

An Examination of Private Payer Reimbursements to Primary Care Providers for Healthcare Services Using Telehealth, United States 2009–2013

HIGHLIGHTS

- Half of telehealth-related state policies were implemented in the last five years.
- Although many states permit reimbursements for telehealth services, only seven states have passed statutes mandating parity with reimbursements for non-telehealth services.
- Despite an increasing number of telehealth policies, claims for telehealth services to private insurers are rare.
- Lower average reimbursements for telehealth billings may discourage adoption of telehealth technologies.
- Surveillance of claims data will help identify whether telehealth policies are having their intended impact on the healthcare system.

BACKGROUND

Telehealth services offer a promising avenue to expand service delivery for primary care providers and decrease economic barriers to accessing primary care, particularly for patients who find travel difficult, institutionalized patients, and patients that live in medically underserved areas.^{1–5} Furthermore, prior studies suggest that telehealth technologies result in either similar or improved healthcare outcomes compared to traditional in-person delivery of healthcare, including, for example, lower mortality, improved chronic

disease management and decreased hospital readmissions.^{6–9} Thus, it is not surprising that telehealth has been a focus of state health policymaking in recent years, and there has been an increasing number of state regulations that facilitate or clarify reimbursements for telehealth-enabled healthcare services. This has included policies related to services delivered by live video delivery, use of store and forward services, remote patient monitoring, electronic or telephone communication, and other modalities (Figure 1).¹⁰ Half of these telehealth-related state statutes were implemented within the last five years, and over 200 telehealth-related bills were introduced in 2015.¹¹

Although state policies surrounding telehealth have substantially expanded in number and scope, it is unclear whether healthcare providers have responded to these policies by increasing their utilization of telehealth technologies. Many of these technologies may involve substantial installation and operating costs in addition to training of staff and patients in their use, thus creating a significant potential barrier to telehealth adoption. To address this gap in knowledge, we characterized state policies involving use of telehealth in clinical care and their reimbursement. We also analyzed one of the largest private claims database in the U.S. to document recent trends in telehealth-related billings by primary care providers.

AUTHORS

Fernando A. Wilson, PhD¹
Kate Trout, MPH¹
Sankeerth Rampa, MBA MHA¹
Jim P. Stimpson, PhD²

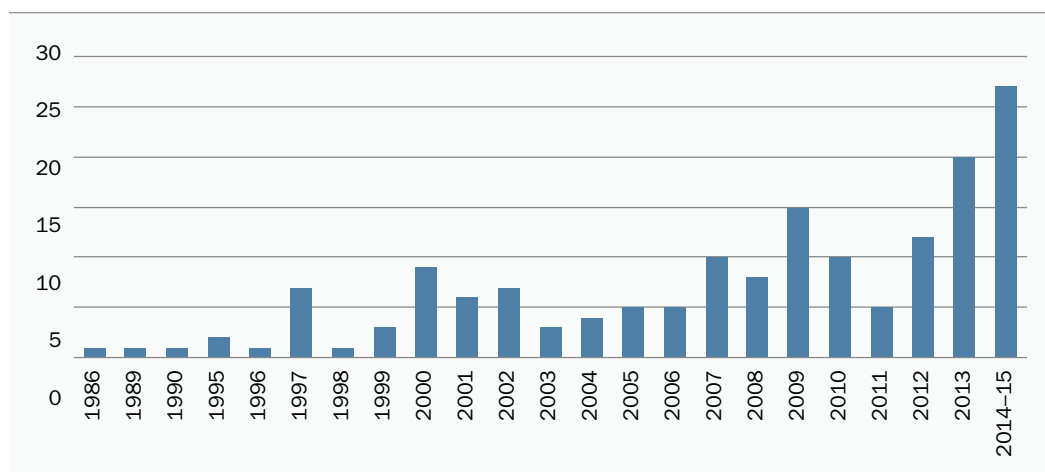
¹ College of Public Health,
University of Nebraska Medical
Center, Omaha, NE USA

² School of Public Health, City
University of New York, New York,
NY USA

FIGURE 1

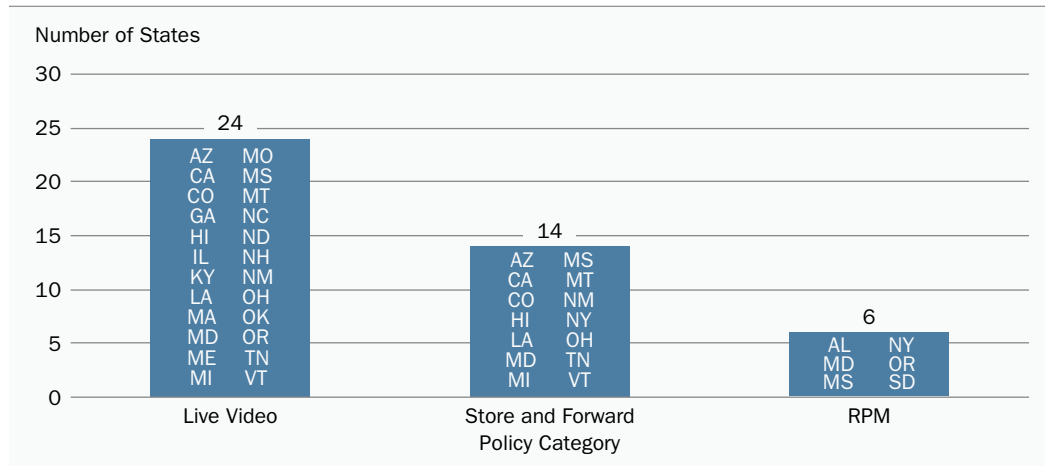
Number of Telehealth-Related State Laws by Year of Implementation

Analysis based on policies extracted from: Center for Connected Health Policy Reports (September 2014). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia.¹⁰

**FIGURE 2**

States with Enacted Policies Concerning Transmission Modes for Telehealth-Delivered Healthcare Services

Analysis based on policies extracted from: Center for Connected Health Policy Reports (September 2014). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia.¹⁰



RPM, Remote Patient Monitoring

Average reimbursements and charges for clinical procedures used for telehealth claims versus non-telehealth claims were compared. Finally, we supplement these findings with an analysis of a national survey of primary care physicians to explore actual use of telehealth technologies in patient consultations.

TELEHEALTH TECHNOLOGIES AND THE POLICY ENVIRONMENT

There are three major transmission modes of telehealth: (1) live video, (2) store and forward, and (3) remote patient monitoring (RPM). Live video transmission allows distant providers to see patients in real time through the use of telehealth technologies. Store and forward telehealth technologies store images for providers to review at a later time. Remote patient monitoring allows distant providers to monitor their

vitals and conditions from another location. All modes have benefits in different sectors of the healthcare delivery system, and states vary substantially in whether they permit reimbursement for each mode. In the United States, there are 30 state-level policies regarding reimbursement for live video transmission across 24 states (Figure 2). Twenty-one states have policies that require any type of reimbursement for live video transmission via telehealth. Fourteen states (16 policies) have store and forward policies, with four states requiring any type of coverage. For RPM, there are six states (six policies), and only four require any type of coverage for these telehealth technologies (Figure 2). Mississippi is the only state that requires coverage for all three types of telehealth transmission modes,¹¹ and in fact, Mississippi has emerged as a leader in expanding policies to facilitate use of telehealth in health care.^{12,13} The majority of

FIGURE 3
 Number of Medicaid Programs Defining Telehealth or Telemedicine

Analysis based on policies extracted from: Center for Connected Health Policy Reports (February 2015). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia.¹¹

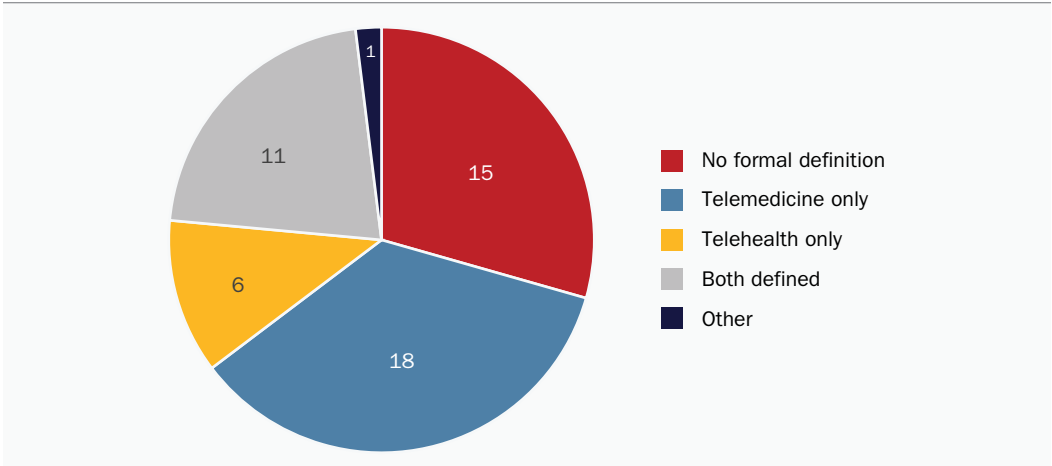
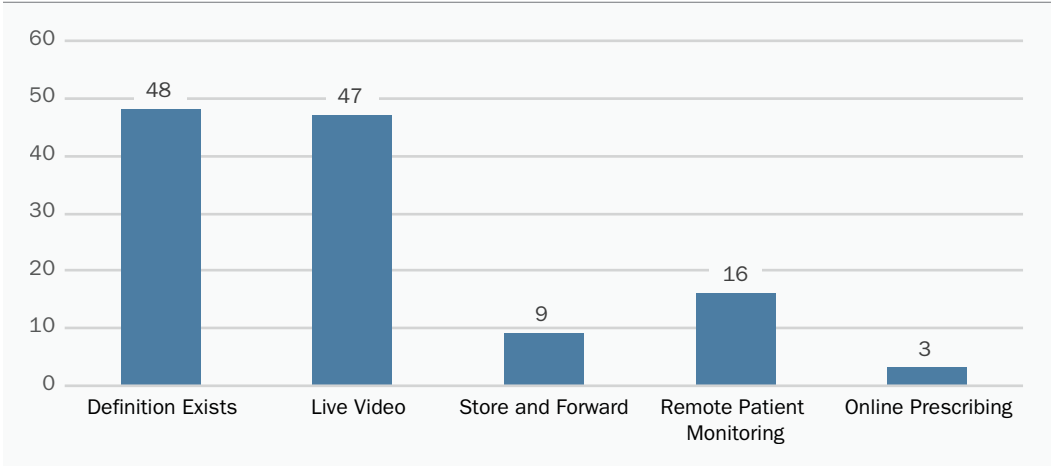


FIGURE 4
 Number of State Medicaid Programs with Provisions for Telehealth Services

Analysis based on policies extracted from: Center for Connected Health Policy Reports (February 2015). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia.¹¹



these reimbursement policies across states were implemented within the past five years. Sixteen out of 30 policies for live video reimbursement were implemented since 2011. Similarly, 11 out of 16 policies for store and forward and 4 out of 6 policies for RPM were in effect in the same time period.

There has also been rapid growth in telehealth policies instituted by state Medicaid programs; however, the characteristics of these policies vary substantially with no clear set of common practices. For example, language and terminology used to define telehealth vary across programs with 18 programs defining telemedicine only, 6 programs defining telehealth only, and 11 other programs providing separate definitions for telehealth and telemedicine (Figure 3). Two states (New Jersey and Rhode Island) do not have any definition for telehealth either in state law or their Medicaid programs. Most

Medicaid programs provide some coverage of live video delivery of services (Figure 4). However, only 13 programs specify that reimbursements for these services should be consistent with reimbursements for in-person coverage. Medicaid program policies on store and forwarding of electronic information, remote patient monitoring and online prescribing are less common compared to live video reimbursement (Figure 4).

METHODS AND RESULTS

The Health Care Cost Institute (HCCI) data consists of billions of claims from Aetna, Humana, Kaiser Permanente and United-Healthcare for more than 50 million individuals per year enrolled in commercial insurance or Medicare advantage.¹⁴ Claims data were used for 2009-2013, and include all insurance claims submitted by primary

care providers for telehealth services using a CPT or HCPCS code with the telehealth modifier “GT”, denoting service delivered “via interactive audio and video telecommunications systems”. Primary care providers include specialties in family practice, internal medicine, pediatrics and preventive medicine. Reimbursements and charges are inflation-adjusted to 2015 dollars.

In 2009-13, there were only 6,506 claims for services related to telehealth submitted by primary care providers in the U.S.; by comparison, there were 95.9 million non-telehealth claims. Table 1 presents the distribution of the total number of telehealth claims across providers and year. Family practice providers submitted the most claims for telehealth followed by internal medicine, and the number of claims increased since 2010. For example, telehealth claims by family practice providers increased from 376 in 2010 to 1,744 in 2013. A small number of claims were submitted by pediatric and preventive medicine specialties in the study period.

The number of telehealth claims submitted by primary care providers by state over time is provided in Table 2. The distribution of claims varies substantially across states with two-thirds of these claims occurring in Kentucky, Tennessee and Texas. Texas accounted for 2,098 of these claims. Other large population states such as California and New York had relatively small numbers of claims in 2009-13 (55 and 65, respectively).

We also compared trends in average reimbursements and charges between telehealth and non-telehealth healthcare services over time. The number of claims submitted by primary care providers increased by 119% in 2012-13, increasing from 1,167 to 2,559. However, these claims are still a small percentage of the 21.9 million non-telehealth claims submitted in 2013. There are also differences in average reimbursements between telehealth and non-telehealth claims. Non-telehealth service reimbursements increased every year since 2009, rising from \$57 to \$61. In contrast, after increasing from \$60 to \$68 from 2009-11, average reimbursements for telehealth claims declined substantially after 2011, decreasing from \$68 to \$38 in 2013. This reimbursement is nearly 40% lower than that for non-telehealth claims in 2013. Similarly, the gap between telehealth and non-telehealth charges widened after 2011.

We found a similar pattern when we analyzed specific clinical procedure codes (Current Procedural Terminology (CPT)), suggesting that both charges and reimbursements tended to be lower for telehealth-enabled procedures compared to non-telehealth procedures. For example, charges for a psychiatric diagnostic interview examination were \$200 if provided using telehealth versus \$288 for non-telehealth, on average. The average reimbursements for this service were \$77 and \$105 for telehealth and non-telehealth, respectively—a difference of 27%. Among seven unique CPT codes for an office/outpatient visit for evaluation or management of a patient, average telehealth reimbursements were nearly the same or lower than the non-telehealth service for six of these procedures. The most commonly diagnosed problem seen by primary care providers using telehealth was diabetes mellitus (878 total claims, or 13.5% of all telehealth claims). This was followed by depressive disorders (538 claims), acute sinusitis (423), biopsy of the lymphatic structure (360), obstructive sleep apnea (225), bipolar disorder (173), and acute upper respiratory infections (113).

TABLE 1
Number of Telehealth Claims for Primary Care by Provider Specialty, HCCI 2009-13

HCCI, Health Care Cost Institute

* denotes cell size of less than 10 observations.

Provider category	Number, 2009 to 2013	2009	2010	2011	2012	2013
Family Practice	3,666	542	376	428	576	1,744
Internal Medicine	2,768	689	283	427	577	792
Pediatrics	70	15	13	6	14	22
Preventive Medicine	*					
Total	6,504	1,246	672	861	1,167	2,558

TABLE 2

Number of Telehealth Claims by State and Year, HCCI 2009 and 2013

HCCI, Health Care Cost Institute; * denotes cell size of less than 10 observations.

State	2009	2013	2009-2013
Alaska	*	*	*
Alabama	*	*	16
Arkansas	*	*	*
Arizona	15	75	110
California	*	25	55
Colorado	*	*	19
Connecticut	*	*	*
District of Columbia	*	*	*
Delaware	*	*	*
Florida	13	83	216
Georgia	13	47	134
Hawaii	*	*	*
Iowa	14	*	38
Idaho	*	*	*
Illinois	*	*	44
Indiana	*	168	202
Kansas	*	*	*
Kentucky	41	869	959
Louisiana	*	13	35
Massachusetts	*	*	*
Maryland	*	*	*
Maine	*	*	24
Michigan	*	20	45
Minnesota	75	94	431
Missouri	36	11	70
Mississippi	*	*	*
Montana	*	*	18
North Carolina	22	13	55
North Dakota	*	23	73
Nebraska	12	*	23
New Hampshire	*	*	*
New Jersey	*	*	12
New Mexico	*	*	14
Nevada	*	*	*
New York	24	11	65
Ohio	*	12	40
Oklahoma	*	26	46
Oregon	*	*	*
Pennsylvania	*	*	24
Rhode Island	*	*	11
South Carolina	*	*	*
South Dakota	*	*	29
Tennessee	*	492	1354
Texas	766	492	2098
Utah	*	*	*
Virginia	*	14	32
Vermont	*	*	*
Washington	*	*	*
Wisconsin	67	50	202
West Virginia	*	16	18
Wyoming	*	*	*

There is limited research into use of telehealth technologies in primary care practices nationally. Therefore, we examined a nationally representative survey of office-based physicians—the National Ambulatory Medical Care Survey (NAMCS)—to explore use of telehealth in patient consultations for primary care. The NAMCS provides data on a weighted number of 158,767 primary care physicians (PCP) in 2012 and 164,007 PCPs in 2010. Physicians were asked whether they used email or the internet for patient consultations during their last normal week of practice. Table 3 presents results on the weighted percentage of PCPs using internet/email for consults in a week with stratifications for year and Medicaid participation. These results show the percentage of Medicaid providers using internet or email increased since 2010, reaching 12.6%, which is nearly identical to the percentage for providers not participating in Medicaid. However, among Medicaid PCPs, there is a substantial gap in telehealth use depending on what percentage of their patient revenues are derived from Medicaid services. For example, in 2012, 13% of Medicaid PCPs with less than half of their revenues from Medicaid used internet or email for consultations. Interestingly, this compares to only 2.7% for Medicaid providers who derive most of their revenues from Medicaid. Reasons for these differences among Medicaid providers are unclear and merit further research.

There is substantial geographical variation in use of internet/email consultations among primary care physicians (Table 4). The percentage of PCPs using internet or email ranged from 2.9% in Mississippi to 39.6% in the state of Washington. In general, the Pacific states had the highest percentages of internet/email use in consultations, while 8% or fewer physicians in the Middle Atlantic states of New Jersey, New York and Pennsylvania reported using these technologies. Mississippi had the smallest percentage of PCPs using internet or email in consultations despite being viewed as a leader in telehealth policy implementation.^{12,13} However, Mississippi excludes email

TABLE 3

Weighted Percentage of Primary Care Physicians Providing Internet/Email Consults During the Week Stratified by Acceptance of Medicaid Patients, NAMCS

NAMCS, National Ambulatory Medical Care Survey; CI, Confidence Interval

Type of Physician	2010 % (95% CI)	2012 % (95% CI)
Medicaid provider		
Use internet/email, %	9.4 (5.6, 13.2)	12.6 (9.3, 15.8)
Percent patient revenues from Medicaid		
<50%	10.0 (5.5, 14.5)	13.0 (9.2, 16.8)
≥50%	6.9 (0, 14.0)	2.7 (0, 6.5)
Non-Medicaid provider		
Use internet/email, %	12.0 (5.1, 19.0)	12.7 (7.8, 17.6)

from reimbursement,¹¹ and in 2012, it implemented a law mandating that coverage for telemedicine services be “to the same extent” as for in-person consultation. More recent data are needed to determine whether the number of providers using internet-based telehealth increased after passage of this law in Mississippi.

DISCUSSION

A large body of research has demonstrated the efficacy of telehealth technologies in increasing access to care with either the same or improved patient outcomes compared to traditional in-person services.¹⁻⁹ In response, most states have implemented telehealth policies to either facilitate reimbursement or establish guidelines for telehealth-related services and reimbursements.¹¹ Furthermore, several states specify payers must cover telehealth-provided services if the same non-telehealth service is covered.¹¹ However, although telehealth claims submitted by primary care providers have increased since 2009, these claims are still rare in comparison to the number of non-telehealth claims submitted each year. Our results suggest that providers may not have been responsive to the policy changes occurring across states in this time period. Reasons for this

TABLE 4

Percentage Distribution of Primary Care Physicians Providing Internet/Email Consults During the Week by State, NAMCS 2012

NAMCS, National Ambulatory Medical Care Survey

State	Percent
New England	
Connecticut	3.9
Massachusetts	23.2
Maine, New Hampshire, Rhode Island, Vermont	22.5
Middle Atlantic	
New Jersey	7.2
New York	4.9
Pennsylvania	8.2
East North Central	
Illinois	6.3
Indiana	6.9
Michigan	10.6
Ohio	6.6
Wisconsin	17.6
West North Central	
Iowa	4.4
Kansas	6.9
Minnesota	9.2
Missouri	19.2
Nebraska, North Dakota, South Dakota	20.6
South Atlantic	
Florida	14.4
Georgia	15.0
Maryland	4.7
North Carolina	13.9
South Carolina	6.2
Virginia	9.4
Delaware, DC, West Virginia	26.4
East South Central	
Alabama	6.4
Kentucky	13.2
Mississippi	2.9
Tennessee	15.5
West South Central	
Arkansas	9.3
Louisiana	6.7
Oklahoma	17.5
Texas	9.7
Mountain	
Arizona	17.0
Colorado	6.4
Utah	22.1
Idaho, New Mexico, Montana, Nevada, Wyoming	3.7
Pacific	
California	37.1
Oregon	28.0
Washington	39.6
Alaska, Hawaii	31.9

are unclear, but may be related to reimbursement policies. The gap between telehealth and non-telehealth reimbursements of primary care providers are likely to discourage major investments in telehealth technologies by clinics unless these technologies result in substantial cost savings to clinic operations. As of July 2015, only seven states (Arkansas, Delaware, Hawaii, Minnesota, Mississippi, Tennessee, Virginia) have mandated that private insurer reimbursements for telehealth services be comparable to those for covered non-telehealth services (Table 5).

Telehealth policies also vary widely across states and have diverse restrictions regarding reimbursements for different types of services, types of providers, location of patients, and acceptable technologies.¹¹ Given this variation and change in the telehealth policy environment, there may be a considerable time lag in the translation of these policies into provider behaviors. In fact, although our data suggest that the percentage growth in telehealth claims has been substantial across states (Table 2), the number of primary care providers submitting these claims is negligible relative to the aggregate number of claims being submitted by PCPs to third party payers.

Another possibility for the low numbers of telehealth billings may be confusion over which billing code to use for telehealth or lack of coding. In addition, use of a telehealth

technology may not be properly recorded in some instances. For example, one study of teleconferencing use in a university hospital found nearly one-third of teleconferences were not logged and thus not billed.¹⁷ Further research is needed to explore this issue in telehealth billing.

Our analysis of a national survey of primary care physicians suggests that 1 in 8 use either the internet or email for some patient consultations during a week. Few states specifically allow email as a reimbursable service, and some payers such as UnitedHealthcare will not cover asynchronous telecommunications such as email.¹⁸ Unfortunately, it is not possible in our data to separately identify use of internet from email communication in consultations. Nevertheless, our results show a strong negative relationship between use of internet/email in consultations and percentage of patient revenues from Medicaid. For physicians receiving the majority of their revenues from Medicaid, less than 3% used internet or email in a consultation during a typical week; this compares to 13% for other Medicaid providers. These findings suggest that adoption of more advanced telehealth infrastructure is unlikely in areas with high numbers of economically disadvantaged patients given the low rate of internet and email use that we observe in the NAMCS database. These disadvantaged and medically underserved communities face

TABLE 5

States With Statutory Requirements Mandating Private Payers to Reimburse Telehealth at Same Rate as Non-Telehealth Service

Center for Connected Health Policy. State Telehealth Laws and Medicaid Program Policies. July 2015.¹⁵

State	Statute	Language
Arkansas	23-79-1602(c) (1)	A health plan shall cover the telehealth-delivered services of an Arkansas-licensed physician on the same basis it would if the services were delivered in-person (effective January 1, 2016).
Delaware	Title 18, Sec. 3370 & Title 18, Sec. 3571R	Insurers must pay for telemedicine services at the same rate as in-person.
Hawaii	Revised Statutes § 431:10A-116.3	Hawaii requires coverage of telehealth services equivalent to reimbursement for the same services provided via-face-to-face contact.
Minnesota	MN Senate File 1458. MN Statute Sec. 62A.672	Private payers are required to provide coverage for telemedicine in the same manner, and at the same reimbursement rate, as other services provided in person (effective January 1, 2016).
Mississippi	MS Code Sec. 83-9-351	All health insurance and employee benefit plans must provide coverage for telemedicine services to the same extent that the services would be covered if they were provided through in-person consultation.
Tennessee	TN Code Annotated, Title 56, Ch. 7, Part 10	Health insurance carriers are required to provide coverage for telehealth services under the same reimbursement policies that the plan permits for in-person encounters.
Virginia	VA Code Annotated Sec. 38.2-3418.16	Reimbursement must be the same as in-person services.

the highest barriers to accessing care, and thus telehealth has strong promise to ameliorate persistent socioeconomic disparities in patient outcomes by reducing these barriers. Our findings show a clear need for improved data collection efforts in this area to increase our understanding of actual rates of telehealth implementation among providers, particularly in underserved areas.

In general, our results suggest that more effective implementation strategies may be needed to translate telehealth policies into practice among primary care providers. However, a larger implication is that surveillance of claims data is necessary to identify whether telehealth policies are having their intended impact in increasing efficiency of healthcare delivery and improving health outcomes. Without this surveillance, it is unclear whether and how healthcare providers are responding to these policies.

REFERENCES

1. Hartley D. Rural Health Disparities, Population Health, and Rural Culture. *American Journal of Public Health*. 2004;94(10):1675–1678.
2. Office of Rural Health Policy. Health Resources and Services Administration. Mental Health and Rural America: 1994-2005. Available at: <ftp://ftp.hrsa.gov/ruralhealth/RuralMentalHealth.pdf>. Accessed December 15, 2015.
3. Wang PS, Lane M, Olfson M, Pincus HA, Wells KB, Kessler RC. Twelve-month use of mental health services in the United States: Results from the National Comorbidity Study Replication. *Archives of General Psychiatry*. 2005;62:629-640.
4. American Psychological Association. The Mental and Behavioral Health Needs of Rural Communities. Available at: <https://www.apa.org/about/gr/issues/gpe/rural-communities.pdf>. Accessed December 15, 2015.
5. Price M, Williamson D, McCandless R, Mueller M, Gregoski M, Brunner-Jackson B, Treiber E, Davidson L, Treiber F. Hispanic Migrant Farm Workers' Attitudes Toward Mobile Phone-Based Telehealth for Management of Chronic Health Conditions. *Journal of Medical Internet Research*. 2013;15(4):e76. doi: 10.2196/jmir.2500.
6. Margolis, K. L. et al. (2013). Effect of home blood pressure telemonitoring and pharmacist management on blood pressure control: A cluster randomized clinical trial. *JAMA*, 310(1):46-56. doi:10.1001/jama.2013.6549.
7. Steventon, A., Bardsley, M., Billings, J., Dixon, J., Doll, H., Hirani, S., ... & Newman, S. (2012). Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial. *BMJ: British Medical Journal*, 344.
8. Shea, S., Weinstock, R. S., Teresi, J. A., Palmas, W., Starren, J., Cimino, J. J., ... & Eimicke, J. P. (2009). A randomized trial comparing telemedicine case management with usual care in older, ethnically diverse, medically underserved patients with diabetes mellitus: 5 year results of the IDEATel study. *Journal of the American Medical Informatics Association*, 16(4), 446-456.
9. Young, L. B., Chan, P. S., Lu, X., Nallamothu, B. K., Sasson, C., & Cram, P. M. (2011). Impact of telemedicine intensive care unit coverage on patient outcomes: a systematic review and meta-analysis. *Archives of Internal Medicine*, 171(6), 498.
10. Center for Connected Health Policy (September 2014). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia. Available at: <http://cchpca.org/sites/default/files/uploader/50%20STATE%20MEDICAID%20REPORT%20SEPT%202014.pdf>. Accessed December 15, 2015.
11. Center for Connected Health Policy. (February 2015). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia. Available at: <http://cchpca.org/state-laws-and-reimbursement-policies>. Accessed December 15, 2015.
12. Pittman, David. (2015). Mississippi emerges as telemedicine leader. Retrieved from: <http://www.politico.com/story/2015/02/mississippi-telemedicine-115515>. Accessed December 15, 2015.
13. Robert Wood Johnson Foundation. Mississippi Leads the Nation in Telehealth. Retrieved from: <http://www.rwjf.org/en/library/articles-and-news/2014/12/mississippi-leads-the-nation-in-telehealth.html>. Accessed December 15, 2015.
14. Health Care Cost Institute. Methodology. Available at: <http://www.healthcostinstitute.org/methodology>. Accessed December 15, 2015.

15. Center for Connected Health Policy. (July 2015). State Telehealth Laws and Medicaid Program Policies: A Comprehensive Scan of the 50 States and District of Columbia. Available at: <http://cchpca.org/state-laws-and-reimbursement-policies>. Accessed December 15, 2015.
16. Centers for Disease Control and Prevention. Ambulatory Health Care Data. Scope and Sample Design. Available at: http://www.cdc.gov/nchs/ahcd/ahcd_scope.htm#namcs_scope. Accessed December 15, 2015.
17. Wootton R, Smith AC, Gormley S, Patterson J. Logistical aspects of large telemedicine networks. 2: Measurement of network activity. J Telemed Telecare. 2002;8 Suppl 3:S3:81-2.
18. UnitedHealthcare. Telemedicine Policy. April 9, 2014. Available at: https://www.unitedhealthcareonline.com/ccmcontent/ProviderII/UHC/en-US/Assets/ProviderStaticFiles/ProviderStaticFilesHtml/ReimbursementPolicies/Telemedicine_2015B.pdf. Accessed December 15, 2015.

This research product, using HCCI data, was independently initiated by the researchers and is part of the State Health Policy Grant Program funded by the Laura and John Arnold Foundation.