WHITE PAPER

A Multilayered Analysis of Telehealth

How This Emerging Venue of Care Is Affecting the Healthcare Landscape

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Summary

Telehealth has been growing rapidly in recent years as a venue of care. To shed light on how telehealth is affecting the healthcare landscape, FAIR Health analyzed recent data in our repository of over 29 billion private healthcare claim records. These are some of our findings:

- **Rapid growth.** From 2014 to 2018, use of non-hospital-based provider-to-patient telehealth grew 1,393 percent, from 0.007 percent to 0.104 percent of all medical claim lines. Claim lines related to any type of telehealth grew 624 percent, from 0.0192 percent to 0.1394 percent of all medical claim lines.
- **Provider-to-patient type.** In 2018, non-hospital-based provider-to-patient telehealth accounted for 84 percent of all telehealth claim lines, compared with 52 percent in 2014.
- **Rural and urban areas.** From 2014 to 2018, usage of non-hospital-based provider-to-patient telehealth grew more rapidly in urban than rural areas. In urban areas, claim lines for this type of telehealth increased 1,227 percent from 0.01 percent to 0.13 percent of all urban medical claim lines. In rural areas, the increase was 897 percent from 0.01 percent to 0.05 percent of all rural medical claim lines.
- **Telehealth after hospital discharge.** The opposite pattern held for discharge-related provider-to-patient telehealth claim lines. Claim lines for this type of telehealth increased more in rural than urban areas from 2014 to 2018. In rural areas, the increase was 407 percent, from 0.005 percent to 0.025 percent of all rural medical claim lines. In urban areas, the increase was 157 percent, from 0.007 percent to 0.019 percent of all urban medical claim lines.
- **Younger people.** In the period 2014-2018, the age group most associated with telehealth overall was that of individuals age 31-40, who accounted for 21 percent of the distribution of all telehealth claim lines. But most of the claim lines (82 percent) for discharge-related provider-to-patient telehealth were associated with individuals 51 and older.
- **Age distribution.** Individuals over age 80 constituted 37 percent of patients who had an in-person visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit for heart failure in 2018. But in the same year, individuals age 23-30 constituted the largest share (23 percent) of patients who had an in-person visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit for alcohol-related disorders.
- **Women.** Sixty-five percent of all telehealth claim lines in the period 2014-2018 were associated with females. But for telehealth visits associated with a hospital discharge, 53 percent of claim lines were submitted for females.
- **Conditions.** Acute upper respiratory infections were the number one reason individuals sought treatment from a provider for non-hospital-based telehealth in 2018. Such infections accounted for 16 percent of the distribution of claim lines for all telehealth visits of that kind. In second place was mood (affective) disorders, with six percent of the distribution; in third place was anxiety and other nonpsychotic mental disorders, with five percent of the distribution.
- **Implications in heart failure.** In 2018, the telehealth diagnosis with the highest rate of patients who had an in-person visit within 15 days of a non-hospital-based provider-to-patient telehealth visit for the same or a very similar diagnosis was heart failure. Of patients diagnosed with this condition via telehealth, 57 percent were seen in person within 15 days.
- **Contraception.** In 2018, the diagnosis with the lowest rate of in-person follow-up visits for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit was encounters for contraceptive management; two percent of all patients whose claims reported that service via telehealth went on to have such an in-person visit.

Background

Telehealth or telemedicine, the remote provision of clinical services through telecommunications technology, has been growing rapidly in recent years.[1] State and federal legislation and regulation have been increasingly broadening access to telehealth.[2] A 2019 survey found that physician adoption of telehealth increased 340 percent in three years, from 5 percent reporting having used video visits to see patients in 2015 to 22 percent in 2018.[3] Another 2019 survey found that just over half (51 percent) of internal medicine physicians and subspecialists who are members of the American College of Physicians work in a practice that has implemented at least one of five telehealth services.[4]

In a recent white paper, FAIR Health drew on our repository of over 29 billion private healthcare claim records—the largest in the nation—to analyze telehealth and other alternative venues of care, as well as emergency rooms (ERs).[5] The study found that national utilization of telehealth grew 53 percent in the single year from 2016 to 2017, more than any other place of service studied for that variable—urgent care centers, retail clinics, ambulatory surgery centers or ERs. The study shed light on different aspects of telehealth, including geography, age, gender and diagnoses.

Our findings on telehealth attracted great interest, encouraging us to take a "deeper dive" into the data. We are privileged to present data to bring greater insights into how this emerging venue of care is affecting the healthcare landscape, uncovering layers that have been difficult to study. This white paper examines different types of telehealth, comparing them nationally and by rural versus urban area, as well as by age and gender. It analyzes the most common telehealth diagnostic categories, breaking down the major ones into more granular categories. And, using longitudinal data, it studies what happens after a telehealth visit: the diagnoses most and least associated with patients who have an in-person visit with a provider for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit. These findings have important implications for improving healthcare quality and lowering costs by reducing avoidable hospitalizations, readmissions and urgent/emergent care visits.

Methodology

FAIR Health used several methodologies to segregate claims for telehealth services. The Centers for Medicare & Medicaid Services (CMS) place of service code for telehealth, 02, was used for all dates of service as of January 1, 2017 (when it was established). For all claim lines prior to that date, FAIR Health used a combination of factors, including telehealth CPT®[6] codes such as CPT 99441 (physician or other

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[1] Telehealth is sometimes defined as including not only telemedicine (the remote provision of clinical services via telecommunications technology), but also the provision of certain nonclinical services, such as provider training and continuing medical education. In this paper, telehealth refers only to the former, and is interchangeable with telemedicine.

[2] Center for Connected Health Policy, "2018 in Review: State & Federal Telehealth Policy—Legislative Roundup," December 18, 2018, https://mailchi.mp/cchpca/2018-in-review-state-federal-telehealth-policy-legislative-roundup.

[3] American Well, *Telehealth Index: 2019 Physician Survey*, https://www.americanwell.com/resources/telehealth-index-2019-physician-survey/.

[4] ACP Internist, "ACP Releases Survey Results about Telehealth Technology Availability, Use among Internists," *Internal Medicine Meeting 2019 News*, April 12, 2019, https://www.acpinternist.org/immeeting/archives/2019/04/12/6.htm.

[5] FAIR Health, *FH® Healthcare Indicators and FH® Medical Price Index 2019: An Annual View of Place of Service Trends and Medical Pricing*, A FAIR Health White Paper, April 2019, https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20Healthcare%20Indicators%20and%20FH%20Medical%20Price%20Index%202019%20-%20A%20FAIR%20Health%20White%20Paper.pdf.

[6]

qualified healthcare professional telephone evaluation, 5-10 minutes) or telehealth modifiers of GT or GQ.

FAIR Health then organized the claims into types of telehealth using the CPT construct. Claims with CPT codes such as CPT 99441 and CPT 98966 (nonphysician telephone assessment, 5-10 minutes), or CPT 99213 (office or other outpatient visit for the evaluation and management of an established patient) with a place of service of 02 or a telehealth modifier, were categorized into the category of “provider to patient–non-hospital-based.” Claims with codes such as G0425 (telehealth consultation, emergency department or initial inpatient, typically 30 minutes communicating with the patient via telehealth) were categorized as “physician to patient–emergency department (ED)/inpatient.” Codes such as CPT 99446 (interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 5-10 minutes) were categorized as “provider to provider.” Codes such as CPT 99495 (transitional care management services, with face-to-face visit within 14 calendar days of discharge) with a telehealth modifier and/or place of service of 02 were categorized as provider to patient–discharge.

The table below shows in more detail which procedure codes were included in which type of telehealth.

Table. Types of telehealth with procedure codes and descriptions

Type of Telehealth	Procedure Code	Description
Physician to patient–ED/inpatient	G0425	Telehealth consultation, emergency department or initial inpatient, typically 30 minutes communicating with the patient via telehealth
Physician to patient–ED/inpatient	G0426	Telehealth consultation, emergency department or initial inpatient, typically 50 minutes communicating with the patient via telehealth
Physician to patient–ED/inpatient	G0427	Telehealth consultation, emergency department or initial inpatient, typically 70 minutes or more communicating with the patient via telehealth
Physician to patient–ED/inpatient	G0459	Inpatient telehealth pharmacologic management, including prescription, use and review of medication with no more than minimal medical psychotherapy
Provider to provider	CPT 99446	Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 5-10 minutes
Provider to provider	CPT 99447	Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 11-20 minutes
Provider to provider	CPT 99448	Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 21-30 minutes
Provider to provider	CPT 99449	Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 31 minutes or more
Provider to provider	CPT 99451	Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician, 5 minutes or more
Provider to provider	CPT 99452	Interprofessional telephone/internet/electronic health record referral service(s), 30 minutes
Provider to provider	G0181	Home health care supervision
Provider to provider	G0182	Hospice care supervision

Type of Telehealth	Procedure Code	Description
Provider to patient–non-hospital-based[7]	CPT 99441	Physician or other qualified healthcare professional telephone evaluation, 5-10 minutes
Provider to patient–non-hospital-based	CPT 99442	Physician or other qualified healthcare professional telephone evaluation, 11-20 minutes
Provider to patient–non-hospital-based	CPT 99443	Physician or other qualified healthcare professional telephone evaluation, 21-30 minutes
Provider to patient–non-hospital-based	CPT 99444	Physician or other qualified healthcare professional online evaluation and management service
Provider to patient–non-hospital-based	CPT 98966	Nonphysician telephone assessment, 5-10 minutes
Provider to patient–non-hospital-based	CPT 98967	Nonphysician telephone assessment, 11-20 minutes
Provider to patient–non-hospital-based	CPT 98968	Nonphysician telephone assessment, 21-30 minutes
Provider to patient–non-hospital-based	CPT 98969	Nonphysician online assessment and management
Provider to patient–non-hospital-based[8]	CPT 0188T	Videoconferenced critical care, first 30-74 minutes
Provider to patient–non-hospital-based[9]	CPT 0189T	Videoconferenced critical care, each additional 30 minutes
Provider to patient–non-hospital-based	Q3014	Telehealth originating site facility fee
Provider to patient–non-hospital-based	T1014	Telehealth transmission, per minute, professional services bill separately
Provider to patient–discharge	G0406	Inpatient/telehealth follow up, 15 minutes
Provider to patient–discharge	G0407	Inpatient/telehealth follow up, 25 minutes
Provider to patient–discharge	G0408	Inpatient/telehealth follow up, 35 minutes
Provider to patient–discharge	CPT 99495	Transitional care management services, with face-to-face visit within 14 calendar days of discharge
Provider to patient–discharge	CPT 99496	Transitional care management services, with face-to-face visit within 7 calendar days of discharge
Provider to patient–non-hospital-based	All others	All other E&M and psychotherapy CPT and HCPCS codes that have a place of service of 02 or a telehealth modifier

The data were aggregated by a variety of key fields, including rural/urban, diagnostic category, year of service and patient demographics (age and gender), to identify trends and patterns in utilization. The data were evaluated with single and multiple variables to look for distinct trends and associations, which were then used to create graphical representations of the information.

In the graphical representations, the term "claim lines" refers to the individual procedures listed on insurance claims. A single claim for one patient may have multiple claim lines. To normalize the data and avoid fluctuations due to natural changes within plan data (e.g., the closing of a major retailer and the loss of those members, or the addition of a major employer to a plan from which FAIR Health receives data,

[7] Some, though not all, codes in the provider-to-patient–non-hospital-based category include the requirement that no in-person visit be provided seven days prior to or 24 hours after the telehealth visit. Codes with this requirement are CPT 99441, CPT 99442, CPT 99443, CPT 98966, CPT 98967 and CPT 98968.
[8] Replaced this year with CPT 99499.
[9] Replaced this year with CPT 99499.

which would create a net influx of data from those members), FAIR Health calculates each data point as a percentage of the total number of medical claim lines. When rural or urban data for telehealth or a type of telehealth are evaluated, the denominator is all medical claim lines within that year and region. When total national data for telehealth or a type of telehealth are evaluated, the entirety of medical claim lines for that year is the denominator.

FAIR Health also pulled data on all patients in our longitudinal dataset to identify all patients who had a non-hospital-based provider-to-patient telehealth visit and evaluate all claims that were incurred by the patient within 15 days of the telehealth visit for the same or a very similar diagnosis (where the first three characters of the ICD diagnosis code matched for each visit, e.g., "J45" for asthma).

Types of Telehealth

National Trends over Time

Telehealth can be divided into four broad types.[10]

- **Provider-to-provider telehealth** involves consultation between healthcare professionals.
- In the other three types, a physician or other provider connects directly with a patient:
    - **Provider-to-patient–non-hospital-based telehealth.** The provider and the patient communicate via telehealth without relation to a hospital. For example, a patient who is home and has not had a recent hospitalization has a video chat with a provider to show his or her rash.
    - **Provider-to-patient–discharge telehealth.** The telehealth visit is a follow-up after the patient is discharged from an inpatient stay in the hospital.
    - **Physician-to-patient–ED/inpatient telehealth.** The patient is in the hospital, whether in the ED or as an inpatient, communicating via telehealth with a physician.

[10] The procedure codes included in each type are listed in the table in the Methodology section above.

As seen in Figure 1 below, telehealth overall and all four types of telehealth individually increased nationally from 2014 to 2018. However, non-hospital-based provider-to-patient telehealth increased at a rate greater than other types of telehealth. During this period, claim lines with usage of non-hospital-based provider-to-patient telehealth grew 1,393 percent, from 0.007 percent to 0.104 percent of all medical claim lines. By comparison, usage of all telehealth grew 624 percent, from 0.0192 percent to 0.1394 percent of all medical claim lines.

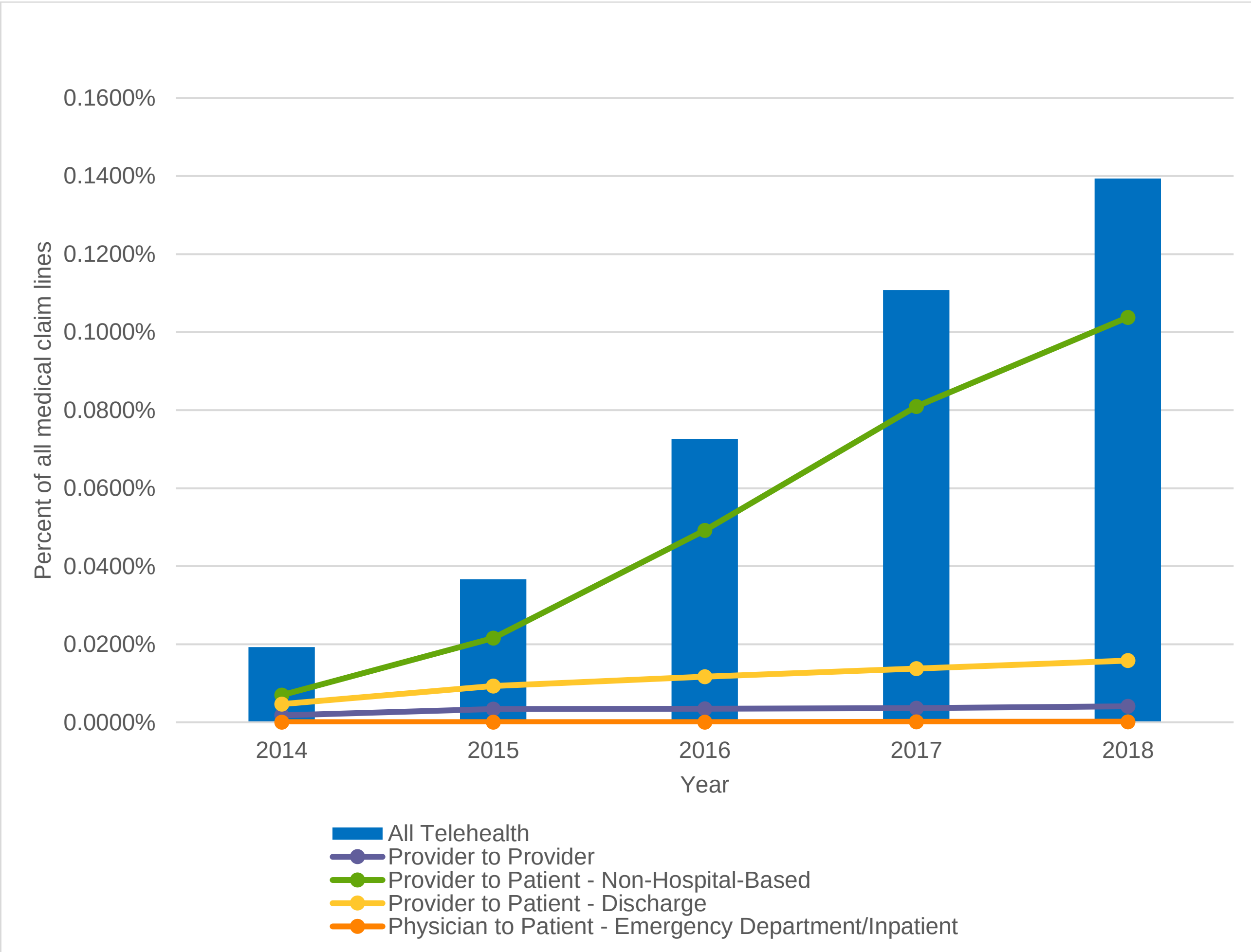

Figure 1. Claim lines with telehealth usage by type as a percentage of all medical claim lines, 2014-2018

The telehealth type with the next greatest increase from 2014 to 2018 was physician to patient–ED/inpatient. Usage of that type grew 397 percent, from 0.000 percent to 0.0002 percent of all medical claim lines. Discharge-related provider-to-patient telehealth followed at 240 percent growth, from 0.005 percent to 0.016 percent of all medical claim lines. The lowest rate of growth was in the provider-to-provider category, which had an increase in usage of 131 percent, from 0.002 percent to 0.004 percent of all medical claim lines.

In the last year of this period, from 2017 to 2018, telehealth utilization overall grew 26 percent, which was lower than the 53 percent growth from 2016 to 2017 documented by FAIR Health in a previous white paper.[11] From 2017 to 2018, usage of non-hospital-based provider-to-patient telehealth grew the fastest of the four types, at 28 percent, followed by physician to patient–ED/inpatient (16 percent), provider to patient–discharge (15 percent) and provider to provider (12 percent).

Non-hospital-based provider-to-patient telehealth grew dramatically in its share of the distribution of telehealth claim lines from 2014 to 2018. In 2014, claim lines for non-hospital-based visits by a provider to a patient via telehealth constituted 52 percent of the telehealth claim line distribution (figure 2). The next largest share, that of discharge-related provider-to-patient telehealth, was relatively close at 35 percent. It was followed by provider-to-provider telehealth at 13 percent. Physician-to-patient–ED/inpatient telehealth had 0 percent at this level of rounding.

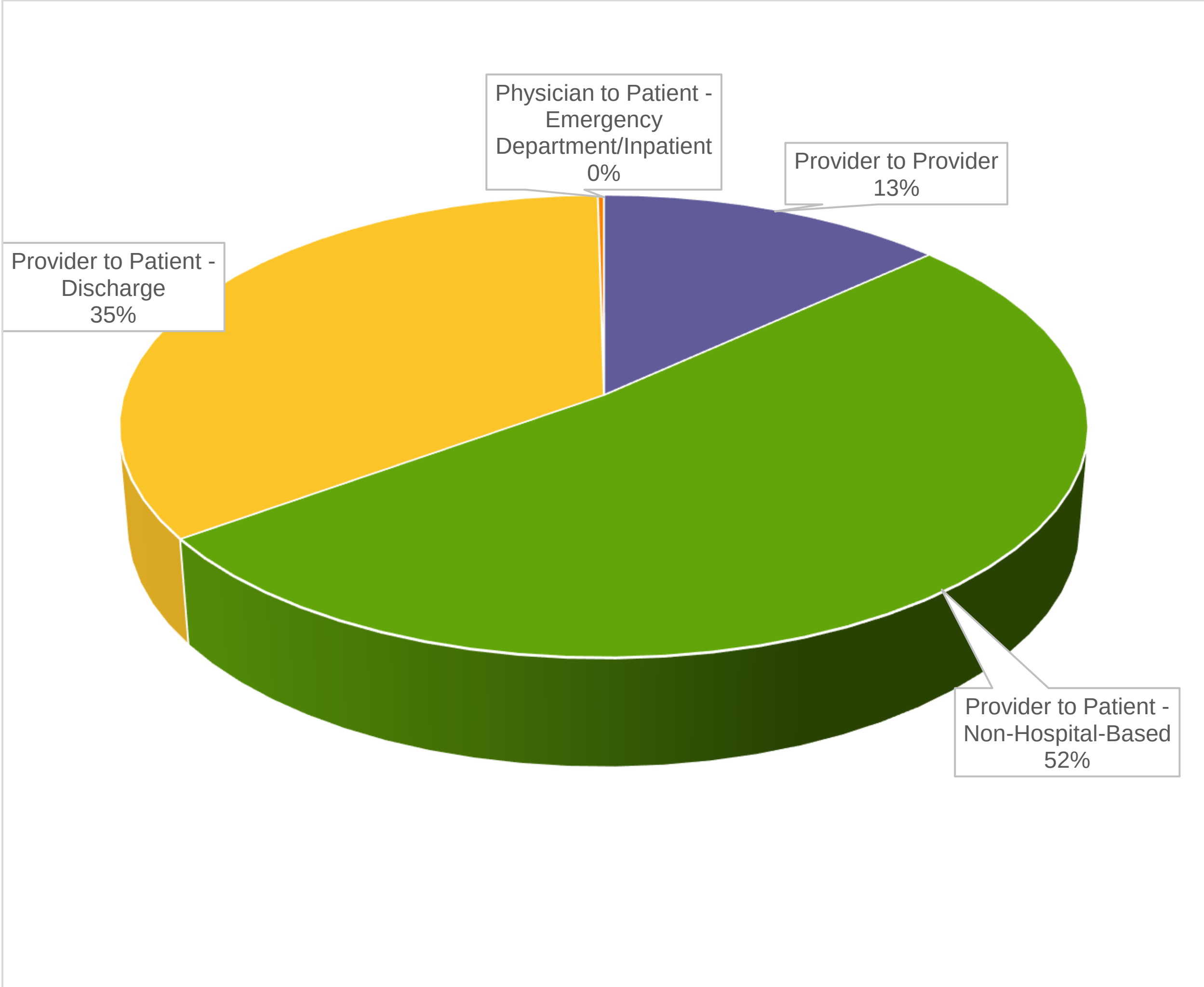

Figure 2. Distribution of telehealth claim lines by type, 2014

[11] FAIR Health, *FH® Healthcare Indicators and FH® Medical Price Index 2019*, 25.

By 2018, however, the distribution had changed notably (figure 3). That year, non-hospital-based provider-to-patient visits via telehealth dominated the distribution, with 84 percent of all telehealth claim lines, compared with 52 percent four years earlier. Discharge-related provider-to-patient telehealth continued to be in second place, but now constituted 13 percent, down from 35 percent. Provider-to-provider telehealth had fallen to a single digit, 3 percent, from 13 percent. Physician-to-patient–ED/inpatient telehealth continued at 0 percent.

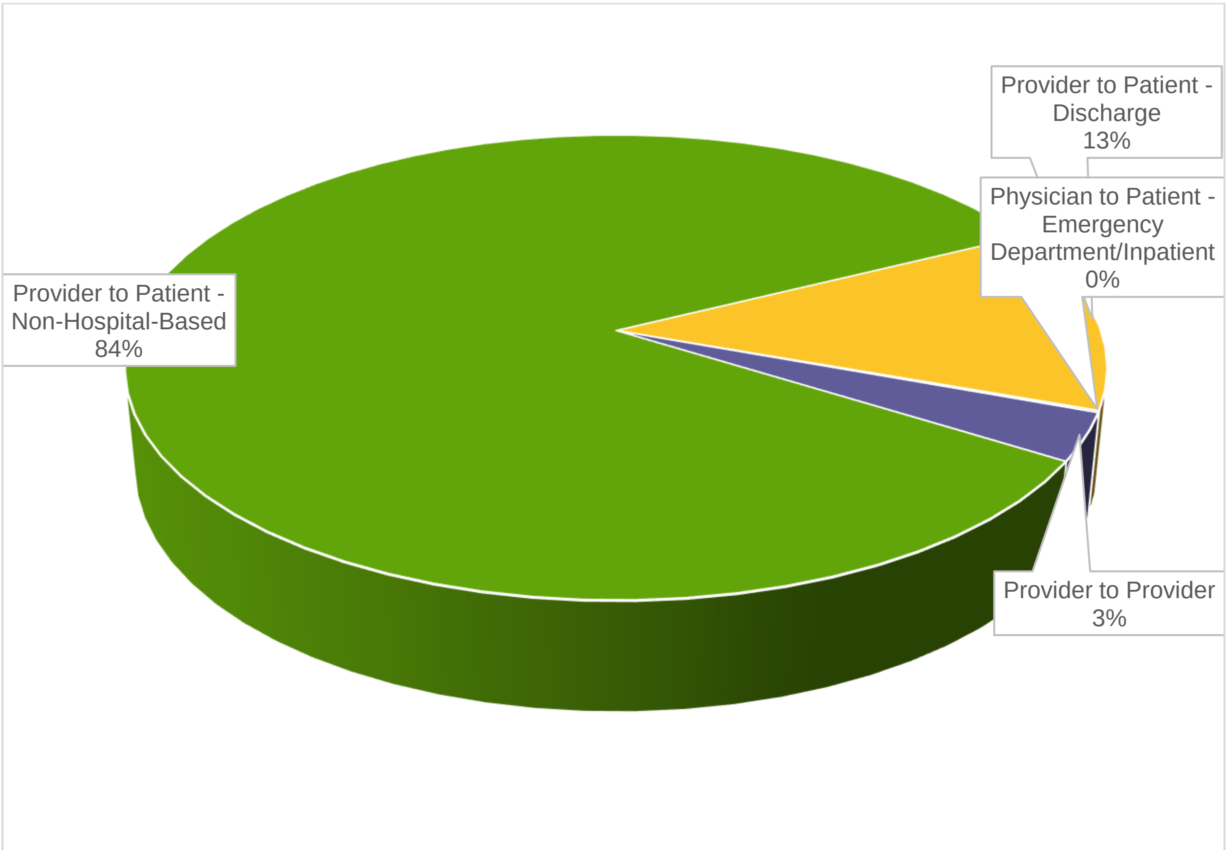

Figure 3. Distribution of telehealth claim lines by type, 2018

The increase in share of telehealth distribution by non-hospital-based provider-to-patient telehealth was the product of steady growth throughout the period 2014-2018. Figure 4 shows that growth as a percentage of all telehealth claim lines, as well as the steady drop in the percentage of claim lines associated with discharge-related provider-to-patient and with provider-to-provider telehealth.

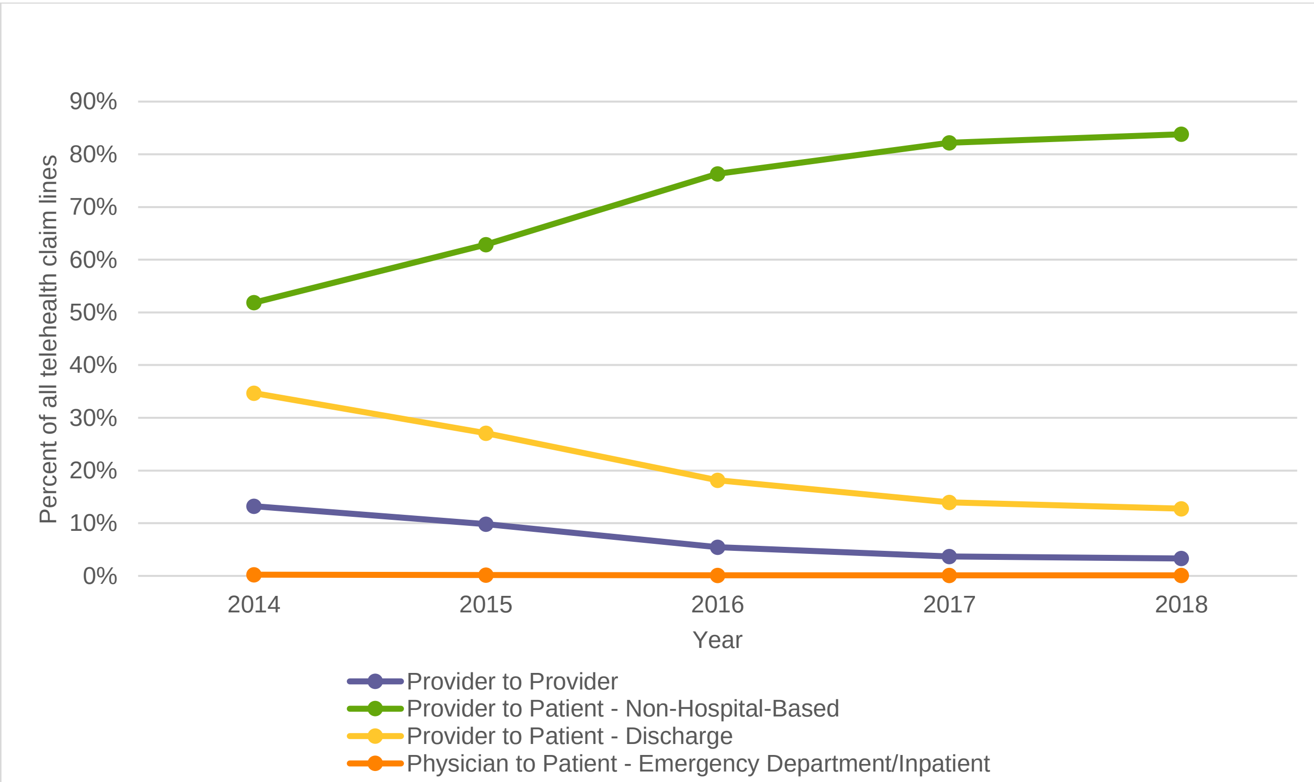

Figure 4. Claim lines with telehealth usage by type as a percentage of all telehealth claim lines, 2014-2018

Rural/Urban Trends over Time

As shown in a previous FAIR Health white paper, claim lines for telehealth overall have recently been growing more rapidly in urban than rural areas, with an increase of 1,289 percent in urban areas compared to 482 percent in rural areas from 2012 to 2017.[12] At the level of types of telehealth, however, the picture is more complex.

Usage of non-hospital-based provider-to-patient telehealth from 2014 to 2018 reflects the recent rural/urban pattern of telehealth overall (figure 5). In urban areas, claim lines for non-hospital-based provider-to-patient telehealth increased 1,227 percent from 0.01 percent to 0.13 percent of all urban medical claim lines. In rural areas, the increase from 2014 to 2018 was smaller: 897 percent from 0.01 percent to 0.05 percent of all rural medical claim lines.

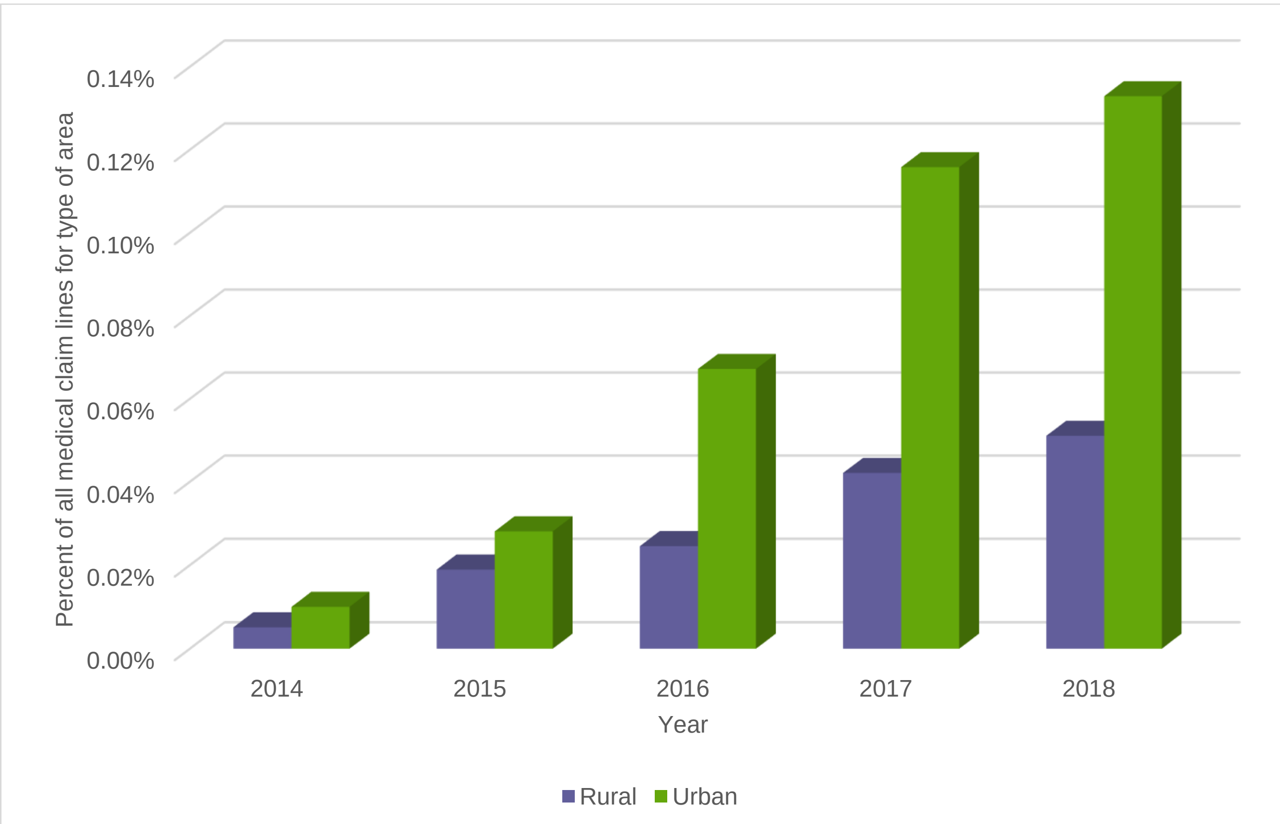

Figure 5. Non-hospital-based provider-to-patient telehealth claim lines as a percentage of all medical claim lines by rural and urban areas, 2014-2018

[12] FAIR Health, *FH® Healthcare Indicators and FH® Medical Price Index 2019*, 25.

The opposite pattern held for discharge-related provider-to-patient telehealth claim lines (figure 6). Claim lines for this type of telehealth increased more in rural than urban areas from 2014 to 2018. In rural areas, the increase in this period was 407 percent, from 0.005 percent to 0.025 percent of all rural medical claim lines. In urban areas, the increase was 157 percent, from 0.007 percent to 0.019 percent of all urban medical claim lines.

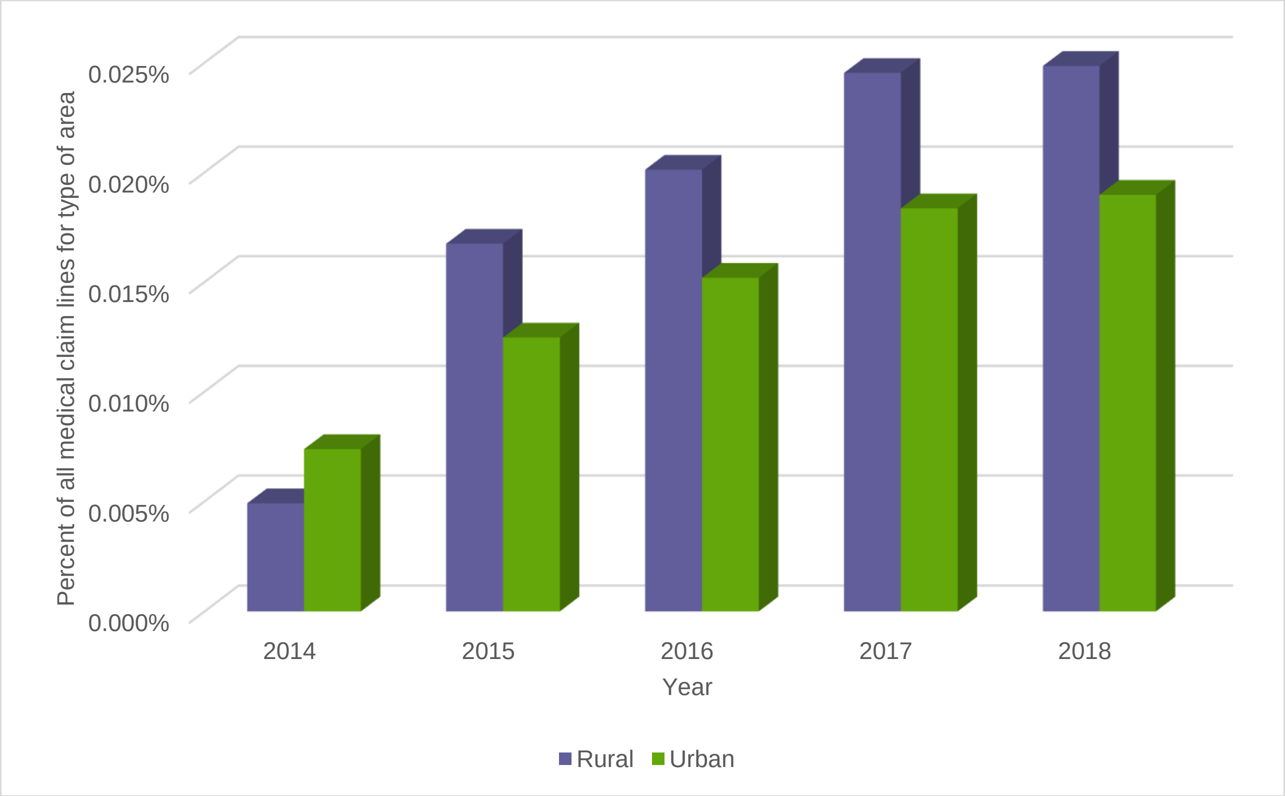

Figure 6. Discharge-related provider-to-patient telehealth claim lines as a percentage of all medical claim lines by rural and urban areas, 2014-2018

For provider-to-provider telehealth, the rural/urban pattern from 2014 to 2018 differs again, with an increase in rural areas but a decline in urban areas (figure 7). In rural areas, claim lines for provider-to-provider telehealth increased 68 percent in this period, from 0.0008 percent to 0.0013 percent of all rural medical claim lines. This was the result of a large increase, 171 percent, that occurred from 2014 to 2015, followed by three years of gradual decrease. In urban areas, provider-to-provider-telehealth claim lines fell 24 percent from 2014 to 2018, from 0.0017 percent to 0.0013 percent of all urban medical claim lines. The only increase in that period was 10 percent from 2014 to 2015.

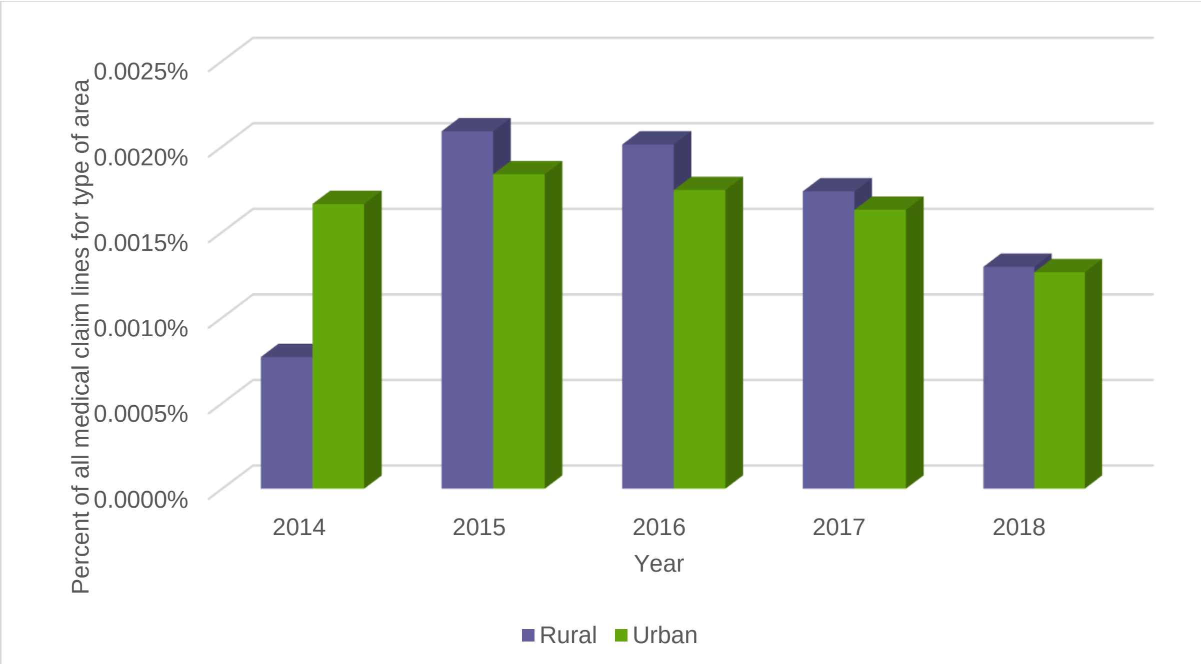

Figure 7. Provider-to-provider telehealth claim lines as a percentage of all medical claim lines by rural and urban areas, 2014-2018

Age

In the period 2014-2018, the age group most associated with telehealth overall was that of individuals aged 31-40 (figure 8). Claim lines for that age group made up 21 percent of the distribution of all telehealth claim lines. The age group 41-50 followed closely with 20 percent of the distribution, then the 51-60 age group with 19 percent and those over 60 with 18 percent. In total, the age range 31 and older accounted for 78 percent of the distribution, individuals 30 and younger for 22 percent.

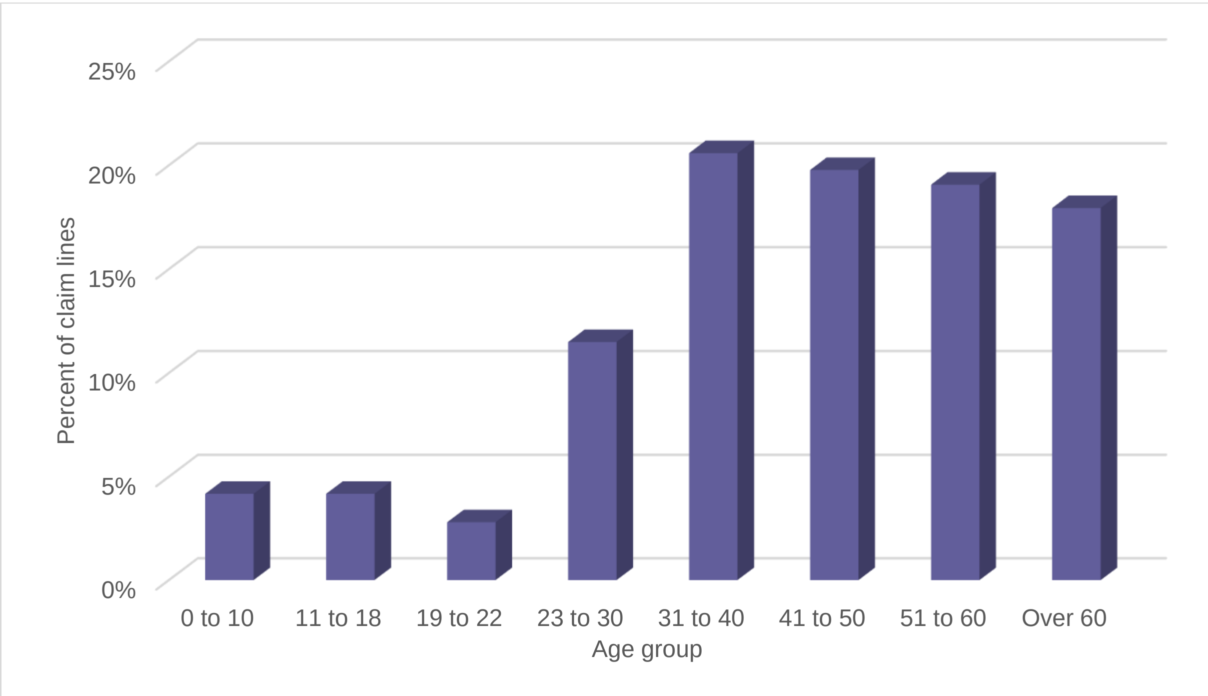

Figure 8. All telehealth claim lines by age group, 2014-2018

The age group 31-40 was even more prominent in the distribution of claim lines for non-hospital-based provider-to-patient telehealth than for telehealth overall (figure 9). In the period 2014-2018, the age group 31-40 accounted for 24 percent of the distribution of non-hospital-based provider-to-patient telehealth claim lines, compared to 21 percent for all telehealth. The 41-50 age group also constituted a larger share of the distribution of non-hospital-based provider-to-patient telehealth (22 percent) than it did of all telehealth (20 percent). The share of the 51-60 age group was the same in both the total set and the subset (19 percent) and that of individuals over 60 smaller in the subset (8 percent) than in the total set (18 percent).

The age range 31 and over accounted for a smaller share of the distribution of non-hospital-based provider-to-patient telehealth (73 percent) than it did of telehealth overall (78 percent).

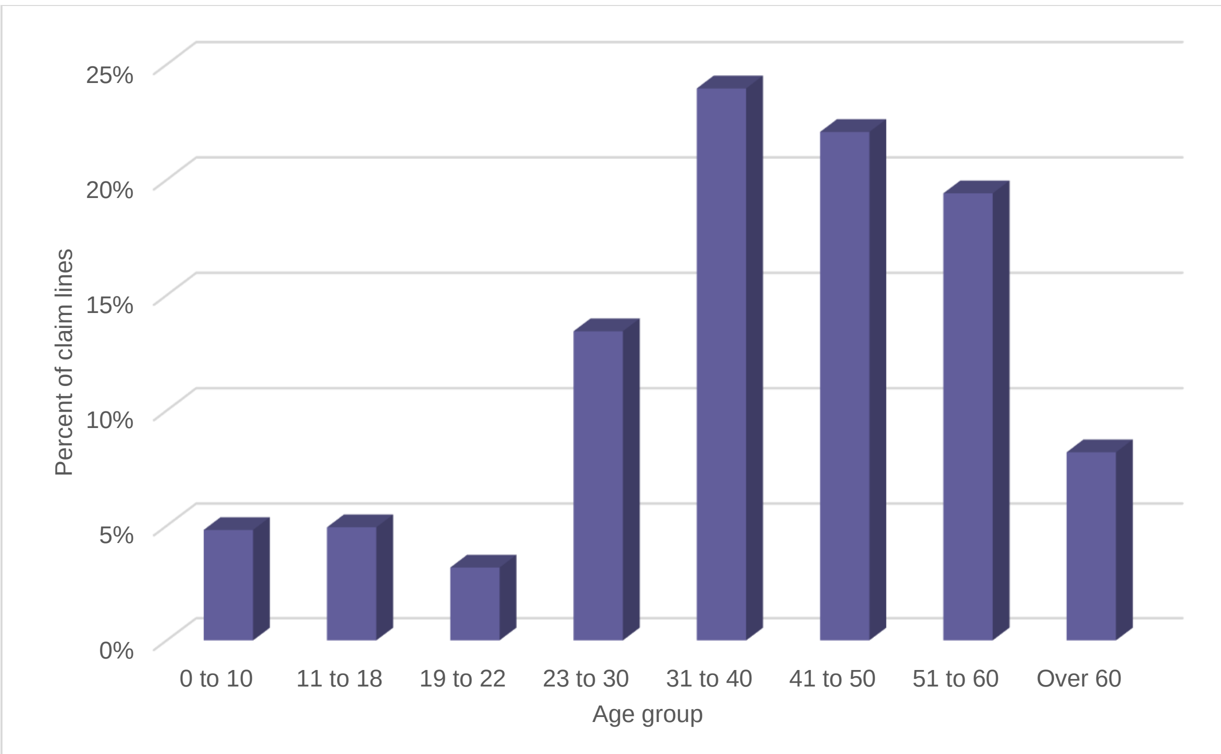

Figure 9. Non-hospital-based provider-to-patient telehealth claim lines by age group, 2014-2018

The age group distribution was markedly different for another type of telehealth, discharge-related provider to patient (figure 10). Since this type of telehealth occurs after discharge from an inpatient hospital stay, and such stays occur more frequently in older age groups,[13] it might be expected that the age distribution for this category would trend older than for all telehealth or for non-hospital-based provider-to-patient telehealth. Indeed, most of the claim lines (82 percent) for discharge-related provider-to-patient telehealth in the period 2014-2018 were associated with individuals 51 and older, with the top age groups 61-70 and over 80 (each 22 percent). By comparison, claim lines for the age range 51 and older were in the minority for all telehealth (37 percent) and non-hospital-based provider-to-patient telehealth (27 percent).

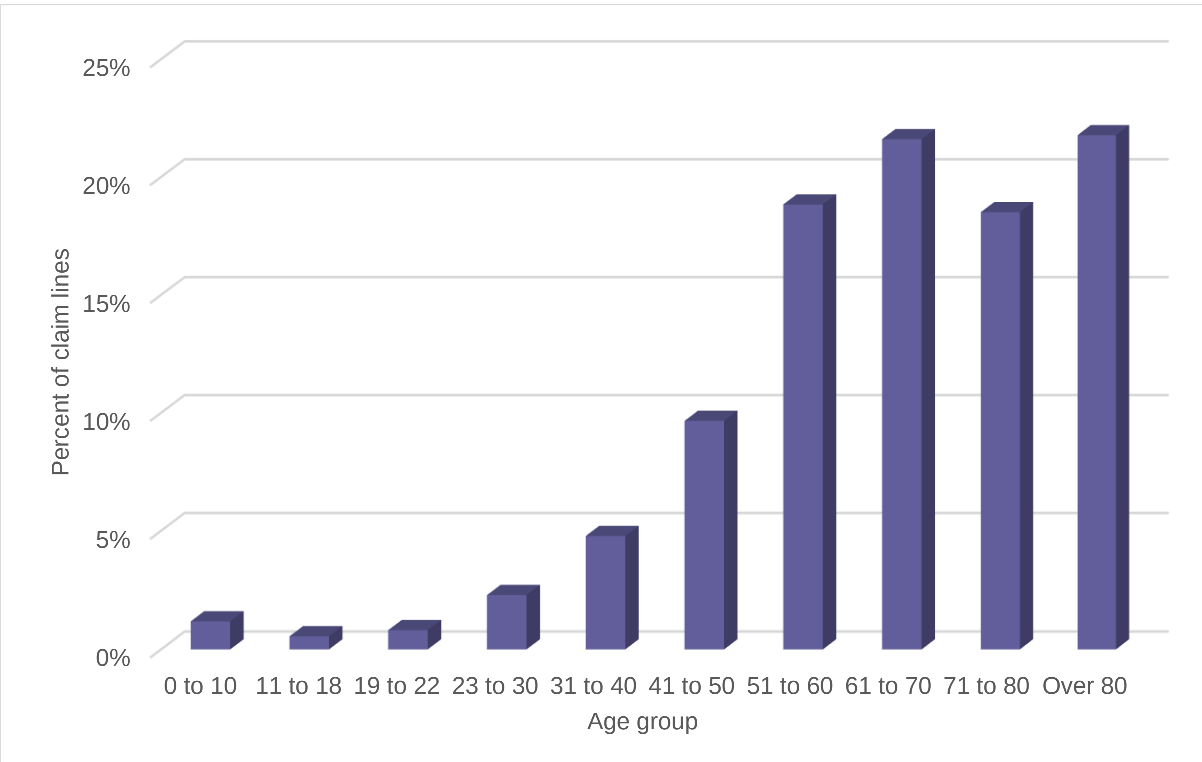

Figure 10. Discharge-related provider-to-patient telehealth claim lines by age group, 2014-2018

[13] "Summary Health Statistics: National Health Interview Survey, 2017, Table P-10. Number of Overnight Hospital Stays during the Past 12 Months, by Selected Characteristics: United States, 2017," Centers for Disease Control and Prevention, https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2017_SHS_Table_P-10.pdf.

Gender

Sixty-five percent of all telehealth claim lines in the period 2014-2018 were associated with females, the remaining 35 percent with males (figure 11). This is consistent with FAIR Health's findings that more claim lines were submitted in 2017 for women than men in all adult age groups in the places of service that were studied for gender-related patterns—retail clinics, urgent care centers, telehealth, ambulatory surgery centers and ERs.[14] It is also consistent with the findings of other researchers that women are more likely than men to visit physicians[15] and make use of healthcare services.[16]

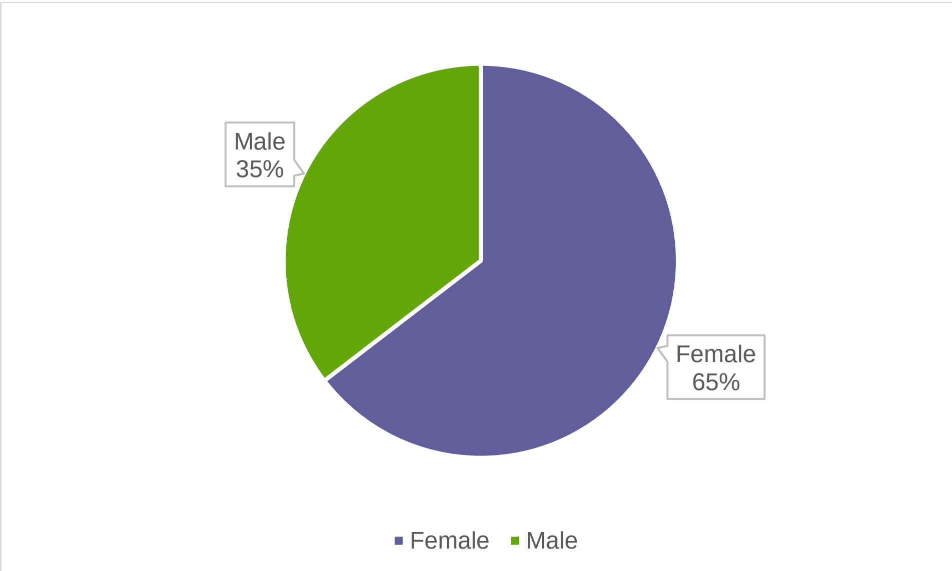

Figure 11. All telehealth claim lines by gender, 2014-2018

[14] FAIR Health, *FH® Healthcare Indicators and FH® Medical Price Index 2019*, 11.
[15] Jill J. Ashman, Esther Hing and Anjali Talwalkar, "Variation in Physician Office Visit Rates by Patient Characteristics and State, 2012," NCHS Data Brief, no. 212 (Hyattsville, MD: National Center for Health Statistics, 2015), https://www.cdc.gov/nchs/data/databriefs/db212.pdf.
[16] Klea D. Bertakis et al., "Gender Differences in the Utilization of Health Care Services," *J Fam Pract* 49, no. 2 (2000):147-52, https://www.ncbi.nlm.nih.gov/pubmed/10718692.

The gender distribution for non-hospital-based provider-to-patient telehealth was similar but not identical to that for all telehealth. In the period 2014-2018, the proportion of claim lines submitted for females was 67 percent for this type of telehealth, compared to 65 percent for all telehealth (figure 12).

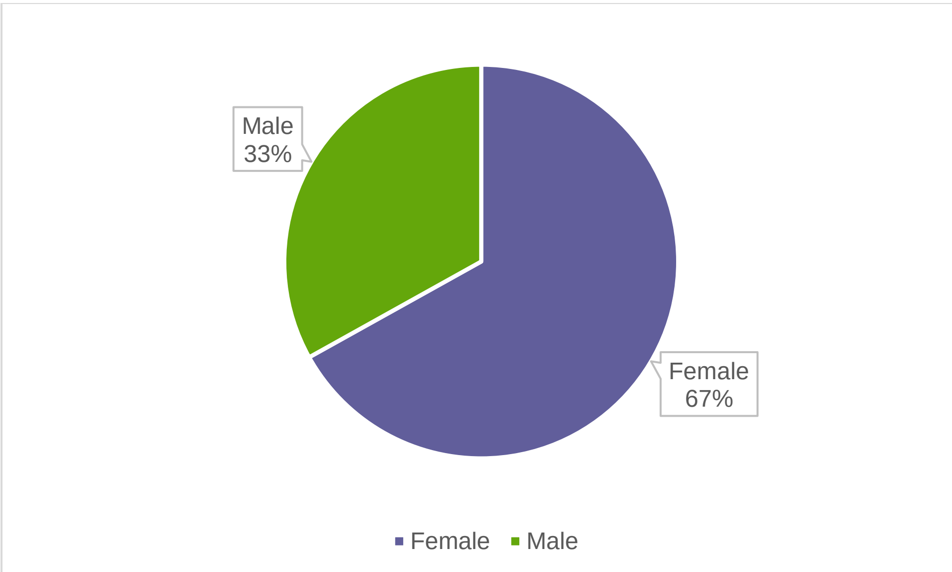

Figure 12. Non-hospital-based provider-to-patient telehealth claim lines by gender, 2014-2018

For another type of telehealth, that of discharge-related provider to patient, the gender distribution was again different (figure 13). For telehealth visits associated with a hospital discharge, 53 percent of claim lines were submitted for females in the period 2014-2018, less than the 65 percent for all telehealth. This result may be related to the older age range associated with discharge-related provider-to-patient telehealth. Other researchers have found that gender differences in healthcare spending are smaller in older adults than younger adults.[17]

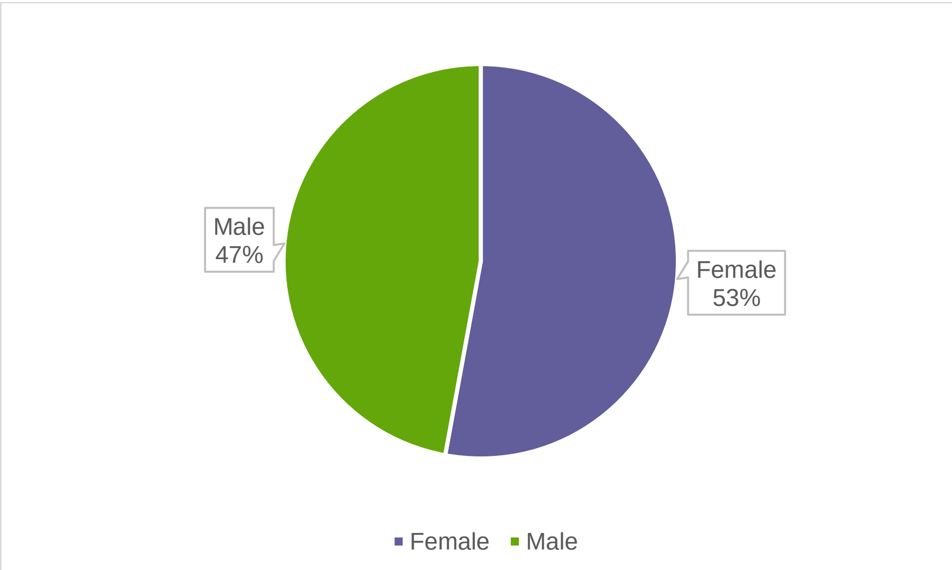

Figure 13. Discharge-related provider-to-patient telehealth claim lines by gender, 2014-2018

[17] Bradley Sawyer and Gary Claxton, "How Do Health Expenditures Vary across the Population?," Peterson-Kaiser Health System Tracker, January 16, 2019, https://www.healthsystemtracker.org/chart-collection/health-expenditures-vary-across-population/#item-start.

Telehealth Diagnoses

Because provider-to-patient telehealth that is not hospital-based is the most common type of telehealth, the rest of this white paper will focus on that type. This section concerns the diagnoses most frequently associated with non-hospital-based provider-to-patient telehealth. Figure 14 shows the distribution of claim lines for that type of telehealth in 2018 by diagnostic category. The level of category presented (e.g., acute upper respiratory infections) is mid-level—that is, more detailed than higher diagnostic levels (e.g., diseases of the respiratory system) but not as detailed as more granular categories (e.g., acute sinusitis).

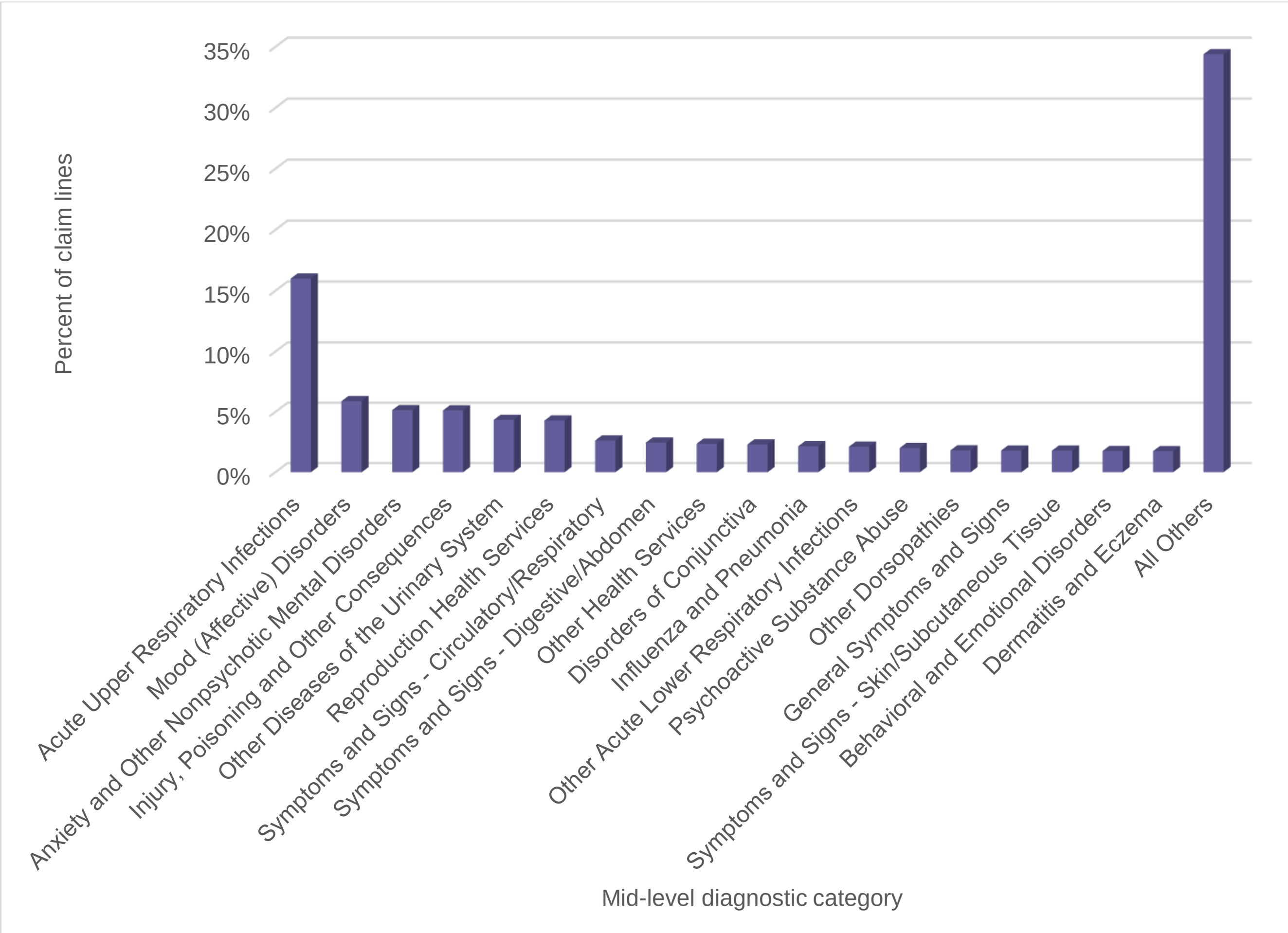

Figure 14. Distribution of non-hospital-based provider-to-patient telehealth claim lines by mid-level diagnostic category, 2018

Acute upper respiratory infections were the number one reason individuals sought treatment from a provider for non-hospital-based provider-to-patient telehealth in 2018. Such infections accounted for 16 percent of the distribution of claim lines for all telehealth visits of that kind. This is consistent with primary care generally. In an international systematic review of primary care, upper respiratory tract infection, unspecified, was the number one clinician-reported reason for visits, and cough was the number one patient-reported reason.[18]

Mental health issues accounted for the second and third most common mid-level diagnostic categories for non-hospital-based provider-to-patient telehealth in 2018. In second place was mood (affective) disorders, with six percent of the distribution; in third place was anxiety and other nonpsychotic mental disorders, with five percent. Mood (affective) disorders include forms of major depressive disorder (also known as depression), and depression and anxiety are known to be common primary care diagnoses. In the international systematic review of primary care cited above, depression or anxiety was the third most common clinician-reported reason for visits in developed countries.[19]

The fourth most common mid-level diagnostic category for patients seeking non-hospital-based telehealth was injury, poisoning and other consequences of external causes (five percent). That was followed by urinary system issues and health services related to reproduction, each with four percent.

The rest of this section will provide further detail about the top three mid-level diagnostic categories for non-hospital-based provider-to-patient telehealth: acute upper respiratory infections, mood (affective) disorders, and anxiety and other nonpsychotic mental disorders. For each, the four most common granular diagnostic categories, in terms of both percent of patients and percent of claims, will be presented, as well as the number of claims per patient.

[18] Caitlin R. Finley et al., "What Are the Most Common Conditions in Primary Care? Systematic Review," *Can Fam Physician* 64, no. 11 (2018): 832-40, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6234945/pdf/0640832.pdf.
[19] Finley, "What Are the Most Common Conditions in Primary Care? Systematic Review."

In 2018, among non-hospital-based provider-to-patient telehealth claims for acute upper respiratory infections, the top four granular diagnostic categories, in order from most to least common, were acute sinusitis, acute respiratory infections of multiple and unspecified sites, acute pharyngitis and acute nasopharyngitis (figure 15). The average number of claims per patient for acute upper respiratory infections was 1.045.

Acute sinusitis, or sinus inflammation, accounted for the largest proportion of patients (45 percent) and claims (46 percent) in the category of acute upper respiratory infections. The number of claims per patient for acute sinusitis was 1.07.

The second most common granular diagnostic category among upper respiratory infections was acute respiratory infections of multiple and unspecified sites. This category was associated with 28 percent of patients diagnosed with acute upper respiratory infections and 27 percent of claims. The number of claims per patient for this category (1.06) was slightly lower than for acute sinusitis (1.07).

In third place, acute pharyngitis, or sore throat, accounted for 19 percent of patients and claims in the category of acute upper respiratory infections, with 1.06 claims per patient.

Acute nasopharyngitis, inflammation of the nose and throat (including the common cold), was in fourth place, with five percent of patients and claims and 1.03 claims per patient.

All other acute upper respiratory infection diagnoses accounted for just three percent of patients and claims, with 1.04 claims per patient.

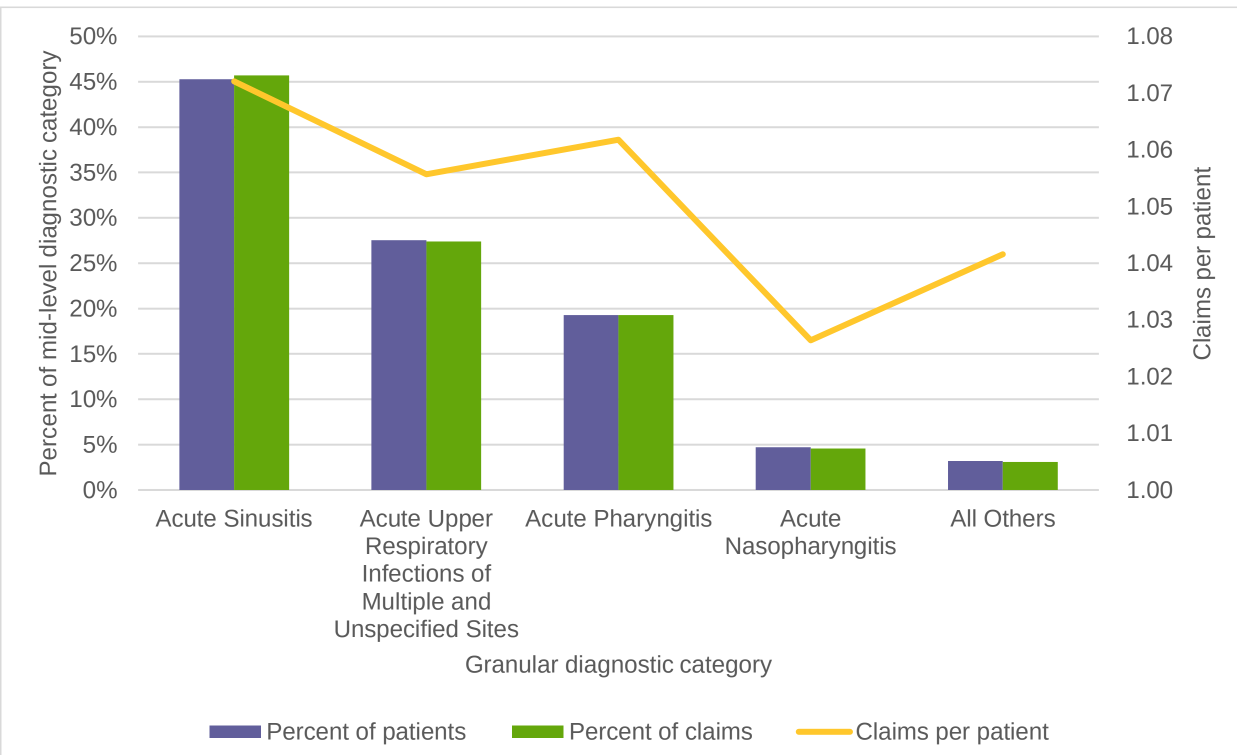

Figure 15. Types of acute upper respiratory infections diagnosed via non-hospital-based provider-to-patient telehealth by percent of patients, percent of claims and claims per patient, 2018

Figure 16 shows the granular diagnostic categories that composed mood (affective) disorders in 2018. The average number of claims per patient for mood (affective) disorders that year was 2.28, higher than for acute upper respiratory infections (1.045).

The most common diagnosis among mood (affective) disorders was recurrent major depressive disorder, at 44 percent of all the patients with a non-hospital-based telehealth visit to a provider in this category, and 45 percent of claims. The number of claims per patient associated with recurrent major depressive disorder was 2.30.

The diagnosis of a single episode of major depressive disorder accounted for 21 percent of patients in this category and 19 percent of claims, with 2.05 claims per patient. Bipolar disorder accounted for 19 percent of patients and 17 percent of claims, with 2.07 claims per patient. Unspecified mood (affective) disorder was associated with 11 percent of patients and 13 percent of claims, with 2.73 claims per patient. Persistent mood (affective) disorders were linked to five percent of patients and seven percent of claims, with the highest number of claims per patient in the category, 2.91.

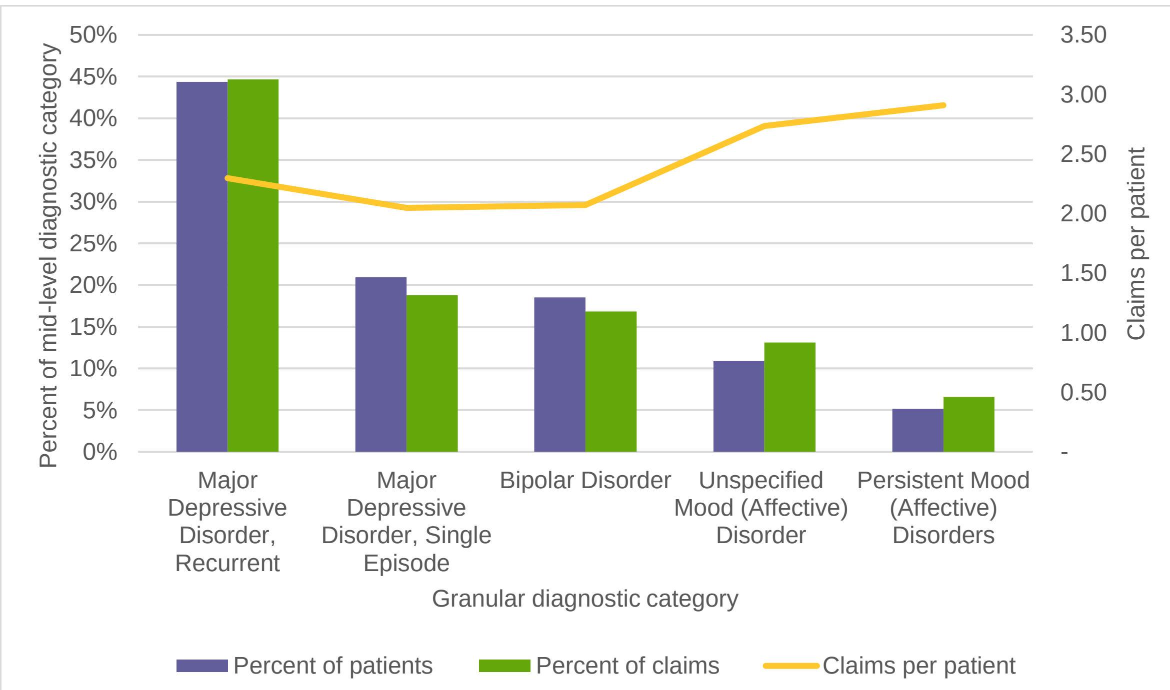

Figure 16. Types of mood (affective) disorders diagnosed via non-hospital-based provider-to-patient telehealth by percent of patients, percent of claims and claims per patient, 2018

The category of anxiety and other nonpsychotic mental disorders had an average number of claims per patient of 2.46 in 2018 (figure 17), higher than for mood (affective) disorders (2.28). The most common granular diagnostic category among non-hospital-based provider-to-patient telehealth claims for anxiety and other nonpsychotic mental disorders was “other anxiety disorders,” which is largely made up of generalized anxiety disorder. “Other anxiety disorders” accounted for 60 percent of patients in the mid-level category and 57 percent of claims, with 2.45 claims per patient.

The second most common granular diagnostic category was reaction to severe stress/adjustment disorders, with 31 percent of patients, 34 percent of claims and 2.77 claims per patient. The third most common, obsessive-compulsive disorder (OCD), had the highest number of claims per patient in the mid-level category, 2.85. OCD accounted for four percent of patients and five percent of claims. In fourth place was phobic anxiety disorders, associated with three percent of patients and claims and 2.26 claims per patient. All other diagnoses accounted for one percent of patients and claims and 1.98 claims per patient.

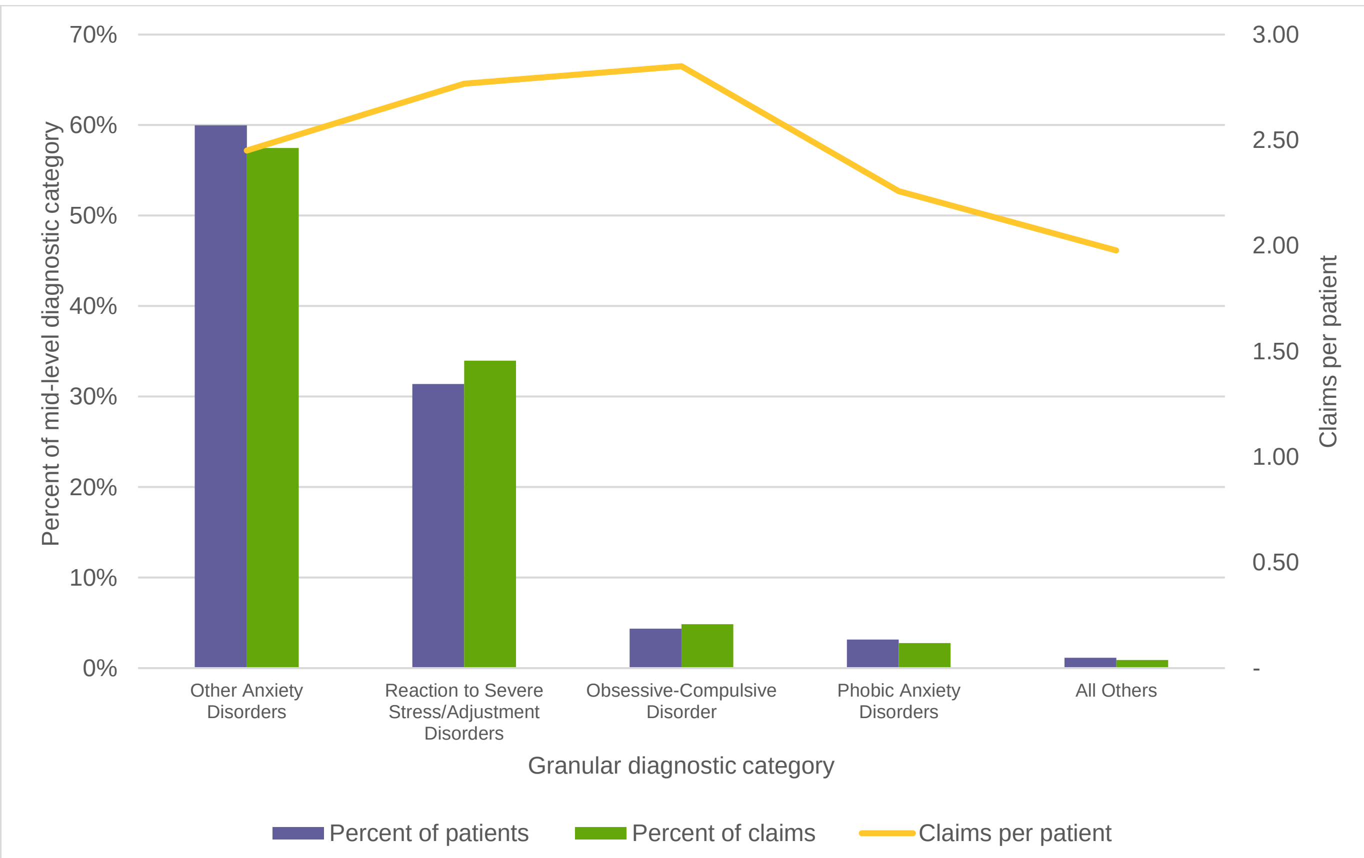

Figure 17. Types of anxiety and other nonpsychotic mental disorders diagnosed via non-hospital-based provider-to-patient telehealth by percent of patients, percent of claims and claims per patient, 2018

In-Person Visits after Telehealth

FAIR Health studied the diagnoses for which patients had an in-person visit within 15 days of a non-hospital-based provider-to-patient telehealth visit for the same or a very similar diagnosis. The condition was judged very similar if it shared the first three characters of the ICD diagnosis code. For example, if the first three characters are J01, the condition is acute sinusitis, but J01.0 is acute maxillary sinusitis and J01.1 is acute frontal sinusitis.

In 2018, the telehealth diagnosis with the highest rate of patients who had an in-person visit within 15 days of a non-hospital-based provider-to-patient telehealth visit for the same or a very similar diagnosis was heart failure, a condition in which the heart is unable to pump blood at an adequate rate or in adequate volume (figure 18). Of patients diagnosed with this condition via telehealth, 57 percent were seen in person within 15 days.

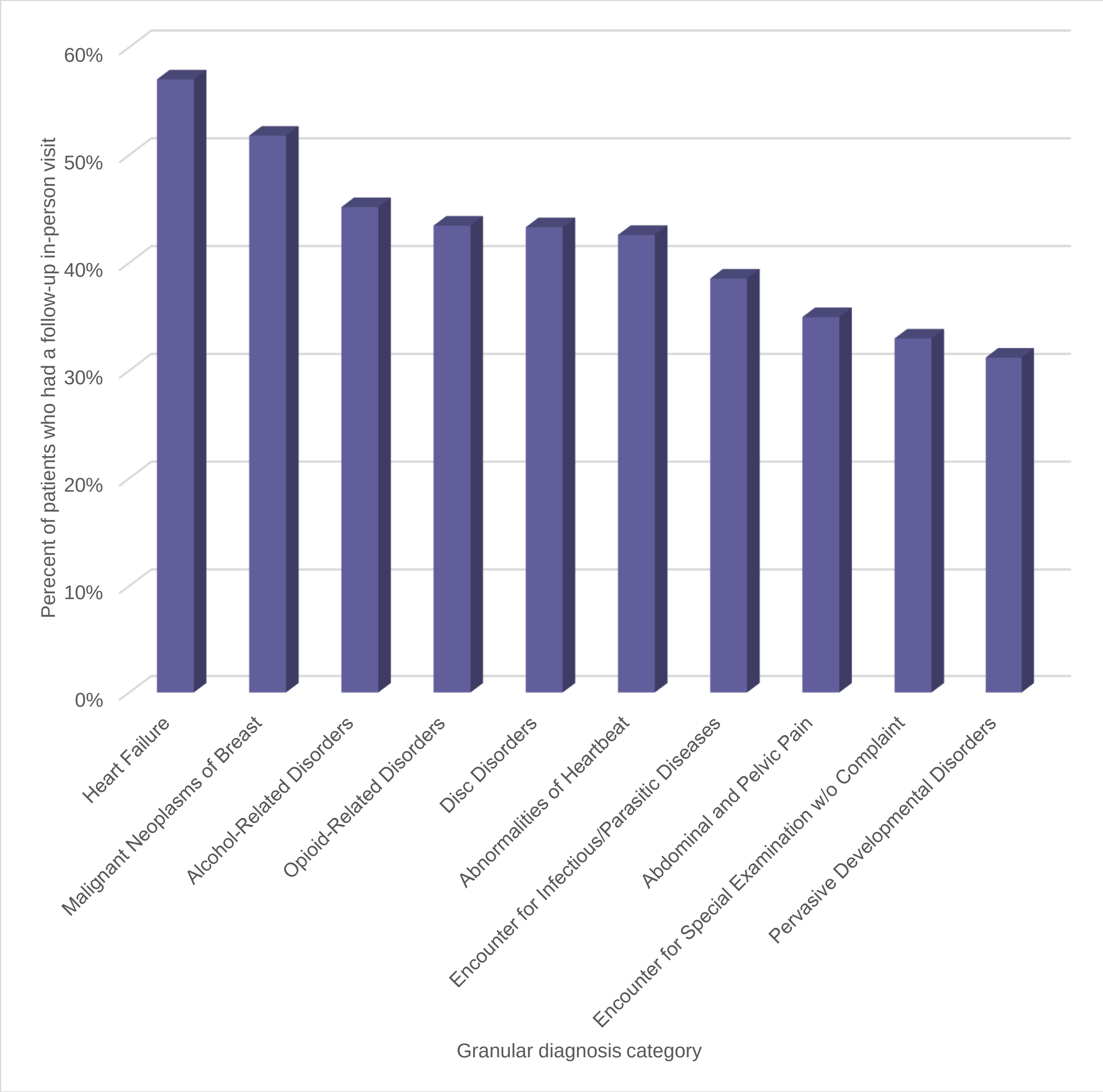

Figure 18. Top telehealth diagnoses for which a patient had an in-person follow-up visit with a provider for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit, 2018

The second highest rate for follow-up visits within 15 days (52 percent) was for malignant neoplasms of the breast. Alcohol-related disorders (45 percent) and opioid-related disorders (43 percent) were also high on the list.

Of patients in 2018 who were diagnosed with heart failure via non-hospital-based provider-to-patient telehealth and had an in-person visit for the same or a very similar condition within 15 days, 57 percent received the same diagnosis at the follow-up visit: heart failure (figure 19). The second most common follow-up diagnosis was atrial fibrillation and flutter, at 25 percent. The average number of days that passed between the telehealth and in-person follow-up visits was five for a follow-up diagnosis of heart failure, eight for a follow-up diagnosis of atrial fibrillation and flutter.

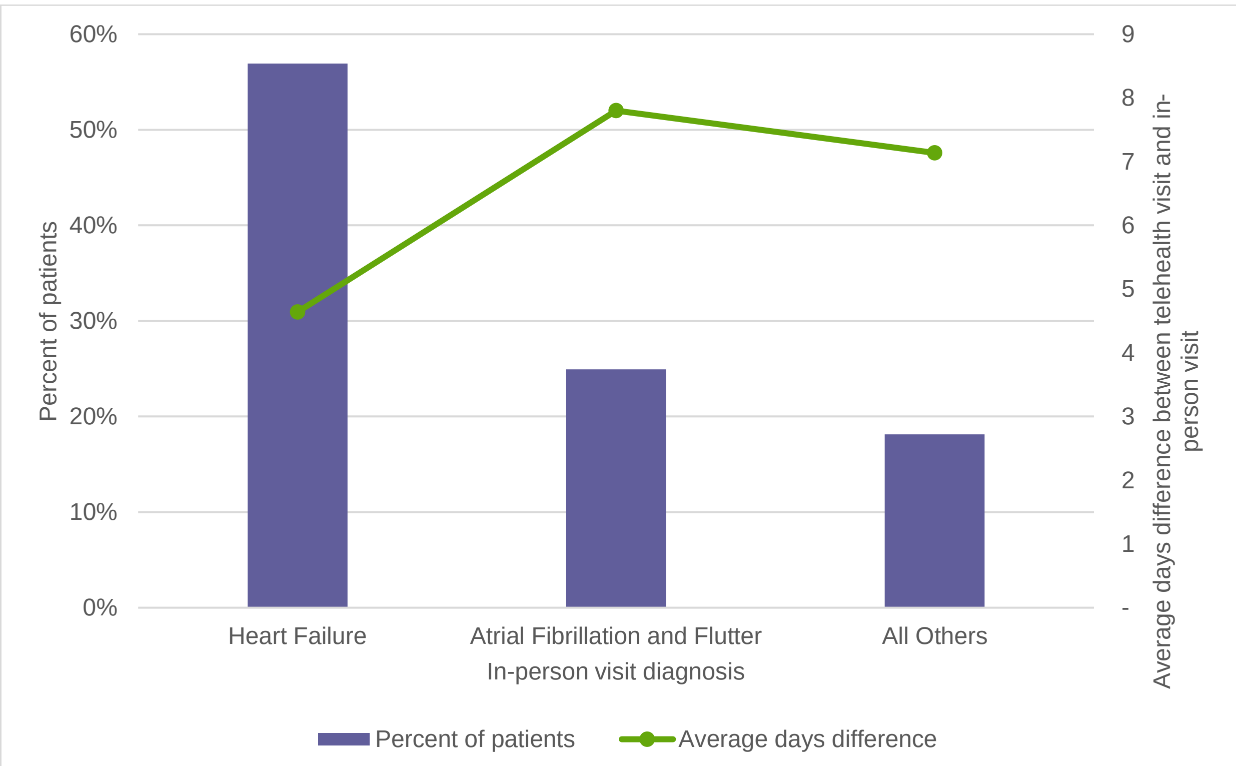

Figure 19. Top reasons patients had an in-person follow-up visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis of heart failure, 2018

Figure 20 shows the distribution by age group of patients who had an in-person visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit for heart failure in 2018. All such patients for which there were statistically significant data were 41 or older. Individuals over age 80 constituted 37 percent of these patients. For them, the average number of days between their telehealth visit and in-person follow-up visit was 6.2 days. Individuals age 71-80 made up 30 percent of this patient group, with an average days difference between visits of 6.13 days.

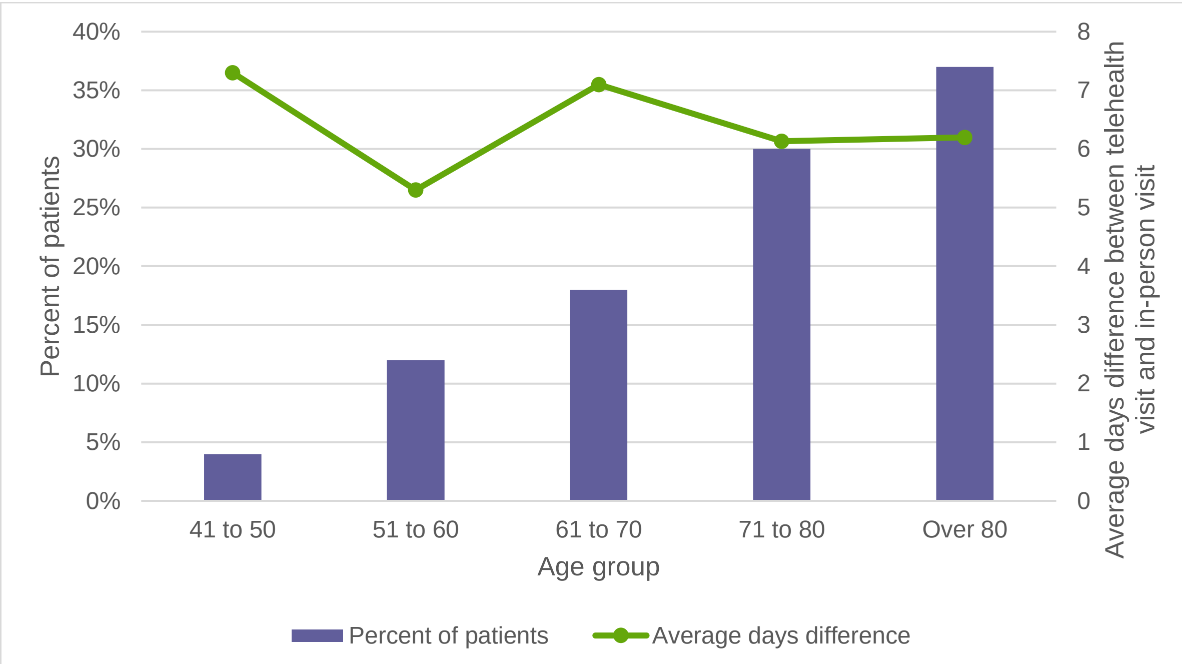

Figure 20. Patients who had an in-person follow-up visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis of heart failure, by age group, 2018

Of patients in 2018 who were diagnosed with alcohol-related disorders via non-hospital-based provider-to-patient telehealth and had an in-person visit for the same or a very similar condition within 15 days, 84 percent received the same diagnosis at the follow-up visit: alcohol-related disorders (figure 21). The remaining diagnoses for such patients were either opioid-related disorders (eight percent) or other substance-related disorders (eight percent). The average days difference between visits for a follow-up diagnosis of alcohol-related disorders was five days, compared to six days for opioid-related disorders and other substance-related disorders.

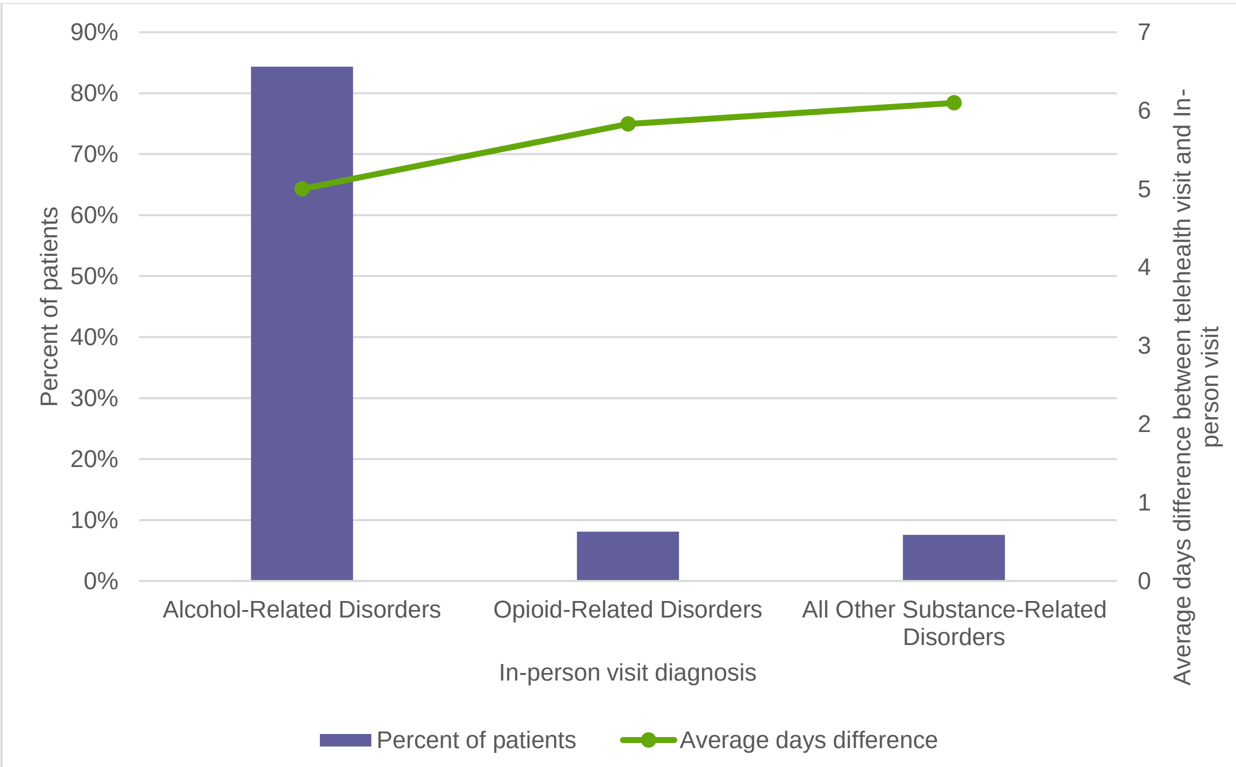

Figure 21. Top reasons patients had an in-person follow-up visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis of an alcohol-related disorder, 2018

Figure 22 shows the distribution by age group of patients who had an in-person visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit for alcohol-related disorders in 2018. All such patients for which there were statistically significant data were in the age range 14-70. Individuals age 23-30 constituted the largest share (23 percent) of these patients. The average number of days between the two visits for this age cohort was five. The highest average days difference (seven) was for the age group 19 to 22, who made up 11 percent of the individuals with an in-person follow-up visit after a telehealth diagnosis of alcohol-related disorders. The lowest days difference (four) was for individuals age 41-50, who accounted for 21 percent of all such in-person visits.

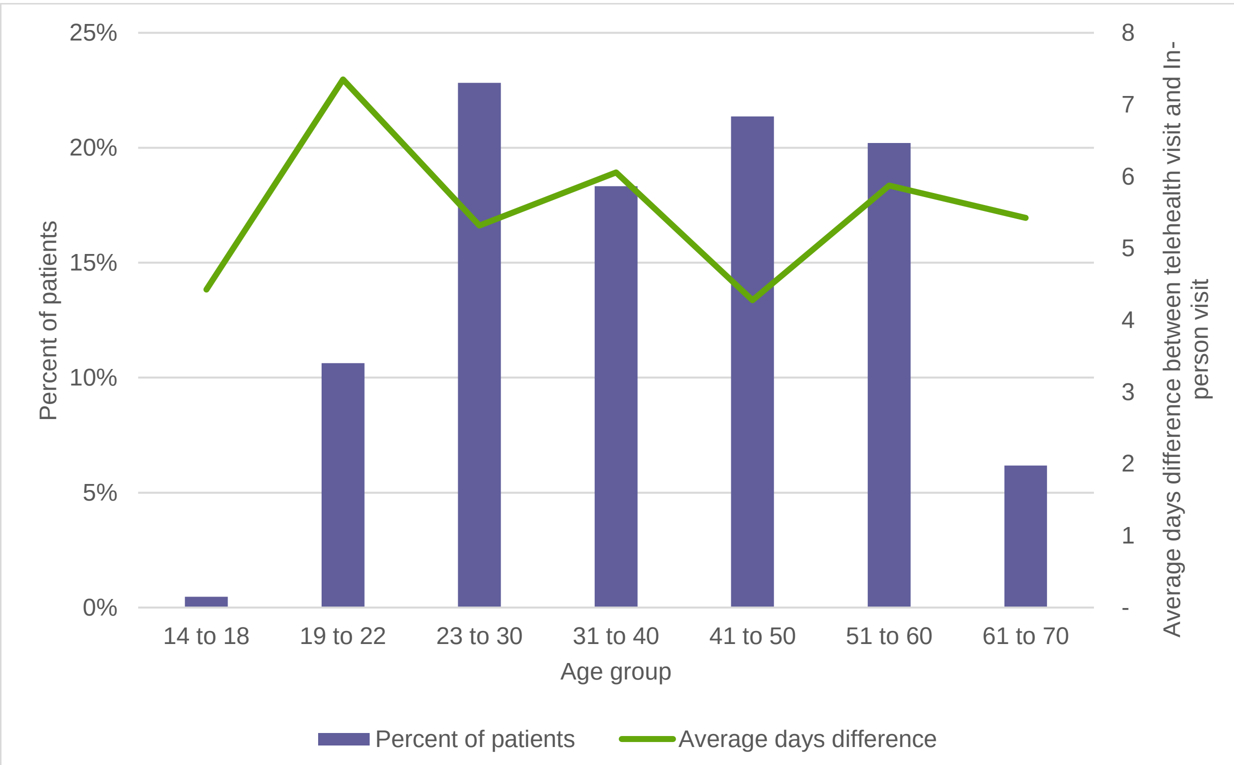

Figure 22. Patients who had an in-person follow-up visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis of an alcohol-related disorder, by age group, 2018

Males constituted 57 percent of patients who had an in-person follow-up visit within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis for alcohol-related disorders in 2018 (figure 23). Females were 43 percent. The male share of this patient group was smaller than of all patients who received non-hospital-based provider-to-patient telehealth services for alcohol-related disorders; males were 63 percent of that cohort.

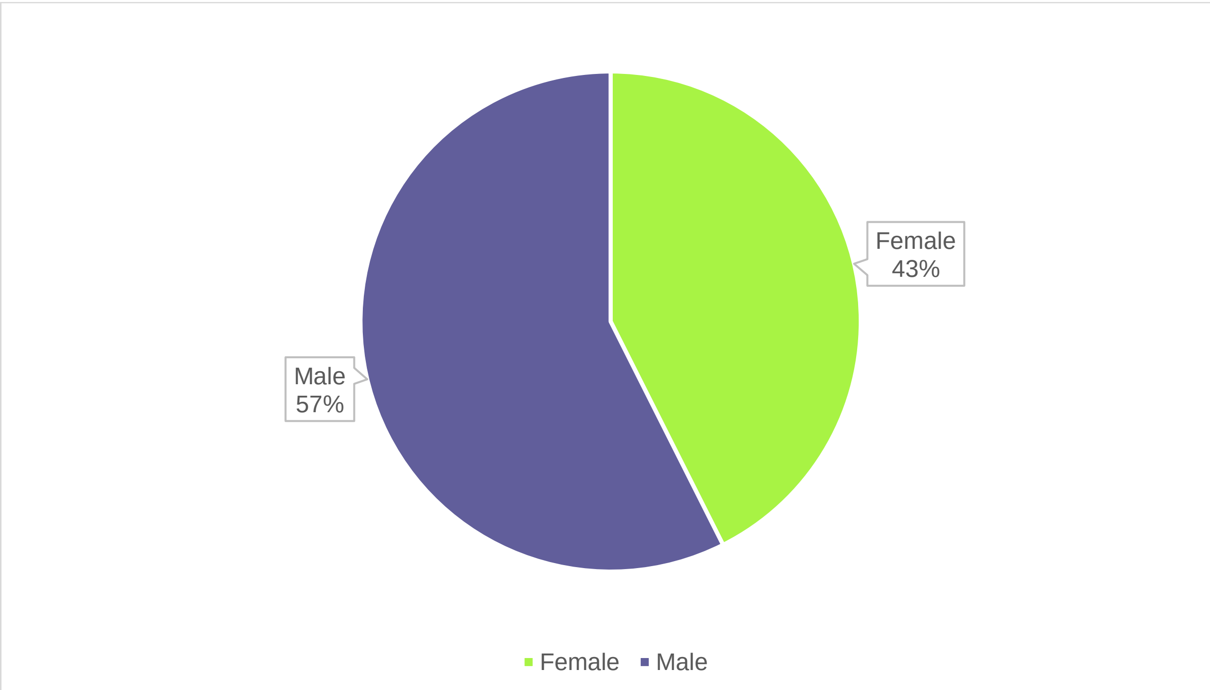

Figure 23. Patients who had an in-person follow-up visit for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth diagnosis of an alcohol-related disorder, by gender, 2018

In 2018, the diagnosis with the lowest rate of in-person follow-up visits for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit was encounters for contraceptive management; two percent of all patients whose claims reported that service via telehealth went on to have such an in-person visit (figure 24). The diagnoses with the second and third lowest in-person follow-up rates were acute bronchitis (four percent) and acute sinusitis (five percent), respectively.

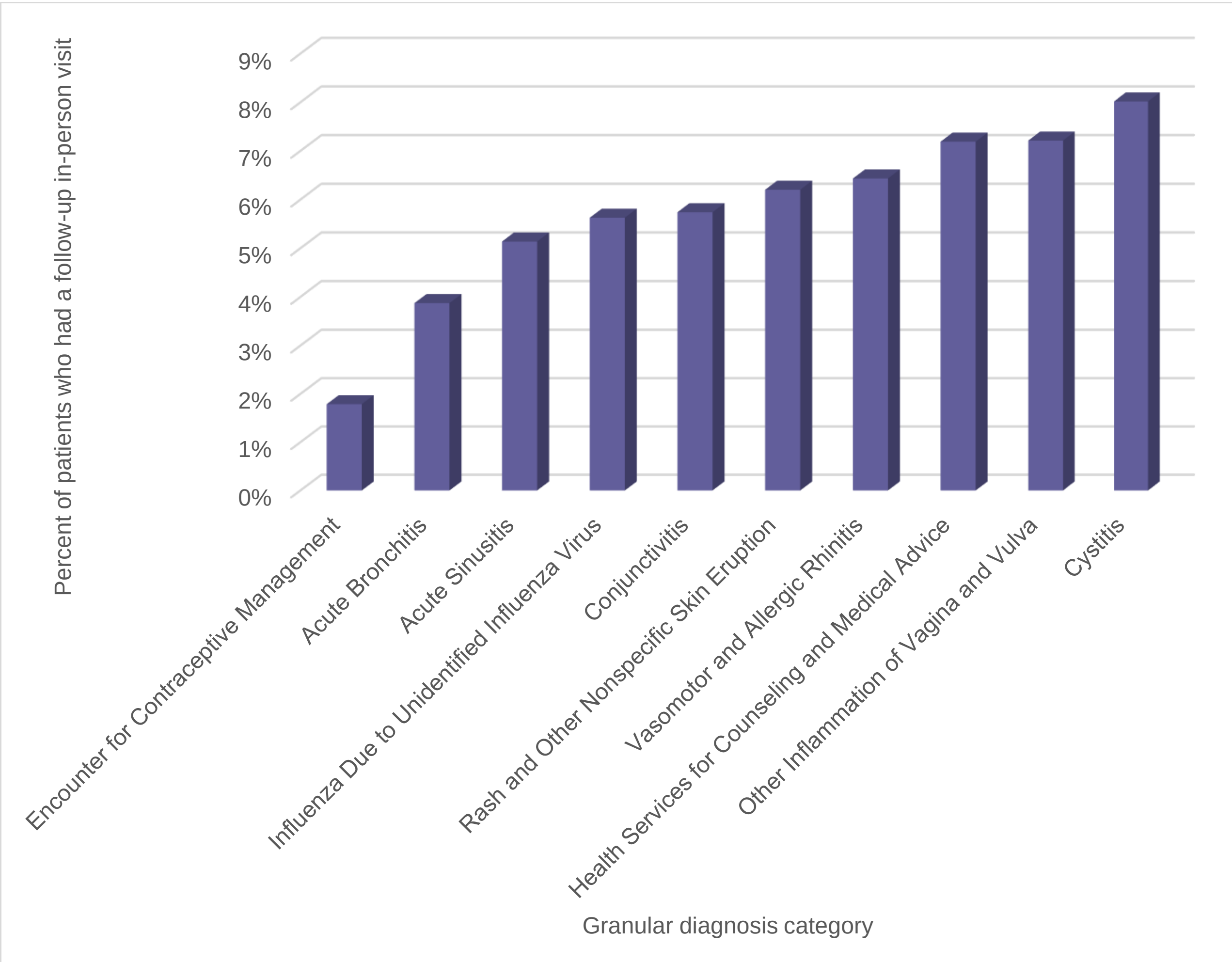

Figure 24. Telehealth diagnoses with the lowest rate of in-person follow-up visits for the same or a very similar diagnosis within 15 days of a non-hospital-based provider-to-patient telehealth visit, 2018

Conclusion

This study found that telehealth has been growing rapidly, and shows that the category fueling most of that growth is the type in which a provider renders services to a patient without relation to a hospital. From 2014 to 2018, this type of telehealth increased in usage at a rate greater than that of any other type of telehealth and of telehealth overall, and its share of the distribution of telehealth claim lines increased significantly.

Usage of non-hospital-based provider-to-patient telehealth grew more rapidly in urban than rural areas, but this pattern did not necessarily hold for other types of telehealth. For discharge-related provider-to-patient telehealth, for example, the increase was greater in rural than urban areas.

Patient demographics varied depending on type of telehealth. In the period 2014-2018, the age group most associated with telehealth overall was that of individuals age 31-40, but most of the claim lines for discharge-related provider-to-patient telehealth were associated with individuals 51 and older. Sixty-five percent of all telehealth claim lines in that period were associated with females, but for telehealth visits associated with a hospital discharge, the female share was 53 percent.

Acute upper respiratory infections were the number one reason individuals sought treatment from a provider for non-hospital-based telehealth in 2018. In second and third place were mental diagnoses—respectively, mood (affective) disorders, and anxiety and other nonpsychotic mental disorders. All three are among the most common reasons patients seek primary care generally.

In 2018, heart failure was the telehealth diagnosis associated with the highest rate of in-person visits within 15 days of a non-hospital-based provider-to-patient telehealth visit for the same or a very similar diagnosis. The diagnosis with the lowest rate was encounters for contraceptive management.

The typical age of patients who had follow-up in-person visits within 15 days of a non-hospital-based provider-to-patient telehealth visit in 2018 varied with the diagnosis. Individuals over age 80 constituted the largest share of the age distribution for heart failure, those age 23-30 for alcohol-related disorders.

FAIR Health offers the information in this report for the benefit of all healthcare stakeholders with an interest in the emergence and contours of telehealth, including payors, providers, policy makers, researchers and consumers. We will continue to use our vast repository of private healthcare claims data to study trends in telehealth and other venues of care and share our findings with the public.

About FAIR Health

FAIR Health is a national, independent nonprofit organization dedicated to bringing transparency to healthcare costs and health insurance information through data products, consumer resources and health systems research support. FAIR Health qualifies as a public charity under section 501(c)(3) of the tax code. FAIR Health possesses the nation's largest collection of private healthcare claims data, which includes over 29 billion claim records contributed by payors and administrators who insure or process claims for private insurance plans covering more than 150 million individuals. FAIR Health licenses its privately billed data and data products—including benchmark modules, data visualizations, custom analytics, bundled payment analytics and market indices—to commercial insurers and self-insurers, employers, providers, hospitals and healthcare systems, government agencies, researchers and others. Certified by the Centers for Medicare & Medicaid Services (CMS) as a national Qualified Entity, FAIR Health also receives data representing the experience of all individuals enrolled in traditional Medicare Parts A, B and D; FAIR Health houses data on Medicare Advantage enrollees in its private claims data repository. FAIR Health can produce insightful analytic reports and data products based on combined Medicare and commercial claims data for government, providers, payors and other authorized users. FAIR Health's free, award-winning, national consumer websites are fairhealthconsumer.org and fairhealthconsumidor.org. For more information on FAIR Health, visit fairhealth.org.

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