percent of physicians thought there would be no impact. Physicians who thought telehealth would have a positive impact (28 percent) noted better internet connectivity and the ability to increase remote monitoring capabilities moving forward, as well as helping physicians become more tech savvy overall as potential benefits. Conversely, 16 percent of physicians felt the impact would be negative and expressed the need for more integrated and upgraded technologies within the clinic, including hardware, video capabilities, cyber security, as well as better telehealth platforms and more reliable internet service. Physicians who suggested telehealth would have a neutral impact (14 percent) noted their clinic was already set up with the necessary technologies for delivering telehealth services.

Physicians believe telehealth will ultimately increase patient volumes, requiring clinics to maintain their existing footprint while expanding their cloudprint.

Panel survey polling family and internal medicine physicians (n=103).
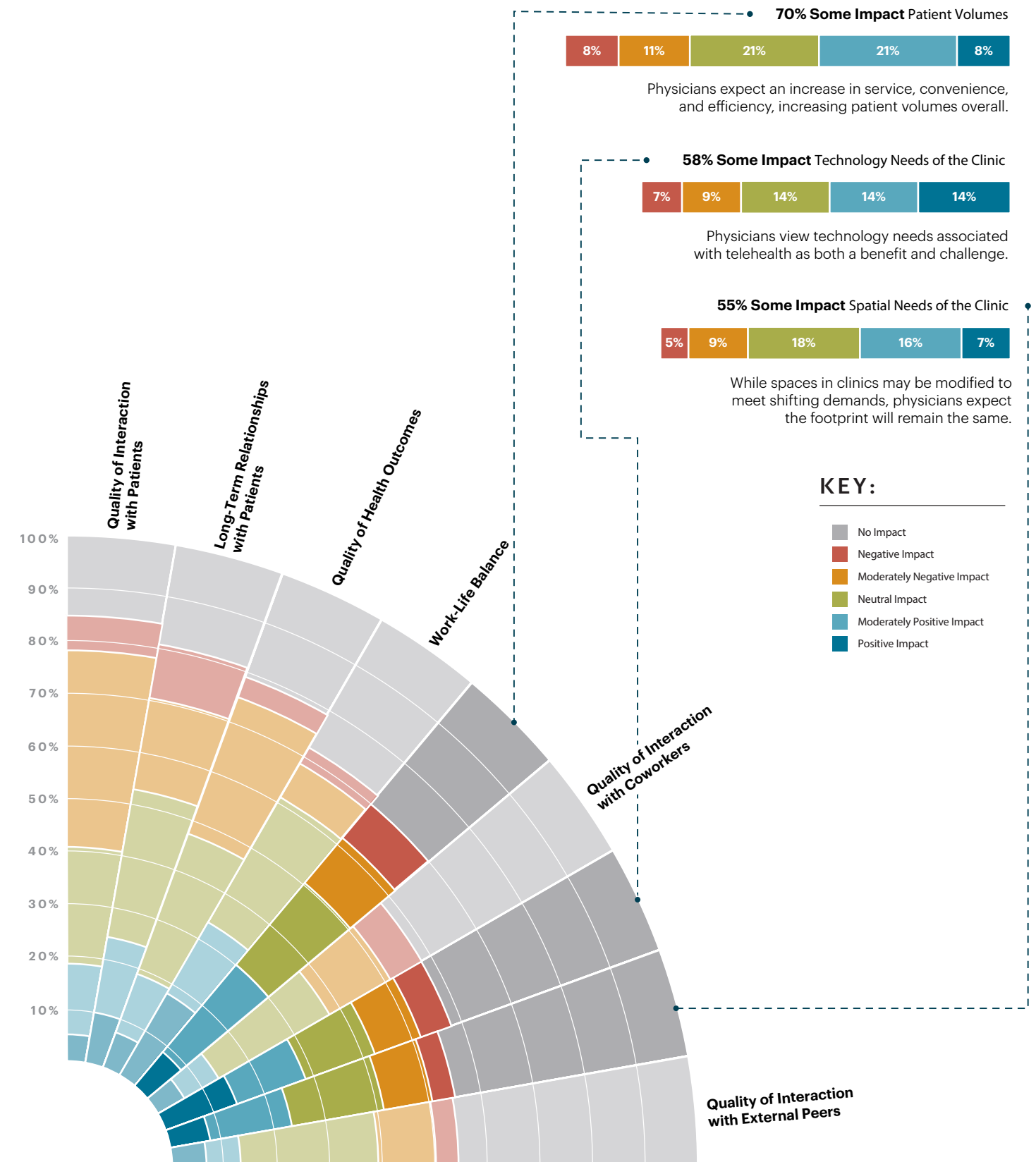
How will telehealth affect long-term relationships with patients, quality of interactions with patients, and quality of health outcomes?

Physicians were asked to rate what type of impact telehealth would have on their long-term relationships with patients, the quality of interactions with patients, and the quality of health outcomes for patients. They were also provided an opportunity in their own words to express why.

The majority of physicians surveyed (70 percent) felt telehealth would impact long-term relationships with patients, while 30 percent of physicians felt there would be no impact. Those who felt it would have a negative (24 percent), neutral (24 percent), or positive (22 percent) impact were evenly distributed. Physicians noted the loss of human connection that in-person encounters provide as an impetus for having a negative impact on long-term relationships with patients. Physicians stated telehealth interactions felt less personal and that developing meaningful relationships with their patients was more difficult with telehealth. Conversely, some physicians noted having a glimpse into a patient's home was beneficial in providing a deeper understanding of their patient's unique needs.

"We do lose the physical contact, but we get to see them, to a small degree, in their home, like a mini-house call."

Additionally, the majority of physicians (84 percent) felt telehealth would also have an impact on the quality of interactions with patients, while only 16 percent felt there would be no impact. Of those who felt there would be an impact, the majority of physicians (43 percent) felt telehealth would have a negative impact on the quality of interactions with patients in the long-term due to the limitation of not being able to perform a physical exam and the lack of personal interactions. Conversely, physicians who felt telehealth would improve the quality of interactions with patients (19 percent) noted convenience and improved access as key drivers.

The majority of physicians (71 percent) also felt telehealth would impact the quality of health outcomes, while 29 percent of physicians felt there would be no impact. Physicians who felt the impact would be negative (29 percent) noted the inability to conduct a physical examination could lead to negative health outcomes due to the increased potential for misdiagnosis and the associated use of ineffective treatment regimens. However, some physicians (26 percent) felt it was too early to know what the impact might be and expressed concern regarding a lack of clarity on what outcomes should be considered. Physicians who felt telehealth could have a positive impact on health outcomes (16 percent) noted that although providing care via telehealth was not ideal, it was better than not providing care at all.

While physicians expect long-term relationships with patients to be greatly impacted, they are uncertain what the health outcomes will be.

85% Some Impact Quality of Interaction with Patients

| 7% | 36% | 22% | 13% | 6% |

Physicians believe limitations of performing an exam and lack of personal interaction will negatively impact interactions with patient long-term.

81% Some Impact Long-Term Relationships with Patients

| 9% | 15% | 24% | 13% | 9% |

While lack of personal connection may prove challenging, getting a glimpse into a patient's living conditions can provide valuable insights.

79% Some Impact Quality of Health Outcomes

| 4% | 25% | 26% | 10% | 6% |

Physicians feel it may be too early to determine how telehealth will impact the quality of health outcomes.

KEY:
- No Impact
- Negative Impact
- Moderately Negative Impact
- Neutral Impact
- Moderately Positive Impact
- Positive Impact

Work-Life Balance
Patient Volumes
Quality of Interaction with Coworkers
Technology Needs of the Clinic
Spatial Needs of the Clinic
Quality of Interaction with External Peers

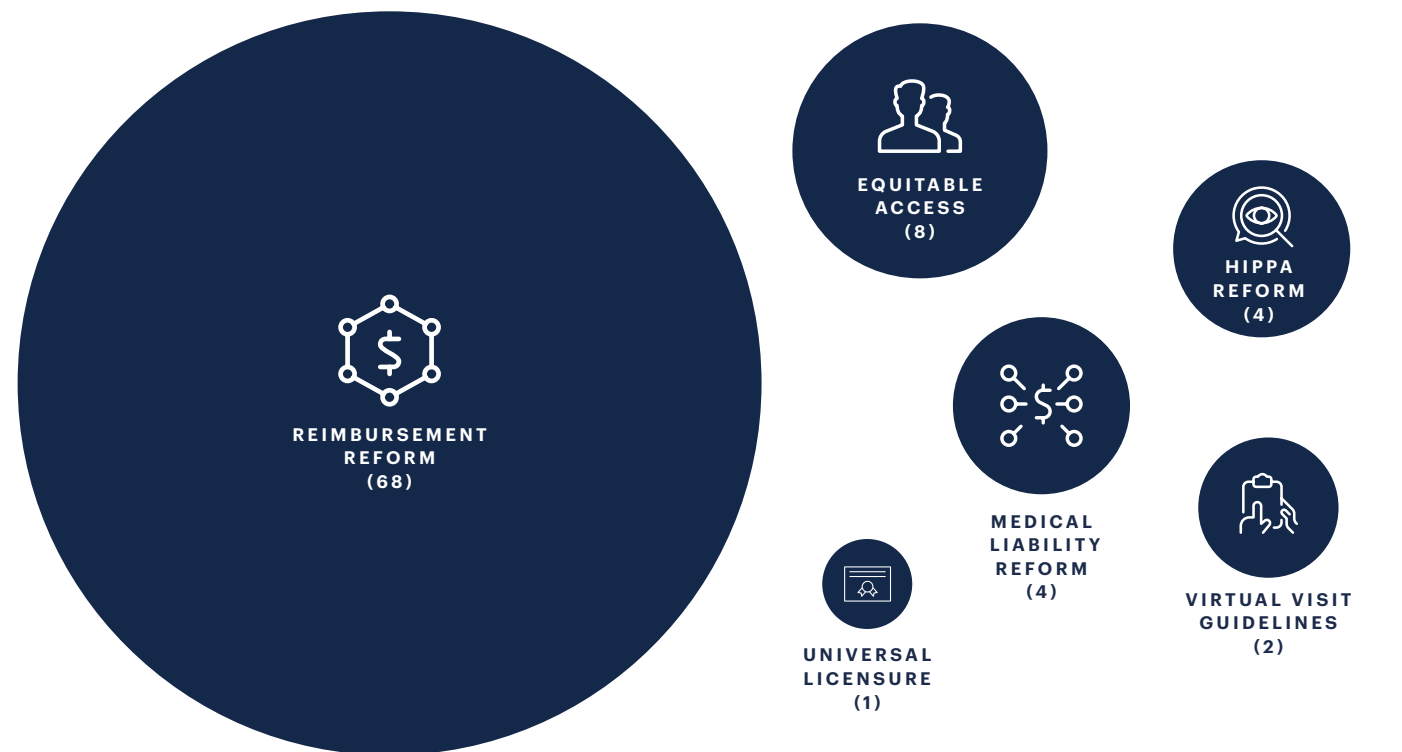*Panel survey polling family and internal medicine physicians (n=103).*

How does policy need to change to support and sustain the integration of telehealth services moving forward?

Physicians noted that reimbursement reforms such as equal reimbursement for office and virtual visits, equal copayments to office visits or no copayments for virtual visits as necessary policy changes for sustaining telehealth use moving forward. Providing equitable internet and technology access to all patients was also considered a necessary policy change. Providers additionally noted the need to address medical liability issues and regulatory changes for HIPPA compliance to allow providers to use any available platform to connect with patients. This is in addition to the need to develop guidelines for conducting virtual visits and changes in licensure regulations that allow for more universal licensure across states as necessary policy changes to support the integration of telehealth services long term.

⌄ **POLICY CHANGES NEEDED FOR TELEHEALTH**

Values indicate number of physicians comments in each topic area.
Panel survey polling family and internal medicine physicians (n=103).

Physicians need reimbursement reform that offers parity of payment for telehealth to remain a viable care delivery option over the long-term.

What type of spaces are physicians currently using to deliver telehealth services? What types of spaces best support an ideal telehealth visit?

Physicians were asked to select the types of spaces they were currently using and what types of spaces would best support an ideal telehealth visit. The majority of physicians (62 percent) were currently conducting telehealth services from their clinic offices. Home offices are also being used by physicians to conduct virtual visits (30 percent), with other areas in their homes (8 percent) being rated the least in terms of use. The same spaces were selected by physicians as supporting an ideal telehealth service, with the majority of providers (59 percent) selecting their clinic office as the best space for providing an ideal telehealth service followed by home office (32 percent) and other spaces in their home (8 percent). Call centers were nominally utilized by physicians (one percent) in the outpatient environment at the time of this survey and similarly were not considered to be ideal for the delivery of outpatient telehealth services moving forward.

⌄ **TELEHEALTH SERVICES CURRENTLY OFFERED**

Currently Used Spaces   Suggested Spaces
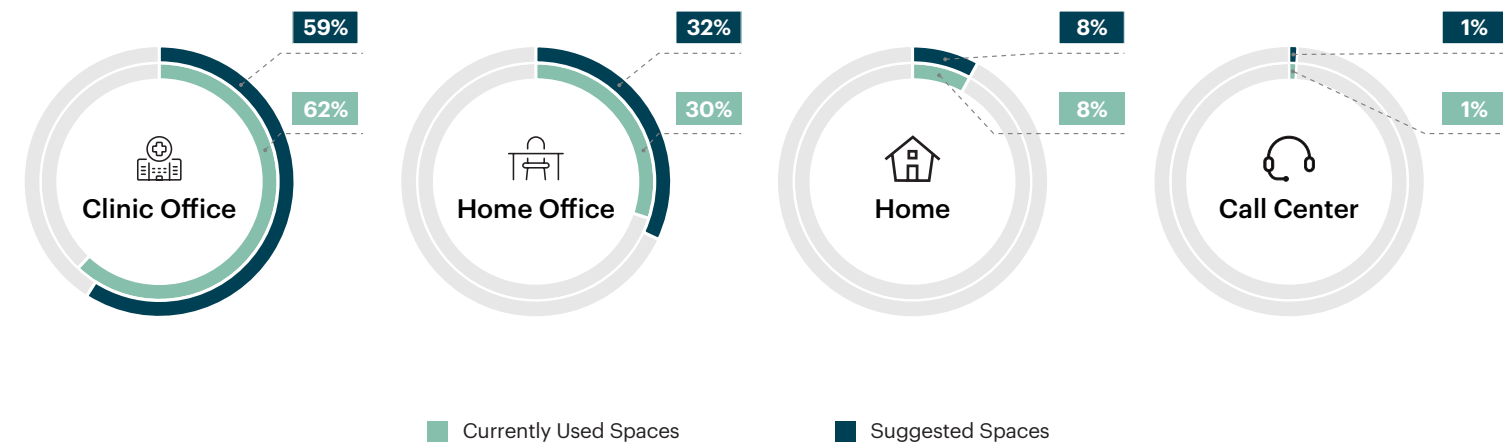
Panel survey polling family and internal medicine physicians (n=103).

According to physicians, private clinic offices are an essential component to virtual care delivery.

What do physicians need in terms of technology and space to deliver the ideal telehealth experience?

Physical

In an open-ended question, physicians were asked to describe what was needed in terms of technology and space to deliver the ideal telehealth experience. Physicians noted a quiet space that affords a high degree of privacy as the most necessary physical features for an optimal telehealth experience. Flexible space that can be modified easily across time to meet changing practice needs was also identified as a key consideration. Dual monitors, a professional background and surface for writing, an ergonomically responsive environment, easy access to clinical and support staff, as well as good acoustics and lighting were also considered as necessary features to be integrated into the physical environment for an optimal experience.

"Quiet, private room without distractions."

Digital

Physicians noted reliable internet connectivity with high-speed capabilities as the primary digital feature needed to support an ideal telehealth experience. Physicians also expressed a need for computers with enhanced video and audio capabilities, telehealth platforms that are intuitive for patients and providers to use, and improved remote monitoring devices as key features needed for delivering an ideal telehealth experience.

Interestingly, our analysis of qualitative comments indicated that patient internet and technology access is the third most important factor in delivering a high-quality telehealth experience, with physicians working in rural areas noting it as their primary concern as compared to physicians in urban or suburban settings. Physicians expressed concern that many patients do not have adequate access to computers or smart phones with video capabilities and that the lack of technological resources for patients greatly reduces the quality of telehealth visits.

"For the patients to have access to smartphones. The people who need the most access generally have the least."

Improved internet connectivity and patient access to technology and internet are needed to ensure a high-quality virtual visit.

Improved internet connectivity and patient access to technology and internet are needed to ensure a high-quality virtual visit.

CLOUDPRINT
Digital incorporation of data and activities into the overall process.

FOOTPRINT
Physical space in a clinic facility for activities in the overall process.

For physicians, the ideal telehealth experience requires a quiet private space that is flexible.

Cyber Security: 2
Technology Support: 5
Audio Capabilities: 5
Remote Monitoring (Vitals, etc.): 6 / 1
Telehealth Platform: 6 / 1
Location:
Phone: 7 / 2
Acoustics:
Lighting:
Ergonomics:
Provider Internet Access: 12 / 2
Information Access (EMR): 12 / 4
Desk & Horizontal Surface:
Intuitive Interface: 14 / 4
Professional Background:
Video Capabilities: 15 / 4
Double Monitors:
Patient Internet & Technology Access: 17 / 9
Flexible Space:
Computer: 23 / 17
Privacy:
Internet Connectivity: 44 / 22
Quiet:

Values indicate number of physicians comments in each topic area. Panel survey polling family and internal medicine physicians (n=103).
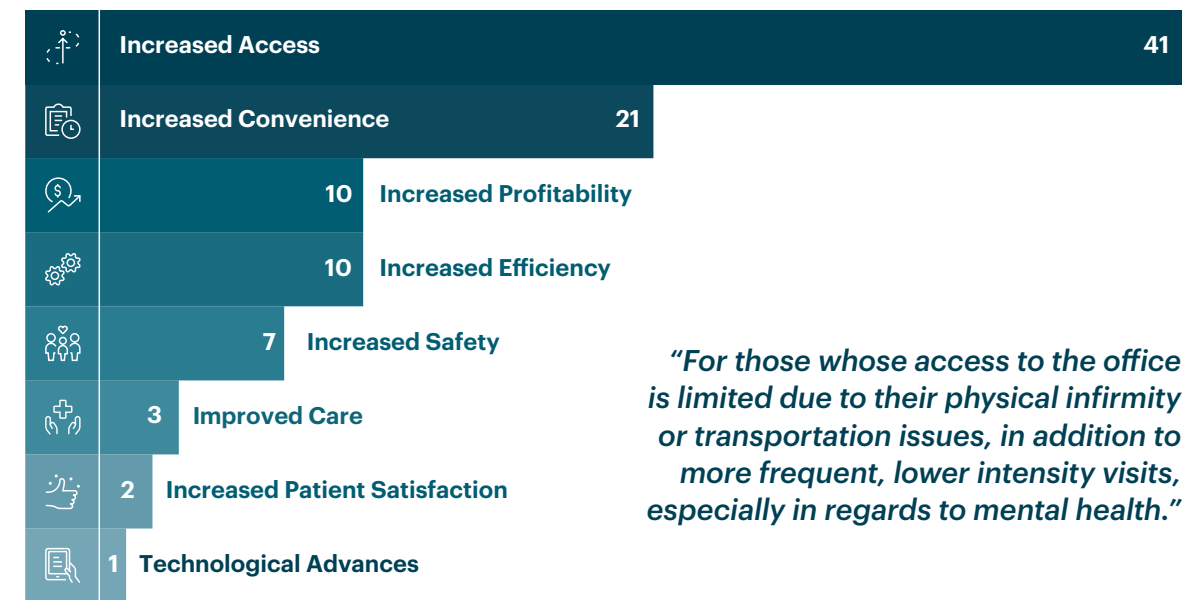
What do physicians anticipate as the biggest challenge for telehealth moving forward?

⌄ **CHALLENGES FOR TELEHEALTH**

Reimbursement	41
Adoption	23
Access	15
Liability	13
Technological Capabilities	4
Privacy	3
Guidelines	1
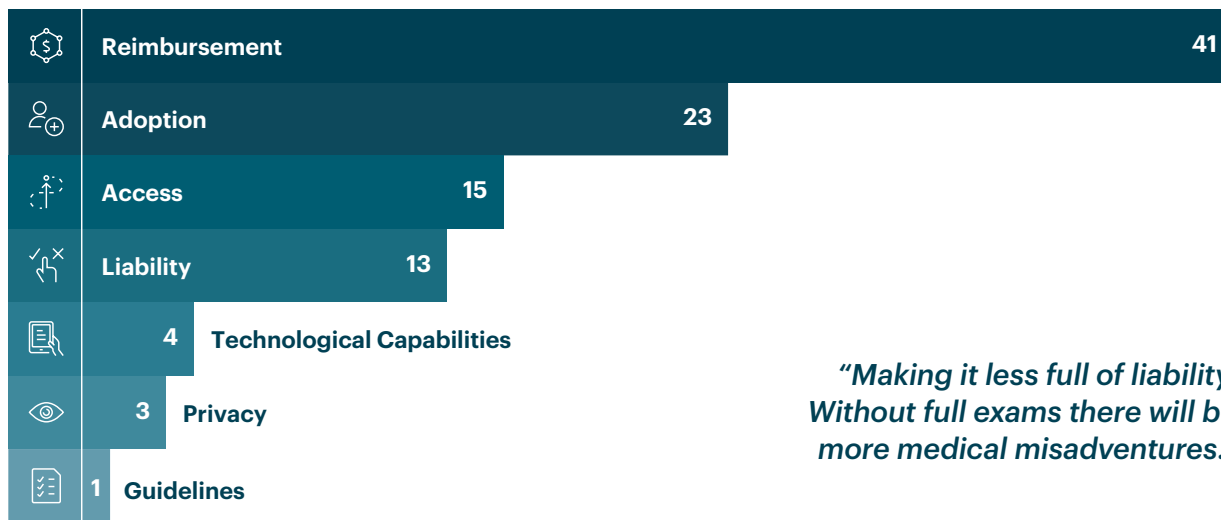
"Making it less full of liability. Without full exams there will be more medical misadventures."

Values indicate number of physicians comments in each topic area. Panel survey polling family and internal medicine physicians (n=103).

Physicians noted reimbursement and patient adoption, especially for older adults, as the primary challenges moving forward. The need for equitable internet access for patients and potential for increased medical liability were also considered as key challenges. Without a clear delineation of what specific types of visits are best suited for telehealth and universal guidelines for frequency of in person visits required for specific diagnosis, physicians voiced concern regarding increased risk for malpractice to do a reduction in physical exams. Physicians also expressed challenges with current technological capabilities for remote monitoring and reduced patient privacy.

Physicians consider reimbursement and patient adoption as primary challenges for telehealth moving forward.

What do physicians anticipate as the biggest opportunities for telehealth moving foward?

Physicians noted access and convenience as the greatest opportunities for telehealth moving forward. Physicians felt that telehealth had great potential to increase access to high-quality services for patients in remote or rural areas that lack specialty services and those with physical challenges or transportation issues, as well as the opportunity to reach more tech savvy patients such as Millennials. In terms of convenience, physicians felt telehealth would save both patients and providers valuable time and effort due to reduced travel time to the office, the potential for extended hours, increased opportunities for follow-up for non-exam related issues, and the opportunity to engage quickly and more frequently with patients. Increased profitability, efficiency and safety were also noted as key opportunities for telehealth moving forward, as well as improved care and increased patient satisfaction.

⌄ **OPPORTUNITIES FOR TELEHEALTH**

Increased Access	41
Increased Convenience	21
Increased Profitability	10
Increased Efficiency	10
Increased Safety	7
Improved Care	3
Increased Patient Satisfaction	2
Technological Advances	1

"For those whose access to the office is limited due to their physical infirmity or transportation issues, in addition to more frequent, lower intensity visits, especially in regards to mental health."

Values indicate number of physicians comments in each topic area. Panel survey polling family and internal medicine physicians (n=103).

Physicians foresee increased access and convenience as the greatest opportunities for telehealth moving forward.

COMPARATIVE ANALYSIS

To understand similarities or differences in patient and provider perceptions on telehealth – a comparative analysis of survey responses was conducted.

Patient satisfaction with their telehealth visits versus providers perception of patient satisfaction with telehealth services

Patients were also asked how satisfied or dissatisfied they were with their telehealth visits. The overwhelming majority of patients (92%) reported being either very satisfied or satisfied with their telehealth visits.

Providers were also asked to rate from their perspective how satisfied or dissatisfied patients were with their current telehealth services. The majority of physicians (60 percent) considered their patients to be either satisfied or very satisfied with their current telehealth services.
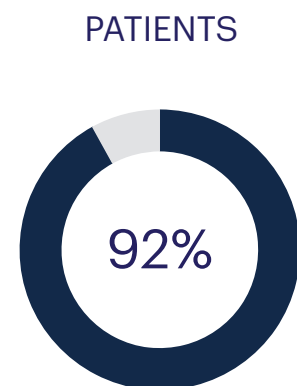
⌄ PATIENT SATISFACTION WITH
   CURRENT TELEHEALTH SERVICES

⌄ PERCEIVED PATIENT SATISFACTION
   WITH CURRENT TELEHEALTH SERVICES
   FROM PROVIDERS PERSPECTIVE

PATIENTS

PROVIDERS

92%

60%

of patients were very satisfied or satisfied with their telehealth visit(s)
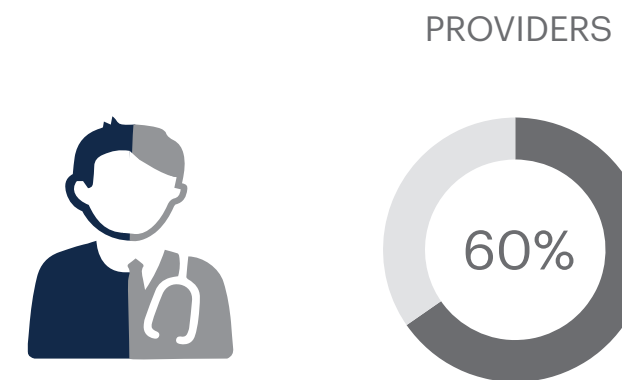
of providers perceived that their patients were very satisfied or satisfied with their telehealth visit(s)

Overall, patients are more highly satisfied with their telehealth visits than what is perceived by providers.

Type of telehealth visits patients engaged in versus type of visits physicians think are most effective

Similarly, the majority of patients (66 percent) engaged in telehealth visits via video calls and the majority of physicians (62 percent) perceived video calls to the most effective means for telehealth visits. While half of the patients used phone calls for their telehealth visits, less than 30 percent of the providers considered phone calls to be an effective means of conducting telehealth visit. Very few patients used

text messaging (11 percent) or chat options (6 percent) for telehealth visits and very few providers perceived these to be effective means of telehealth visits.

While very few providers considered use of text and chat features to be effective, the number of patient engaging in text and chat features was low too.

⌄ PATIENT REPORTED TELEHEALTH VISIT TYPE AND PROVIDER REPORTED EFFECTIVENESS OF TELEHEALTH VIST TYPE

	PATIENTS	PROVIDERS	✔ Aligned Patient-Provider Responses
	(Telehealth visit type)	(Telehealth visit type effectiveness)	✘ Disaligned Patient-Provider Responses
VIDEO	66%	62%	✔
PHONE	50%	28%	✘
TEXT	11%	7%	✔
CHAT	6%	3%	✔

While a high percentage of patients engaged in telehealth visits via phone calls, only few providers felt that phone calls are an effective means of telehealth visits.

Patients' desire of number of telehealth visits versus providers' prediction of telehealth visits in the short-term, mid-term and long-term

Patients are divided about the amount of telehealth use in the short-, mid- and long-term. In the short-term (3-6 months), 34 percent of providers would like a limited amount (20 percent or less) of visits to be telehealth visits, 24 percent of providers would like a moderate amount (21-40 percent) of visits to be telehealth visits, and 42 percent of providers would like a substantial amount (40 percent or more) of visits to be telehealth visits. In the mid-term (1 year), 34 percent of patients would like a limited amount of visits to be telehealth visits, 28 percent of patients would like a moderate amount of visits to be telehealth visits, and 38 percent of patients would like a substantial amount of visits to be telehealth visits. In the long-term (2-5 year), 39 percent of patients would like a limited amount of visits to be telehealth visits, 29 percent of patients would like a moderate amount of visits to be telehealth visits, and 32 percent of patients would like a substantial amount of visits to be telehealth visits.

Overall, the majority of providers projected limited use of telehealth in the short-term, mid-term, and long-term. In the short-term (3-6 months), 46 percent of providers would like a limited amount of visits to be telehealth visits, 32 percent of providers would like a moderate amount of visits to be telehealth visits, and 22 percent of providers would like a substantial amount of visits to be telehealth visits. In the mid-term (1 year), 57 percent of providers would like a limited amount of visits to be telehealth visits, 24 percent of providers would like a moderate amount of visits to be telehealth visits, and 19 percent of providers would like a substantial amount of visits to be telehealth visits. In the long-term (2-5 year), 62 percent of providers would like a limited amount of visits to be telehealth visits, 25 percent of providers would like a moderate amount of visits to be telehealth visits, and 13 percent of providers would like a substantial amount of visits to be telehealth visits.

⌄ PATIENTS' DESIRE AND PROVIDERS' PREDICTION OF TELEHEALTH USE ACROSS TIME

% OF PARTICIPANTS

	Short-term 3-6 months	Mid-term 1 year	Long-term 2-5 years
Patient	34 % / 24 % / 42 %	34 % / 28 % / 38 %	39 % / 29 % / 32 %
Provider	46 % / 32 % / 22 %	57 % / 24 % / 19 %	62 % / 25 % / 13 %

Limited amount of telehealth visits (20 % or less)

Moderate amount of telehealth visits (21% - 39%)

Substantial amount of telehealth visits (40 % or more)
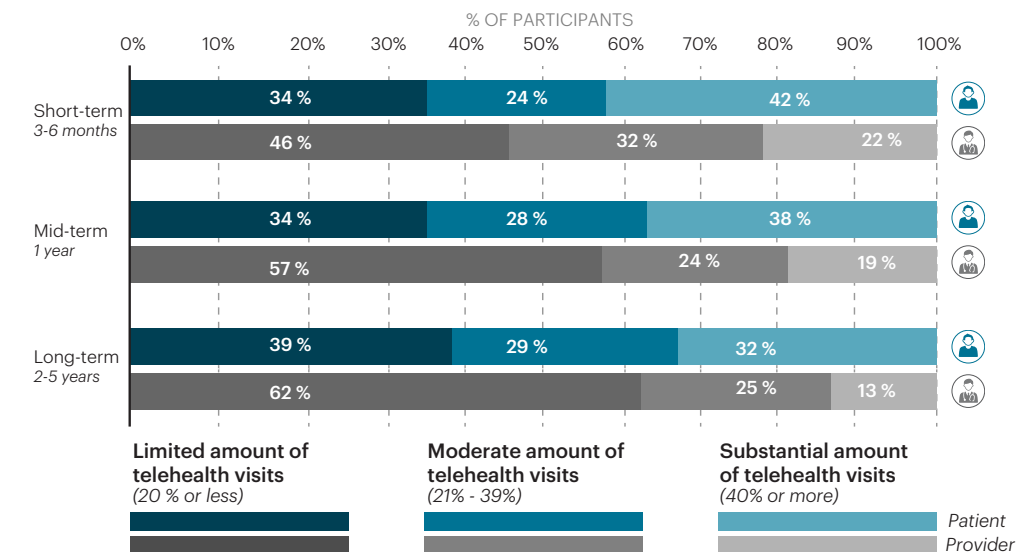
Patient
Provider

While the majority of providers projected limited use of telehealth over time, patients expressed a desire to shift to more substantial telehealth use in the short-term.

Provider versus patient perception of telehealth impact on quality of interaction, long-term relationships and health outcomes

IMPACT ON QUALITY OF INTERACTION

While the majority of patients (52 percent) felt that telehealth would have a positive impact on quality of interactions with providers, only 19 percent of providers felt that telehealth would have a positive impac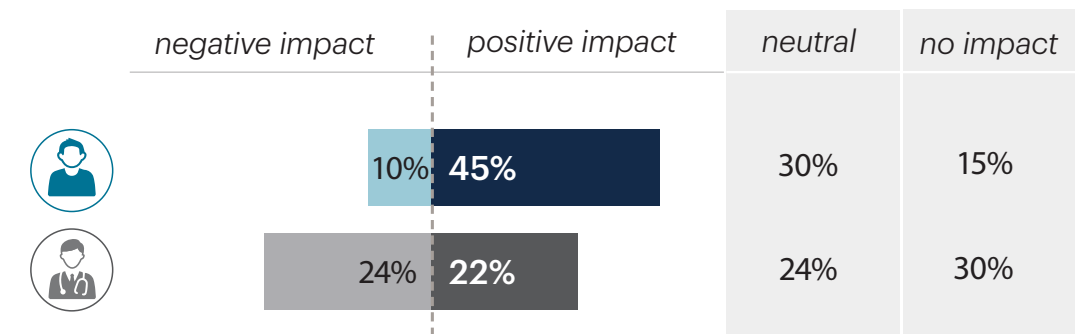t on quality of interaction with patients. Very few patients (11 percent) anticipating that telehealth would negatively impact quality of interaction with providers, while over 40 percent of the providers felt that telehealth would negatively impact quality of interaction with patients.

IMPACT ON LONG-TERM RELATIONSHIPS

A higher percentage (45 percent) felt telehealth would positively impact patient-provider relationships, whereas very few patients (10 percent) felt that telehealth would negatively impact long-term relationship with providers. Providers were divided as to whether telehealth would have an impact of long-term patient-provider relationships, with 22 percent anticipating positive and 24 percent negative impact, and 24 percent being neutral in their response.

IMPACT ON QUALITY OF HEALTH OUTCOMES

The majority of patients (54 percent) felt that telehealth would have a positive impact on quality of health outcomes, whereas only 16 percent of providers felt that telehealth would have a positive impact on quality of patient health outcomes. Very few patients (8 percent) felt that telehealth would negatively impact quality of health outcomes. Conversely, 29 percent of the providers anticipating that telehealth would negatively impact quality of health outcomes.

Patients are more confident than physicians about whether telehealth will positively impact patient-provider relations.
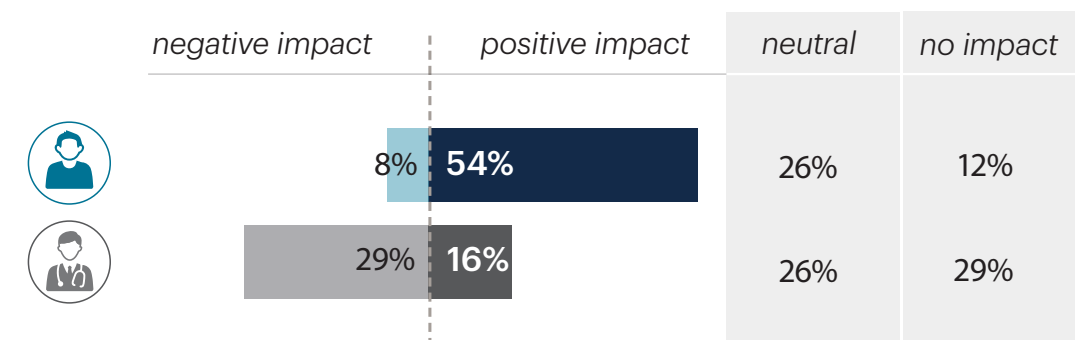
⌄ TELEHEALTH IMPACT ON QUALITY OF INTERACTION

	negative impact	positive impact	neutral	no impact
👤	11%	52%	26%	11%
👨‍⚕️	43%	19%	22%	16%
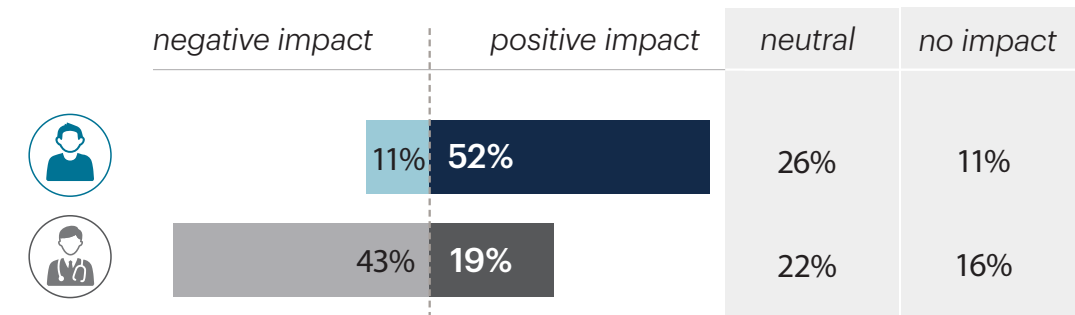
⌄ TELEHEALTH IMPACT ON LONG-TERM RELATIONSHIPS

	negative impact	positive impact	neutral	no impact
👤	10%	45%	30%	15%
👨‍⚕️	24%	22%	24%	30%

⌄ TELEHEALTH IMPACT ON QUALITY OF HEALTH OUTCOMES

	negative impact	positive impact	neutral	no impact
👤	8%	54%	26%	12%
👨‍⚕️	29%	16%	26%	29%

* patient numbers represent total averages for all generations combined

IMPLICATIONS SUMMARY

To leverage telehealth to provide the greatest benefit to patients and physicians, we must explore an integrated physical/ digital hybrid model.

Recap: Are We There Yet?
What We Learned from the 2020-2021 Telehealth Experiment

In summary, we believe that telehealth will be an additive component to primary care, especially for family medicine and internal medicine, allowing health providers to have more business continuity, extended access, and higher convenience. At the same time, how telehealth can improve provider-patient interaction, and overall health outcomes, still warrant investigation. To truly leverage the incredible potential that telehealth has, we have to step back from this year, understand what we learned, and use it to catapult into a future we want to shape.

The 202-2021 telehealth experiment is still waiting on results.

Our findings suggest that family and internal medicine physicians have substantial concern regarding the potential impact of telehealth on health outcomes, while patients are substantially more optimistic. With telehealth catapulting from less than 0.01 percent to almost 70 percent, and now starting to recalibrate again, the jury is still out. It will take time to fully understand the impacts, and careful investigation will be required to provide clarity on what outcomes should be considered as a measurement for success and how to best measure those outcomes.

Telehealth's greatest opportunity is also one of its greatest challenges.

Our survey suggests that access and convenience are the greatest opportunities for telehealth going forward. Unfortunately, our findings also highlight that telehealth has increased access for some, but not all. Inequity in digital access has become evident. For telehealth to truly, foundationally, improve our healthcare across the board, access to technology, and to the internet, has to be distributed, seamless and equitable.

We have seen a glimpse of what can be, but also the gaps in getting us there.

Physicians consider reimbursement and patient adoption as primary challenges for telehealth moving forward, along with the potential for their increased liability. For virtual care to remain viable and continue to push the boundaries of care delivery post-pandemic, reforms to reimbursement and medical liability must be made permanent to reflect a new era of distributed care across physical and digital realms. This will make digital literacy and reimbursement reform an urgent priority.

Not every health interaction is tele-ready.

Some health interactions are better suited to telehealth, some are better suited to an in-person visit, and some are agnostic- and can be either in-person or virtual. Understanding the nuances of each interaction is important to assess whether telehealth, in-person visit, or a hybrid approach are best suited for primary care and family medicine. We have to program not just space, or technology, but rather the interactions that create a seamless experience across both.

The power of personal touch is more important than ever.

Despite the relatively high patient satisfaction that physicians report and the perceived benefits to work-life balance, physicians still see virtual care as a "proxy" to the in-person visit. If telehealth is to reach its full potential, we have to make digital interactions during a virtual visit a worthy substitute of the in-person visit, creating more experiential and more personal interactions that enhance the relationship between patients and physicians.

Space needs have not reduced, they have shifted.

A key takeaway for us was that physicians did not see the footprint of the clinics shrinking. Rather they saw a shift in what spaces would be used for, including spaces tailored to providing telehealth services that would allow larger geographic reach and catering to higher patient volumes.

Tele-integrated clinics help maintain business continuity by leveraging footprints & cloudprints in agile ways.

Stepping into 2022 we need systems where our physical interactions can be mirrored in digital space, and vice-versa so the experience (and resulting outcome) is enhanced, creating beneficial redundancies for care delivery. This can also provide clinics with long-term resilience- be it in response to unforeseen events like the pandemics, or rapid advancements in technology, to ensure business continuity.

The Next Chapter:
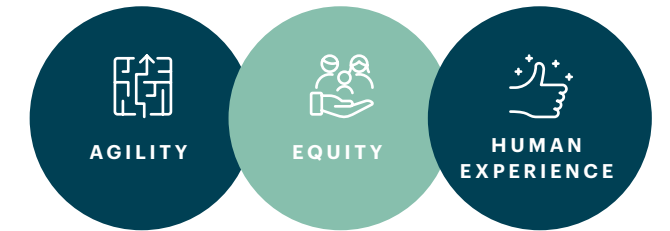## Agile, Equitable and Experiential Approach Towards a Tele-integrated Future for Clinics

In a few short months, telehealth went from almost non-existent, to boom, and has begun to decline towards a yet undetermined state of normalcy. Yet, the pandemic has highlighted the need for fully integrated telehealth to provide access to care and ensure business continuity now and in the future. Healthcare organizations have a tremendous opportunity to build upon the lessons learned during COVID-19 to transform care delivery moving forward.

By determining which services will stay in the footprint, which services are best suited for virtual care, and which services can be agile, moving between in-person and virtual visits, healthcare organizations and independent provider practices can more effectively and efficiently respond to shifting market demands and meet evolving patient and provider preferences and needs.

As technologies advance and care delivery models morph, the boundaries between the physical and digital environments will continue to blur. It is essential to ensure that our clinic facilities can seamlessly and effectively support the integration of virtual care into their physical spaces.

Agility between digital (cloudprint) and physical (footprint) assets, equity in terms of digital access and in-person and virtual interactions, and enhanced human experience will all be key components of telehealth, as we continue the quest for better health outcomes. In the table below we discuss implementable strategies gathered from this study and industry guidelines that can help us achieve these goals.

⌄ **KEY GOALS FOR TELEHEALTH**

AGILITY | **EQUITY** | **HUMAN EXPERIENCE**

	CONNECTIVITY	ACCESSIBILITY	FLEXIBILITY
Cloudprint Digital incorporation of data and activities into the overall process.	+ Provide reliable, high-speed internet capabilities to ensure seamless connectivity throughout the virtual visit. + Leverage remote monitoring devices to support care continuity across the continuum. + Provide virtual technology support services to assist ease of device set-up and maintenance for patients and providers.	+ Utilize telehealth platforms that are intuitive and easy for patients and providers to use to support ease of adoption. + Leverage virtual visits to increase service options and convenience for patients + Consider creative opportunities to provide necessary resources for those with limited access to technology or internet services in their home. + Provide virtual device and equipment training sessions to support ease of adoption and use for patients.	+ Determine which services can effectively move to a virtual platform in the mid-term and long-term. + Establish clear guidelines as to what types of services can be delivered virtually. + Have in-built flexibility in digital platforms so that multiple instruments can be used- tablets, computers, mobile phones etc
Footprint Physical space in a clinic facility for activities in the overall process.	+ Provide enhanced video and audio capabilities to support high-quality synchronous communication between patient and providers. + Provide phone access, address challenges and increase the ease of connectivity during the virtual visit. + Provide in-person technology support services such as a tech bar within the clinic to support ease of device set-up and maintenance for patients.	+ Provide telehealth capabilities in exam rooms to access virtual visits with external providers. + Provide space within the clinic program to support conducting a virtual visit with multiple care team members in the same location. + Provide opportunities within the clinic for patients to electronically access their health information. + Provide in-person device and equipment training sessions to support ease of adoption and use for patients.	+ Determine which services will continue to require an in-person visit for the mid-term and long-term. + Embed spaces for virtual care delivery in multiple areas and at multiple scales within the clinic to support increased flexibility for accommodating present and future spatial needs. + Provide a flexible layout for spaces that support telehealth to ensure they can be easily modified to support changing practice needs over time. + Establish clear guidelines as to what types of services need to be delivered in-person.

	LITERACY	PRIVACY	USABILITY
Cloudprint	+ Provide virtual educational sessions to support patients in expanding their digital literacy.	+ Invest in HIPPA compliant telehealth platforms to ensure patient privacy and security of health information.	+ Create apps and interfaces that are intuitive and easy to use. + Ensure simplicity of the digital format. + Reduce redundancy- so information is only requested once. + Consider single port of entry into telehealth platform that allows for text, video, email etc. + Leverage user interface as an opportunity to enhance the patient and provider experience. + Provide training for patients and providers on how to optimally conduct a virtual visit.
Footprint	+ Provide in-person educational sessions to support patients in expanding their digital literacy.	+ Ensure that spaces that are utilized for virtual care delivery offer support acoustical privacy through sound attenuation and material selection.	+ Provide adjustable lighting to reduces glare, illuminate the provider and support enhanced video capabilities. + Provide professional and distraction-free backgrounds that have a light color and glare reducing finish to enhance communication. + Provide ergonomic furniture with adequate horizontal work surface to support staff comfort. + Ensure camera placement allows for the provider to establish visual connection with the patient. + Provide dual monitor capabilities that support synchronous viewing of EMR information and patient during a virtual visit. + Ensure there is a clear line of sight between patient, provider, and technology interface.

Limitations and Next Steps:
Seeking the Patient and System Perspective

It is important to note that the patient survey and provider surveys were conducted at two distinct times during the global COVID-19 pandemic (Patients - January 2021; Providers - May 2020). As such, findings from the survey provide a unique look into patients' and family and internal medicine providers' perspectives during a pivotal time in the trajectory of telehealth, as well as our nation's history. These insights reflect the overwhelmed nature of the rapid onset of telehealth, and the subsequent uncertainty that ensued due to the tumultuous political landscape and economic uncertainty associated with the pandemic. To fully understand the recent and future impact of telehealth on care delivery, it is equally important to gain insight into the critical perspective of the extended care team and the perspective of health systems who are actively changing the face of primary care today.

Projections for the degree to which telehealth will be integrated into care delivery in the short-term, mid-term, and over the long-term remain uncertain due to the transitory nature of the policies that supported telehealth's rapid uptake. However, it is clear that virtual care will be a critical component of care delivery moving forward. As healthcare organizations and independent physician practices consider how to leverage telehealth to provide the greatest benefit to patients and providers, it will be essential to think beyond current care delivery models and explore how an integrated physical/digital hybrid model will impact the future of clinic design.

Furthermore, while the findings from this survey provide a snapshot in time of patients' and providers' perspectives regarding telehealth's current limitations and future aspirations, these findings also serve as an impetus for further exploration and innovation to address questions such as:

+ How can advances and improvements in technologies such as AI, the Internet of Things, and remote patient monitoring be leveraged to solve some of the emerging challenges with equity, engagement, and experience across the continuum of care?

+ How can telehealth be leveraged to address the imminent healthcare worker shortages within the United States and across the world?

+ As more care shifts to the virtual environment, what is the future of home health, mobile health, retail health or healthcare distributed from other third places?

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