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Leveraging Quality Measurement to Improve Rural Health, Telehealth, and Healthcare System Readiness

FINAL ENVIRONMENTAL SCAN REPORT

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Executive Summary

Telehealth is the provision of healthcare services and health education via information and telecommunication technologies, such as real-time visits conducted through phone calls or video platforms. While telehealth has been available for decades, the coronavirus (COVID-19) pandemic has accelerated its growth, sparked by an emergent need for access to medical care early in the pandemic when stay-at-home orders were in place. Telehealth growth was further fueled by expansions in public and private reimbursement, a loosening in restrictions on interstate licensing compacts, and other facilitating policies.¹ These factors have created a business model that has increased the availability of telehealth for both nonrural and rural communities.²

Telehealth has the potential to improve access to care in rural communities, which represent one in five Americans according to the United States (U.S.) Census Bureau.³ In these areas, Americans are subject to a *rural mortality penalty*, in which morbidity and mortality are worse compared to nonrural communities.⁴ Rural residents have greater health risks, including higher rates of chronic disease (e.g., obesity and diabetes), riskier behaviors (e.g., smoking and substance use), poorer diets, and lower health literacy. These differences are driven by rural disparities in access to care as well as health education. For example, rural residents have fewer healthcare providers in their communities, particularly specialists, and incur longer travel times for in-person care. Rural disparities in care access and outcomes have worsened in the wake of the current COVID-19 pandemic.⁵

Some rural areas have limited broadband capacity to support high-speed internet access. This limits connectivity for the remote communications required to implement video-based telehealth, particularly when patients are in their homes. Yet when technology is available and a connection is achievable, telehealth can be leveraged for many different types of healthcare encounters. Telehealth can help to overcome geographic barriers faced by rural communities, allowing clinicians to deliver care to patients in remote locations. Telehealth can also facilitate a consultation between a clinician at an originating site who is with a patient and a specialist at a distant site. These various types of telehealth services can improve access to care for everyday, time-sensitive emergencies (e.g., stroke) and enhance readiness to address public health emergencies, such as COVID-19, in which in-person services are broadly disrupted.⁶

The Centers for Medicare & Medicaid Services (CMS) funded the National Quality Forum (NQF) to explore the measurement of healthcare quality and outcomes for telehealth, with a focus on rural America and healthcare system readiness. This is vitally important given the rapid expansion of telehealth over the past year and its outsized impact in meeting the healthcare needs of rural Americans. While telehealth has a broad variety of use cases, the scope for this project includes the use of telehealth for provision of care during public health emergencies (e.g., COVID-19, wildfires, and hurricanes) as well as everyday emergencies, such as stroke, trauma, and mental health crises in which timely access for patients can improve healthcare outcomes in rural communities.

As part of this work, NQF conducted a scan of peer-reviewed literature that details barriers and facilitators to rural telehealth for readiness and synthesized major themes from 287 relevant articles. Several themes emerged:

1. Health risks and challenges of rural communities are substantial, including higher rates of poor health and barriers to accessing care.
2. During the pandemic, telehealth use cases expanded across a variety of novel areas facilitated by expanded reimbursement and other policies.
3. Technical challenges in rural communities are persistent barriers, including issues with broadband access, technology availability, and resources required to implement telehealth solutions.

NQF also identified government agencies that have been involved in telehealth policy to identify and summarize recent and evolving policies and practices related to telehealth and healthcare system readiness, primarily federal policy changes due to the COVID-19 pandemic. Policy themes included the following points:

1. In response to the COVID-19 pandemic, several telehealth policies and/or practices were enacted temporarily, including the expansion of reimbursement policies and interstate medical licensure rules, as well as relaxation of privacy rules.
2. These policies fueled growth in telehealth models across healthcare that favorably benefited rural residents who were able to access new services.
3. There is concern regarding whether the policies that created a business model for and promoted telehealth use will change post-pandemic. This will have implications for telehealth investment and sustainability in rural areas.

NQF also performed a scan of quality measure repositories and prior NQF work to identify measures that address rural-relevant conditions, emergency conditions in which telehealth can be utilized, and healthcare system readiness. Measures from the scan can be used to assess performance in the domains of the Rural Telehealth and Healthcare System Readiness Framework. The measure scan included the following highlights:

1. A total of 324 measures relevant to rural populations, telehealth, and/or readiness were identified from the Centers for Medicare & Medicaid Services Measures Inventory Tool (CMIT) and prior environmental scans.
2. Over half of the identified measures were cross-cutting (i.e., non-condition-specific), and the most commonly addressed topics included care coordination (18 percent), patient experience (13 percent), and surgical care (10 percent).
3. Of the four domains identified in the [2017 NQF Telehealth Framework](#), the measures most frequently addressed effectiveness (65 percent).
4. A total of 18 percent of measures were relevant to system readiness domains from the [2019 NQF Healthcare System Readiness Framework](#). Notably, none of the readiness measures are NQF-endorsed, and few are used in the Center for Medicare & Medicaid Innovation (CMMI) models, quality reporting, or value-based purchasing (VBP) programs.

Together these findings serve as key input as the Rural Telehealth and System Readiness Committee continues its work to develop a measurement framework for assessing the quality of care delivered via telehealth in rural areas during disasters.

Introduction

Background

Telehealth encompasses a broad range of healthcare services and health education provided via electronic information and telecommunication technologies over long distances. This can include real-time phone or video conferencing, asynchronous care (e.g., via email), patient education, and remote patient monitoring. A major component of telehealth is telemedicine, or medical care that uses technology to deliver services at a distance.⁷

While telehealth has been available for decades, the COVID-19 pandemic has been a major inflection point in its growth. In the early stages of the pandemic, the imminent need for telehealth increased with the disruption of medical care delivery. This ignited new and temporary changes in reimbursement and other facilitating policies that addressed some of the long-standing barriers to telehealth adoption.⁸ Additionally, CMS, state Medicaid agencies, and private payers expanded reimbursement opportunities for telehealth services, reimbursing more services with fewer restrictions. Currently, services are reimbursed at the same rate as in-person care; however, policy discussions have been held to potentially reduce telehealth reimbursement rates.⁹ Reimbursement was expanded to improve access to healthcare services as in-person visits were limited due to early stay-at-home orders.¹⁰ Although decisions on long-term reimbursement for telehealth have not been finalized, some reimbursement policies have been permanently enacted, and others will likely remain permanent. Additional policies minimized the Health Insurance Portability and Accountability Act (HIPAA) restrictions with telehealth technologies and expanded the interstate licensure compact, allowing clinicians to practice across state lines without obtaining licenses in additional states. The combined result of a greater need for telehealth due to lower availability of in-person care and facilitating policies led to meteoric growth in telehealth visits. This also fueled the founding of new start-up companies, expansion of existing telehealth companies, and the development of new telehealth technologies. Telehealth is particularly useful in bringing care to rural communities that face a myriad of barriers to accessing healthcare services.¹¹ People who live in rural areas have limited access to in-person services due to long geographical distances between their home and healthcare settings. There are also fewer healthcare services available in rural communities, including both primary care providers and specialists. Rural areas also have challenges with accessing both technology and broadband internet connections. Such barriers to care, reduced services, and limited technology are exemplified in rural Alaskan and American Indian populations for whom major gaps in access to preventive and emergency care have been documented.¹² Rural residents are older and have higher rates of diabetes and mental health disorders.¹³ The challenges of living in rural areas, including less access to health education, have led to poorer health literacy.¹⁴ These barriers to care and poorer health worsen health outcomes in rural communities; this disparity is often termed the *rural mortality penalty*.⁴

Rural disparities in morbidity and mortality are particularly relevant for time-sensitive emergencies and readiness for public health emergencies, such as COVID-19. Examples of time-sensitive emergencies include stroke and trauma care, in which early access to specialists improves outcomes.¹⁵ Telehealth has been effective in improving access to specialist care. Telestroke, for example, allows for access to stroke neurologists remotely 24/7/365, bringing this expertise into rural emergency departments (EDs). Telestroke services provide guidance on critical decisions about time-sensitive stroke treatments, such as tissue plasminogen activator (tPA), and transfers to higher-level care for more advanced services, such as clot retrieval.¹⁶

Telehealth has been transformational in improving readiness during the COVID-19 pandemic and increasing access to care for rural patients in their homes, for people with COVID-19, and for those whose access to regular care has been disrupted.¹⁷ This has been facilitated by relaxations in HIPAA restrictions that allow the use of existing technology, including meeting platforms (e.g., Zoom) and FaceTime (i.e., via Apple's iPhone). Telehealth has offered a safe option during the pandemic for those who fear seeking in-person care due to concerns of contagion within healthcare settings and prevented viral spread in waiting rooms. Telehealth has improved the readiness of rural communities to meet the challenges of the current public health emergency—the COVID-19 pandemic—as well as inevitable future emergencies that will affect both rural and nonrural areas. Despite this improvement, many gaps still exist in rural health readiness. Providers still face financial, regulatory, and technical barriers to develop telehealth systems to deliver care in rural communities and strengthen readiness.

Project Overview

With funding from CMS, NQF convened a multistakeholder Committee with several objectives. The Committee has been tasked with creating a conceptual measurement framework that guides quality measurement for care delivered via telehealth in rural areas in response to disasters. After completing this work, key stakeholders will be able to identify which measures are available for current use, encourage the development of new measures that address gaps, and promote the use of such measures to assess the impact of telehealth on healthcare system readiness and health outcomes in rural areas affected by disasters, such as pandemics, natural disasters, mass violence, and other events that are likely to affect public health.

This project builds upon previous, related NQF work. In 2017, NQF published a quality measurement framework that described four domains for telehealth measurement: (1) experience, (2) effectiveness, (3) financial impact/cost, and (4) access to care.¹⁸ In that report, six types of measure concepts were identified that could be used to shape the selection and development of measures to assess the impact of telehealth on care and outcomes. Many of the concepts in that report are directly relevant to addressing barriers to care in rural communities for both time-sensitive and public health emergencies. For example, existing measures and measure concepts addressed key issues, such as travel, timeliness of care, actionable information, the added value of telehealth to deliver evidence-based practice, patient empowerment, and care coordination, all of which are highly relevant to emergency care and readiness in rural communities. In addition, several other recent NQF reports have examined measurement issues related to telehealth readiness in rural communities, including [ED transitions in care](#) (2017),¹⁹ [chief complaint-based measures](#) (2019),²⁰ [trauma outcomes](#) (2019),²¹ and [healthcare system readiness](#) (2019).²² Measures and measure concepts from this prior work are incorporated into this environmental scan and will be integrated where appropriate into this project.

This *Environmental Scan Report*:

- reviews literature on telehealth in rural areas and high-priority issues related to quality measurement of telehealth delivery, healthcare system readiness, and health outcomes;
- summarizes the current state of national policies and practices that affect the delivery of telehealth in rural areas; and
- identifies a comprehensive list of measures and measure concepts that could facilitate assessment of the impact of telehealth on rural healthcare system readiness and health outcomes during public health emergencies.

The results of this environmental scan and input from the Committee will be used to produce a measurement framework linking quality of care delivered by telehealth, healthcare system readiness, and health outcomes in rural areas.

Definitions

Consistent definitions are important to rural telehealth quality measurement efforts. The definitions below provide clarity on the services that telehealth consists of, as well as the key elements of healthcare system readiness. In addition, it is important to accurately classify communities as rural versus nonrural in order to define and specify the population for performance measures or measurement programs.

Terminology relevant to this work includes the following terms:

Telehealth. Telehealth involves the delivery of medical care at a distance (i.e., a physician or other practitioner in one location uses a telecommunication infrastructure to deliver care to a patient at another site), as well as additional processes.²³ The term *telemedicine* refers solely to the medical component of telehealth but is commonly used interchangeably with the term *telehealth*. Related to reimbursement, CMS distinguishes between Medicare telehealth services; Communication Technology-Based Services (CTBS), which include virtual check-ins, electronic (e-) visits, and remote evaluation of patient videos/images; and remote physiologic monitoring (RPM).²⁴ The Health Resources and Services Administration (HRSA) defines *telehealth* as electronic information and telecommunication technologies that support the delivery of long-distance clinical care, education, public health, and administration.

Telehealth technology. Technologies used in telehealth include video conferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications, including short message service (SMS).¹

Rural. *Rural* is often used as a catch-all phrase to describe areas that are nonurban; as such, it does not capture the nuance between rural and urban communities.²⁵ There are many definitions for *rural* used across the federal government. The Census Bureau defines *rural* as population, housing, and territory that is not included within an urban area; urban areas include both Urbanized Areas (UAs), areas with 50,000 or more residents, and Urban Clusters (UCs), which have at least 2,500 and less than 50,000 residents.²⁶ The Office of Management and Budget (OMB) uses a different classification, designating counties as metropolitan, micropolitan, or neither. A metropolitan area includes a core urban area with a population of 50,000 residents or more. A micropolitan area has at least 10,000 (but less than 50,000) residents. Counties outside of a metropolitan or micropolitan area are considered rural. Components of the two definitions are used by HRSA's Federal Office of Rural Health Policy (FORHP) to classify geographic regions. As of February 2021, the [FORHP definition](#) is being revised; its updated definition will become operational in fiscal year 2022. FORHP seeks to average the Census Bureau's overcount of the rural population and the OMB undercount.²⁶ For purposes of Medicare reimbursement eligibility, CMS defines *rural sites* as sites in areas designated as rural health professional shortage areas under section 332(a)(1)(A) of the [Public Health Service Act](#), sites in counties that are not part of a Metropolitan Statistical Area as defined in section 1886(d)(2)(D) of the [Social Security Act](#), or sites that participate in federal telemedicine demonstration projects funded or approved by the Secretary of Health and Human Services.²⁷ Other definitions of *rural* exist from the U.S. Department of Agriculture (USDA) and the Veterans Health Administration (VHA).^{28,29}

Readiness. Readiness is a concept that ensures medical care is effectively delivered during public health emergencies. Specifically, readiness involves being prepared for, identifying, mitigating, evaluating, reacting to, and recovering from public health emergencies. Healthcare systems must be ready for all types of events, which is termed as an *all-hazards approach*.²²

Methods

The environmental scan was conducted using several interrelated approaches. NQF reviewed literature on telehealth use in rural areas during emergencies and on healthcare system readiness in rural areas. With Committee input, NQF also conducted an internet search to identify recent policy changes, mainly due to COVID-19, that have an impact on telehealth and emergency response in rural areas. A measure scan was then performed to identify measures pertinent to conditions for which telehealth has shown promise, as well as measures related to healthcare system readiness. Each of these approaches is outlined below.

Literature Review

A PubMed search of available literature published in English from January 2017 through January 2021 was conducted to identify studies related to the delivery of care via telehealth and barriers to healthcare system readiness in rural areas. The time frame criterion was established to capture articles published since NQF released the Telehealth Measurement Framework in 2017. In order to capture the breadth of conditions or use cases for which telehealth has been studied, NQF used a broad search strategy using the individual terms *rural telehealth* and *rural preparedness*. The resulting 1,630 articles were then screened for relevance to the project scope based on the following inclusion and exclusion criteria:

Inclusion Criteria:

- Literature focused on the U.S. healthcare system
- Literature focused on rural populations
- Literature in which telehealth is used to provide emergency, acute, or behavioral healthcare or in which telehealth is used to provide any type of care in response to/during a public health emergency (including COVID-19)
- Literature focused on barriers to telehealth or healthcare system readiness

Exclusion Criteria:

- Literature published prior to 2017
- Literature not focusing on or not inclusive of the U.S. healthcare system
- Literature focused on urban populations
- Literature focused on outpatient care or care for chronic diseases delivered via telehealth outside of a public health emergency or disaster
- Literature consisting of comments, statements, or guidelines
- Studies that are in progress

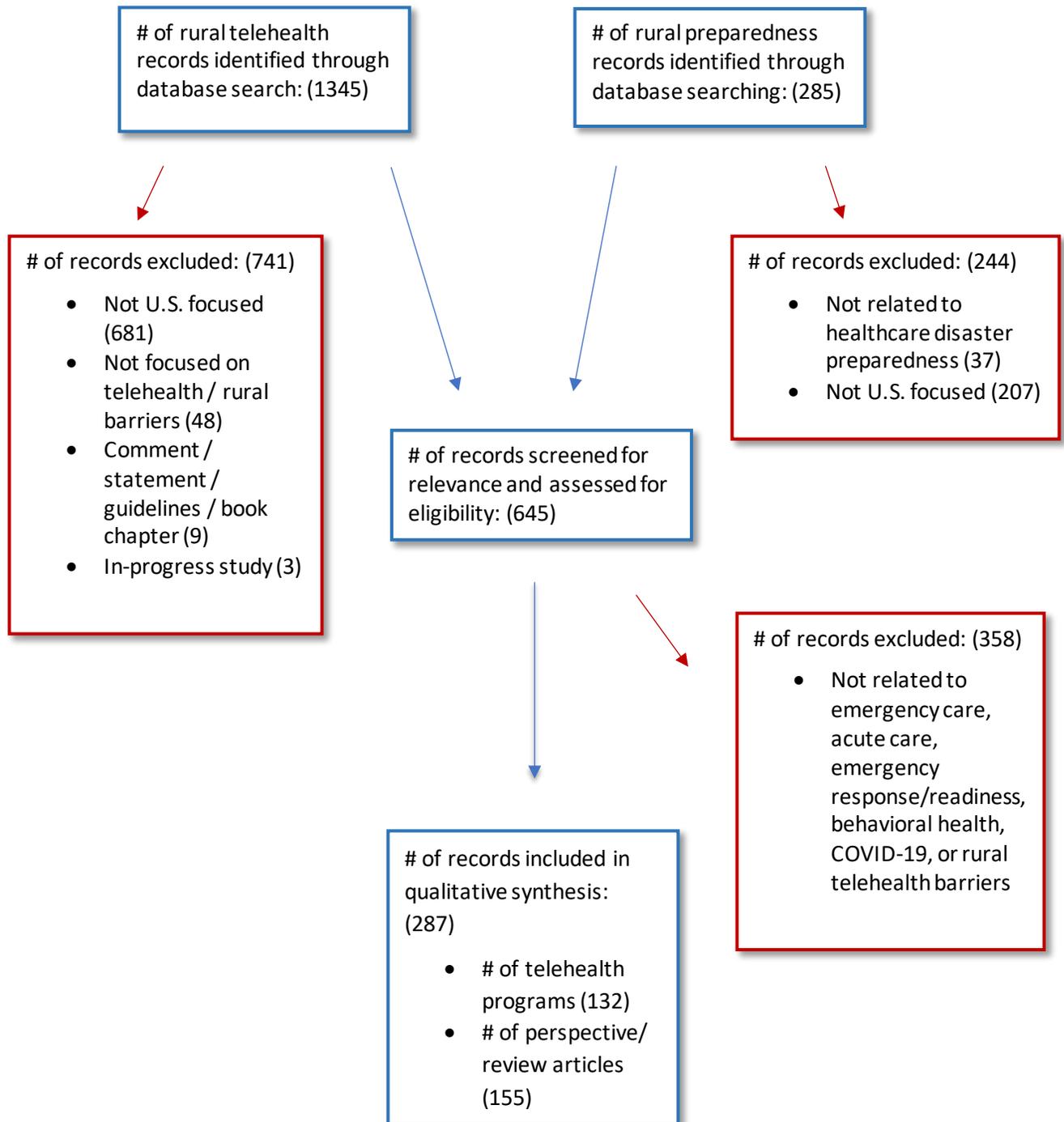
NQF decided to include all articles related to behavioral health (even if the focus is on the outpatient setting) due to the elevated prevalence of reported adverse mental and behavioral health conditions associated with the COVID-19 pandemic.³⁰

Two-hundred and eighty-seven articles were deemed eligible for inclusion in the qualitative synthesis. NQF categorized literature as either: (1) articles that refer to telehealth programs or (2) articles that are broader reviews or commentaries discussing telehealth use or healthcare system readiness. Articles were classified as telehealth programs if they described telehealth as an intervention for a particular condition, care process, or patient population. NQF included briefs, commentaries, and perspective pieces in order to capture a broad variety of barriers, solutions, and innovative ideas from the field. NQF abstracted the following data from included articles:

1. Condition/Topic: captures the area of health being studied. Categories include generic health relevance, mental health, emergency care, neurological, COVID-19, cancer and neoplasms, healthcare system readiness, reproductive health and childbirth, infectious diseases, stroke, intensive care unit (ICU) care, surgery, renal and urogenital, respiratory, and cardiovascular.
2. Care Setting: describes a situation in which an individual receives care. Categories include inpatient, outpatient, emergency, or general. *General* refers to articles that are not setting specific or that span multiple care settings.

A flow diagram of the literature review process is outlined below (Figure 1).

Figure 1. Literature Flow Diagram



Policies and Practices

NQF conducted an internet search to identify major changes to telehealth policy, primarily focusing on federal policies from major providers and payers. NQF reviewed the U.S. Department of Health and Human Services' (HHS) waivers and flexibilities for healthcare providers and resources that are available on the websites of agencies identified by the Office of the National Coordinator for Health Information Technology (ONC) as involved in “[leveraging] health information technology to assist providers practicing in rural and tribal areas,” including CMS, HRSA, the Indian Health Service (IHS), the Department of Veterans Affairs (VA), USDA, and the Federal Communications Commission (FCC).³¹ NQF also consulted experts in the field, including the Committee, to identify additional policies for inclusion.

Measure Scan

NQF identified measures relevant to rural populations (listed below) that could be applicable to telehealth and system readiness measurement. These measures were identified from prior scans of rural, telehealth, and system readiness-relevant measures and include measures both listed in public repositories and implemented in major programs with publicly available information on their use. In total, 324 measures potentially relevant to telehealth and system readiness in rural areas were identified after duplicates were removed (refer to [Appendix C: Measure Inventory](#) for the full list of measures).

- Two-hundred and fifty-two measures were included from a [2020 environmental scan](#) for rural-relevant measures implemented in select CMMI programs, as well as quality reporting and VBP programs included in the Measure Applications Partnership (MAP). These measures were originally pulled from the [CMIT](#) and included all measures actively implemented in the following programs: Bundled Payments for Care Improvement Advanced Model, Next Generation Accountable Care Organization (ACO) Model, Oncology Care Model, Comprehensive Primary Care Plus, Ambulatory Surgical Center Quality Reporting, End-Stage Renal Disease Quality Incentive Program, Home Health Quality Reporting, Hospice Quality Reporting, Hospital-Acquired Condition Reduction Program, Hospital Inpatient Quality Reporting, Hospital Outpatient Quality Reporting, Hospital Readmissions Reduction Program, Hospital Value-Based Purchasing, Inpatient Psychiatric Facility Quality Reporting, Inpatient Rehabilitation Facility Quality Reporting, Long-Term Care Hospital Quality Reporting, Medicare and Medicaid Promoting Interoperability Program for Eligible Hospitals and Critical Access Hospitals, Medicare Shared Savings Program, Medicare Part C Star Rating, Medicare Part D Star Rating, Merit-Based Incentive Payment System (MIPS) Program, Prospective Payment System-Exempt Cancer Hospital Quality Reporting, Skilled Nursing Facility Quality Reporting, and Skilled Nursing Facility Value-Based Purchasing. (The implemented measures were included in the scan if they addressed at least one of the following rural-relevant conditions: behavioral and mental health, substance abuse, medication management, diabetes, hypertension, chronic obstructive pulmonary disease (COPD), readmissions, perinatal care, pediatric care, advance directives and end of life, patient hand-offs and transitions, access to care, immunizations and vaccinations, cancer screenings, pneumonia, heart failure (HF), acute myocardial infarction (AMI), stroke, venous thromboembolism (VTE), healthcare-associated infections, patient experiences of care, ED use, surgical care, asthma, obesity, or cross-cutting [non-condition-specific] measures.)
- Twenty measures were included from a [2018 report identifying a core set of best available rural-relevant measures](#). This core set of measures addressed both the hospital and ambulatory

settings. Many of these measures are cross-cutting or resistant to low case-volume, and the MAP Rural Health Workgroup characterized these measures as highly relevant and applicable to most rural patients and providers.

- Seventeen measures were included from the [2017 Telehealth Framework Report](#), in which the Telehealth Committee put forth an initial list of measures recommended for use with the Telehealth Measurement Framework. This list of measures included NQF-endorsed measures that address clinical areas that can be positively affected by telehealth according to literature reviewed as part of the *Telehealth Framework Report* (e.g., mental and behavioral health, dermatology, chronic disease, rehabilitation, and care coordination).
- Fifty-nine measures were included from the [2019 Healthcare System Readiness Report](#). While creating the Healthcare System Readiness Framework, the Committee identified a list of 59 measures that can be used to assess system readiness. Of note, most of these measures are not NQF-endorsed and have not been rigorously evaluated for feasibility, reliability, and validity.

For each of these 324 measures, NQF recorded characteristics relating to basic measure identification, rural relevance, relevance to telehealth framework domains, and relevance to system readiness framework domains. CMIT identification (ID) numbers, measure titles, and a link to measure specifications, including description, numerator, denominator, and exclusions, were recorded in the scan based on information from the [CMIT](#). NQF measure ID number and endorsement status were also noted for measures that have been submitted for endorsement; this information was pulled from measure endorsement submissions as displayed on the [NQF Quality Positioning System \(QPS\)](#) as of January 2021.

Each measure was labeled as rural-relevant if it addressed at least one topic area identified as important to rural populations based on the MAP Rural Health Workgroup's report on [rural-relevant measures susceptible to low case-volume in 2020](#). As previously described, this included behavioral and mental health, substance abuse, medication management, diabetes, hypertension, COPD, readmissions, perinatal care, pediatric care, advance directives and end of life, patient hand-offs and transitions, access to care, immunizations and vaccinations, cancer screenings, pneumonia, HF, AMI, stroke, VTE, healthcare-associated infections, patient experiences of care, ED use, surgical care, asthma, and obesity, as well as cross-cutting (non-condition-specific) measures.

Measures were also labeled as addressing a telehealth-appropriate condition if they addressed one of the following clinical areas identified as telehealth-relevant in the literature review: care coordination, mental health and substance use, chronic diseases (e.g., asthma, COPD, hypertension, diabetes, and congestive HF), ED use, surgical care, stroke, trauma, AMI, VTE, acute care pediatrics, pneumonia, and patient experience. Measures were also tagged if they had the potential to provide information on one of the four domains identified in the original telehealth framework: access to care, cost of care, experience, and effectiveness. (Note: Measures may have been tagged as relevant to one of these domains, even if the measure developer or steward has not provided clear guidance that telehealth encounters can be used in the measure calculation.)

Lastly, measures were tagged as relevant to healthcare system readiness if they specifically addressed the domains of staff, staff, structure, or system. Where available, measures were also tagged with the relevant phase of system readiness: mitigation, preparedness, response, or recovery.

Based on the characteristics recorded for each measure in the scan, NQF identified an initial list of 30 measures to be considered for use with the updated Rural Telehealth and Healthcare System Readiness Framework (Table 6). This 30-measure list represents measures from the original 324-measure list that address at least one rural-relevant condition, one telehealth-appropriate condition, one domain from the 2017 Telehealth Framework, and one domain of the 2019 Healthcare System Readiness Framework.

Findings

Literature Review

The PubMed search identified an initial pool of 645 peer-reviewed articles that described telehealth use or healthcare system readiness in rural areas. Table 1 shows the condition/topic area of focus for the articles initially identified. Each article was classified under one category that best described its primary focus. Articles that could fit in multiple categories were classified under a specific condition when possible (e.g., a study on cardiovascular surgery was categorized as *cardiovascular* as opposed to *surgery*). Nearly one-fourth of the articles were not condition-specific but were generically relevant to health. The most frequently addressed condition was mental health (n=112, 17 percent of the initial article pool), followed by emergency care (n=51, 8 percent), and neurological conditions (n=34, 5 percent).

Table 1. Initial Article Pool by Condition/Topic (N=645)

Condition/Topic	Number of Articles
Generic Health Relevance	157 (24%)
Mental Health	112 (17%)
Emergency Care	51 (8%)
Neurological	34 (5%)
COVID-19	30 (5%)
Cancer and Neoplasms	28 (4%)
Healthcare System Readiness	26 (4%)
Reproductive Health and Childbirth	25 (4%)
Infectious Diseases	24 (4%)
Stroke	24 (4%)
Metabolic and Endocrine	22 (3%)
Skin	15 (2%)
Intensive Care Unit (ICU) Care	14 (2%)
Surgery	13 (2%)
Renal and Urogenital	11 (2%)
Eye	10 (2%)
Respiratory	10 (2%)
Ear	9 (1%)
Cardiovascular	7 (1%)
Dentistry	6 (1%)
Inflammatory and Immune System	5 (1%)
Oral and Gastrointestinal	5 (1%)
Musculoskeletal	3 (<1%)
Injuries and Accidents	3 (<1%)
Congenital Disorders	1 (<1%)

After NQF further screened the initial pool of articles for relevance and eligibility, 358 articles that were unrelated to emergency care, acute care, emergency response and readiness, behavioral health, COVID-19, or implementation of rural telehealth systems were excluded. In this final pool of 287 articles, the most frequently addressed conditions included mental health (n=85, 30 percent), emergency care (n=47, 16 percent), and COVID-19 (n=30, 10 percent) (Table 2). A summary table of articles is included in [Appendix B: Literature Review References Summary](#).

Table 2. Included Literature by Condition/Topic (N=287)

Condition/Topic	Number of Articles
Mental Health	85 (30%)
Emergency Care	47 (16%)
Generic Health Relevance	40 (14%)
COVID-19	30 (10%)
Healthcare System Readiness	26 (9%)
Stroke	18 (6%)
ICU Care	13 (5%)
Reproductive Health and Childbirth	11 (4%)
Infectious Diseases	8 (3%)
Surgery	2 (<1%)
Cancer and Neoplasms	2 (<1%)
Neurological	2 (<1%)
Renal and Urogenital	1 (<1%)
Cardiovascular	1 (<1%)
Respiratory	1 (<1%)

Of the 287 included articles, 132 were categorized as describing telehealth programs or interventions for a particular condition, care process, or patient population (Table 3). These telehealth programs occurred most commonly in the emergency and outpatient settings. The remaining 155 articles consisted of reviews or commentaries discussing telehealth barriers or healthcare system readiness in broader detail, most frequently in the emergency or general settings.

Table 3. Literature by Care Setting and Article Type (N=287)

Care Setting	Telehealth Program (n=132)	Perspective/Review (n=155)
Emergency	57 (43%)	69 (45%)
General ^a	13 (10%)	48 (31%)
Inpatient	16 (12%)	12 (8%)
Outpatient	46 (35%)	26 (17%)

The telehealth programs most frequently addressed mental health (n=50, 38 percent), emergency care (n=30, 23 percent), and stroke care (n=16, 12 percent) (Table 4).

^a This includes articles that are not setting-specific or that span multiple care settings.

Table 4. Number of Telehealth Programs by Condition/Topic (N=132)

Condition/Topic	Number of Telehealth Programs
Mental Health	50 (38%)
Emergency Care	30 (23%)
Stroke	16 (12%)
Generic Health Relevance	10 (8%)
ICU Care	9 (7%)
Infectious Diseases	5 (4%)
COVID-19	4 (3%)
Reproductive Health and Childbirth	3 (2%)
Healthcare System Readiness	2 (2%)
Neurological	2 (2%)
Cardiovascular	1 (<1%)

Policies and Practices

To help curb the spread of COVID-19, many healthcare providers have adopted or expanded the use of telehealth as a safe and effective way of delivering care without putting patients and caregivers at risk of exposure to the novel virus. Several policies and practices have been put in place to facilitate and address barriers to accessing telehealth. As part of the \$2.2 trillion [Coronavirus Aid, Relief, and Economic Security \(CARES\) Act](#) passed on March 25, 2020 and enacted into law on March 27, 2020, aid was provided to support telehealth adoption, implementation, and success. The CARES Act included continuous funding for telecommunications initiatives and funding for new telehealth initiatives, which enabled HHS to temporarily lift originating and geographic restrictions on Medicare's coverage of telehealth-enabled services and encourage remote patient monitoring for home health services in Medicare.³² The U.S. Office of Personnel Management also worked with Federal Employees Health Benefits (FEHB) carrier plans to increase telehealth access to mental health and substance use disorder services and encouraged carrier plans to continue monitoring access and availability of these services.³³ The findings below summarize the adjustments that have been made to telehealth-related policies and practices to ensure that patients and healthcare providers have continued access to these services during the pandemic.

The content throughout this scan largely focuses on federal policies rather than state-level or private-sector policies. Furthermore, as telehealth use and telehealth-related policies are rapidly changing and developing, the policies described in this section may become outdated. For the most up-to-date information on current telehealth policies and practices, including state-level policies, the following resources may serve as helpful references:

- [American Telemedicine Association \(ATA\)](#): The ATA is an organization focused on increasing the adoption of telehealth in value-based delivery models through advocacy, policy, education, and other resources. ATA publishes action briefs, case studies, and reports on its website, including resources such as the annual *State of the States Report* summarizing telehealth use, coverage, and reimbursement by state.³⁴
- [Center for Connected Health Policy \(CCHP\)](#): The CCHP is a program under the Public Health Institute that provides analyses and reports on telehealth to policymakers, healthcare

professionals, plans, researchers, and consumer health advocates. The CCHP also serves as HRSA's National Telehealth Policy Resource Center and provides technical assistance to regional Telehealth Resource Centers, policymakers, health systems, providers, and the public. CCHP tracks federal and state telehealth policies, including pending legislation, and hosts a tool that allows for comparisons of policies between states.³⁵

- [Center for Telehealth and E-Health Law \(CTeL\)](#): CTeL is a nonprofit telehealth research institute that provides guidance on licensure, credentialing, reimbursement, and other payment policies. CTeL also releases a Telehealth Buzz newsletter with periodic updates on telehealth and health technology.³⁶
- [Federation of State Medical Boards \(FSMB\)](#) and the [ProviderBridge platform](#): The FSMB represents state medical boards across the nation; its activities include education, assessments and research, advocacy, etc. FSMB provides state-by-state updates on licensure and interstate compacts on its website.³⁷ With funding from HRSA, FSMB has also developed the ProviderBridge platform, which hosts a directory of COVID-19 resources, a customer service hub to understand state licensure requirements, and a database of verified clinicians willing to provide telehealth services during emergencies.³⁸
- [Multi-Discipline Licensure Resource Project \(MDLR\)](#): The MDLR, supported with funding from HRSA, serves as a resource hub with information on licensure for occupational therapists, physical therapists, psychologists, and social workers. The MDLR currently links to resources on licensure for these professionals, including licensure portability and telehealth during COVID.³⁹

Policies Related to Telehealth During COVID-19

In 2020, HHS announced multiple waivers and flexibilities for use during the state of emergency from COVID-19. Below is a brief description of some of these waived requirements:

- [Physician Visits in Skilled Nursing Facilities/Nursing Facilities](#): CMS waived the requirement to provide in-person care for nursing home residents and allowed physicians and practitioners to provide treatment via telehealth when appropriate.²⁹
- [Hospice](#): CMS allowed the use of telehealth so that a hospice physician or nurse practitioner could meet the requirement to conduct an in-person encounter to determine continued eligibility for hospice care and allowed hospice providers to render routine home care via telehealth.⁴⁰
- [Frequency Limitations](#): CMS removed frequency limitations on certain services provided via Medicare telehealth (e.g., subsequent inpatient visits no longer limited to once every three days, subsequent skilled nursing facility (SNF) visits no longer limited to once every 30 days, and critical care consults no longer limited to once per day).⁴⁰
- [Physician Supervision Requirements](#): For services requiring direct supervision by a physician or other practitioner, CMS allowed supervision to be provided via telehealth (e.g., using real-time audio/video).⁴¹
- [Out-of-Pocket Costs/Co-Pays](#): The HHS Office of Inspector General granted healthcare providers flexibility to reduce or waive fees.⁴² Medicare waived the payment of co-pays/coinsurance and deductibles for COVID-19 testing and vaccines.⁴⁰
- [Hospitals & Originating Site Fee](#): CMS allowed physicians or nonphysician practitioners who typically render professional services in the hospital's outpatient department to provide care via telehealth. The hospital can bill the associated originating site facility fee for these services under the Physician Fee Schedule.⁴⁰

- [Hospital-Only Remote Outpatient Therapy & Education Services](#): CMS allowed hospitals to bill for behavioral health and education services provided via telehealth by hospital-employed professionals who cannot bill Medicare directly. This included services provided to the patient at home.⁴¹
- [Medicaid and Children’s Health Insurance Program \(CHIP\)](#): As part of a 2020 Medicaid Frequently Asked Questions (FAQ) document on COVID-19, CMS provided guidance on telehealth services to state Medicaid and Children's Health Insurance Program (CHIP) agencies. CMS advised that state programs could utilize telehealth instead of in-person services as long as certain conditions were met, and this could be allowed via an Appendix K emergency waiver amendment.⁴³
- [HIPAA Enforcement](#): CMS issued a temporary suspension of HIPAA enforcement and removed noncompliance penalties, thus allowing the use of telehealth services via nonpublic-facing communication platforms (e.g., Apple FaceTime, Facebook Messenger video chat, and/or Skype).⁴⁴
- [Licensure](#): Certain states expedited and expanded emergency/temporary licensure for physicians already licensed in other states (e.g., through participation in the Interstate Medical Licensure Compact).⁴⁵

HHS Waivers: Expansion of Telehealth With 1135 Waiver

Effective March 6, 2020, under the [new 1135 Waiver](#), Medicare expanded locations for reimbursable office, hospital, and other types of visits furnished via telehealth across the country. Included in this expanded payment are Medicare telehealth visits, virtual check-ins, and e-visits rendered to beneficiaries in all settings where the patient is residing.⁴⁶ In addition, a range of providers, including doctors, nurse practitioners, clinical psychologists, licensed clinical social workers, physical therapists, occupational therapists, and speech language pathologists, are able to offer telehealth to their patients.⁴⁶ Prior to this waiver, Medicare would only pay for telehealth on a limited basis, specifically when the person receiving the service is in a designated rural area and when they leave their home and go to a clinic, hospital, or certain other types of medical facilities for the service.⁴⁶

For the duration of the COVID-19 public health emergency, Medicare will continue to make payments for telehealth services furnished to patients and beneficiaries in all areas of the country and in all settings, including residential healthcare facilities and individual patient residences. Prior to the pandemic, the Medicare coinsurance and deductible would generally apply to these services. However, the HHS Office of Inspector General provided flexibility for healthcare providers to reduce or waive cost sharing for telehealth visits paid by federal healthcare programs.⁴⁶ Finally, HHS announced that it will postpone audits verifying an existing patient-practitioner relationship for Medicare claims submitted during the COVID-19 emergency.⁴⁶

CMS Flexibilities for Rural Health Clinics and Federally Qualified Health Centers During COVID-19

In response to the COVID-19 public health emergency, [CMS waived](#) the requirement that limited the number of beds in Critical Access Hospitals (CAHs) to 25 and the length of stay to 96 hours. Rural Health Clinics (RHCs) and Federally Qualified Health Centers (FQHCs) are able to provide visiting nursing services at a beneficiary’s home with fewer requirements, making it easier for beneficiaries to receive care in their home.⁴⁰ The FQHC Home Health Agency’s shortage requirement for visiting nursing services was also revised; in areas with a shortage of home health agencies, FQHCs can bill for visiting nursing services rendered by registered nurses or licensed practical nurses at the patient’s place of residence. However, homebound patients are required to have a written plan of treatment.⁴⁷

During COVID-19, CMS maintained the requirement that at least one physician, nurse practitioner, physician assistant, certified nurse-midwife, clinical social worker, or clinical psychologist be available to provide patient care service during all clinic or center hours of operation. However, CMS temporarily relaxed restrictions on the amount of time that specific types of professional staff needed to be available, and the requirement that a nurse practitioner, physician assistant, or certified nurse-midwife be available for at least 50 percent of operation hours was waived. The waiver will assist in addressing potential staffing shortages by increasing flexibility regarding staffing mixes during the public health emergency.⁴⁷

CMS also modified the requirement that a physician must supervise a nurse practitioner in RHC and FQHC, but only to the extent permitted by state law. The physician, however, either in person or through telehealth and other remote communications, remains responsible for providing medical direction for the clinic or center's healthcare activities, consultation for the healthcare staff, and medical supervision of the remaining healthcare staff. This allows RHCs and FQHCs to fully use nurse practitioners.⁴⁷

IHS Telemedicine Services

The IHS is an agency within HHS that is responsible for providing federal health services to American Indians and Alaskan Natives belonging to 574 federally recognized tribes in 37 states.⁴⁸ IHS currently offers access to telehealth technologies "...to support and promote long-distance clinical healthcare, patient and professional health-related education, public health, and health administration."⁴⁹ In addition, the mission of the [IHS Telebehavioral Health Center of Excellence \(TBHCE\)](#) Telebehavioral Health Program is to provide, promote, and support the delivery of high quality, culturally sensitive telebehavioral health services to American Indian/Alaska Native people.³³

During the COVID-19 pandemic, IHS announced the expansion of its telehealth services across IHS federal facilities to reduce the risk of exposure to COVID-19 for patients, caregivers, and healthcare workers. On April 8, 2020, [IHS issued additional guidance](#) that allowed clinicians to use certain additional, nonpublic-facing audio or video communication technologies to augment all clinical activities related to providing care to patients during the COVID-19 public health emergency. This applied to telehealth provided for any clinical reason, regardless of whether the telehealth service is related to the diagnosis and treatment of health conditions related to COVID-19.⁵¹

USDA Telemedicine

The [Distance Learning and Telemedicine \(DLT\) program](#) helps rural communities overcome the effects of remoteness and low-population density through the use of unique telecommunication capabilities that facilitate connection between rural communities and the world.⁵² Recently, the program announced that it had \$72 million available to help beneficiaries (i.e., rural residents) gain access to healthcare and educational opportunities. The program accepts funding applications once a year, but due to the COVID-19 public health emergency, USDA opened a second application window. The extended deadline provided more time for applicants to complete their funding requests.⁵³ Access to distance learning and telemedicine provides efficient and effective options for healthcare and educational opportunities without having to travel long distances or the risk of exposure to COVID-19 among large groups of people.⁵⁴ An additional \$25 million from the CARES Act was allocated to the USDA Rural Development mission area to provide loans and grants to rural residents, businesses, and communities affected by the COVID-19 public health emergency.⁵⁵

On May 4, 2020, [USDA released a summary of key service changes](#) to expand the use of telehealth in response to the COVID-19 public health emergency. The summary outlines changes that will help to ensure that more rural residents can access care both when and where they need it during the public health emergency.⁵⁶

VA Telemedicine

The 2018 Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act prompted the VA to expand the implementation of telehealth services to increase access to care for Veterans. As part of this push, the VA Digital Divide Consult has helped more than 12,000 Veterans obtain internet access or a video-capable device for their healthcare needs. In the program, VA providers refer Veterans to a VA social worker for determination of eligibility for various programs and to assist with acquiring the internet service or technology needed for VA telehealth. The program pays specific attention to ensure the participation of older Veterans, those living in rural areas, and Veterans who are homeless or residing in temporary housing.⁵⁷ A study conducted by the [Journal of the American Medical Informatics Association](#) reported that Veterans with lower incomes, more severe disabilities, and more chronic conditions were more likely to use virtual care during the pandemic; in contrast, Veterans older than 45 years of age and Veterans who are homeless or who reside in rural areas were less likely to use video care.⁵⁸ The Digital Divide Consult offers a solution for these Veterans to access video care when needed.

The VA's Digital Divide Consult and other initiatives have been attributed to the rise in the use of telehealth services by Veterans. As of mid-November 2020, a total of 196,116 telehealth video visits to Veterans in their homes or other off-site locations were completed over a seven-day period, representing a 1,653 percent increase in weekly VA Video Connect visits since the end of February 2020. The number of video appointments held per day peaked at more than 41,000.⁵⁷

ONC Resources

The [ONC](#) is within the Office of the Secretary for HHS and is responsible for coordinating the adoption and use of advanced health information technology (IT) and electronic exchange of health information.⁵⁹ ONC encourages health IT development in rural areas and adoption of telehealth by convening advisory groups and providing reference resources, such as implementation guides and summaries of best practices, for implementing various forms of health IT. ONC emphasizes that interoperability is key to advancing the nation's healthcare system and promoting access to information and care; it coordinates information on interoperability and implementation of health IT systems through its Interoperability Standards Advisory.⁶⁰

ONC's resources on telehealth emphasize the importance of [consumer-centered systems](#) that are easy for patients to use, allow patients secure access to their own health data, and meaningfully combine data across multiple sites and modes of care. ONC also recognizes that social determinants of health affect care and encourages that these data be collected in electronic health records (EHRs) and used to inform care.⁶¹ Although challenges such as limited integration between care platforms, medical devices, and health records persist, ONC released a [10-year interoperability roadmap](#) with guiding principles and calls to action for stakeholders to achieve a learning health system (in which data is automatically generated and captured during care provision) by 2024.⁶²

HRSA Resources

One of the goals of HRSA, an agency of HHS, is to improve healthcare for people who are geographically isolated, economically disadvantaged, or medically vulnerable. Rural residents represent one group that is burdened with all three of these challenges.¹ The use of telehealth in rural and remote areas helps to address the challenges of access to sufficient healthcare services, including specialty care. HRSA's Office for the Advancement of Telehealth (OAT), previously contained within HRSA's FORHP, champions the use of telehealth technologies to improve healthcare delivery, education, and health information services. The OAT also funds programs that support the promotion and improvement of telehealth services in rural areas. Current programs include the Telehealth Network Grant Program, Evidence-Based Tele-Behavioral Health Network Program (EB THNP), Telehealth Resource Center Program (TRC), Telehealth Centers of Excellence (COE), Flex Rural Veteran Health Access Program (RVHAP), Licensure Portability Grant Program (LPGP), and the Telehealth Focused Rural Health Research Center Cooperative Agreement.¹ HRSA has awarded substantial funding to rural organizations across the country to enhance quality care and telehealth access for those in rural communities.⁶³ Organizations such as the [Rural Health Research Gateway](#), which is funded by HRSA's FORHP, also provide meaningful policy updates and research that target telehealth efforts.

Additional Policies and Practices

In addition, Committee members noted the following policies and practices as important to discuss or re-emphasize due to their relevance to telehealth in rural areas:

Changes passed in [H.R.133 – Consolidated Appropriations Act, 2021](#). The Consolidated Appropriations Act added rural emergency hospitals (e.g., critical access hospitals and other rural facilities with fewer than 50 beds) as originating sites eligible for reimbursement for telehealth services under Medicare. The Act also expands access to mental health services (i.e., diagnoses, treatment, and evaluation) via telehealth by waiving geographic restrictions and allowing services to be delivered at the home of Medicare beneficiaries. However, beneficiaries must have one in-person visit during the six-month period prior to the telehealth encounter in order to be eligible. As part of the Consolidated Appropriations Act, the Federal Communications Commission (FCC) received funding to restart the COVID-19 telehealth program, which in 2020 provided funding for broadband expansion and other connected health resources to healthcare programs across the country.⁶⁴

Grants established in [H.R.1319 – American Rescue Plan Act of 2021](#). As of early March 2021, the American Rescue Plan Act of 2021 has passed in the House and Senate. Section 1002 of H.R. 1319, "Emergency Rural Development Grants for Rural Health Care," establishes grants to fund an emergency pilot program for eligible facilities in rural areas where the median household income is below the poverty line or state, nonmetropolitan median household income. This program would provide funding of up to \$500 million towards rural development related to COVID-19 response, such as "[increasing] telehealth capabilities, including underlying health care information systems."⁶⁵

Improving efficiency in [hospital credentialing systems](#). Current hospital credentialing systems inhibit the ability to rapidly adapt to integrating telehealth providers into the workforce, especially specialty providers. This is essential to meet the unexpected demand during public health emergencies. While delegated credentialing and proxy credentialing can sometimes expedite the credentialing process, these can still face [challenges](#), such as site-specific differences in required documentation and data tracking.⁶⁶ Several payers have developed expedited credentialing systems (e.g., Blue Cross Blue Shield

[BCBS] Massachusetts' 72-hour [Public Health Emergency Provider Credentialing and Enrollment Process](#)),⁶⁷ but these are generally for time-limited credentialing during the COVID-19 emergency only.

Action from private payers. Policy changes from private payers are also a major consideration for providers and systems considering the expansion of telehealth services. While third-party payers will usually align with CMS, payers may have developed additional innovative models to provide telehealth during the COVID-19 crisis that can encourage telehealth use. During COVID-19, payers [made temporary changes](#), including waiving member cost-sharing for in-network telehealth visits and reimbursing providers at the same rates for in-person and telehealth provision of services.⁶⁸ These changes may become permanent in states that successfully pass payment parity bills. Payers also expanded coverage for mental/behavioral health services; physical, occupational, and speech therapy; and dental services via telehealth. The number of providers participating in telehealth platforms also increased; this was sometimes assisted by incentive programs (e.g., increased reimbursement rates for child psychiatrists).⁶⁸

Other actions from payers include the creation of online risk assessment tools and telemedicine provider directories; partnerships to provide members with access to tools such as video workouts and emotional wellness apps; distribution of kits, including monitoring equipment (e.g., thermometers, blood pressure monitors, and fitness trackers); and Internet-enabled devices with prepaid data to facilitate telehealth appointments. Some payers have also developed programs to connect members with social services (e.g., the Supplemental Nutrition Assistance Program and Women, Infants, and Children program). These programs provide free Wi-Fi at community health centers or community resource centers and coordinate volunteers to transport patients as well as medicine and food.⁶⁸

Limited extension of policies allowing audio-only telehealth visits. Policy changes allowing provision of care via telephone visits helped to increase access to care during COVID-19.⁶⁹ However, most states that are looking to make these changes permanent are only extending these changes to mental and behavioral health services. California is an exception and may enact broader changes; as of early March 2021, the State Assembly is considering a bill that would amend the Business and Professions Code to directly specify audio-only visits as part of telehealth services and would require any medically appropriate telehealth services to be reimbursed by Medi-Cal at the same rate as in-person services.⁷⁰

Electronic prescriptions. E-prescribing is a key component of telehealth provision and has noted possible challenges in prescribing medications across state lines (e.g., safely prescribing controlled substances). During COVID-19, state and federal actions have allowed changes, including the prescription of controlled substances via internet and relaxed substance-related regulatory requirements (e.g., opioids and controlled substances) related to good-faith use of telehealth.⁷¹ Other notable changes to prescribing include waivers of early refill limits on prescription maintenance medications and increased mail-order delivery of prescription medications through private payers.⁷²

Measure Scan

In total, 324 measures relevant to rural populations, telehealth, and system readiness were identified from sources such as CMIT and prior rural, telehealth, and healthcare system readiness frameworks. Almost all the measures identified in the scan (n=322, 99 percent) addressed at least one rural-relevant priority topic. Fifty-one percent of the measures were cross-cutting measures, which are measures that can be relevant across multiple clinical conditions, settings, or procedures/services (e.g., patient experience), as opposed to condition-specific measures, which are only relevant to a specific clinical

condition (e.g., hemoglobin A1c control measures for diabetes treatment). The most addressed rural-relevant topics were patient experience (13 percent), patient hand-offs and transitions (10 percent), surgical care (10 percent), and readmissions (10 percent).

Of the measures included in the scan, two-thirds of them (n=217, 67 percent) addressed at least one of the telehealth-appropriate conditions identified as part of the literature review. Again, the most frequently addressed topics were patient experience, surgical care, patient hand-offs and transitions, and readmissions.

Almost all the measures in the scan (n=308, 95 percent) were relevant to at least one of the domains of the 2017 Telehealth Framework. The most common tag was effectiveness (65 percent), as most of the measures address some aspect of clinical effectiveness (e.g., improving symptoms of a condition, appropriate treatment). Access to care was also frequently tagged (41 percent), which includes measures assessing whether patients have received disease screenings, immunizations, etc.

Lastly, 18 percent of measures (n=76) were tagged as relevant to at least one of the system readiness domains; 59 of these 76 system readiness-relevant measures (78 percent) were identified from the 2019 Healthcare System Readiness Framework. None of the measures included from the 2019 Framework are currently NQF-endorsed, and few are used in CMMI models, quality reporting, or VBP programs. However, 17 additional measures were tagged as relevant to the “system” domain of system readiness during the scan. These were measures that addressed communication and transfer of patient information, plans of care, and other items between physicians and patients.

Table 5. Characteristics of Rural, Telehealth, and System Readiness-Relevant Measures Identified in Measure Scan (N=324)

Characteristic	n (%)
Addresses at least one rural-relevant priority topic	322 (99%)
Cross-Cutting	166 (51%)
Patient Experience	43 (13%)
Patient Hand-Offs and Transitions	32 (10%)
Surgical Care	32 (10%)
Readmissions	31 (10%)
Behavioral Health	29 (9%)
Medication Management	26 (8%)
Pediatrics	19 (6%)
Vaccinations/Immunizations	19 (6%)
Access to Care	18 (6%)
Diabetes	15 (5%)
Stroke	14 (4%)
Acute Myocardial Infarction	13 (4%)
Healthcare-Associated Infections	13 (4%)
Emergency Department Use	13 (4%)
Advance Directives/End of Life	6 (2%)
Perinatal	5 (2%)
Pneumonia	5 (2%)
Venous Thromboembolism	5 (2%)
Asthma	5 (2%)
Hypertension	4 (1%)
Heart Failure	4 (1%)
Chronic Obstructive Pulmonary Disease	3 (1%)
Cancer Screenings	3 (1%)
Obesity	2 (1%)
Addresses at least one telehealth-appropriate condition	217 (67%)
Patient Experience	43 (13%)
Patient Hand-Offs and Transitions	32 (10%)
Surgical Care	32 (10%)
Readmissions	31 (10%)
Behavioral Health	29 (9%)
Diabetes	15 (5%)
Stroke	14 (4%)
Emergency Department Use	13 (4%)
Acute Myocardial Infarction	13 (4%)
Acute Care Pediatrics	7 (2%)
Venous Thromboembolism	5 (2%)
Asthma	5 (2%)
Pneumonia	5 (2%)
Hypertension	4 (1%)
Heart Failure	4 (1%)
Chronic Obstructive Pulmonary Disease	3 (1%)
Trauma	1 (<1%)

Characteristic	n (%)
Relevant to at least one telehealth framework domain	308 (95%)
Effectiveness	210 (65%)
Access	133 (41%)
Experience	39 (12%)
Cost	2 (1%)
Relevant to at least one system readiness domain	76 (23%)
System	60 (19%)
Stuff	9 (3%)
Staff	6 (2%)
Structure	1 (<1%)
Linked to at least one specific phase of system readiness	59 (18%)
Response	44 (14%)
Recovery	27 (8%)
Preparedness	20 (6%)
Mitigation	11 (3%)

NQF sought to identify measures that had overlap between all three topics: measures that were rural-relevant, telehealth-appropriate, and system readiness-appropriate. Overall, 30 measures were identified that address at least one rural-relevant topic, one of the telehealth-appropriate conditions identified in the literature review, one telehealth framework domain, and one system readiness domain. These are primarily measures that address communication and data transfer and are not condition-specific.

This pool of measures includes a limited number of NQF-endorsed measures, outcome measures, and electronic clinical quality measures (eCQMs). Twenty-eight of these 30 measures (93 percent) are not NQF-endorsed. Seventeen of these measures are process measures, eight are structure measures, and five are outcome measures, including three patient-reported outcome performance measures (PRO-PMs). Lastly, four of the 30 measures (13 percent) are eCQMs.

Table 6. Preliminary List of Rural-Relevant, Telehealth-Appropriate, and System Readiness-Appropriate Measures (N=30)

CMIT ID	NQF ID	NQF Endorsement Status	Measure Title	Notes
0254 / 5796	0089 / 0089e	Endorsed	Diabetic Retinopathy: Communication With the Physician Managing Ongoing Diabetes Care	N/A
0311	0097	Endorsed	Medication Reconciliation Post-Discharge	N/A
0522	0650	Endorsement Removed	Melanoma: Continuity of Care – Recall System	Developer did not re-submit measure for maintenance, as melanoma guidelines were in update and developer anticipated developing new melanoma measures.

CMIT ID	NQF ID	NQF Endorsement Status	Measure Title	Notes
0829	0495	Endorsement Removed	Median Time From ED Arrival to ED Departure for Admitted ED Patients	Developer could no longer support maintenance.
0835	0497	Endorsement Removed	Admit Decision Time to ED Departure Time for Admitted Patients	Developer could no longer support maintenance.
0916	0498	Endorsement Removed	Door to Diagnostic Evaluation by a Qualified Medical Personnel	Developer retired measure.
0928	0489	Endorsement Removed	The Ability for Providers With HIT to Receive Laboratory Data Electronically Directly Into Their Qualified/Certified EHR System as Discrete Searchable Data	Developer retired measure.
0930	0496	Endorsement Removed	Median Time From ED Arrival to ED Departure for Discharged ED Patients	Cost and Efficiency Standing Committee determined during the spring 2018 cycle that #0496 did not meet requirements for importance to measure and report.
0939	9999	Not Endorsed	Emergency Department Use With Hospitalization (OASIS Based)	N/A
0977	9999	Not Endorsed	Physician Notification Guidelines Established	N/A
0984	9999	Not Endorsed	Diabetic Foot Care and Patient Education in Plan of Care	N/A
1147	9999	Not Endorsed	Referral for Otologic Evaluation for Patients With Acute or Chronic Dizziness	N/A
2527 / 5826	9999	Not Endorsed	Closing the Referral Loop: Receipt of Specialist Report	N/A
2561	9999	Not Endorsed	Post-Anesthetic Transfer of Care: Use of Checklist or Protocol for Direct Transfer of Care From Procedure Room to Intensive Care Unit (ICU)	N/A
2700	0491	Endorsement Removed	Tracking Clinical Results Between Visits	Developer retired measure.
2802	9999	Not Endorsed	Access to Care	N/A
2804	9999	Not Endorsed	Access to Specialists	N/A
2830	0006 (similar)	Not Endorsed	Care Coordination	N/A
3006	9999	Not Endorsed	Access to Medical Equipment	N/A
3501	9999	Not Endorsed	Transfer of Health Information to the Patient Post-Acute Care (PAC)	Similar to #3503. This measure, #3501, is calculated from long-term care hospital stays.

CMIT ID	NQF ID	NQF Endorsement Status	Measure Title	Notes
3503	9999	Not Endorsed	Transfer of Health Information to the Patient Post-Acute Care	Similar to #3501. This measure, #3503, is calculated from skilled nursing facility stays.
5292	0295	Endorsement Removed	Physician Information	Developer could no longer support maintenance. Measure was consolidated with others into NQF #0291.
5295	0292	Endorsement Removed	Vital Signs	Developer could no longer support maintenance. Measure was consolidated with others into NQF #0291.
5650 / 6088	9999	Not Endorsed	Transfer of Health Information to the Provider Post-Acute Care (PAC)	#5650 and #6088 are calculated from long-term care hospital stays.
5762 / 1800	9999 / 0338	Endorsement Removed	Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver	Pulmonary and Critical Care Steering Committee determined in March 2012 that #0338 did not meet requirements for importance to measure and report.
5772	9999	Not Endorsed	Stroke Education	N/A
N/A	0291	Endorsement Removed	Emergency Department Transfer Communication Measure (EDTC)	Patient Experience and Function Standing Committee determined during the fall 2019 cycle that #0291 did not meet requirements for reliability.
N/A	9999	Not Endorsed	Performance Measure 73 (formerly PM 66b) (Emergency Medical Services for Children)	N/A
N/A	9999	Not Endorsed	Performance Measure 74 (formerly PM 66c medical) (Emergency Medical Services for Children)	N/A
N/A	9999	Not Endorsed	Performance Measure 75 (formerly PM 66c trauma) (Emergency Medical Services for Children)	N/A

The full list of measures in the environmental scan is linked in [Appendix C: Measure Inventory](#).

Discussion

Literature Review

In this review, NQF examined a wide variety of literature surrounding telehealth and how it has been deployed in rural communities to meet the distinctive needs of rural residents. While telehealth has many different use cases in rural communities, this review focused on specific use cases related to readiness for disaster care—with the COVID-19 pandemic being the dominant example—as well as acute care delivered in hospitals. An example of acute care is tele-emergency; in this instance, emergency physicians can provide specialized care to physicians working in distant hospitals for diagnoses and treatment, and in particular, decisions about transferring patients, often across long distances.⁷³ In a prospective cohort study of six teleED networks in 65 hospitals in 11 states, a total of 4,324 teleED encounters were reported, and of the 2,248 encounters included in the analysis, 882 (39 percent) met the criteria for being an *averted transfer*, meaning they could be admitted to a local facility or discharged home.⁷⁴

According to the latest U.S. Census, 704 of the 3,143 counties in the U.S. were noted as *completely rural*, and 1,185 were noted as *mostly rural*, together making up 60 percent of U.S. counties.⁷⁵ Furthermore, the literature demonstrated that residents of rural areas experience clear disparities in both morbidity and mortality. This is referred to as the *rural mortality penalty*.⁷⁶ Population trends demonstrate that this disparity is growing.⁷⁷ More recent data demonstrate that the COVID-19 pandemic itself has increased disparities, particularly for groups with lower socioeconomic status, limited access to care, and other vulnerabilities, including rural populations.⁷⁸

The literature review identified studies demonstrating the specific healthcare risks of rural residents. In particular, residents of rural communities are more vulnerable for a variety of reasons, including considerably higher burdens of preventable conditions. This includes higher rates of obesity, cancer, diabetes and injury, along with higher rates of smoking as well as substance use disorders (SUDs).⁷⁹ Rural residents also demonstrate lower health literacy. This can contribute to both riskier behavior and more difficulties in managing acute and chronic health conditions.⁸⁰ Rural residents also have lower levels of physical activity and consume more calorie-dense diets that are lower in nutrients.⁸¹ Furthermore, rural communities also often lack basic access to healthcare services, including primary care physicians and specialists.^{82,83} Several factors contribute to this issue, including declining populations, economic stagnation, and shortages of physicians and other healthcare professionals. Cultural and financial barriers that reduce access to care also exist in rural areas. According to data from the University of North Carolina, 179 rural hospitals have closed since 2005.⁸⁴ These closures leave critical gaps in healthcare services for rural residents; they also have a negative impact on the local economy and jobs. During the COVID-19 pandemic, this trend accelerated with 18 such closures in the first nine months of 2020.⁸⁵

Telehealth can solve some of the issues regarding access to care in rural areas, allowing patient-clinician or clinician-clinician communication over long distances. Before the COVID-19 pandemic, CMS only reimbursed telehealth visits delivered when the originating site (i.e., the patient location) was in a rural healthcare facility. The result of this restriction was a relatively low uptake of telehealth, even within rural communities. This was because rural clinicians, not patients, needed to initiate telehealth visits with authorized “distant” site consultants. In addition to CMS policies for Medicare, there was a wide range of telehealth reimbursement policies in states and private insurance, not excluding licensure

issues that complicated patients' or providers' efforts to seek telehealth consultants outside of their state.⁸⁶ Pre-pandemic requirements necessitating that telehealth visits include video for reimbursement created barriers for rural areas lacking robust broadband, and the cost of telehealth technology also hampered broad telehealth deployment.⁸⁷

Despite the roots of telehealth being traced to the 1970s, the onset of the COVID-19 pandemic has coincided with major increases in telehealth. Prior to the pandemic, there were several predominant use cases for telehealth. This included direct-to-consumer platforms (e.g., Teladoc), which primarily sell to private employers, some of whose employees live in rural areas. In addition, some health systems, particularly larger ones, made investments in telehealth for either strategic reasons in the absence of a clear return on investment or to promote value-based models.⁸⁸ Telehealth also existed in capitated systems, such as Kaiser Permanente, and integrated health systems, such as VHA, which view telehealth as a value driver.^{89–91} Telehealth was also successful for specific use cases, such as Telectroke, which allows for rapid consultation with expert neurologists around time-dependent stroke treatments.⁹² In addition, telepsychiatry was also a burgeoning use case for telehealth pre-pandemic, particularly in rural areas.^{93,94} This was primarily due to the combination of large disparities in access to mental health services as well as the fact that psychiatric care, in general, solely requires talking to the patient, which can easily be achieved through a video connection, compared with other types of medical care that rely more heavily on physical examination.

Notably, some studies in the review raised concerns about the use of telehealth in rural areas. In a qualitative study of women living in rural South Carolina, telehealth could address reproductive health barriers, including cost, transportation, and long wait times that occur at local healthcare facilities.⁹⁵ However, participants voiced several concerns, including issues of confidentiality, in particular living in a small town; privacy; and perceived importance of relationship-centered care, which included patient-provider communication and ensuring that healthcare providers were approachable. Alternatively, telehealth may offer some benefits of care that in-person encounters may not. For example, telehealth can offer additional information about a patient's home environment to identify specific care issues (e.g., reconciling medications with a patient's own pill bottles at home and recommending discarding old pill bottles) or target interventions (e.g., showing a clinician the contents of a refrigerator may lead to specific recommendations about diet).

Early in the pandemic, stay-at-home policies and other public health interventions resulted in a major reduction in access to in-person care. Furthermore, individuals were frightened of seeking in-person care due to fears of COVID-19 contagion within healthcare settings.⁹⁶ The result was a rapid change in policies by CMS and other entities to promote the use of telehealth. This included facilitating policies regarding expanded reimbursement promulgated by government and private payers, reducing restrictions on medical licensure with expansion of the interstate license compact, and loosening restrictions on information privacy, which have expanded the types of technology platforms that can be used to deliver telehealth. The result was a dramatic increase in telehealth that had an impact on both urban and rural communities. In a study of the early stages of the pandemic in a sample of commercial and Medicare Advantage visits spanning from January to June 2020, 30 percent of all visits were provided via telemedicine, 23-fold higher compared to the pre-pandemic period.⁹⁷ However, telehealth has been unevenly deployed during the pandemic, with a high of 68 percent among endocrinologists to a low of 9 percent among ophthalmologists, likely due to differences in the need for in-person physical examination. Specifically, endocrinologists can rely more on laboratory test results, while most

ophthalmology services would be challenging to deliver by telemedicine, given the requirement for detailed examination and advanced technology. Patient and clinician preferences can also contribute to uneven telehealth deployment.

Another theme that emerged from the review is that organizations that had a pre-existing telemedicine infrastructure in place were able to scale telehealth much more rapidly during the pandemic. An example is the VHA system, which developed an infrastructure for telehealth that was mandated by the MISSION Act of 2018. The Ralph H. Johnson VA Medical Center in South Carolina increased telehealth visits from 1,429 visits in January 2020 to 2,034 visits in March 2020.⁹⁸ This underscores the need to establish telehealth infrastructure and train staff to use telehealth systems before a disaster strikes, allowing programs to scale more easily during a disaster.

The literature review also demonstrated a large number of novel programs affecting rural residents that have developed since the onset of the COVID-19 pandemic. Specific use cases include telemedicine for SUDs,⁹⁹ hospital-based consultation services,¹⁰⁰ and critical care services.¹⁰¹ These were likely sparked by the new ability to bill for telehealth services. Telehealth services also expanded to facilitate transfers from rural EDs. Tele-mental health was also increasingly tested in rural areas and expanded during the pandemic, particularly for emergency indications, such as suicidal ideation or suicide attempts that require detailed assessments. A recent review summarized the results of 22 such rural telehealth interventions, demonstrating the broad effectiveness of such programs to improve access to psychiatrists.¹⁰² Another pilot program described a rural telehealth intervention to target rural home and community-based Medicaid Waiver Program participants that involved a combination of asynchronous (i.e., remote patient monitoring) and synchronous services (i.e., nursing assessments of pain, mental health, and care coordination).¹⁰³

A major emergent theme in the literature was rural residents experiencing technological barriers to telehealth. A central issue is access to broadband technology, which is required to achieve a high-resolution, real-time video connection between the patient and the clinician. A study of broadband internet service data from the 2018 American Community Survey estimates that for census tracts within the Navajo Nation, which is the largest American Indian tribe, 58–88 percent of households in the Navajo Nation census tracts lack broadband internet service compared to 19.6 percent nationally.¹⁰⁴ Broadband access also differentiates the type of telemedicine service as well as where it can be delivered. In particular, the lack of broadband access affects homes more than rural hospital settings and has a greater impact on the ability to deliver specific care for indications that require visualizing a patient as opposed to solely using the telephone. In addition, a considerable portion (\$200 million) of the CARES Act's funding was invested in helping hospitals and health systems develop technical infrastructure for telehealth within facilities and in the community. However, while the funding did support the purchase of hardware for use within facilities and for home remote patient monitoring, it did not directly fund the development of broadband access in rural areas, which remains an inherent limitation for specific telehealth use cases. Telehealth access may be increased in rural areas by initiatives such as AT&T FirstNet and Starlink, which can provide high-speed broadband coverage for both first responders and rural residents.^{105,106} Additionally, lack of digital health literacy can be a barrier to telehealth, particularly in populations without access to smartphone technology or older populations.

Another theme in the literature was concerns about the uncertain future of telehealth reimbursement, particularly for continued investment in telehealth infrastructure that will be required to continue

delivering services. A study of the Marshfield Clinic Health System (MCHS), a large rural healthcare system in Wisconsin, described the rapid adjustment to telehealth early in the COVID-19 pandemic.¹⁰⁷ In order for the MCHS to continue to provide telehealth services, it will require sustained investments and a continuing business model, which is currently uncertain given the unknowns of the future of telehealth billing and regulation.

Policies and Practices

Our review of telehealth-related policies and practices found that there were major policy changes facilitating telehealth use due to COVID-19, including expansions to the services and practitioners that can be reimbursed for telehealth services through federal programs, expanded and expedited licensure programs, and relaxation of certain staffing and supervision requirements. However, it is unclear how many of these flexibilities will be made permanent after the state of emergency ends. A few permanent federal-level changes have been confirmed in the [Medicare 2021 Physician Fee Schedule](#), which permanently expands Medicare reimbursements for telehealth services, including group psychotherapy, psychological testing, and home visits; allows new providers, such as clinical social workers, physical and occupational therapists, and speech language pathologists, to be reimbursed for telehealth services; and increases the allowable frequency of nursing facility visits via telehealth.

Bills have been introduced in U.S. and state legislatures to permanently extend other changes implemented during the COVID-19 pandemic, including the national [Permanency for Audio-Only Telehealth Act](#), New York's [Proposal to Expand Access to Telehealth for All](#), California's [Assembly Bill 32](#), Massachusetts' [S.2984 – Bill promoting a resilient healthcare system that puts patients first](#), and Nebraska's LB15 [Adopt the Occupational Therapy Interstate Compact](#).

A sense of stability is key in creating an enabling environment where providers can invest and plan for the long-term adoption of telehealth systems. The measurement framework should reflect the expansion of telehealth and practice changes due in part to the evolving telehealth policy landscape.

Measure Scan

The measure scan demonstrated that several measures exist that address rural-relevant and telehealth-appropriate conditions. However, these measures have limited overlap with measures geared towards system readiness. As a result, the pool of measures in which each measure captures all three aspects is narrowly focused on process measures that address reporting and transferring health information between providers and patients.

Ideally, many of the same quality measures can be used for both telehealth and in-person encounters. While telehealth is a different method for delivering care than in-person delivery, the ultimate goal of measurement is to provide comparable quality of care across all methods. Measure alignment can enable a fair comparison of quality across in-person and telehealth care, as well as reduce reporting burden for providers. For example, one paper identified a set of existing quality measures on ED care and telemedicine and noted that although many of the measures had not been extensively tested, they could be used to create a set of measures that would inform understanding of the value of teleED care.¹⁰⁸ Alignment can be achieved by adapting existing measures for conditions that can be treated via telehealth rather than creating new measures exclusive to telehealth. During the COVID-19 pandemic, some measure developers and stewards have already begun adapting measures to make them appropriate for use with telehealth. For example, the National Committee for Quality Assurance (NCQA)

released updated guidance for 40 measures in the Healthcare Effectiveness Data and Information Set (HEDIS), clarifying the cases in which telehealth visits can be used in measure calculations and what type of telehealth visits (e.g., telephone visits, asynchronous visits) are eligible to be used in the measures.¹⁰⁹ CMS also released similar guidance for eQMs used in federal quality reporting programs, providing a list of 42 eQMs in which telehealth encounters are eligible for the denominator and five eQMs that are not telehealth-eligible.¹¹⁰ Lastly, the Agency for Healthcare Research and Quality (AHRQ) has released an updated beta version of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Clinician & Group Visit Survey; the language has been updated to assess patient experience with any synchronous ambulatory care visit, including phone and video visits. AHRQ also notes that existing CAHPS items on health IT and access to care can be adapted to assess patients' experiences with telehealth visits.¹¹¹

Based on the initial findings of the measure scan, NQF proposed a two-pronged approach to identify measures for use with the updated measurement framework for telehealth and system readiness in rural areas. In this approach, the Committee would provide expert feedback on which rural-relevant and telehealth-appropriate conditions are most important to measure as part of the framework; for each of these topics, the Committee would select several existing measures, prioritizing based on any preferred attributes (e.g., measure type, eQm status, NQF endorsement, and developer guidance on telehealth use). Separately, the Committee would also identify which of the existing system readiness measures are most important to implementing telehealth systems (e.g., measures that address staff training on telehealth platforms or infrastructure measures), even if these measures were not yet NQF-endorsed. If existing measures did not sufficiently cover all aspects of the measurement framework, the Committee could review and prioritize measure concepts that address identified gap areas. (For reference, a list of relevant measure concepts, including 52 measure concepts identified in the [2017 Telehealth Framework Report](#) and 299 measure concepts identified in the [2019 Healthcare System Readiness Report](#), is included in [Appendix D: Measure Concepts](#).)

However, the Committee provided feedback, stating that a broader approach may be preferable to a condition-specific approach to selecting measures to use with the framework. The following considerations were shared:

The need to reflect the full spectrum of medical care across multiple types of emergencies. Certain clinical conditions may be “more ready” to measure at this time simply because they have been researched in more depth. However, a framework that focuses on these measures would only reflect current applications of telehealth and could exclude important future applications of telehealth that have not been well researched yet. Furthermore, the measures included in the framework should be applicable to a broad range of conditions since the specific conditions that are most important to measure may vary widely by emergency type (e.g., respiratory symptoms during COVID-19 versus trauma care during a mass violence event). In considering measures to use with the framework, the Committee should also consider their applicability across a variety of telehealth models, including direct-to-consumer platforms.

Organization in broad rather than condition-specific categories. Some of the cross-cutting topic areas identified as part of the measure scan (e.g., transitions of care, communication) could be useful categories to consider for the framework. Additional suggestions for broad categories or measurement topics included the following:

- Consolidating condition-specific measures into larger categories: mental and behavioral health, maternal health, patient experience, etc.
- Time-sensitive versus non-time-sensitive interventions
- Care delivery along the care continuum, including primary/preventative care, chronic disease management, urgent/emergent care, acute care, and end-of-life care
- Existence of baseline telehealth programming and system measures assessing the ability to scale programming in emergencies
- Access to care and avoidance of care interruptions across all conditions

Preferred measure attributes. There are some concerns that outcome measures may be burdensome for telehealth providers to use during emergencies. Providers have reduced control over patient outcomes during emergencies due to incomplete information, changes to staffing, and other resources; they may be unable to follow patients after the initial triage to assess outcomes. Therefore, process or structure measures may play an important role for this framework. Cross-cutting measures, or measures relevant across multiple clinical conditions or settings, should be considered in addition to condition-specific measures, which are only applicable to a single clinical condition. NQF-endorsed measures are preferred by the Committee, since NQF-endorsed measures have been rigorously reviewed and deemed important to measure, scientifically sound, usable, and feasible to collect. A Committee member stated that while nonendorsed measures should be considered, any measures included in the final framework should eventually seek endorsement. Measures included in the framework should also have a performance gap or opportunity for improvement.

Rural-specific measurement considerations. Rural facilities may face measurement barriers, such as low case-volume due to low population density and limited access to care, challenges reporting certain measure types (e.g., eCQMs), less advanced EHR systems, minimal in-house analytics expertise, and lack of infrastructure and resources.¹¹² When selecting measures for the framework, the Committee should also consider these factors to help ensure that performance results will provide sound and meaningful information to rural providers.

Based on these considerations, NQF will continue to work with the Committee to develop an updated approach to prioritize measures for use with the updated framework. This updated approach will be reflected in the *Final Recommendations Report* and Framework.

Conclusion

The literature review revealed that rural communities face significant health and healthcare challenges, including poorer health and barriers to care. Although telehealth has been available since the 1970s and has been deployed for specific use cases (e.g., Telestroke), there has still been a slow uptake of telehealth. Telehealth uptake was limited by variation in state-level policies and restrictions on reimbursement based on location and service type. However, since the onset of the COVID-19 pandemic, telehealth has accelerated substantially into several new areas. Several policies have facilitated a meteoric rise in the use of telehealth in general and in rural areas. Specific policies have also expanded reimbursement, medical licensure, and reduced privacy regulations.

This acceleration has resulted in the development of telehealth programs that affect both rural and nonrural communities. Many programs directly address rural readiness, specifically whether the U.S. is

able to deliver care during disasters such as COVID-19 in rural communities, as well as everyday emergencies requiring time-sensitive treatment. Many programs also work to directly address the disparities in care and outcomes present in rural areas. Healthcare systems that had telehealth programs in place before COVID-19 were able to respond more quickly and effectively, underscoring the need for technology infrastructure to exist before emergencies. Despite these developments and many effective programs, technical and logistical challenges still exist. Limitations in broadband access in rural areas limit the use of telehealth, particularly video-based services to rural patients in their homes.

Given this expansion of telehealth, it is vital to address the quality of care and outcomes related to existing and novel programs. A wide variety of measures exist that apply to rural populations, telehealth, or readiness. Yet few measures exist that pertain to all three areas. The measures are heterogeneous and most commonly focus on patient experience, transitions in care, readmissions, surgical care, clinical effectiveness, and access to care; they are also overwhelmingly condition-specific. However, fewer measures exist that directly pertain to readiness, and no readiness measures are currently endorsed by NQF. Given the impact of the COVID-19 pandemic in the last year and the development of new programs, this presents a potentially fruitful area for future measure development. Key findings from this environmental scan will inform the creation of a consensus-based framework to assess the impact of telehealth on rural healthcare system readiness, especially during emergencies.

References

1. Health Resources & Services Administration (HRSA). Telehealth Programs. Official web site of the U.S. Health Resources & Services Administration. Published 2021. Accessed February 4, 2021. <https://www.hrsa.gov/rural-health/telehealth>
2. Bestsenny O, Gilbert G, Harris A, Rost J. Telehealth: A quarter-trillion-dollar post-COVID-19 reality? Published 2020. Accessed February 4, 2021. <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality#>
3. Ajilore O, Willingham Z. Redefining Rural America. Center for American Progress. Published 2019. Accessed February 4, 2021. <https://www.americanprogress.org/issues/economy/reports/2019/07/17/471877/redefining-rural-america/>
4. James WL. All Rural Places Are Not Created Equal: Revisiting the Rural Mortality Penalty in the United States. *Am J Public Health*. 2014;104(11):2122-2129. doi:10.2105/AJPH.2014.301989
5. Mueller JT, McConnell K, Burow PB, Pofahl K, Merdjanoff AA, Farrell J., et al. Impacts of the COVID-19 pandemic on rural America. *PNAS*. 2021;118(1). doi:10.1073/pnas.2019378118
6. American Hospital Association. Case Study: Rapid Deployment of Telehealth Services for Rural Hospitals Fighting COVID-19 | AHA. Published 2020. Accessed February 4, 2021. <https://www.aha.org/system/files/media/file/2020/04/advice-for-hospitals-quickly-implementing-telehealth-programs-during-covid-19-rural-case-study.pdf>
7. Department of Health & Human Services (HHS). What is telehealth? How is telehealth different from telemedicine? HealthIT.gov. Published 2019. Accessed February 4, 2021. <https://www.healthit.gov/faq/what-telehealth-how-telehealth-different-telemedicine>
8. Hollander JE, Carr BG. Virtually Perfect? Telemedicine for Covid-19. *New England Journal of Medicine*. 2020;382(18):1679-1681. doi:10.1056/NEJMp2003539
9. Mehrotra A, Wang B, Snyder G. Telemedicine: What Should the Post-Pandemic Regulatory and Payment Landscape Look Like? Published 2020. Accessed March 30, 2021. <https://www.commonwealthfund.org/publications/issue-briefs/2020/aug/telemedicine-post-pandemic-regulation>
10. HHS. Telehealth: Delivering Care Safely During COVID-19. HHS.gov. Published July 15, 2020. Accessed February 4, 2021. <https://www.hhs.gov/coronavirus/telehealth/index.html>
11. Centers for Disease Control and Prevention (CDC). Telehealth in Rural Communities. Published August 21, 2020. Accessed February 4, 2021. <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/telehealth-in-rural-communities.htm>
12. Cromer KJ, Wofford L, Wyant DK, et al. Barriers to Healthcare Access Facing American Indian and Alaska Natives in Rural America. *J Community Health Nurs*. 2019;36(4):165-187. doi:10.1080/07370016.2019.1665320

13. James CV, Moonesinghe R, Wilson-Fredrick SM, Hall JE, Penman-Aguilar A, Bouye K, et al. Racial/Ethnic Health Disparities Among Rural Adults — United States, 2012–2015. *MMWR Surveill Summ*. 2017;66. doi:10.15585/mmwr.ss6623a1
14. Zahnd WE, Scaife SL, Francis ML, et al. Health literacy skills in rural and urban populations. *Am J Health Behav*. 2009;33(5):550-557. doi:10.5993/ajhb.33.5.8
15. Patel UK, Malik P, DeMasi M, Lunagariya A, Jani VB, et al. Multidisciplinary Approach and Outcomes of Tele-neurology: A Review. *Cureus*. 2019;11(4):e4410. doi:10.7759/cureus.4410
16. Halbert K, Bautista C. Telehealth Use to Promote Quality Outcomes and Reduce Costs in Stroke Care. *Crit Care Nurs Clin North Am*. 2019;31(2):133-139. doi:10.1016/j.cnc.2019.02.001
17. CDC. Using Telehealth to Expand Access to Essential Health Services during COVID-19 Pandemic. Centers for Disease Control and Prevention. Published June 10, 2020. Accessed February 4, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/telehealth.html>
18. National Quality Forum (NQF). Creating a Framework to Support Measure Development for Telehealth. Published 2017. Accessed February 4, 2021. https://www.qualityforum.org/Publications/2017/08/Creating_a_Framework_to_Support_Measure_Development_for_Telehealth.aspx
19. NQF. Emergency Department Transitions of Care - A Quality Measurement Framework Final Report. Published 2017. Accessed February 4, 2021. https://www.qualityforum.org/Publications/2017/08/Emergency_Department_Transitions_of_Care_-_A_Quality_Measurement_Framework_Final_Report.aspx
20. NQF. Advancing Chief Complaint-Based Quality Measurement Final Report. Published 2019. Accessed February 4, 2021. https://www.qualityforum.org/Publications/2019/06/Advancing_Chief_Complaint-Based_Quality_Measurement_Final_Report.aspx
21. NQF. Trauma Outcomes Final Report. Published 2019. Accessed February 4, 2021. https://www.qualityforum.org/Publications/2019/05/Trauma_Outcomes_Final_Report.aspx
22. NQF. Healthcare System Readiness Final Report. Published 2019. Accessed December 14, 2020. http://www.qualityforum.org/Publications/2019/06/Healthcare_System_Readiness_Final_Report.aspx
23. American Academy of Family Physicians. What's the difference between telemedicine and telehealth? Published 2020. Accessed February 4, 2021. <https://www.aafp.org/news/media-center/kits/telemedicine-and-telehealth.html>
24. Centers for Medicare & Medicaid Services (CMS). Final Policy, Payment, and Quality Provisions Changes to the Medicare Physician Fee Schedule for Calendar Year 2021 | CMS. Published December 2, 2020. Accessed March 30, 2021. <https://www.cms.gov/newsroom/fact-sheets/final-policy-payment-and-quality-provisions-changes-medicare-physician-fee-schedule-calendar-year-1>
25. Jensen EJ, Mendenhall T. Call to Action: Family Therapy and Rural Mental Health. *Contemporary Family Therapy: An International Journal*. 2018;40(4):309-317. doi:10.1007/s10591-018-9460-3

26. HRSA. Defining Rural Population. Official web site of the U.S. Health Resources & Services Administration. Published 2021. Accessed February 4, 2021. <https://www.hrsa.gov/rural-health/about-us/definition/index.html>
27. Social Security Administration. Special payment rules for particular items and services. Published 2021. Accessed March 30, 2021. https://www.ssa.gov/OP_Home/ssact/title18/1834.htm
28. U.S. Department of Agriculture (USDA) Economic Research Science. USDA ERS - What is Rural? Published 2019. Accessed March 9, 2021. <https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural.aspx>
29. U.S. Department of Veteran Affairs (VA). VHA and ORH Adopt New System to Define “Rural” - Office of Rural Health. Published 2015. Accessed March 9, 2021. <https://www.ruralhealth.va.gov/rural-definition.asp>
30. Czeisler MÉ. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69. doi:10.15585/mmwr.mm6932a1
31. Washington V. Moving Interoperability Forward by Engaging Small, Rural, and Critical Access Hospitals. Health IT Buzz. Published July 27, 2016. Accessed March 9, 2021. <https://www.healthit.gov/buzz-blog/rural-health/moving-interoperability-forward-engaging-small-rural-critical-access-hospitals>
32. CMS. President Trump Expands Telehealth Benefits for Medicare Beneficiaries During COVID-19 Outbreak. Published 2020. Accessed February 4, 2021. <https://www.cms.gov/newsroom/press-releases/president-trump-expands-telehealth-benefits-medicare-beneficiaries-during-covid-19-outbreak>
33. U.S. Office of Personnel Management (OPM). FEHB Program Carrier Letter: Letter No. 2021-03. Published online February 17, 2021. Accessed June 16, 2021. <https://www.opm.gov/healthcare-insurance/healthcare/carriers/2021/2021-03.pdf>
34. American Telemedicine Association. American Telemedicine Association - ATA. Published 2021. Accessed June 16, 2021. <https://www.americantelemed.org/>
35. Center for Connected Health Policy (CCHP). Center for Connected Health Policy (CCHP): The National Telehealth Policy Resource Center. CCHP. Published 2021. Accessed June 16, 2021. <https://www.cchpca.org/>
36. Center for Telehealth and e-Health Law. ABOUT CTel. Center for Telehealth and e-Health Law. Published 2021. Accessed June 16, 2021. <https://www.ctel.org/about-ctel>
37. Federation of State Medical Boards (FSMB). Federation of State Medical Boards. Federation of State Medical Boards. Published 2018. Accessed June 16, 2021. <https://www.fsmb.org/>
38. FSMB. ProviderBridge. ProviderBridge. Published 2021. Accessed June 16, 2021. <https://www.providerbridge.org/>
39. Multi-Discipline Licensure Resource Project. Multi-Discipline Licensure Resource (MDLR) Project. Multi-Discipline Licensure Resource Website. Published 2021. Accessed June 16, 2021. <http://licensureproject.org/>

40. CMS. Rural Crosswalk: CMS Flexibilities to Fight COVID-19. Published online 2021. <https://www.cms.gov/files/document/omh-rural-crosswalk.pdf>
41. CMS. COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers. Published online 2020. Accessed February 19, 2021. <https://www.cms.gov/files/document/summary-covid-19-emergency-declaration-waivers.pdf>
42. HHS. HHS OIG Policy Statement on Practitioners That Reduce, Waive Amounts Owed by Beneficiaries for Telehealth Services During the COVID-19 Outbreak. Published online 2020:1.
43. CMS. COVID-19 Frequently Asked Questions (FAQs) for State Medicaid and Children’s Health Insurance Program (CHIP) Agencies. Published online 2021. Accessed February 17, 2021. <https://www.medicaid.gov/state-resource-center/Downloads/covid-19-faqs.pdf>
44. Rights (OCR) O for C. Notification of Enforcement Discretion for Telehealth. HHS.gov. Published March 17, 2020. Accessed February 17, 2021. <https://www.hhs.gov/hipaa/for-professionals/special-topics/emergency-preparedness/notification-enforcement-discretion-telehealth/index.html>
45. CCHP. COVID-19 Telehealth coverage policies. Published 2020. Accessed February 4, 2021. <https://www.cchpca.org/resources/covid-19-telehealth-coverage-policies>
46. CMS. MEDICARE TELEMEDICINE HEALTH CARE PROVIDER FACT SHEET. Published 2020. Accessed February 4, 2021. <https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet>
47. CMS. Rural Health Clinics (RHCs) and Federally Qualified Health Centers (FQHCs): CMS Flexibilities to Fight COVID-19. Published online 2021:7.
48. HHS. About IHS | Indian Health Service (IHS). About IHS. Published 2021. Accessed February 18, 2021. <https://www.ihs.gov/aboutihs/>
49. Indian Health Services (IHS). About TeleHealth and Telebehavioral Health. Telebehavioral Health. Published 2021. Accessed February 4, 2021. <https://www.ihs.gov/telebehavioral/abouttelehealth/>
50. HHS. Indian Health Service Expands Telehealth Services During COVID-19 Response. HHS.gov. Published April 8, 2020. Accessed February 4, 2021. <https://www.hhs.gov/about/news/2020/04/08/indian-health-service-expands-telehealth-services-during-covid-19-response.html>
51. HHS. Indian Health Service Expands Telehealth Services During COVID-19 Response. HHS.gov. Published April 8, 2020. Accessed February 18, 2021. <https://www.hhs.gov/about/news/2020/04/08/indian-health-service-expands-telehealth-services-during-covid-19-response.html>
52. USDA. Distance Learning & Telemedicine Grants | Rural Development. Published 2020. Accessed February 4, 2021. <https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants>
53. USDA. USDA Announces Second Application Window for Distance Learning and Telemedicine Grant Program Funding. Published 2020. Accessed February 4, 2021.

<https://www.usda.gov/media/press-releases/2020/04/03/usda-announces-second-application-window-distance-learning-and>

54. USDA. USDA Implements Immediate Measures to Help Rural Residents, Businesses and Communities Affected by COVID-19. Published online 2021.
https://www.rd.usda.gov/sites/default/files/USDA_RD_SA_COVID19_ProgramImmediateActions.pdf
55. USDA Rural Development. Distance Learning and Telemedicine Program Funding Available | Rural Development. Published 2020. Accessed February 18, 2021. <https://www.rd.usda.gov/node/17450>
56. USDA. USDA Outlines Telehealth Service Changes as a Result of the COVID-19 Pandemic. Published 2020. Accessed February 4, 2021. <https://www.rd.usda.gov/node/17512>
57. VA. VA expands access to telehealth services during COVID-19 pandemic for older, rural and homeless Veterans. Published January 6, 2021. Accessed February 4, 2021.
<https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5600>
58. Ferguson JM, Jacobs J, Yefimova M, Greene L, Heyworth L, Zulman DM. Virtual care expansion in the Veterans Health Administration during the COVID-19 pandemic: clinical services and patient characteristics associated with utilization. *Journal of the American Medical Informatics Association*. 2020;(ocaa284). doi:10.1093/jamia/ocaa284
59. HHS. About ONC. Published February 14, 2019. Accessed February 4, 2021.
<https://www.healthit.gov/topic/about-onc>
60. HHS. Interoperability. Published 2019. Accessed February 4, 2021.
<https://www.healthit.gov/topic/interoperability>
61. HHS. Social Determinants of Health. Published 2020. Accessed February 4, 2021.
<https://www.healthit.gov/topic/health-it-health-care-settings/social-determinants-health>
62. The Office of the National Coordinator for Health Information Technology. A Shared Nationwide Interoperability Roadmap. Published online 2015:94.
63. HHS. HHS Awards over \$35 million to Increase Access to High Quality Health Care in Rural Communities. HHS.gov. Published August 19, 2020. Accessed February 4, 2021.
<https://www.hhs.gov/about/news/2020/08/20/hhs-awards-over-35-million-to-increase-access-to-high-quality-health-care-in-rural-communities.html>
64. Cuellar H. H.R.133 - 116th Congress (2019-2020): Consolidated Appropriations Act, 2021. Published December 27, 2020. Accessed February 4, 2021. <https://www.congress.gov/bill/116th-congress/house-bill/133>
65. Yarmuth JA. Text - H.R.1319 - 117th Congress (2021-2022): American Rescue Plan Act of 2021 | Congress.gov | Library of Congress. Published 2021. Accessed March 9, 2021.
<https://www.congress.gov/bill/117th-congress/house-bill/1319/text>
66. NAMSS-ATA. National Association Medical Staff Services-American Telemedicine Association (NAMSS-ATA)| Credentialing By Proxy| A Guidebook. Published online 2019.
https://www.namss.org/Portals/0/Policies_And_Bylaws/CBP%20Guidebook%20-%20NAMSS%20Finalv2.pdf

67. BCBS-Massachusetts. Blue Cross Blue Shield of Massachusetts Telehealth Claims Skyrocket During Coronavirus Pandemic. Published April 13, 2020. Accessed February 4, 2021. <https://www.prnewswire.com/news-releases/blue-cross-blue-shield-of-massachusetts-telehealth-claims-skyrocket-during-coronavirus-pandemic-301039447.html>
68. America's Health Insurance Plans (AHIP). Health Insurance Providers Respond to Coronavirus (COVID-19). AHIP. Published February 17, 2021. Accessed February 19, 2021. <https://www.ahip.org/health-insurance-providers-respond-to-coronavirus-covid-19/>
69. Haque SN. Telehealth Beyond COVID-19. *PS*. 2020;72(1):100-103. doi:10.1176/appi.ps.202000368
70. mHealthIntelligence. California Lawmaker Eyes Permanent Telehealth Coverage for Medicaid. mHealthIntelligence. Published December 29, 2020. Accessed February 19, 2021. <https://mhealthintelligence.com/news/california-lawmaker-eyes-permanent-telehealth-coverage-for-medicaid>
71. National Alliance of State Pharmacy Associations. COVID-19: Telehealth. NASPA. Published July 24, 2020. Accessed February 4, 2021. <https://naspa.us/resource/covid-19-telehealth/>
72. Yount RE. Boards of Pharmacy Nationwide Respond to COVID-19 Pandemic. Published 2020. Accessed February 19, 2021. <https://www.mintz.com/insights-center/viewpoints/2801/2020-03-25-boards-pharmacy-nationwide-respond-covid-19-pandemic>
73. Mueller KJ, Potter AJ, MacKinney AC, Ward MM, et al. Lessons From Tele-Emergency: Improving Care Quality And Health Outcomes By Expanding Support For Rural Care Systems. *Health Affairs*. 2014;33(2):228-234. doi:10.1377/hlthaff.2013.1016
74. Ward MM, Carter KD, Ullrich F, et al. Averted Transfers in Rural Emergency Departments Using Telemedicine: Rates and Costs Across Six Networks. *Telemed J E Health*. Published online August 24, 2020. doi:10.1089/tmj.2020.0080
75. U.S. Census Bureau. Our Rural Communities. 2020Census.gov. Accessed February 19, 2021. <https://2020census.gov/en/focus/rural.html>
76. Cosby AG, Neaves TT, Cossman RE, et al. Preliminary Evidence for an Emerging Nonmetropolitan Mortality Penalty in the United States. *Am J Public Health*. 2008;98(8):1470-1472. doi:10.2105/AJPH.2007.123778
77. Cosby AG, McDoom-Echebiri MM, James W, Khandekar H, Brown W, Hanna HL. Growth and Persistence of Place-Based Mortality in the United States: The Rural Mortality Penalty. *Am J Public Health*. 2018;109(1):155-162. doi:10.2105/AJPH.2018.304787
78. Mishra V, Seyedzenouzi G, Almohtadi A, et al. Health Inequalities During COVID-19 and Their Effects on Morbidity and Mortality. *Journal of Healthcare Leadership*. 2021;Volume 13:19-26.
79. Douthit N, Kiv S, Dwolatzky T, Biswas S., et al. Exposing some important barriers to health care access in the rural USA. *Public Health*. 2015;129(6):611-620. doi:10.1016/j.puhe.2015.04.001
80. Aljassim N, Ostini R. Health literacy in rural and urban populations: A systematic review. *Patient Education and Counseling*. 2020;103(10):2142-2154. doi:10.1016/j.pec.2020.06.007

81. Ken-Opurum J, Darbshire L, Miller DK, Savaiano D, et al. Assessing Rural Health Coalitions Using the Public Health Logic Model: A Systematic Review. *American Journal of Preventive Medicine*. 2020;58(6):864-878. doi:10.1016/j.amepre.2020.01.015
82. McDaniel JT, Albright DL, Laha-Walsh K, Henson H, McIntosh S, et al. Alcohol screening and brief intervention among military service members and veterans: rural-urban disparities. *BMJ Mil Health*. Published online April 28, 2020. doi:10.1136/bmj-military-2020-001479
83. Walker JP. Status of the Rural Surgical Workforce. *Surg Clin North Am*. 2020;100(5):869-877. doi:10.1016/j.suc.2020.06.006
84. University of North Carolina at Chapel Hill. 179 Rural Hospital Closures: January 2005 – Present (135 since 2010). Sheps Center. Published 2021. Accessed February 4, 2021. <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>
85. American Hospital Association. Fact Sheet: COVID-19 Pandemic Results in Bankruptcies or Closures for Some Hospitals | AHA. Published 2020. Accessed February 4, 2021. <https://www.aha.org/fact-sheets/2020-11-09-fact-sheet-covid-19-pandemic-results-bankruptcies-or-closures-some-hospitals>
86. Center for Connected Health Policy. *A Comprehensive scan of the 50 states & the District of Columbia | State Telehealth Laws & Reimbursement Policies*. Published online 2019. <https://www.cchpca.org/sites/default/files/2019-10/50%20State%20Telehealth%20Laws%20and%20Reimbursement%20Policies%20Report%20Fall%202019%20FINAL.pdf>
87. Weigel G, Ramaswamy A, Sobel L, Salganicoff A, Cubanski J, Freed M. Opportunities and Barriers for Telemedicine in the U.S. During the COVID-19 Emergency and Beyond. Kaiser Family Foundation. Published May 11, 2020. Accessed March 31, 2021. <https://www.kff.org/womens-health-policy/issue-brief/opportunities-and-barriers-for-telemedicine-in-the-u-s-during-the-covid-19-emergency-and-beyond/>
88. Joshi AU, Lewiss RE. Telehealth in the time of COVID-19. *Emerg Med J*. 2020;37(10):637-638. doi:10.1136/emmermed-2020-209846
89. Egede LE, Dismuke CE, Walker RJ, Acierno R, Frueh BC, et al. Cost-Effectiveness of Behavioral Activation for Depression in Older Adult Veterans: In-Person Care Versus Telehealth. *J Clin Psychiatry*. 2018;79(5). doi:10.4088/JCP.17m11888
90. Stevenson LD, Banks RE, Stryczek KC, et al. A pilot study using telehealth to implement antimicrobial stewardship at two rural Veterans Affairs medical centers. *Infect Control Hosp Epidemiol*. 2018;39(10):1163-1169. doi:10.1017/ice.2018.197
91. Whealin JM, King L, Shore P, Spira JL, et al. Diverse veterans' pre- and post-intervention perceptions of home telemental health for posttraumatic stress disorder delivered via tablet. *Int J Psychiatry Med*. 2017;52(1):3-20. doi:10.1177/0091217417703291
92. Lazarus G, Permana AP, Nugroho SW, Audrey J, Wijaya DN, Widyahening IS, et al. Telestroke strategies to enhance acute stroke management in rural settings: A systematic review and meta-analysis. *Brain Behav*. 2020;10(10):e01787. doi:10.1002/brb3.1787

93. Chavira DA, Bustos CE, Garcia MS, Ng B, Camacho A, et al. Delivering CBT to Rural Latino Children with Anxiety Disorders: A Qualitative Study. *Community Ment Health J.* 2017;53(1):53-61. doi:10.1007/s10597-015-9903-3
94. Pradhan T, Six-Workman EA, Law K-B, et al. An Innovative Approach to Care: Integrating Mental Health Services Through Telemedicine in Rural School-Based Health Centers. *Psychiatr Serv.* 2019;70(3):239-242. doi:10.1176/appi.ps.201800252
95. Sundstrom B, DeMaria AL, Ferrara M, Smith E, McInnis S, et al. "People are struggling in this area:" a qualitative study of women's perspectives of telehealth in rural South Carolina. *Women Health.* 2020;60(3):352-365. doi:10.1080/03630242.2019.1643814
96. Pines JM. COVID-19, Medicare for All, and the Uncertain Future of Emergency Medicine. *Ann Emerg Med.* 2020;76(4):459-461. doi:10.1016/j.annemergmed.2020.06.034
97. Patel SY, Mehrotra A, Huskamp HA, Uscher-Pines L, Ganguli I, Barnett ML, et al. Variation In Telemedicine Use And Outpatient Care During The COVID-19 Pandemic In The United States. *Health Affairs.* 2021;40(2):349-358. doi:10.1377/hlthaff.2020.01786
98. Myers US, Birks A, Grubaugh AL, Axon RN, et al. Flattening the Curve by Getting Ahead of It: How the VA Healthcare System Is Leveraging Telehealth to Provide Continued Access to Care for Rural Veterans. *J Rural Health.* 2021;37(1):194-196. doi:10.1111/jrh.12449
99. Uscher-Pines L, Cantor J, Huskamp HA, Mehrotra A, Busch A, Barnett M, et al. Adoption of telemedicine services by substance abuse treatment facilities in the U.S. *J Subst Abuse Treat.* 2020;117:108060. doi:10.1016/j.jsat.2020.108060
100. Tande AJ, Berbari EF, Ramar P, et al. Association of a Remotely Offered Infectious Diseases eConsult Service With Improved Clinical Outcomes. *Open Forum Infect Dis.* 2020;7(1):ofaa003. doi:10.1093/ofid/ofaa003
101. Ilko SA, Vakkalanka JP, Ahmed A, Harland KK, Mohr NM, et al. Central Venous Access Capability and Critical Care Telemedicine Decreases Inter-Hospital Transfer Among Severe Sepsis Patients: A Mixed Methods Design. *Crit Care Med.* 2019;47(5):659-667. doi:10.1097/CCM.0000000000003686
102. Rojas SM, Carter SP, McGinn MM, Reger MA, et al. A Review of Telemental Health as a Modality to Deliver Suicide-Specific Interventions for Rural Populations. *Telemed J E Health.* 2020;26(6):700-709. doi:10.1089/tmj.2019.0083
103. Davis SM, Jones A, Jaynes ME, et al. Designing a multifaceted telehealth intervention for a rural population using a model for developing complex interventions in nursing. *BMC Nurs.* 2020;19(1):9. doi:10.1186/s12912-020-0400-9
104. Graves JM, Mackelprang JL, Amiri S, Abshire DA, et al. Barriers to Telemedicine Implementation in Southwest Tribal Communities During COVID-19. *J Rural Health.* 2021;37(1):239-241. doi:10.1111/jrh.12479
105. AT&T. FirstNet: Supporting Public Safety. FirstNet: Supporting Public Safety. Published 2021. Accessed June 16, 2021. https://about.att.com/pages/disaster_relief/firstnet
106. Sheetz M. Washington emergency responders first to use SpaceX's Starlink internet in the field: "It's amazing." CNBC. Published September 29, 2020. Accessed June 16, 2021.

<https://www.cnbc.com/2020/09/29/washington-emergency-responders-use-spacex-starlink-satellite-internet.html>

107. Meyer C, Becot F, Burke R, Weichelt B, et al. Rural Telehealth Use during the COVID-19 Pandemic: How Long-term Infrastructure Commitment May Support Rural Health Care Systems Resilience. *J Agromedicine*. 2020;25(4):362-366. doi:10.1080/1059924X.2020.1814921
108. Harris Y, Gilman B, Ward MM, et al. Building the Evidence Base for Tele-Emergency Care: Efforts to Identify a Standardized Set of Outcome Measures. *Telemedicine and e-Health*. 2017;23(7):561-566. doi:10.1089/tmj.2016.0190
109. National Committee for Quality Assurance (NCQA). Coronavirus and NCQA. NCQA. Published 2020. Accessed February 4, 2021. <https://www.ncqa.org/covid/>
110. CMS. Eligible Professional / Eligible Clinician eCQMs | eCQI Resource Center. Published 2020. Accessed February 4, 2021. <https://ecqi.healthit.gov/sites/default/files/2021-eCQM-Telehealth-Guidance-Documents-With-QRDA-Update-508.pdf>
111. Agency for Healthcare Research and Quality (AHRQ). CAHPS Surveys During the COVID-19 Pandemic. Published 2020. Accessed February 4, 2021. <http://www.ahrq.gov/cahps/news-and-events/cahps-surveys.html>
112. NQF. MAP Rural Health Final Recommendations Report - 2020. Published 2020. Accessed February 4, 2021. http://www.qualityforum.org/Publications/2020/09/MAP_Rural_Health_Final_Recommendations_Report_-_2020.aspx

Appendices

Appendix A: Committee Members, Federal Liaisons, NQF Staff, and CMS Staff

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Appendix B: Literature Review References Summary

Included in [Excel Tab 1](#).

Appendix C: Measure Inventory

Included in [Excel Tab 2](#).

Appendix D: Measure Concepts

Included in [Excel Tab 3](#).

Appendix E: Public Comments and Responses

The draft *Environmental Scan Report* was posted on the project webpage for public and NQF member comment from April 9, 2021, through May 7, 2021. During the commenting period, NQF received 15 comments from seven organizations. Comments were elicited through the public commenting tool and additional organizational outreach. The comments below are grouped by theme: Framework Topics and Organization, Challenges of Telehealth Provision, Additional Policies and Practices, and Other. Some of the comments may fit multiple themes, but they are only listed once each. The Committee discussed these comments during their web meeting on June 8, 2021. Responses are included under each comment.

Framework Topics and Organization

NRLCA Rural Carrier Benefit Plan

COMMENT

The following comments are based on review of Table 5 (page 22) of the report:

Align topics and conditions across rural- and telehealth-relevant topic areas to better identify gap areas and overlap across the two. For instance:

“Chronic Diseases” is one topic for telehealth, but several chronic diseases (e.g., diabetes, asthma, etc.) are listed as topics for rural health.

“Behavioral/Mental Health” is one topic for rural, but “Mental Health/Substance Use” is one topic for telehealth.

“Patient Experiences of Care” vs. “Patient Experience”

Define “Cross-Cutting” for rural health – there are also cross-cutting topics relevant to telehealth, like care coordination.

Consider additional telehealth-appropriate topics, for example:

Preventive care (excluding immunizations)

Surgical Care – Though this category aligns with a rural health topic, it would be helpful to provide more specificity here, as some aspects of surgical care cannot be delivered in a remote telehealth environment.

Some rural health topics are also appropriate for telehealth, for example:

Advance Directives/End of Life (Note: Advance Care Planning and Advance Directives can be documented before a person is near the end of their life.)

Perinatal (Some perinatal care can be delivered via telehealth – IHI outlines some considerations for doing so equitably: <http://www.ihi.org/communities/blogs/how-to-make-perinatal-telehealth-safer-and-more-equitable>)

Obesity (This could be expanded to include exercise and nutrition counseling, which can be delivered effectively via telehealth)

RESPONSE

Thank you for providing this valuable input on the topics for the framework. NQF has aligned the wording for topics and conditions to clarify where the gap areas and overlap between topics exists. NQF and the Committee have also reviewed the suggestions for additional topics; the Committee recommended that the current topics reflected in the scan remain as-is, but suggested that some of

these topics (e.g., preventive care and wellness) should be reflected in the final recommendations report.

American College of Physicians (ACP)

COMMENT

The American College of Physicians (ACP) appreciates the opportunity to comment on NQF's Rural Telehealth Environmental Scan Draft Report. We have some comments and concerns for the committee's consideration.

1. We agree with the committee's suggestion to expand the definition of telehealth to include nursing care, behavioral health services, among other services. It is very apparent that there is a significant gap in healthcare access and health education in the rural space where telehealth can be an immense help. Hence, the final measurement framework should broaden the definition and take that under consideration.

2. Physicians have little control over structural measures. While structural measures are important to gauge system readiness, a framework that also includes evidence-based process and outcome measures will be essential to measure physician performance. Moreover, there are a few Patient-Reported Outcome-Based Performance Measure (PRO-PM) included in the preliminary list of measures. Collecting patient reported outcome measure (PROM) data is not yet integrated in routine care delivery. Additionally, PROMs can be methodologically challenging including a need for an adequate evidence base, attributed reliably at the level of analysis and be appropriately risk adjusted. As a result, using PRO-PMs may not be feasible for rural telehealth performance measurement.

3. Regarding NQF endorsement as a preferred measure attribute, we believe that this recommendation will be perceived as a conflict since it is a recommendation from an NQF committee. Also, there are many measures that do not go through NQF's process but are getting used by payers. As ACP highlighted in the 2018's Time Out — Charting a Path for Improving Performance Measurement paper, there is an urgent need for looking at the measure evaluation criteria and processes before using measures in payment, reporting, or accountability programs.

4. Lastly, as the environmental scan highlights, the biggest hurdle to rural telehealth is lack of broadband access. There has been significant investment to improve hardware infrastructure in hospitals and doctors' offices, but there hasn't been the same support in the improvement of broadband services for patients in rural areas. The infrastructure must be in place to support access to telehealth services in rural areas before accountability measures can be applied at different levels of analysis. Moreover, the lack of clarity on how the policy changes during COVID that favored telehealth expansion would continue after the pandemic is over. If policy changes support a different area of focus, that would delay further investment in this space.

RESPONSE

Thank you for your comments. NQF acknowledges that structural measures may not fully reflect physician performance, and PRO-PMs may be challenging to collect. However, the Committee provided feedback that these high-bar measure types are important to consider including to drive quality improvement.

Some committee members expressed interest in prioritizing NQF endorsed measures, since it was recognized that endorsed measures have already been vetted for certain criteria. However, measures that are not NQF endorsed can also be considered based on publicly available information on scientific acceptability, feasibility, use, and performance.

Thank you for your comment on broadband access for patients. This topic was also discussed by the Committee during Meeting 2. This discussion is reflected in the environmental scan (e.g., discussion of VA's Digital Divide Consult), and NQF will include this topic in the final recommendations report.

Child Neurology Foundation

COMMENT

I am submitting these comments on behalf of the Child Neurology Foundation (CNF) which is a national non-profit that works to support the whole child neurology community, connecting partners from all areas so those navigating the journey of disease diagnosis, management, and care have ongoing support from those dedicated to treatments and cures.

1 in 5 children in the US live with a neurologic condition. Neurologic disorders are wide ranging. They have various causes, complications, and outcomes. Many conditions result in additional needs requiring life-long management. Symptoms of neurologic disorders vary. Physical, cognitive, emotional, and behavioral symptoms may be present, with specific disorders having combinations or clusters of these symptoms. For example, cerebral palsy tends to have more physical symptoms whereas Attention Deficit Hyperactivity Disorder (ADHD) tends to have greater effects on behavior.

As the COVID-19 public health emergency (PHE) stretches into its sixteenth month, CNF urges the National Quality Forum (NQF) to consider rural-relevant conditions and health system readiness in the context of sustaining people's health over long periods of time. The COVID-19 PHE demonstrates that emergencies may not always be short-lived, and that our health systems must be able to adapt to long-term challenges to accessing care.

More specifically, the literature review excluded articles that were not related to emergency care, acute care, emergency response/readiness, behavioral health, COVID-19, or rural telehealth barriers. This narrow lens ignores the reality that complex and chronic conditions can quickly morph into critical need if people are without regular access to care; especially the vulnerable population of pediatrics. As the executive summary notes, rural residents have higher rates of chronic conditions and lower rates of health literacy, creating an imperative for quality measures which assess these aspects of the telehealth experience.

RESPONSE

Thank you for this comment. The project scope considers care for chronic conditions within the context of disasters or public health emergencies. NQF discussed the role of chronic and complex conditions during large-scale emergencies, especially extended emergencies, with the Committee. The Committee agreed that the scope of the environmental scan should not be expanded to focus on complex and chronic conditions at this time, but recommended that these topics be considered and acknowledged in the final recommendations report and framework.

COMMENT

We urge NQF to consider quality measures which assess telehealth use for complex and chronic conditions, and not exclude these studies from consideration and resulting measurement development. In particular, we urge you to consider quality measurements related to complex and chronic pediatric conditions. We encourage NQF to strongly consider whether its preliminary list of measures, including CMIT ID 2804 “Access to Specialists” and CMIT ID 2802 “Access to Care”, adequately address our concerns over preparing health systems for long-term emergencies.

RESPONSE

Thank you for this comment. NQF and the Committee reviewed these suggestions for additional topics and conditions to prioritize in the framework. The Committee agreed that the scope of the environmental scan should not be expanded to focus on complex and chronic conditions at this time, but recommended that these topics be considered and acknowledged in the final recommendations report and framework.

COMMENT

CNF supports NQF’s consideration of rural telehealth barriers and asks for this analysis to include regular access to specialty care using telemedicine.

Research shows that regular access to specialty care via telemedicine in the child neurology context can be an important tool for improving health system readiness by reducing emergent use of hospitals. One cross-sectional study of 4169 children in rural communities found that the rate of hospital encounters among children who obtained pediatric neurology consultations using telemedicine was significantly lower than the rate among similar children who obtained only in-person care. (See Dayal P, Chang CH, Benko WS, et al. Hospital Utilization Among Rural Children Served by Pediatric Neurology Telemedicine Clinics. *JAMA Netw Open*. 2019;2(8):e199364.) The authors suggest that by improving access to pediatric neurology consultations in underserved communities and enhancing care coordination, telemedicine may reduce the utilization of high-cost hospital services. Wait times also impact health system readiness in rural areas, and families experiencing neurological conditions wait on average 9 weeks for their first visit with a neurologist. Although this issue may not immediately come to mind when evaluating health system readiness, research has shown that lengthy wait times can dramatically increase utilization of emergency services. Within neurology generally, research attributed longer-than-average wait times with a seven-fold higher likelihood of an emergency department visit. (See Can improved specialty access moderate emergency department overuse? Effect of neurology appointment delays on ED visits Sara Nourazari, Daniel B. Hoch, Soren Capawanna, Rifat Sipahi, James C. Benneyan *Neurol Clin Pract Dec 2016, 6 (6) 498-505.*) In the child neurology space, research found that reducing wait times was associated with a reduction in seizure-related emergency department visits among children. (See Patel AD, Terry D, Moore JP, et al. Reduction of emergency department visits using an urgent clinic for children with established epilepsy. *Neurol Clin Pract*. 2016;6(6):480-486.) Given that hospital use strains health system readiness, CNF believes quality measures should account for the availability of specialty care via telemedicine in rural areas.

We urge NQF to strongly consider inclusion of measures, such as CMIT ID 2804 “Access to Specialists” and CMIT ID 2802 “Access to Care”, to address the importance of access to specialty care in its final recommendations.

RESPONSE

Thank you for this comment. The Committee is considering measures CMIT 2804 and CMIT 2802 along with other specialty care measures as part of the prioritized list of measures to use with the measurement framework.

American Society of Clinical Oncology

COMMENT

ASCO commends the work of the committee and supports the information provided in the draft report. We would like to provide a few considerations for the proposed two-pronged approach to identify measures for use within the updated measurement framework for telehealth and system readiness in rural areas.

The prioritization of measures that are NQF endorsed raises concerns. Although NQF has a rigorous endorsement process that results in high quality measures, many valuable and relevant measures are not NQF endorsed and should not be overlooked for that reason.

Similarly, some of the measures in the preliminary list have the status of “endorsement removed.” If measures with endorsement removed are included in the list, the reason for removal should be listed. For example, the measure steward may have discontinued maintenance because it is no longer concordant with current guidelines or may not be feasible to continue endorsement.

Finally, the determination of a performance gap and opportunity for improvement should have quantifiers specific to the incorporation of telehealth and use in the rural setting. For example, if NQF determinations of performance gaps are based on data that include in-person visits or performance in a program that is mostly large academic institutions in an urban setting, the result may be different than would be the case when telehealth encounters are included and/or the setting is a rural practice.

RESPONSE

Some committee members expressed interest in prioritizing NQF endorsed measures, since it was recognized that endorsed measures have already been vetted for certain criteria. However, measures that are not NQF endorsed can also be considered based on publicly available information on scientific acceptability, feasibility, use, and performance. NQF will use publicly available information on measure performance to help inform the Committee's prioritization of measures and measure concepts.

NQF has also included additional information on reasons measures have lost endorsement in the list of measures presented in the environmental scan.

Challenges of Telehealth Provision

NRLCA Rural Carrier Benefit Plan

COMMENT

Access to telehealth remains a need, particularly for people living in rural communities. During COVID-19, RCBP is working closely with its provider network, PBM, telehealth provider, and behavioral health coaching provider to reach out to and engage with its membership to provide reassurance during uncertain times, identify gap areas and related social determinants to better support members, and

implement solutions in response to those identified needs. Through this outreach initiative, members indicated that one of their most pressing needs is access to telehealth services.

In order to incentivize provider investment in telehealth capabilities, federal budgeting models should appropriately compensate providers delivering care via telehealth versus in-person visits. Both public and commercial payers should consider how quickly and consistently they are able to reimburse clinicians for providing telehealth services. For instance, early during the pandemic, providers have reported that not all telehealth bills are being returned while others are only being partially paid (<https://www.medpagetoday.com/infectiousdisease/covid19/85990>). To ensure that telehealth is sustainable as the pandemic continues and in a post-pandemic environment, federal models should consider providing insurers more flexibility in reimbursement design (<https://www.healthcarefinancenews.com/news/insurers-need-flexibility-benefit-design-continue-telehealth-past-public-health-emergency>).

NQF can work with other stakeholders to align on a framework that incentivizes primary care providers to use telehealth to connect with patients effectively and safely. Primary care providers, who are often the first contact for patients seeking care, are well-positioned to use telehealth to improve patient outcomes (<https://pubmed.ncbi.nlm.nih.gov/27128779/>). Telehealth can also be beneficial to address mental and behavioral health conditions and reach patients in rural communities who may not have easy access to providers (<https://pubmed.ncbi.nlm.nih.gov/26634618/>). During COVID-19, people are reporting significant increases in symptoms of depression and anxiety. Recognizing these symptoms may be more difficult as people are socially distancing and staying at home (<https://www.healthline.com/health-news/what-covid-19-is-doing-to-our-mental-health>). Mental health diagnoses were a driver of telehealth visits in 2020 (<https://www.healthcarediver.com/news/telehealth-claim-lines-increased-more-than-8335-in-april-fair-health/581039/>). Given that a visit for behavioral health services is more than five times as likely to be out-of-network than a primary care visit, utilizing telehealth services to connect members with mental and behavioral health care can be cost-effective for plans while also improving access to needed services.

RESPONSE

Thank you for your comment. NQF highlighted the reimbursement models/rates of public and private payers in the Policies and Practices section of the environmental scan. NQF has also noted your support for extending flexibilities in reimbursement for both private and public payers post-pandemic, as well as your support for a framework that incentivizes telehealth for primary care providers, and will reflect these recommendations in the final recommendations report.

American Society of Clinical Oncology

COMMENT

The American Society of Clinical Oncology (ASCO) thanks NQF for the opportunity to provide comments on the Rural Telehealth and Healthcare System Readiness draft report. In July 2020, ASCO published an Interim Position Statement on Telemedicine in Cancer Care (2020-ASCO-Interim-Position-Statement-Telemedicine-FINAL.pdf). This report cited the tremendous growth in telemedicine during the COVID-19 pandemic and discussed the various ways in which federal, state and private payer policies could continue to adapt for improvement. Here are our recommendations, which are specific to the provision of cancer care:

ASCO supports the flexibility CMS has implemented to ensure telemedicine is available to more practitioners and patients during the COVID-19 public health emergency (PHE), and we urge CMS to extend those expanded telemedicine policies after the expiration of the PHE.

State and federal policymakers should make permanent coverage and reimbursement for audio-visual and when appropriate, audio-only services and continue to expand coverage for all modes of delivery of telemedicine.

Policymakers should ensure broad coverage and adequate reimbursement for all telemedicine services by all plans and payers through service parity and payment parity reforms.

Federal and state governments should work to promote health equity through encouraging the use of telemedicine in all care settings, including but not limited to rural and safety net providers.

Patient education efforts by all providers and health care stakeholders should include information on utilizing telemedicine.

Federal and state governments should promote universal access to high-speed broadband through expanding digital infrastructure.

Medical liability policies should provide comprehensive coverage for telehealth, and providers should ensure they are covered across all states in which they practice.

Neither public nor commercial payers should apply burdensome utilization management policies to telemedicine.

RESPONSE

Thank you for your comments on relevant telehealth policies. ASCO's comments on challenges (including audio-only visits, reimbursements, patient education, broadband, and licensing) align with the Committee discussion and content of the environmental scan. These topics will also be reflected in the recommendations report.

Additional Policies and Practices

NRLCA Rural Carrier Benefit Plan

COMMENT

The U.S. Office of Personnel Management (OPM) released the Federal Employees Health Benefits (FEHB) Program Call Letter that “sets forth the policy goals and initiatives for the FEHB Program for 2022” on February 17, 2021 (<https://www.opm.gov/healthcare-insurance/healthcare/carriers/2021/2021-03.pdf>). FEHB Call Letter policies impact the care that is delivered to members of FEHB Carrier health benefit plans. In the 2022 Call Letter, OPM states that it “strongly encourages FEHB Carriers” to monitor mental health provider access and availability, and that Carriers should “leverage ongoing telehealth expansion to address provider shortages while educating members regarding the availability of these services.” Additionally, OPM notes that it has worked with FEHB Carriers to ensure that all FEHB enrollees have access to telehealth coverage.

RESPONSE

Thank you for your comment highlighting OPM's expansion of telehealth services, including mental health services. NQF has incorporated this detail into the Policies and Practices section of the environmental scan.

Child Neurology Foundation

COMMENT

While NQF's review of telehealth policies comprehensively describes national changes, the environmental scan contains little to no description of state-level approaches to telehealth. We recognize that analyzing state approaches to telehealth is time-consuming and complex. However, tens of millions of children have coverage which is regulated by Medicaid, the Children's Health Insurance Program and/or state-level insurance policies. According to the Kaiser Family Foundation, approximately 37 million children are enrolled in Medicaid or CHIP in the U.S. Another 40 million children receive coverage through private insurance according to the National Center for Health Statistics within Centers for Disease Control and Prevention. Without consideration of telehealth policies at the state-level, the environmental scan incompletely depicts the status of telehealth policy across the U.S., and particularly for children.

RESPONSE

Thank you for this comment. The report highlights several examples of policy at the state level (e.g., state-level bills extending telehealth payment parity), but examining each state's policies is outside of the scope of this work. NQF has provided resources in the report linking to the work of the ATA, CCHPA, and other organizations which provide state-level telehealth policy updates.

RUPRI Health Panel at U of Iowa

COMMENT

Excellent report. The section on HRSA resources (page 19) needs to be updated to reflect the move of OAT out of FORHP (still within HRSA). A review of comment letters responding the HHS request for information re extending deregulatory (waivers) actions beyond the end of the public health emergency could be informative (notice was published November 25, 2020).

RESPONSE

Thank you for this comment. NQF has reflected the organizational change for OAT in the updated scan. NQF will also review the comment letters on extending deregulatory waivers to help inform the final report.

Department of Veterans Affairs

COMMENT

I really enjoyed reviewing this thorough environmental scan. As an employee for the VA and member of the Western Region Veteran Rural Health Resource Center, I appreciate the dialogue/language on VA's Telemedicine efforts. The VA's Digital Divide Consult has been well received and I am glad to see it was described in this scan. Broadband connectivity is a clear barrier for our rural Veterans and communities. The Digital Divide Consult provides an opportunity for our providers to have a patient's connectivity resources reviewed and if needed, provided to them. We are currently attempting to examine the potential limitation of having the Digital Divide Consult be conducted by social workers only. There is uncertainty on whether sufficient social worker staffing exists to support rural Veteran outreach. We need to ensure the Digital Divide Consults are happening among our rural Veterans. Uptake of VA Video Connect has been stronger among our urban Veterans vs rural and this may be one possible theory. In short, we need to make sure our rural population has the equal chance of getting broadband and video

connected devices in their hands. Overall, this is a wonderful piece of literature and found it to be complete and accurate from my experience working in the VA.

RESPONSE

Thank you for your comment and for providing additional detail on the Digital Divide Consult.

Other Comments

NRLCA Rural Carrier Benefit Plan

COMMENT

Health Equity: While the report does address rural health disparities (e.g., access to care), consider broadening the lens to acknowledge the intersection of disparities across multiple social determinants of health (e.g., age, income, employment, race/ethnicity, etc.).

RESPONSE

Thank you for this comment. NQF and the Committee agree that health equity and disparities are an important topic for the framework to address. Equity is currently reflected in the draft framework as a domain, and NQF will ensure that these social determinants of health are reflected in the final recommendations report.

Child Neurology Foundation

COMMENT

CNF believes in the importance of developing quality measures for telehealth that account for the needs of patients, families and caregivers, and providers. Children with special health care needs, such as those with a neurological condition, and their families, must be at the heart of telehealth policy, including assessments of quality. Right now, their concerns are being forgotten in the rush to advance telehealth. If the U.S. hopes to foster high-quality, equitable telehealth services, all aspects of the system must consider the unique needs of medically complex children. For children and families managing neurologic conditions, telehealth has the capacity to reduce inequities in access related to wait times and geographic distribution of neurologists. CNF supports development of a telehealth quality framework which accounts for the unique needs of the child neurology community. CNF believes that quality metrics must account for the patient and provider experience to provide meaningful feedback for quality improvement. As such, we encourage NQF to strongly consider inclusion of the patient-reported outcome performance measures included on the preliminary measures.

CNF also stands ready to help with this process however we can and would like to share what we have learned from our community. In honor of our 20th anniversary, CNF reimagined its annual Needs Assessment Survey to gain a better, more inclusive understanding of the entire child neurology community. While this is not a scientific survey and the data is primarily intended to assess and improve the impact of our programming and services, this data can also demonstrate the needs for how we can collaboratively build programming and find solutions with our partners for how to best serve the child neurology community. In this case, we have learned:

60% of all survey participants prefer to use a hybrid of telehealth and in-person visits, but another 19% want to use exclusively telehealth.

Currently, however, only 10% of patients report using telehealth.

Almost three-quarters of survey participants noted that they need at least some help with gaining “access, or more convenient access” to a neurologist.

Approximately 70% of respondents indicated they needed at least some help with accessing technology or internet for accessing their virtual appointments.

Related, 70% of participants also reported needing at least some help with securing a more convenient transportation to get to appointments.

30% of respondents do not have wi-fi at home, and instead use a data plan, public wifi, or a personal hotspot.

RESPONSE

Thank you for sharing this information. NQF has noted your support for the PRO-PMs included in the original scan and will reflect this in further discussion with the Committee.

University of Mississippi Medical Center – Telehealth Center of Excellence

COMMENT

Telehealth can play a critical role during disaster response. The key to enabling this response is communication. Looking at companies such as AT&T and Firstnet, and more recently Elon Musk led Starlink, we see that communication plays a large role in the first responder’s daily activities. “The FirstNet mission is to deploy, operate, maintain, and improve the first high-speed, nationwide wireless broadband network dedicated to public safety. This reliable, highly secure, interoperable, and innovative public safety communications platform will bring 21st century tools to public safety agencies and first responders, allowing them to get more information quickly and helping them to make faster and better decisions.” (<https://www.firstnet.com>). We encourage AT&T to continue to expand on the FirstNet network in order to provide additional telecommunication resources during a disaster.

Starlink could be another potential player during a disaster response. Recently, during the Washington wildfires in August of 2020, first responders in Washington utilized the Starlink satellite system to bring internet to rural Washington. (<https://www.cnbc.com/2020/09/29/washington-emergency-responders-use-spacex-starlink>). The low latency nature of Starlink is a perfect example of being able to quickly get communications up and running to an area of the country that has been affected by a natural disaster. It is stated in the article that the network was up and running in less than 10 minutes.

Once the communication path has been established, telehealth provides a crucial role in the response. It enables board certified specialist to connect to multiple locations and be able to triage patients quickly to determine the severity of those patients, better utilizing the limited resources available during a disaster. Those specialists can stay in their home base, limiting the amount of individuals needing to be on location where the disaster has struck. But the specialist is able to provide their expertise over a telehealth connection and be able to triage those patients to the most appropriate level of care.

We encourage the Forum in their endeavor to provide guidance on utilizing telehealth during a disaster.

RESPONSE

Thank you for your comment. The Committee discussed the need to develop broadband and telecommunication infrastructure for both providers and patients in rural areas in order to facilitate the expansion of telehealth services. NQF has highlighted these examples in the environmental scan.