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Rural Telehealth and Healthcare System Readiness Measurement Framework

FINAL REPORT

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Executive Summary

Telehealth use significantly increased in 2020, spurred by changes in healthcare delivery due to the coronavirus disease 2019 (COVID-19) pandemic, expanded reimbursement, and other facilitating policies. While the shift to telehealth offers potential benefits, such as greater access to care for patients and reduced costs, measuring the quality of care provided via telehealth is critical. Standardized, comprehensive measurement of telehealth is needed to inform how to leverage it to enhance care delivery, increase access to care, and achieve positive health outcomes. This need is particularly important in rural America, which faces unique risks and barriers to achieving optimal health outcomes.

In this project funded by the Centers for Medicare & Medicaid Services (CMS), the National Quality Forum (NQF) convened a multistakeholder Committee to provide guidance on how to assess the impact that telehealth has on healthcare system readiness and health outcomes during emergencies such as pandemics, natural disasters, mass violence, and other public health events, specifically for rural areas. To inform the Committee's work, NQF conducted an environmental scan of peer-reviewed literature on how telehealth is being used in rural areas to deliver care during or for emergencies, the evolving telehealth policy and practice landscape, and quality measures related to telehealth and healthcare system readiness. Building on the environmental scan and the 2017 Telehealth Measurement Framework, this report puts forward a conceptual measurement framework to guide quality and performance improvement for care delivered via telehealth in rural areas in response to disasters.

The framework includes five domains:

- **Access to Care and Technology**: the ability of telehealth to increase rural patients' access to certain types of healthcare during emergencies
- **Costs, Business Models, and Logistics**: the costs of using telehealth, how it is supported financially, and delivery model implications
- **Experience**: how interactions of patients/caregivers and care team members through telehealth meet their needs and preferences
- **Effectiveness**: the desired outcomes, safety, and timeliness of care delivered via telehealth
- **Equity**: how telehealth can help support equal opportunities for all people to be healthy

Considerations for each domain are outlined along with rural-specific measurement issues and potential solutions (e.g., low-patient volumes, broadband access, role of local organizations in influencing health, and local resources). In using the framework, the Committee examined and selected 26 performance measures aligned with the five domains that should be prioritized for use to assess care delivered via telehealth in rural areas affected during emergencies and disasters. These measures focus on access to care and specialists, acute care needs, admissions and readmissions, behavioral health, care coordination, and patient experience. However, measure gaps exist in the priority areas identified in the framework. Several prioritized measure concepts are proposed that aim to fill these gaps. Specifically, measures are needed that address the digital divide, timeliness of care, telehealth care utilization during emergencies, adaptability and healthcare system readiness, health equity (e.g., focused on social determinants of health [SDOH], health literacy, and health disparities), and experience with telehealth. Furthermore, 10 recommendations summarize current priorities for evaluating rural telehealth during emergencies and underscore key areas for future measurement. This report is intended to help stakeholders identify which measures are available for 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 large-scale emergency events.

Introduction

Background

Telehealth includes healthcare services and health education provided via electronic and telecommunication technologies.[1] For example, telehealth includes real-time phone or video conferencing, asynchronous care (e.g., via email), patient education, and remote patient monitoring. Telemedicine is a large component of telehealth in which medical care is delivered through video, phone, or asynchronous communication.[2]

Telehealth has been available for many decades. Yet prior to the COVID-19 pandemic, telehealth was only offered in limited circumstances to address specific clinical issues (i.e., specialist availability) through consumer-based platforms and in integrated health systems. This was due to restrictions on telehealth reimbursement and the patchwork of state-level policies that limited the business model for telehealth. Limited broadband has also been an issue, particularly in bringing telehealth to rural areas. However, since the start of the COVID-19 pandemic in March 2020, telehealth has grown substantially, filling vital gaps in care delivery caused by the stay-at-home and social distancing guidelines.[3,4] The growth of telehealth has been fueled by changes in reimbursement and other policies that facilitated payment and delivery of care,[5,6] thus creating a viable business model for telehealth. Notably, the fate of these facilitating policies post-pandemic is uncertain.[7] Yet what is clear is that many of the novel use cases for telehealth that were developed during the pandemic will likely remain in place long-term. For example, during the pandemic, telehealth has been used to help triage and treat emergency department (ED) patients and for remote hospitalist coverage by health systems.

The value proposition of telehealth is to improve access to care by increasing communication channels among clinicians and between patients and clinicians. Telehealth can enhance quality of care, particularly when increased communication can improve treatment recommendations. Telehealth can also fill a gap in care delivery in which access is restricted by geography, specialist availability, or other barriers. Telehealth is particularly useful in bringing care to rural communities where barriers to accessing healthcare services are common[8] and existed prior to the COVID-19 pandemic. For example, rural communities have reduced access to in-person services due to long travel times and fewer services available in general, particularly specialists.[9] While telehealth holds promise in increasing access to rural areas, challenges include inadequate access to technology and limited broadband internet connections in some rural communities. Rural residents also have higher rates of chronic medical and mental health conditions, less access to health education, and poorer health literacy.[10,11] As a result, rural Americans have worse health outcomes than those living in nonrural areas. This has been termed the *rural mortality penalty*.[12]

The rural mortality penalty is particularly prominent in time-sensitive emergencies; during public health emergencies, such as COVID-19; and disasters. Time-sensitive emergencies include stroke and trauma care, in which early access to specialists improves outcomes. Telestroke is an example of telehealth helping to solve the rural access issue to specialty care. It provides greater access to a stroke neurologist in rural EDs and improves physicians' ability to make critical, time-sensitive decisions for stroke, such as whether to use tissue plasminogen activator (tPA) and whether to transfer patients to higher-level care

for more advanced services, such as clot retrieval.[13,14] Another example is tele-emergency, in which emergency physicians are available for remote, often rural hospitals for consultation regarding transfers to higher levels of care.[15]

Despite the large expansion of telehealth in American healthcare, quality measurement for telehealth is in an early development phase. This is because quality measures have not kept up with telehealth delivery models, particularly those that developed and expanded recently during the COVID-19 pandemic. Telehealth quality measures have not been developed nor tailored to the needs of rural areas, for time-sensitive and public health emergencies, and for disasters. To measure the quality of care for rural telehealth, a measurement framework is needed to identify appropriate ways to assess quality as well as identify gaps for future measure development.

The goal of this project is to create a conceptual measurement framework for telehealth quality measurement in rural areas for time-sensitive emergencies and in response to public health emergencies, such as COVID-19, as well as disasters. The focus is to identify measures available for current use, as well as to encourage the development of new measures. This project builds on prior NQF-related work. Prior work includes a quality measurement framework for telehealth (detailed in the 2017 Telehealth Framework Report) that described four domains for telehealth measurement:

- **Access to Care**: how telehealth increases whether individuals can obtain clinical services and whether remote practices can deliver specialized services
- **Financial Impact or Cost**: the cost burden on patients/family/caregivers and to clinicians and organizations to implement telehealth services
- **Experience**: how patients perceive their telehealth, including the usability of telehealth services and the effect of telehealth on patients, care teams, and the community
- **Effectiveness**: how the quality of telehealth care compares to the quality of in-person care. This domain also addresses the difference in patient outcomes when in-person services are unavailable and care is provided via telehealth.

This project uses a similar approach to the 2017 Telehealth Framework Report but focuses on issues unique to rural areas as well as those that apply specifically to time-sensitive emergencies and disasters. In addition, the current project has an increased focus on equity, which was added as a separate domain. This project also integrates concepts from other related reports, including ED transitions in care (2017), chief complaint-based measures (2019), trauma outcomes (2019), and healthcare system readiness (2019).

While this report focuses on telehealth, it is not intended to imply that telehealth can replace all care or that telehealth can function independently of the rest of the healthcare system. In-person care is required in scenarios that cannot be treated optimally using telehealth and is based on patient preference. In addition, patients who cannot be cared for completely by telehealth require referral for in-person care.

Project Overview

In 2021, NQF convened a multistakeholder Committee to address rural telehealth and system readiness with funding from CMS. Nominations for the Committee were solicited through a public, 30-day nomination period from which a list of proposed appointees was subject to a public commenting period.

The 25-member Committee represents experts in rural healthcare delivery, telehealth research, telemedicine, healthcare policy, critical illness and disease management, health information technology (IT), and caregiver/patient advocacy (see Appendix A for a full list of Committee members).

NQF convened the Committee for six web meetings between January and October 2021. During these meetings, the Committee reviewed and provided feedback on the project's Environmental Scan Report titled Leveraging Quality Measurement to Improve Rural Health, Telehealth, and Healthcare System Readiness, which included a review of current telehealth policies and practices, literature review, and scan of potentially relevant measures and measure concepts. The Committee used the content of the Environmental Scan Report to inform the discussion and development of a measurement framework as well as a list of existing measures and measure concepts relevant to rural telehealth and its impact on enhancing healthcare system readiness and outcomes.

Development of the Measurement Framework

Methodology

Measurement Framework

To develop the draft measurement framework, NQF began by adapting the domains and structure of the 2017 Telehealth Framework. The four domains from this framework (i.e., Access, Financial Impact/Cost, Experience, and Effectiveness) were used because they were developed recently and remain directly relevant to rural telehealth for time-sensitive emergencies and disasters, which is a subset of the earlier, more general framework.

From February 2021 through November 2021, NQF staff iterated on this initial draft framework based on the Committee's input shared via surveys and web meeting discussions. Suggestions from the Committee included additions to the list of considerations (e.g., referencing the importance of basic digital literacy and training; acknowledging the wider economic impact of telehealth on rural communities, such as availability of local hospital jobs or reduced risks for employers in rural areas) as well as larger structural changes (in particular, the inclusion of equity in the framework as well as incorporating rural-specific measurement issues throughout the framework instead of as a separate domain). NQF revised the draft framework based on this feedback to include these additional considerations suggested by the Committee and modified the structure of the proposed framework to incorporate equity as a domain and rural-specific measurement issues underpinning all four domains. These changes were integrated to create the final version of the measurement framework presented below.

List of Relevant Measures and Measure Concepts

In addition to developing the measurement framework, NQF and the Committee also developed a list of 26 measures and 43 measure concepts relevant for use with the final measurement framework. NQF performed an initial measure scan; the initial approach and overall characteristics of the measures identified in the measure scan are detailed in the Environmental Scan Report. In short, NQF identified 324 potentially relevant measures related to rural-relevant conditions, telehealth-relevant conditions, and healthcare system readiness.

From this list of 324 potentially relevant measures, NQF created an initial short list of 25 measures rated by NQF staff members as most directly related to telehealth in rural areas during emergencies based on literature review and prior Committee input. This list of measures addressed a mix of cross-cutting topics (e.g., access to care, care coordination, and patient experience) as well as some additional condition-specific topics (e.g., measures on substance use). NQF also created a supplemental list of 82 measures rated by NQF staff members as less directly related to telehealth. Lastly, NQF created a list of 46 rural-relevant, telehealth-relevant, and system readiness-relevant measure concepts; these were drawn from over 350 measure concepts previously identified during the 2017 Telehealth Framework and the 2019 Healthcare System Readiness Framework projects. This short list of 25 directly related measures, 82 indirectly related measures, and 46 measure concepts was circulated with the Committee for feedback via an online survey. NQF sought input on the importance and feasibility of the 25 measures included in the short list, as well as recommendations for the most important, indirectly related measures and measure concepts to incorporate into the final list of measures and measure concepts. NQF also asked the Committee for input on measurement gaps.

Seven Committee members provided responses to the online survey, with three members providing additional written feedback via email. The feedback comprised suggestions to diversify the topics included in the measure short list and to include additional measures on mental health and depression, unplanned admissions and readmissions, medication management and side effects, transfer of information and care plans, and other topics. Based on this feedback, as well as discussion during web meetings, NQF removed eight measures from the 25-measure short list with the lowest-importance ratings. This included measures on patient experience, heart failure, weight assessment and counseling, and appropriate testing and antibiotic treatment for respiratory infections. NQF also included additional measures addressing access to care, care coordination, admissions and readmissions, acute care, and patient experience in the final list of relevant measures (Appendix B). NQF also compiled the suggestions for high-priority measure concepts and gaps to create the final list of measure concepts (Appendix C).

Framework

Intended Use

The Committee developed both a framework and a list of related measures and measure concepts that can be used to measure the quality of telehealth in rural areas during time-sensitive emergencies, public health emergencies, and disasters. While the framework is intended to focus on rural emergency care and disasters, elements of the framework are also applicable to nonemergency and nonrural telehealth use and can help to inform planning and baseline readiness to deploy telehealth delivery models. Quality measures include measures of structure, process, and health outcomes, all of which are related to telehealth. The framework and measures can be used to guide quality improvement efforts, as well as inform the development of new measures in gap areas. If the measurement framework is used for accountability purposes, then additional context, including duration, region, and type of emergency, should be considered.

The measures in this framework emphasize access and ease of use of telehealth services (i.e., assessing the difference between telehealth care and no care), as well as the outcomes of telehealth services. Measures can also be stratified to assess disparities between groups to assess equity of care. These measures can be used to compare differences between in-person and telehealth care and/or differences between different telehealth modalities (e.g., real time versus asynchronous, video versus phone visits).

However, the Committee shared that these differences may not be as relevant in the emergency context as access itself. Lastly, while the measures in this framework are focused on care during immediate emergencies, NQF and the Committee acknowledge that the nature of the emergency affects the measures that should be tracked. During short-term emergencies or disasters, acute care measures should be the focus; nonetheless, during an extended emergency, such as the COVID-19 pandemic, complex and chronic care measures (e.g., long-term prevention and wellness visits for patients with diabetes, cancer, chronic pain, and chronic obstructive pulmonary disease [COPD]) also become relevant.

Overview of Measurement Framework

The final framework developed by the Committee includes five domains: (1) Access to Care and Technology; (2) Costs, Business Models, and Logistics; (3) Experience; (4) Effectiveness; and (5) Equity (Figure 1). The Committee also identified a list of rural-specific measurement considerations and noted that the equity and rural health considerations "cut across" the other four domains. The domains and considerations specific to each domain are included below (Table 1).

Figure 1. Rural Telehealth and Healthcare System Readiness Measurement Framework

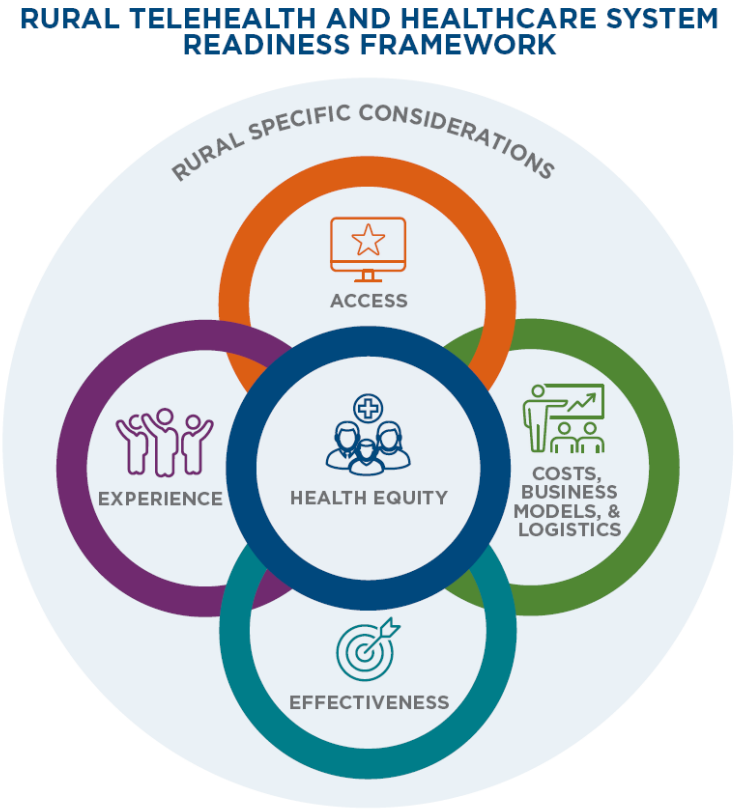

Table 1. Domain-Specific Considerations Within the Rural Telehealth and Healthcare System Readiness Framework

Domain	Considerations
Access to Care and Technology	• Clinical use cases: disaster-specific care, time-sensitive emergencies (e.g., stroke), access to primary/specialty care • Geographic distance/travel • Telehealth technology/capacity for communication (e.g., provider and patient access to devices that allow for participation in video or audio telehealth visits) • Broadband issues affect telehealth access and modality (phone versus video) • Basic digital literacy and training for patients and clinicians • System-wide care coordination, including interoperable technology and local resources
Costs, Business Models, and Logistics	• Cost to patients, caregivers, and insurers • Adaptability and system readiness • Business sustainability, spillover effects of telehealth (e.g., transfers, staffing) • Technology costs, logistics of launch, and existing partnerships • Wider financial impacts on the community (e.g., jobs, absenteeism)
Experience	• Patient experience with telehealth (e.g., need to learn multiple platforms, acceptability, and trust of technology) • Caregiver experience with telehealth • Clinician experience with telehealth (e.g., comfort with platforms, ability to get assistance and advice from trustworthy sources during an emergency) • Patient choice (option to receive remote versus in-person services) • Patient trust of health system and telehealth technology
Effectiveness	• Quality of care for clinical issues addressable through telehealth, other emergencies, and gaps in care that telehealth can address • Planning around clinical issues not addressable through telehealth • Time to care delivery, receipt of specific care • Specific care needs of rural patients
Equity	• How quality of care and outcomes differ by the intersection of factors, including but not limited to age, race, gender identity, disability, socioeconomic status (SES), language, and literacy • Social determinants of health (SDOH) (e.g., access to primary care, transportation, and food insecurity) • Impact on telehealth on addressing existing inequities

Each of these domains and associated considerations are described in further detail below.

Access to Care and Technology

The first domain of the measurement framework addresses access to care and technology. Topics in this domain relate to the ability of telehealth to increase rural patients' access to certain types of healthcare

during emergencies, as well as the barriers that may prevent rural patients from using telehealth to its greatest potential.

The Committee developed the following list of considerations related to this domain:

- **Clinical use cases.** Telehealth may be able to address a range of clinical use cases for rural communities, including disaster-specific care (e.g., triaging potential COVID-19 patients), time-sensitive emergencies (e.g., telestroke services), and access to ongoing primary and specialty care (e.g., wellness visits). However, telehealth cannot replace all in-person services (e.g., administering immunizations).
- **Geographic distance and travel.** Telehealth may reduce barriers to accessing care due to long distances from healthcare facilities and lack of transportation.
- **Telehealth technology and capacity for communication.** Telehealth capacity may be limited by provider and patient access to software and hardware that allows for participation in telehealth visits (e.g., access to a video-enabled device with capacity to run a Health Insurance Portability and Accountability Act [HIPAA]-compliant platform).
- **Broadband issues.** Video visits may be challenging in some areas due to limited broadband access; in these areas, audio-only visits may be a feasible option for telehealth services. Text interventions may also be able to play a role in supporting healthcare services. Advances in internet infrastructure (e.g., satellite internet) may expand broadband internet access in rural areas. Local institutions (e.g., libraries) may also serve as community hubs that can provide broadband service in a central location.
- **Basic digital literacy and training.** Both patients and providers should have basic digital literacy to participate in telehealth visits. Digital literacy training programs may be helpful in this area. For some patients who are not comfortable with technology, it may be helpful to connect them with a caregiver who can provide technical assistance to use telehealth visits.
- **System-wide care coordination.** Different providers must have access to interoperable technology and information to enable coordinated patient care. Patients may also receive care through multiple types of systems (e.g., some pediatric chronic care is conducted through the school system); health records should be shared between these different systems, which will provide health professionals with the information needed for effective care. Health information exchanges (HIEs) can be an important resource if telehealth records are integrated into an institution's electronic health records (EHRs). Note that care coordination should span beyond the limits of a single health system (e.g., community-wide coordination). Telehealth providers should also be able to connect patients with in-person local resources (e.g., emergency medical services, community health workers) for immediate assistance.

Costs, Business Models, and Logistics

The second domain addresses costs, business models, and logistics. This domain involves what resources are required to implement telehealth delivery (costs), how telehealth delivery is supported from a financial perspective in both the short- and long-term (business models), and how clinicians and organizations implement telehealth delivery models (logistics).

The Committee developed the following list of considerations related to this domain:

- **Costs to patients, caregivers, and insurers.** There may be out-of-pocket costs to patients for using telehealth services. Consideration was given to limit out-of-pocket costs to patients by

insurance companies during the COVID-19 pandemic. In addition, costs of telehealth should also count towards deductibles, particularly in high-deductible health plans.

- **Adaptability and system readiness.** Discussions were held about the importance of adaptability (i.e., the ability to change and scale up the delivery of services during an emergency, including provider attitudes and openness to using telehealth) and readiness (i.e., availability of equipment, telehealth systems, training, etc., prior to an emergency) during extended emergencies. The Committee did not have any immediate suggestions for measures related to adaptability; however, NQF staff proposed that general measures of chronic disease, access to care, and healthcare system readiness could be repurposed to focus on telehealth. Alternatively, interprofessional tools that assess the quality of teamwork within an organization could be adapted for telehealth.[16] In addition, the role of direct-to-consumer (DTC) models purchased by employers is uncertain because visits are sometimes invisible to longitudinal primary care physicians (PCPs) and may not consider overall care plans. Nonetheless, there was increased use of DTC platforms during the COVID-19 pandemic that increased access for rural communities.
- **Business sustainability and spillover effects of telehealth (e.g., transfers, staffing).** One of the limitations in a health system's willingness to invest in telehealth during the COVID-19 pandemic was the uncertain, future regulatory environment in the long term. This is particularly important for rural clinicians and organizations that have limited access to capital and resources. However, regulatory flexibility during the public health emergency, particularly the temporary relaxation on enforcing HIPAA during the COVID-19 pandemic, was a major facilitator of telehealth implementation.
- **Technology costs, logistics of launch, and existing partnerships.** Implementation of telehealth programs can be costly for caregivers and organizations. Launching a telehealth program can also be logistically difficult. For example, training clinicians on new telehealth platforms and ensuring that telehealth visits are staffed appropriately is a complex process. However, programs and resources such as the Health Resources & Services Administration (HRSA) Telehealth Resource Centers can provide guidance and consultation for organizations looking for guidance on low-cost options for start-up. During a public health emergency, such as COVID-19, rolling out telehealth was facilitated in health systems in which an infrastructure existed pre-pandemic. By comparison, health systems that had not previously developed telehealth infrastructure had a considerably harder time launching telehealth services, especially early in the pandemic when stay-at-home orders necessitated rapid telehealth deployment to maintain business operations and care continuity. One logistical hurdle during the COVID-19 pandemic was the slow process of hospital credentialing of clinicians. This might have been facilitated with a centralized credentialing platform across health systems. Alternatively, regulatory or legislative solutions could facilitate hospital credentialing for telehealth services during a public health emergency, such as COVID-19. Another logistical barrier to telehealth is the potential difficulty in tracking telehealth use in HIEs. Poor interoperability of telehealth data may create barriers to continuity of care and care coordination. A solution to this issue would be common, interoperable health IT, which would make it easier and less expensive for rural providers to adopt and maintain health IT to support telehealth visits. A national strategy that would require interoperable health IT during emergencies and that is ready to scale could save time and money during an emergency such as COVID-19. Additionally, interstate licensure has been a barrier to the implementation of telehealth historically. Rules were loosened during the pandemic to facilitate telehealth implementation. A federal program for physician licensure or

greater use of interstate licensure compacts long-term could facilitate telehealth implementation. The Committee also discussed that for pediatric care, many children receive some of their chronic care assistance through schools. Therefore, any discussion of telehealth for chronic care needs should consider the different systems that interact in providing chronic care and how telehealth is handled by each of these systems.

- **Wider financial impacts on the community.** Telehealth implementation can be costly to health systems. Implementing telehealth can have an impact on the business operations of local clinicians who work in rural areas. Therefore, costs of implementation should be considered through a wider lens and account for the wider financial impact on the community. In particular, funneling telehealth visits into a centralized system could harm local clinicians financially and potentially disrupt long-term local care availability if those clinicians are unable to remain financially solvent. When possible, including local clinicians in telehealth that affects their patients is one way to prevent this situation from occurring. Another consideration is to ensure that telehealth services do not systematically draw patients out of rural areas for ancillary services, such as laboratory testing or radiology.

Experience

The Experience domain includes the interactions of patients, caregivers, and care team members with telehealth. It aims to assess the extent to which individuals' interactions with telehealth reflect their needs and preferences.

- **Patient choice.** The option for patients to receive care remotely versus in person is a key consideration of this domain. It will be important to assess whether receiving care via telehealth is preferred by patients and for which types of appointments, conditions, or symptoms. Telehealth services may provide a greater opportunity to maintain their privacy while receiving care (e.g., allowing patients to receive behavioral health counseling from someone outside of their community).
- **Patient acceptability, trust of technology, and receiving care virtually.** Some patients, especially those in vulnerable populations, may not be comfortable with new technology platforms or devices, or they may have concerns about their privacy and security. Lack of consistency across platforms (e.g., if patients must navigate several platforms to visit different providers) may also negatively affect patient experience. Beyond the technology, telehealth measurement may consider whether patients trust the healthcare system when interacting with the care team virtually (e.g., "Do you have a comfortable relationship with your doctor?"). While many patients and caregivers successfully adapted to telehealth appointments during the COVID-19 pandemic, others may have had a substandard experience with telehealth, given the fast pivot, which might affect their willingness to use telehealth services in the future. Providing resources on how to use telehealth, sharing guidance to support patients' digital literacy and comfort level, and connecting patients with dedicated care team members who can assist with technical barriers are strategies that may improve patients' experience. Feedback from patients on their experience with telehealth can also provide valuable information on opportunities for improvement.
- **Clinician and care team experience.** The experience of providers and the care team is another key aspect of this domain. Ideally during emergencies, providers would already be familiar with telehealth systems and learn to use them ahead of disasters. Training exercises may improve

providers' comfort with using telehealth during emergencies, as well as establishing expectations for patient-centered care delivery. Telehealth may also allow providers to acquire assistance and advice from trustworthy sources in a timely manner during emergencies.

Effectiveness

The Effectiveness domain of the measurement framework addresses the quality and efficiency of care provided via telehealth. This encompasses measurement to ensure that care is effective, safe, and timely regardless of the delivery method. Note that while measures of effectiveness can facilitate comparisons between the same services rendered via telehealth versus in-person care, telehealth may also provide services that would be otherwise unavailable in an emergency situation. In this case, effectiveness measures are useful for understanding the quality of care being provided, with the caveat being that performance data from telehealth visits during emergencies may not be directly comparable with performance data from in-person visits.

The Committee discussed that care should be delivered to patients in the optimal manner for the given patient, provider, condition, and time. This may be either in-person or telehealth care or a combination of both across an episode of care. The ideal delivery method varies based on timing (e.g., changing circumstances during an emergency), specific care delivered, and logistics. The Committee developed the following list of considerations related to this domain:

- **Quality of care for clinical issues addressable through telehealth, other emergencies, and gaps in care that telehealth can address.** Telehealth is a modality for delivering healthcare, and the standard of care should be similar for both in-person and telehealth care. In scenarios that are appropriate to treat with telehealth (e.g., behavioral health evaluations and diagnoses), the quality of care and the outcomes for patients should be similar across in-person and telehealth care.
- **Planning for clinical issues not addressable through telehealth.** There are certain aspects of care that telehealth cannot address (e.g., administering vaccinations). Telehealth providers and systems should account for these clinical issues and should connect patients to local providers for these services.
- **Time to care delivery and receipt of specific care.** Telehealth may increase patients' access to providers, especially specialists. This can reduce the time to care delivery for time-sensitive services, such as substance use disorder (SUD) treatment, thus drastically improving patient outcomes.
- **Specific care needs of rural patients.** Rural patients are at higher risk for medical-, mental health-, and substance use-related conditions. They may also be isolated from their regular clinicians by geography and have less access to specialty care, as they commonly rely on local clinicians for their care. Telehealth may help meet these needs more effectively by improving access to care through remote connection, as well as involving specialists or care teams for more complex cases.

Equity

The final domain of the measurement framework is Equity. Health equity is a goal shared across the healthcare system to provide optimal care to all Americans. Items in this framework domain include the identification of disparities in access to care and outcomes.

The Committee developed the following list of considerations related to this domain:

- **How quality of care and outcomes differ by the intersection of factors.** Quality of care may vary based on a combination of factors, including but not limited to age, race, gender identity, disability (including physical, developmental, and intellectual disabilities), SES, language and communication barriers (including visual and hearing impairments as well as first language), geographical location, and literacy. As with in-person care, telehealth care should be assessed for these disparities and the information used to inform quality improvement efforts towards culturally appropriate care. By increasing the provider network available to rural patients, telehealth may also increase the availability of culturally sensitive care (e.g., easier access to a bilingual provider). It may be helpful to report measures along with demographic data (e.g., race and ethnicity) to understand whether care delivery is achieving equitable outcomes.
- **Social determinants of health (SDOH)**. The United States (U.S.) Department of Health and Human Services (HHS) defines SDOH as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."[17] Telehealth services may mitigate some of the impacts of SDOH on access to care and outcomes (e.g., providing opportunities to receive care despite unreliable transportation). For patients who receive telehealth services in their homes, providers may also have additional insight into their housing and social/community context; providers can screen for patients' needs related to SDOH and can address these needs to inform better care. It may be helpful for telehealth providers to work with the care coordination team (e.g., social workers) to refer patients to local assistance programs (e.g., food banks) when appropriate.
- **Impact on telehealth on existing inequities.** Increased provision of telehealth services may be able to help reduce disparities (e.g., increasing access to care for patients located in remote locations), but it may also worsen disparities depending on implementation and resource availability (e.g., leaving patients unable to afford internet-enabled devices with low access to care).

Rural-Specific Measurement Considerations

The Committee identified a list of rural-specific considerations that affect in-person care, telehealth delivery, and quality measurement across rural areas. These considerations are not specific to an individual domain of the framework but are pertinent across all domains. For example, increased broadband access directly relates to the Access to Care and Technology domain, but it also affects the other domains: Costs, Business Models, and Logistics (e.g., increased broadband infrastructure could reduce the costs to set up reliable technological systems for telehealth); Experience (e.g., patients may have more positive experiences with telehealth when the internet connection allows for video visits); Effectiveness (e.g., increased broadband may enable more timely telehealth visits to behavioral health specialists); and Equity (e.g., low-cost broadband could help increase access to care for disadvantaged populations).

These considerations should not only be seen as a list of challenges, but also as promising opportunities for improving healthcare delivery in rural areas. Improvement in these areas may be driven by a variety of stakeholders, including local champions of telehealth implementation and other stakeholders outside of the traditional medical system (e.g., volunteer fire departments and local organizations, such as churches and libraries).

Table 2. Rural-Specific Considerations Affecting Measurement of Telehealth and System Readiness

Challenge	Description	Potential solution(s)
Low patient volumes	Reduces measurement reliability and ability to risk-adjust at the clinician level	Aggregate data across larger areas (e.g., state) to improve reliability
Economic strain limits sustained investment	The ability of rural providers to invest in telehealth is limited, particularly without guarantees of long-term return on investment given policy uncertainty.	Provide rural-specific grants or other resources to sustainably support telehealth in rural areas; increase funding to rural providers for delivering telehealth services.[18] Solutions should include not only direct funding, but also commitments to infrastructure, education, and training, as well as a process for sustained funding over time.
Limited broadband access	Limited rural coverage allows for fewer residents to receive telehealth in their homes and limits the capacities of providers, including emergency services.	Create incentives for broadband providers to develop networks in rural areas, and pilot innovative programs, including local hotspots and satellite-based broadband systems, particularly in Native American reservations[19]
Telehealth may reduce in-person access	An unintended consequence of increased telehealth use may be reduced in-person care availability in rural areas as providers centralize and shift to telehealth.	Ensure and/or require that local rural providers and community members be included in plans to deliver telehealth services to local populations; monitor the impact of telehealth on local rural service providers
Scarcity of local in-person resources	If in-person care is recommended following a telehealth visit, availability may be limited due to provider shortages; rural communities and facilities may also face difficulties recruiting a workforce to implement and maintain telehealth technology.	Develop pathways to definitive care through additional telehealth resources (i.e., specialists); provide incentives or grants for the implementation of telehealth technology in rural areas across physician and nonphysician services
Rural readiness issues	Rural areas have limited resources for both healthcare and nonhealthcare readiness (i.e., equipment and human capital) required to respond to public health and time-sensitive emergencies.	Ensure that rural areas participate in regional healthcare coalitions in partnership with groups in metropolitan areas that may be able to share/contribute resources during public health and time-sensitive emergencies

Challenge	Description	Potential solution(s)
Informal communication among provider networks	Rural areas may have more informal networks of communication, which are not fully reflected in formal patient records and referrals, thus making it difficult to integrate telehealth and implement telehealth programs uniformly.	Ensure and/or require that local providers and community members be included in rural telehealth services and programs
Role of local organizations	Local organizations (e.g., churches, libraries) have an important impact on healthcare delivery in some rural communities. However, there are potential privacy issues in care delivery within these organizations as they are not traditional healthcare settings; the influence of these organizations may not be accounted for in traditional measurement systems.	Encourage telehealth programs to engage with local organizations to provide increased access to care for rural residents

Relevant Measures

Overall Characteristics

NQF and the Committee created a final list of 26 measures that are potentially useful for understanding aspects of quality represented in the framework. These measures can be used to assess aspects of performance related to four of the framework domains (i.e., Access to Care and Technology; Costs, Business Models, and Logistics; Experience; and Effectiveness). The list of measures includes 13 outcome measures (50 percent), including four patient-reported outcome performance measures (PRO-PMs) (15 percent) and 13 process measures (50 percent). Ten of the 26 measures are currently NQF-endorsed (38 percent), five have lost NQF endorsement (19 percent), and 11 are not endorsed (42 percent). Lastly, 23 of the measures (88 percent) are currently active in CMS' quality reporting programs.

The measures address a variety of topics and clinical conditions, including access to chronic and acute care, admissions and readmissions, care coordination, and patient experience. Highlights include the following:

- Two measures on access to care and access to specialists were selected based on the importance of assessing changes in access to specific services during emergencies in rural areas due to the use of telehealth.
- Three measures addressing telehealth-appropriate acute care are included to monitor access and quality of crucial, specialty, or time-sensitive care required during emergencies.
- Five admission and three readmission measures are included to assess how telehealth affects the overall quality of care and care coordination post-discharge.

- Five behavioral health measures are prioritized as rural patients, who are at elevated risk for conditions such as depression or substance use. These conditions may be exacerbated during emergencies.
- Seven care coordination measures, focused on topics such as follow-up, medication reconciliation, and care plan measures, are included. Telehealth may improve access to follow-up care and fill other gaps in care during emergencies.
- One patient experience measure is included. Using a survey-based assessment of access and experience with technology can inform improvements in telehealth implementation and delivery.

The specific measures relevant to each domain are listed below. Measures relevant to multiple domains are listed more than once (e.g., CMS Measures Inventory Tool [CMIT] 3501: Transfer of Health Information to the Patient Post-Acute Care is relevant to both access and effectiveness and is listed in both sections.) Committee members also noted the following caveats and potential unintended consequences:

- Quality measures that address more general topic areas (e.g., all-cause readmissions) rather than specific conditions are more likely to avoid low case-volume measurement challenges in rural areas. However, condition-specific measures are more likely to capture the effect of telehealth (e.g., stroke-specific measures can help measure the impact on patient outcomes after establishing a telestroke program). Both general and condition-specific measures have been included in this list of potentially relevant measures.
- Both primary and secondary health effects result from an emergency (e.g., hospitalizations might increase immediately after a natural disaster due to direct injuries; later, hospitalizations increase due to chronic conditions that went untreated due to lack of access to primary care following the disaster). This distinction between primary and secondary health effects should be considered when interpreting changes in measure performance over time; primary effects may be unavoidable, but secondary effects can be mitigated by an adaptable and well-prepared healthcare system. Committee members noted that these considerations are especially relevant to admissions/readmissions and behavioral health measures.
- While the list of potentially relevant measures includes clinician-, facility-, and health plan-level measures, it may also be helpful for stakeholders to supplement these measures with population-level measures of mortality, overdoses, suicide rates, etc., in order to identify disparities in care across larger geographic regions.
- Readmission measures act as a proxy for failures of outpatient care and poor discharge planning. Committee members noted that these measures do not capture all possible failures of care (e.g., being placed under observation), but they can still provide general insight into patient outcomes over time.
- Admission and readmission measures may be difficult to interpret during emergencies and should be used alongside other measures for context. For example, reduced admissions during an emergency could be undesirable (e.g., patients are avoiding the healthcare system due to fear of infection), and increased admissions could indicate good care (e.g., a local healthcare facility is closed, so the next nearest hospital admits a larger number of patients).
- Care coordination may be limited by resources during emergencies (e.g., if internet is no longer available, data cannot be transferred electronically). However, the importance of care coordination is heightened with the use of telehealth (which can inadvertently disrupt regular

care processes) and during emergencies (in which care from temporary healthcare providers can be lost entirely if it is not recorded and communicated properly). Committee members encouraged tracking care coordination measures over time and using the next best available technology (e.g., audio calls) during emergencies.

Access to Care and Technology Measures

Category	NQF ID	Endorsement Status	Measure	Notes
Access	N/A	Not Endorsed	Access to Care (Agency for Healthcare Research and Quality)	*
	N/A	Not Endorsed	Access to Specialists (Agency for Healthcare Research and Quality)	*
Admissions	0272	Endorsement Removed	Diabetes Short-Term Complications Admission Rate (PQI01-AD)	Developer could no longer support maintenance.
	0275	Endorsement Removed	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI05-AD)	Developer could no longer support maintenance.
	0277	Endorsement Removed	Heart Failure Admission Rate (PQI08-AD)	Developer could no longer support maintenance.
	2888	Endorsed	All-Cause Unplanned Admissions for Patients With Multiple Chronic Conditions	*
Behavioral Health	0004	Endorsed	Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	*
	0418 / 0418e	Endorsement Removed	Preventive Care and Screening: Screening for Depression and Follow-Up Plan	Developer did not resubmit this measure for endorsement but plans to maintain this measure independently.
	0576	Endorsed	Follow-Up After Hospitalization for Mental Illness	*
	2152	Endorsed	Preventive Care and Screening: Unhealthy Alcohol Use: Screening & Brief Counseling	*
Coordination	0006	Endorsed	Care Coordination (Centers for Medicare & Medicaid Services)	*
	0097	Endorsed	Medication Reconciliation Post-Discharge	*
	0326	Endorsed	Advance Care Plan	*
	N/A	Not Endorsed	Drug Regimen Review Conducted With Follow-Up for Identified Issues PAC IRF QRP	*
	N/A	Not Endorsed	Closing the Referral Loop: Receipt of Specialist Report	*

Category	NQF ID	Endorsement Status	Measure	Notes
Coordination (cont.)	N/A	Not Endorsed	Transfer of Health Information to the Patient Post-Acute Care (PAC)	*
	N/A	Not Endorsed	Transfer of Health Information to the Provider Post-Acute Care (PAC)	*

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Costs, Business Models, and Logistics Measures

The environmental scan did not identify any relevant measures related to costs and business models. During the discussion, NQF and the Committee did consider several measures related to logistics. These included structural measures, such as NQF #0497 *Admit Decision Time to ED Departure Time for Admitted Patients* and N/A: *Median Time From Emergency Department Arrival to Time of Departure From the Emergency Room for Patients Admitted to the Hospital*. However, the Committee suggested that more general measures related to time-to-consult would be more relevant for rural healthcare facilities during emergencies. These specific concepts are described in further detail in the Measurement Gap Areas and Measure Concepts section.

Experience Measures

Category	NQF ID	Endorsement Status	Measure	Notes
Coordination	0006	Endorsed	Care Coordination (Centers for Medicare & Medicaid Services)	*
Experience	N/A	Not Endorsed	CAHPS Health Information Technology Item Set	The Committee also recognizes that the Clinician & Group Visit CAHPS survey (4.0) is being modified to refer to the most recent visit, whether in-person, by phone, or by video. These changes were made in order to be responsive to the increased use of telehealth as a result of COVID-19. While the survey is still in beta testing, the updated CAHPS survey may be a useful addition related to assessing patient experience in the future.

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Effectiveness Measures

Category	NQF ID	Endorsement Status	Measure	Notes
Acute	N/A	Not Endorsed	Median Admit Decision Time to ED Departure Time for Admitted Patients (eCQM)	*
	N/A	Not Endorsed	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate Following Acute Ischemic Stroke	*
	N/A	Not Endorsed	Emergent Care for Improper Medication Administration, Medication Side Effects	*
Admissions	3490	Endorsed	Admissions and Emergency Department (ED) Visits for Patients Receiving Outpatient Chemotherapy	*
Behavioral Health	3175	Endorsed	Continuity of Pharmacotherapy for Opioid Use Disorder (OUD)	*
Coordination	0006	Endorsed	Care Coordination (Centers for Medicare & Medicaid Services)	*
	0097	Endorsed	Medication Reconciliation Post-Discharge	*
	N/A	Not Endorsed	Drug Regimen Review Conducted With Follow-Up for Identified Issues PAC IRF QRP	*
	N/A	Not Endorsed	Transfer of Health Information to the Patient Post-Acute Care (PAC)	*
	N/A	Not Endorsed	Transfer of Health Information to the Provider Post-Acute Care (PAC)	*
Readmission	1768	Endorsement Removed	Plan All-Cause Readmissions	Withdrawn by developer.
	1789	Endorsed	Risk-Standardized, All Condition Readmission	*
	N/A	Not Endorsed	Potentially Preventable 30-Day Post-Discharge Readmission Measure (Claims Based)	*

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Equity Measures

During the environmental scan and subsequent discussion, NQF and the Committee did not identify any relevant, fully developed measures directly linked to equity (e.g., no direct measures of SDOH or direct measures of outcomes for a specific demographic group), although at least one SDOH measure is in development (CyncHealth's transportation measure). Several of the measures included in the list of framework-relevant measures are risk-adjusted (e.g., NQF #2888, #3490, #1768, and #1789), which adjusts for differences in performance but does not directly address the reasons for differences in performance.

It may be useful to stratify the measures included in this list to identify differences in performance and inform quality improvement efforts to increase equity. Stakeholders may also consider additional measurement in areas in which disparities are already known to exist or adapting existing measures.

Additional Considerations

In addition to the 26 measures included above, additional measures may be useful to consider. For example, the following six measures may be useful to assess patient treatment and outcomes for chronic conditions in rural areas in the context of an extended emergency.

Category	NQF ID	Endorsement Status	Measure	Notes
Chronic Care	0018	Endorsed	Controlling High Blood Pressure	*
	0059	Endorsed	Comprehensive Diabetes Care: Hemoglobin A1C (HbA1c) Poor Control (>9.0%)	*
	0575	Endorsed	Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Control (<8.0%)	*
	2079	Endorsed	HIV Medical Visit Frequency	*
	2082	Endorsed	HIV Viral Load Suppression (HVL-AD)	*
	N/A	Not Endorsed	Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented	*

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Measurement Gap Areas and Measure Concepts

This work identified gaps for measures that should be developed to ensure the existence of efficient and effective measurement systems for rural telehealth and healthcare system readiness. The Committee identified measurement gaps in the following topic areas:

- The digital divide (e.g., access to broadband internet and/or devices that support telehealth visits, comfort with the use of different types of technology, and reliable performance of technology and access to digital technology devices [e.g., shared versus personal computers and mobile devices])
- SDOH (e.g., health literacy, language preference, transportation access, and accessible design criteria for telehealth platforms and availability of user support for patients with intellectual or developmental disabilities)
- The quality of processes and outcomes associated with telehealth delivery
- The amount of time taken from request to medical consultation
- The patient experience with telehealth (e.g., access to a confidential space during telehealth visits)
- The amount of telehealth services used by patients and clinicians during a disaster or emergency (e.g., volume of visits)
- Adaptability and system readiness, including the time and ability to scale up capacity during disasters, and participation in regular readiness drills/exercises

- Telehealth technology interoperability (i.e., exchange of data and information between providers and specialists)

The Committee also reviewed measure concepts from the 2017 Telehealth Framework and the 2019 Healthcare System Readiness Framework to identify the concepts most relevant to rural areas during emergencies. A total of 43 relevant measure concepts were identified by the Committee, including 32 measure concepts from the 2017 and 2019 Telehealth and Healthcare System Readiness reports and 12 additional measure concepts. The full list of these measure concepts is included in Appendix C, with additional information on the relevant framework domain as well as an example of a measure that might help to address the concept. If developed into fully specified measures, these measure concepts could potentially help fill some of the gap areas previously described.

The Committee identified 14 measure concepts as the most important measure concepts to prioritize for measure development. The table below lists the measure concepts in order of importance, as well as points of discussion relevant to each concept.

Table 3. Measure Concepts Most Relevant to Rural Telehealth and Healthcare System Readiness Framework

Measure Concept	Relevant Framework Domains	Notes
Availability of reliable broadband for patients and providers to participate in telehealth visits	Access to Care	• Broadband access is limited in rural areas despite the availability of funding. • Broadband enables patients and providers to participate in video visits. • For patients without broadband access in their homes, community resources (e.g., libraries or community centers with internet) may be a gateway for telehealth visits.
Removing geographic limitations increased the volume of specialty providers	Access to Care; Experience; Effectiveness	• In-person access to specialists is limited in rural areas; nonetheless, telehealth allows patients to connect with many providers across the country.
Able to provide care without admission into the emergency room (ER)	Access to Care; Costs, Business Models, and Logistics	• Increased access to trained and licensed medical care professionals and specialists through telehealth can prevent use of the ED for nonemergent care. • Increased access to care through telehealth can also treat chronic conditions before they develop into emergencies.
Reduction in diagnostic errors and avoidance of an adverse outcome because of telehealth	Costs, Business Models, and Logistics; Experience; Effectiveness	• Telehealth visits may facilitate a smoother diagnosis process or lead to earlier diagnosis of conditions due to increased access to care. • However, telehealth visits could lead to increased diagnostic errors due to less extensive physical examination or reduced capture of incidental findings from other testing.

Measure Concept	Relevant Framework Domains	Notes
The healthcare system was able to effectively provide the care that was recommended during a natural disaster and/or emergency because of telehealth	Effectiveness	• Depending on interoperability and consistency between different systems, telehealth may increase the transfer of information between different providers and enable more effective care for patients. • The telehealth system should be able to connect patients with any medication and/or equipment needed as part of care for their condition.
Satisfactory visit for both the patient and provider	Experience	• Patients and providers may be more satisfied with telehealth visits because of factors including convenience and cost-effectiveness. • However, telehealth visits may be unsatisfactory due to factors such as limited proficiency or frustration with technology on both the user and provider sides.
Travel was eliminated or reduced for a specific patient encounter because of telehealth services	Access to Care; Costs, Business Models, and Logistics; Experience	• Reduced restrictions on originating sites, increased participation of providers in telehealth platforms, etc., may increase the availability of telehealth for patients directly from their homes. This can eliminate rural patients' extended travel to visit providers in person.
Creation, resourcing, and active practice of plans to create additional surge capacity in hospital and nonhospital settings	Costs, Business Models, and Logistics	• For providers and systems to be able to scale up telehealth programs and create surge capacity during emergencies, a baseline telehealth program and a plan for scale-up must be established prior to the emergency.
Deployment of mechanisms to identify and respond to uniquely stressed care capabilities within the system (e.g., overwhelmed EDs, intensive care units [ICUs], mental/behavioral health practices, long-term care facilities, health centers, etc.)	Costs, Business Models, and Logistics	• Prior to emergencies, systems should identify what types of care are appropriate to be handled by telehealth. • Systems should also establish a plan that covers the steps needed to handle "overflow" cases via telehealth during high-stress periods.

Measure Concept	Relevant Framework Domains	Notes
Referrals to in-person visits when a clinical issue should not be addressed via telehealth	Costs, Business Models, and Logistics; Effectiveness	• Some conditions are appropriate to treat via telehealth (e.g., behavioral health evaluation and therapy). Other conditions may require an in-person visit for effective care (e.g., infections that require additional laboratory testing or shots that need to be administered as part of treatment) or a hybrid of telehealth and in-person care.
Decrease in wait times for patients	Experience	• Wait times may be reduced for telehealth patients due to increased access to providers, reduced delays from travel, more efficient check-in, etc.
Providers can see complex patients more efficiently	Access to Care; Effectiveness	• Depending on the interoperability and efficiency of telehealth systems, telehealth could increase care coordination/transfer of information and availability of specialty providers to improve care for complex patients.
Telehealth offers the same quality of services across a population of similar patients	Effectiveness	• Telehealth should provide consistent quality of care for patients.
Comparison between in-person and telehealth for clinical quality and value across all six domains from the Institute of Medicine (IOM)	Effectiveness	• The same quality of care should be provided regardless of modality (in-person versus telehealth) when treating telehealth-appropriate conditions. • Clinical quality and value considerations include safety, effectiveness, person-centeredness, timeliness, efficiency, and equity.

Measurement Recommendations

Based on the Committee's discussions, several recommendations were offered to advance rural telehealth measurement for time-sensitive emergencies, public health emergencies, and disasters.

Recommendation #1: Measures of general health outcomes, access to care, and care coordination exist and are endorsed by NQF. Many of these measures can potentially be used to assess the impact of rural telehealth indirectly. For example, telehealth would be expected to increase access to care; improve general care and health outcomes, including hospital admissions and readmissions and days at home in the last six months of life; and support addressing SDOH. These measures are relevant for both acute conditions and chronic disease management, the latter of which is important during public health emergencies, such as COVID-19, in which regular care is disrupted for prolonged periods of time. (Access to Care; Effectiveness; Equity)

Recommendation #2: Existing measures of behavioral health and substance use could be used or adapted to assess the impact of telehealth services on rural communities. Rural residents are at higher risk for these conditions, and behavioral health services are deliverable through telehealth technology. (Access to Care; Effectiveness; Equity)

Recommendation #3: Measures of care coordination and planning are generally applicable across multiple conditions and are directly relevant to rural telehealth, particularly during public health emergencies, such as COVID-19. Several existing measures could be used or adapted to assess care coordination. Because these services may be less accessible in rural areas, performance on these measures would be expected to improve with increased use of telehealth in rural areas. (Access to Care; Effectiveness)

Recommendation #4: Measures for rural telehealth should be developed that address patient access to internet and internet-enabled devices, as well as measures of broadband capacity to deliver telehealth services within rural communities. Interoperability is also a vital component that supports high quality care delivery; telehealth visit data should be interoperable with other health information systems that contain patient data. (Access to Care; Costs, Business Models, and Logistics)

Recommendation #5: Measures that assess the patient experience with rural telehealth should be developed or adapted from existing measures (e.g., Consumer Assessment of Healthcare Providers and Systems [CAHPS]). However, specific questions should focus on technology experience, accessibility, time to request a visit, and whether it resulted in effective avoidance of travel and/or in-person care, which would also need to be included. Experience measures could also include assessments of patients' understanding of their visits. (Experience; Costs, Business Models, and Logistics)

Recommendation #6: Novel rural telehealth measures should factor rural-specific considerations, including the potential for small sample sizes, which have an impact on the reliability and validity of measure scores. In addition, measures should consider potential unintended consequences of rural telehealth, such as drawing local care into a centralized service and limiting the business of in-person rural healthcare services. (Rural Considerations)

Recommendation #7: Measures that directly assess the quality of telehealth should be developed to ensure that quality is improved by utilizing telehealth technology, care is appropriate for telehealth, or recommended care was received following a telehealth visit. This may involve assessing outcomes or processes of care related to specific healthcare activities or conditions. Telestroke is an example in which existing measures could be used to assess how telehealth could improve the quality of time-dependent stroke services. Future quality measurement development could also assess whether telehealth was an appropriate service by assessing whether conditions are telehealth-sensitive (i.e., should and can be diagnosed through telehealth). Alternatively, future measures could be developed to assess whether in-person care was utilized when recommended following a telehealth visit (e.g., a telehealth diagnosis of chest pain referred for an in-person electrocardiogram [EKG] and labs to rule out acute myocardial infarction). Current measures of antibiotic overuse that exist to assess telehealth quality in general (e.g., antibiotic use for acute respiratory infections) may not be appropriate for use during a disaster or public health emergency. (Effectiveness)

Recommendation #8: Telehealth measures should be developed that assess team-based care delivery and access to specialist care, which are both directly feasible using telehealth-based conferencing technology. Telehealth can increase access to acute care, including stroke or emergency care, and improve multidisciplinary coordination required during longer-term public health emergencies. (Access to Care; Effectiveness)

Recommendation #9: Novel telehealth measures should be developed to directly assess equity. For example, measures could be developed to determine whether specific assessments or interventions related to SDOH were delivered during telehealth visits. In addition, telehealth measures could be developed that target non-English-speaking patients, thus ensuring the presence of language translation services or the utilization of translation services when requested by the patient or the family. Equity measurement could also be integrated into patient experience assessments during telehealth visits, such as whether care was delivered in a culturally competent manner. Lastly, existing and future telehealth measures should also be assessed for disparities in care, and where disparities exist, consideration should be given to risk-adjust for disparities in care. (Equity)

Recommendation #10: Given the increased role of telehealth during the COVID-19 pandemic, structural measures should be developed to assess organizational capacity to appropriately use or shift to using telehealth services, remote patient monitoring, in-home hospital care, and other related services that provide alternative sites of care during disasters and public health emergencies. The readiness of entities to use telehealth services could be evaluated with process measures. (Access to Care; Effectiveness)

Conclusion

Telehealth is an increasingly important component of healthcare delivery, particularly with its rapid growth during the COVID-19 pandemic. Telehealth can improve care by increasing the connection between clinicians and patients and among clinicians. Telehealth has the potential to improve access to care for rural Americans who are at higher risk for mental, physical, and substance use conditions and who have less access to healthcare in their communities. Telehealth can also be particularly effective for delivering healthcare services during public health emergencies and disasters, as well as during time-sensitive emergencies. Telehealth can also improve situational awareness during disasters and emergencies, thus improving the ability of organizations and communities to achieve all-hazards preparedness by improving access to care and enhancing communication. Yet despite its growth, the measurement of telehealth for time-sensitive and public health emergencies has not been broadly developed. This is particularly important to meet the needs of rural residents. In this project, we described the current state of quality measurement as well as several next steps that will be required to advance the field.

Through the literature review and the Committee's feedback, NQF identified several existing measures that could be adapted to assess rural telehealth, particularly general process and outcome measures for care, which would be directly or indirectly affected by telehealth. In addition, measures of behavioral health and care coordination are particularly relevant due to the focal need for these services in rural communities. Existing measures could be used or adapted, or novel measures could be created to assess these important services. Several measure gaps were also identified to inform future measure development. The focus of the measure gaps includes the expansion of both person-centered measures,

such as expanding patient experience measures to include telehealth components, technology access, direct quality of care for telehealth, and access to specialty care, as well as structural measures that assess the presence of telehealth services within an organization or community.

Specific recommendations include adapting current measures to assess telehealth with a focus on medical care, behavioral health, specialist care, and care coordination. Such measures should account for rural-specific considerations as well as directly addressing health equity. Measures of patient access to telehealth and the ability to connect with providers through adequate broadband in rural areas are vital to assessing the quality of healthcare during disasters. Patient experience with telehealth is an area in which measures can be adapted from existing experience measures. Lastly, there is a need to develop novel quality measures that assess the quality of care delivered by telehealth directly, examining care processes and outcomes such as appropriateness of treatment and the receipt of longitudinal care post-visit.

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Appendix B: Final List of Measures

Category	NQF ID	Endorsement Status	Measure	Notes
Access	N/A	Not Endorsed	Access to Care (Agency for Healthcare Research and Quality)	*
Access	N/A	Not Endorsed	Access to Specialists (Agency for Healthcare Research and Quality)	*
Acute	N/A	Not Endorsed	Emergent Care for Improper Medication Administration, Medication Side Effects	*
Acute	N/A	Not Endorsed	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate Following Acute Ischemic Stroke	*
Acute	N/A	Not Endorsed	Median Admit Decision Time to ED Departure Time for Admitted Patients (eCQM)	*
Admissions	3490	Endorsed	Admissions and Emergency Department (ED) Visits for Patients Receiving Outpatient Chemotherapy	*
Admissions	2888	Endorsed	All-Cause Unplanned Admissions for Patients With Multiple Chronic Conditions	*
Admissions	0272	Endorsement Removed	Diabetes Short-Term Complications Admission Rate (PQI01-AD)	Developer could no longer support maintenance.
Admissions	0275	Endorsement Removed	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI05-AD)	Developer could no longer support maintenance.
Admissions	0277	Endorsement Removed	Heart Failure Admission Rate (PQI08-AD)	Developer could no longer support maintenance.
Behavioral Health	3175	Endorsed	Continuity of Pharmacotherapy for Opioid Use Disorder (OUD)	*
Behavioral Health	0576	Endorsed	Follow-Up After Hospitalization for Mental Illness	*
Behavioral Health	0004	Endorsed	Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	*
Behavioral Health	0418 / 0418e	Endorsement Removed	Preventive Care and Screening: Screening for Depression and Follow-Up Plan	Developer did not resubmit this measure for endorsement but plans to maintain this measure independently.
Behavioral Health	2152	Endorsed	Preventive Care and Screening: Unhealthy Alcohol Use: Screening & Brief Counseling	*
Coordination	0326	Endorsed	Advance Care Plan	*

Category	NQF ID	Endorsement Status	Measure	Notes
Coordination	0006	Endorsed	Care Coordination (Centers for Medicare & Medicaid Services)	*
Coordination	N/A	Not Endorsed	Closing the Referral Loop: Receipt of Specialist Report	*
Coordination	N/A	Not Endorsed	Drug Regimen Review Conducted With Follow-Up for Identified Issues PAC IRF QRP	*
Coordination	0097	Endorsed	Medication Reconciliation Post-Discharge	*
Coordination	N/A	Not Endorsed	Transfer of Health Information to the Patient Post-Acute Care (PAC)	*
Coordination	N/A	Not Endorsed	Transfer of Health Information to the Provider Post-Acute Care (PAC)	*
Experience	N/A	Not Endorsed	CAHPS Health Information Technology Item Set	*
Readmission	1768	Endorsement Removed	Plan All-Cause Readmissions	Withdrawn from the NQF endorsement process by the developer but is being maintained
Readmission	N/A	Not Endorsed	Potentially Preventable 30-Day Post-Discharge Readmission Measure (Claims Based)	*
Readmission	1789	Endorsed	Risk-Standardized, All-Condition Readmission	*

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Appendix C: Final List of Measure Concepts

Relevant Framework Domain	Measure Concept	Sample Measure
Access to Care	Availability of reliable broadband for patients and providers to participate in telehealth visits	Structure: (%) broadband capacity available within a geography (ZIP code or other)
Access to Care	Overall number of multidisciplinary visits	Process: number of clinical encounters for patients, which involve two or more clinicians
Access to Care	Data access in telehealth for patients	Structure: interoperability of health data for telehealth patients
Access to Care	Data access in telehealth for those who consult to the primary care provider	Structure: interoperability of health data for telehealth patients
Access to Care	Data access in telehealth for those who treat the patient	Structure: interoperability of health data for telehealth patients
Access to Care	Able to provide psychological care during emergencies	Process: number of behavioral health visits provided via telehealth within 30 days of an emergency event
Access to Care; Costs, Business Models, and Logistics	Telehealth decreases the amount of time needed to connect patients with specialist care	Process: time between entering healthcare facility and being directed to appropriate care
Access to Care; Costs, Business Models, and Logistics	Telehealth decreases the amount of time needed to address trauma during disasters	Process: time between presentation in ED and treatment of any trauma
Access to Care; Costs, Business Models, and Logistics	Able to provide care without admission into the ER	Structure: direct hospital admission process bypassing ED using telehealth; number of open emergency department beds
Access to Care; Costs, Business Models, and Logistics	The lack of telehealth led to a delayed diagnosis	Outcome: avoidable adverse outcomes attributable to telehealth services
Access to Care; Costs, Business Models, and Logistics	Travel to a medical facility because of a telehealth diagnosis	Outcome: patient experience with telehealth
Access to Care; Costs, Business Models, and Logistics; Experience	Travel was eliminated or reduced for a specific patient encounter because of telehealth services	Outcome: patient experience with telehealth
Access to Care; Experience; Effectiveness	Removing geographic limitations increased the volume of specialty providers	Outcome: self-reported patient access to specialty care
Access to Care; Effectiveness	Providers can see complex patients more efficiently	Process: number of clinical encounters for patients with four or more chronic conditions
Access to Care; Effectiveness	Increased likelihood for a patient to access the telehealth modality for an encounter	Process: use of telehealth as a proportion of visits within a defined population

Relevant Framework Domain	Measure Concept	Sample Measure
Costs, Business Models, and Logistics	Creation of plans and systems to develop alternate care sites during a disaster	Structure: use of telehealth between patients and clinicians during a disaster or public health emergency
Costs, Business Models, and Logistics	Creation, resourcing, and active practice of plans to create additional surge capacity in hospital and nonhospital settings	Structure: a process to use telehealth for hospital-based care in the home or in other settings (i.e., hospital-at-home)
Costs, Business Models, and Logistics	Creation, resourcing, and annual review of an emergency management program consisting of sufficient staff with sufficient expertise in healthcare emergency management	Structure: telehealth process included in the emergency management plan
Costs, Business Models, and Logistics	Identification of a methodology without operable health IT systems to track and monitor patients within and across health systems during and after a disaster, including success in repatriation of evacuated patients and reunification with family	*
Costs, Business Models, and Logistics	Deployment of mechanisms to identify and respond to uniquely stressed care capabilities within the system (e.g., overwhelmed EDs, ICUs, mental/behavioral health practices, long-term care facilities, health centers, etc.)	Structure: telehealth process in place to augment on-site care - Use cases ED, ICU, behavioral health, long-term care
Costs, Business Models, and Logistics	Identification of sites within and outside of the system that can provide alternate level of care bed availability	Structure: a process to use telehealth for hospital-based care in the home or in other settings (i.e., hospital-at-home)
Costs, Business Models, and Logistics	Remote patient monitoring included	Structure: remote patient monitoring services provided to rural patients
Costs, Business Models, and Logistics; Effectiveness	Referrals to in-person visits when a clinical issue cannot be addressed via telehealth	Process: rate of in-person visits following a telehealth recommendation for in-person care
Costs, Business Models, and Logistics; Effectiveness	Referrals to in-person visits when a clinical issue should not be addressed via telehealth	Process: rate of in-person visits following a diagnosis that is not telehealth-sensitive
Costs, Business Models, and Logistics	Tracking and monitoring of patients transitioned to alternate levels of care during a disaster	Structure: a process to use telehealth for hospital-based care in the home or in other settings (i.e., hospital-at-home)

Relevant Framework Domain	Measure Concept	Sample Measure
Costs, Business Models, and Logistics; Experience	Monitoring and oversight of staff who have been assigned outside of normal duty areas to ensure quality of care and competency during a disaster	*
Costs, Business Models, and Logistics; Experience; Effectiveness	Increased use of services	Process: use of telehealth as a proportion of visits within a defined population
Costs, Business Models, and Logistics; Experience; Effectiveness	Reduction in diagnostic errors and avoidance of an adverse outcome because of telehealth	Outcome: avoidable adverse outcomes attributable to telehealth services
Experience	Physician comfort with care delivered over digital services	Outcome: physician experience with telehealth
Experience	Decrease in wait times for patients	Process: time from request to physician visit
Experience	Impact of telehealth services on the workforce shortage	General staffing metrics (i.e., nursing ratios), measured when telehealth is delivered
Experience	Overall improvement in quality of life because services are received at home	Outcome: patient experience with telehealth; Outcome: patient quality of life with telehealth
Experience	Patient demonstrated compliance with their care plan	Outcome: self-reported medication adherence by patients; Outcome: self-reported care plan adherence by patients
Experience	Patient demonstrated increased understanding of care plan	Outcome: patient understanding of care
Experience	Patients are able to interpret diagnosis and treatment instructions through the telehealth modality	Outcome: patient experience with telehealth
Experience	Satisfactory visit for both the patient and provider	Outcome: patient experience with telehealth; patient felt that provider spent enough time with them during their visit
Experience	Patient convenience measures (patient centered)	Outcome: patient experience with telehealth
Experience; Effectiveness	Technologies were in a satisfying condition for providers to do their job	Outcome: patient experience with telehealth
Effectiveness	Telehealth offers the same quality of services across a population of similar patients	General process and outcome measures, measured when telehealth is delivered

Relevant Framework Domain	Measure Concept	Sample Measure
Effectiveness	The healthcare system was able to effectively provide the care that was recommended during a natural disaster and/or emergency because of telehealth	Outcome: self-reported medication adherence by patients; Outcome: self-reported care plan adherence by patients
Effectiveness	Tracking and monitoring of effectiveness of delivery of family/caregiver support plans during a disaster	Outcome: self-reported medication adherence by patients; Outcome: self-reported care plan adherence by patients
Effectiveness	Comparison between in-person and telehealth for clinical quality and value (value = cost / quality) – across all six domains from IOM	General process and outcome measures, measured when telehealth is delivered
Effectiveness	Patient safety issues (errors) – review claims for patterns of follow-up visits post-telehealth visits	Outcome: medical errors identified related to telehealth visits

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Appendix D: Public Comments and Responses

The draft Recommendations Report was posted on the project webpage for public and National Quality Forum (NQF) member comment from September 15, 2021, through October 8, 2021. During the commenting period, NQF received 31 comments from eight organizations. Comments were elicited through the public commenting tool and additional organizational outreach. The comments below are grouped by theme: Framework, Relevant Measures, Gap Areas and Measure Concepts, Recommendations, and Other. Unless otherwise noted, public comments are presented as they were received by NQF and have not been edited, except for minor updates to spacing, spelling, and punctuation.

Framework

NC Office of Rural Health

Comment

This is not just for emergencies; it should state something to the effect of "the ability of telehealth to increase rural patient's access to a variety of primary, chronic, and acute care services."

Response

Thank you for this comment. NQF acknowledges that elements of this framework can be applied in situations outside of emergencies. However, this specific report is intended to focus on telehealth for the purposes of healthcare system readiness and emergency preparedness. NQF has included an additional sentence in the Intended Use section (page 8) to acknowledge the potential applications of this framework outside of emergencies.

Comment

How will telehealth be worked into daily operations/workflow? This will impact ideas that telehealth visits are "Replacing" in-person care, when in fact this is not the typical goal (page 9).

Response

Thank you for this comment. The report is intended to provide a list of considerations for rural stakeholders considering telehealth for emergencies, but it is not intended to prescribe daily operations or workflow. In the report, the domain of Effectiveness examines how the quality of in-person and telehealth compare to each other; on page 14 of the report, NQF has tried to emphasize that telehealth is not intended to replace all in-person care. However, in certain scenarios, telehealth can be a helpful supplement to provide care where it would otherwise be unavailable in emergency situations. NQF has also included additional language at the beginning of the report emphasizing this point.

Comment

Effectiveness domain: Effectiveness of using telehealth to provide coordination or care/services between providers and health care members for the patient (page 9).

Response

Thank you for this comment. NQF acknowledges the importance of care coordination in providing effective care, and this concept is currently represented as System-Wide Coordination in the Access to Care Domain. Based on the Committee's discussion of this comment, NQF has also adjusted the wording to System-Wide Care Coordination throughout the report in order to better represent coordination outside the confines of a single health system.

Comment

Cost, Business Models, and Logistics: Recommendation for operation best-practice guideline as it relates to the implementation of telehealth. Potential for business models because of feedback that providers say it is too much work on the front end to learn and execute new technology (page 10).

Response

Thank you for this input. This framework is meant to provide a foundation for measurement considerations related to rural telehealth, but this feedback on useful implementation resources will be considered for future work.

Comment

Wider financial impacts in the community: Telehealth programs range in cost from minimal to very expensive. There are plenty of options for low-cost start-up programs that meet the needs of the rural community. MATRC (www.matrc.org) is a great resource for further information on this topic (page 11).

Response

Thank you for this comment. NQF has added a sentence in the "Technology costs, logistics of launch, and existing partnerships" subdomain description on page 12. The sentence reads, "However, programs and resources such as the HRSA Telehealth Resource Centers can provide guidance and consultation services for organizations looking for guidance on low-cost options for start-up."

Comment

Wider financial impacts on the community: There are several current telehealth modalities that are revenue generating and reimbursable by the provider (page 11).

Response

Thank you for this comment. This topic was addressed in the environmental scan for this project, which includes information on the importance of sustainable reimbursement models for telehealth.

Comment

Experience Domain: There needs to be mention of the importance of information marketing that engages both providers and patients in the value and ease of telehealth (page 13).

Response

Thank you for this comment. The importance of providing information and guidance on telehealth to providers and patients was noted as part of the Experience domain, under the “Trust of technology” and “Clinician and care team experience” subdomains (page 13).

Comment

Planning for clinical issues not addressable through telehealth: Should mention that telehealth has always been meant to be a supplement to in-person visits, not replace it. And many preventive care services can be funneled through this option (page 13).

Response

Thank you for this comment. On page 14 of the draft report, NQF has tried to emphasize that telehealth is not intended to replace all in-person care. However, under certain circumstances, telehealth can be a helpful supplement to provide care where it would otherwise be unavailable in emergency situations. NQF has included additional background information in the Introduction to call attention to this point.

Research and Training Center on Disability in Rural Communities (RTC: Rural)

Comment

1. There appeared to be a lack of Committee representation from key rural community and community living agencies or stakeholders. These might include national representatives from the Tribal

Governments, Associations of Programs for Rural Independent Living (APRIL), Indian Health Services, rural Veterans Administration, Centers for Independent Living, Area Agencies on Aging, Aging and Disability Resource Centers, and Administration on Aging, as well as rural providers of accessible transportation, vocational rehabilitation, special education, home and community-based service agencies, home health care agencies, and public health home visiting programs. Including these types of stakeholders at the table and during conceptualization of the framework would help inform how telehealth uniquely impacts rural individuals who are most vulnerable during health and environmental emergencies.

FEMA's Whole Community Approach reduces unanticipated issues during an emergency. It also does a better job reflecting the needs, opinions, and experiences of those receiving services. One strategy to achieving a more balanced group is to consider the proportional representation of key rural stakeholders. For instance, since 17% of rural community members have a disability, then this proportion should be reflected in the planning group. Proportional representation is a valuable strategy for ensuring equity throughout a process.

Response

Thank you very much for your comment and recommendations for groups that can provide important insight into this work. NQF's process aims to balance representation across multiple stakeholder groups. The current Committee includes federal liaisons from the Indian Health Services and the Veterans Health Administration, as well as rural patient/caregivers and medical providers, who all provided unique perspectives. NQF will perform targeted outreach to these groups for consideration as government liaisons, as well as for awareness of nominations and commenting periods for future work related to healthcare in rural areas.

RUPRI Health Panel at U of Iowa

Comment

There could be more discussion of when uses of telehealth during an emergency overlap with uses at other times as well; since our attention now is focused on what we have learned during the current public health emergency that informs the appropriate and effective use of telehealth, we should discuss priority uses during emergencies that apply to standby or active capacity when not in emergencies.

Response

Thank you for this comment. NQF acknowledges that elements of this framework can overlap with nonemergency use of telehealth. However, this specific report is intended to focus on telehealth for the purposes of healthcare system readiness and emergency preparedness. NQF has included an additional sentence in the Intended Use section (page 8) to acknowledge the potential applications of this framework outside of emergencies.

Comment

The Rural-specific considerations described in Table 2 are an outstanding representation of what needs to be considered. However, those related to public investment (the first three) need to make a case for sustained investment, not just one-time. Also, the potential solution to reducing in-person access should include a statement that telehealth alone should not be sufficient to meet network adequacy standards.

Response

Thank you for this comment. NQF has adjusted wording in the report to emphasize the need for sustained investment, including not only funding but infrastructure, education, training, etc. In the revised report, we have added a statement to the introduction about the importance of in-person care when required. Lastly, although it is an important topic, the Committee discussed that recommendations for network adequacy standards are outside the scope of the framework.

Relevant Measures

Radiation Injury Treatment Network

Comment

Page 15 Rural readiness issues description should include more than just PH emergency; as many rural communities have limited necessary trauma support in proximity to communities or sufficient support after hours.

Response

Thank you for your comment. NQF has expanded the language in this description to include both public health emergencies and time-sensitive emergencies (including trauma).

Comment

Page 15 reword potential solution to Informal communication among provider networks to...."Ensure and/or require that rural telehealth services and programs are made available to local providers and community members."

Some providers and community members may be resistant to a requirement vs. they can't resist to a requirement that the service be available to them...with time they will come around. But this will likely happen sooner if presented as a gift vs. an order.

Response

Thank you for this comment. Based on the Committee's discussion of this comment, NQF has updated the language in this section to read "Ensure and encourage that local providers and community members be included in rural telehealth services and programs," as well as incorporating similar language on page 16 ("Ensure and encourage that local rural providers and community members be included in plans to deliver telehealth services to local populations").

Research and Training Center on Disability in Rural Communities (RTC: Rural)

Comment

2. Measurement tools lacked specificity regarding user experiences related to accessibility. We were concerned that the gaps in measurement did not include a more concerted focus on individuals with disabilities. Accessible design criteria, such as screen reader accessibility, video conferencing for ASL, plain language, non-text-based interfaces (i.e. pictures), and clear direct support service roles for patients with intellectual or developmental disabilities, would enhance understanding of how telehealth is serving the whole population equitably. We emphasize that planning for accessibility and inclusion of people with disability cannot be phased in later. It must be a part of the decision making in all phases of planning, development, and evaluation. We highlight the following article that highlights some of these issues. As an aside, one of the primary authors would be a possible choice for inclusion in your panel (see point 1). https://healthlaw.org/telehealth-and-disability-challenges-and-opportunities-for-care/

Response

Thank you very much for your comment. NQF included Equity as a domain in the measurement framework, with the recommendation to consider factors including disability (including physical, developmental, and intellectual disabilities), socioeconomic status, language and communication barriers (including visual and hearing impairments as well as first language), geographical location, and literacy (page 15). NQF has also included additional references to accessible design criteria in the Gaps and Measure Concepts section of the report (page 22).

RUPRI Health Panel at U of Iowa

Comment

The measures are relevant. The measure concept of travel being eliminated or reduced would, in addition to what is noted, result in more timely visits and higher likelihood that appointments will be kept.

Response

Thank you for this comment and for your additional insight on the measure concept related to travel.

Gap Areas and Measure Concepts

Radiation Injury Treatment Network

Comment

Tables on pages 23-25 cite relevant framework using slightly different terminology. Prior to this table, it was referenced as Cost, business model, and logistics. In the tables, the relevant framework is noted as logistics, which seems to be out of sync with previous descriptions. I realize this is likely listed as one word for simplicity, but to be in alignment with [the] document so far, it would seem prudent to list as Cost is the relevant framework, or change references previously to Logistics, cost, and business model.

Response

Thank you very much for your comments. NQF has revised the report to state the entire domain name—Costs, Business Models, and Logistics—throughout the report for consistency.

NC Office of Rural Health

Comment

Limited broadband access: Where broadband is not available, NC is funding success with hotspots and pilot programs like SpaceX (page 14).

Response

Thank you for this comment. NQF has included this as an example in Table 2 (page 16).

Comment

Telehealth may reduce in-person access: Not accurate. Should enhance, not replace (page 14).

Response

Thank you for this comment. The Committee shared that local providers could experience reduced in-person volumes as an unintended consequence of increased telehealth, so NQF highlighted this in Table 2 as a potential challenge and has provided solutions for mitigation in order to ensure that telehealth does not replace in-person services but enhances overall access to care. NQF has also included additional language at the beginning of the report emphasizing this point.

Research and Training Center on Disability in Rural Communities (RTC: Rural)

Comment

3. Measures appear to target those receiving services and don't fully assess those who do not.

Although the framework acknowledges disparities in health and technology literacy, as well as other dimension of user experiences, it doesn't fully capture those who lack technology and would likely not be served in an emergency situation. Many groups experience a digital divide (i.e., inequal access to internet services). Individuals who have a disability, Black adults, people who live alone, live in poverty, have lower educational attainment, rural residents, and adults over age 60 typically report lower rates of internet access (Gallardo et al., 2020; Goggin et al., 2019; Tsetsi & Rains, 2017; Weiner & Puniello, 2014). For example, a recent study posted on NPR reported highlights that one-third of rural Black

southerners lacked internet access (see https://www.npr.org/2021/10/06/1043666017/internet-access-rural-black-southerners-digital-infrastructure-divide).

In consideration of these disparities, telehealth as a comprehensive strategy is premature. For example, while the FCC claims that 99% of the country is served by at least one provider offering fixed residential internet service, the data overestimates coverage because an entire census block is defined as receiving services if at least one household has coverage. Census blocks are particularly large in rural parts of the U.S., where coverage is particularly uneven. One wonders how to capture the significant number of individuals who do not receive services due to inequal digital access, likely the most vulnerable populations during an emergency. While the digital divide is acknowledged as a measures gap in the report, it would be helpful to highlight in more specificity the needs for improved data collection in defining broadband access in rural communities. For example, rural communities face barriers not only in the availability of broadband infrastructure but also in costs and quality.

Response

Thank you very much for your comment. The challenges exacerbated by the digital divide were highlighted in the environmental scan and noted under the Experience domain of the draft report. Table 2 (Rural-Specific Considerations) recognizes the challenge of limited broadband access and includes a potential solution: creating incentives for broadband providers to develop networks in rural areas. This section also highlights, where possible, the role of local organizations (e.g., churches, libraries), which can be used as hotspots for people to access broadband services/internet. Audio-only visits are also acknowledged as a potential solution on page 11. NQF has refined language throughout the report to emphasize these points.

RUPRI Health Panel at U of Iowa

Comment

Yes, the gaps areas are relevant. Another to consider is measurement of user capacity to use specific telehealth technologies as a measure of access. The user could be either the patient or the provider. This is more than the literacy and training discussed on page 10 of the report.

Response

Thank you for this comment. Based on the Committee's discussion, the report has been updated to include broader references to "digital literacy" as well as include additional information on accessibility for users with intellectual and other disabilities.

Recommendations

Research and Training Center on Disability in Rural Communities (RTC: Rural)

Comment

4. Community level indicators are vital to understanding both the positive and negative impacts of emergency-driven telehealth. Building telehealth infrastructure has both benefits and risks to rural communities. While the framework highlights these benefits in terms of increased access to timely care and specialists and decreased barriers in terms of transportation, it lacks significant inquiry into the risks of lost community capacity to serve people in-person. Not all people benefit from telehealth services in the same way, and in particular, people with high-level needs rely on in-person care. Once local infrastructure is gutted, through competition introduced from telehealth, community level capacity to respond during and after emergencies is compromised. Rural health care providers play important roles in emergency response and recovery and can only fulfill those roles if they are in place in the community.

This lost capacity touches on many factors that are uniquely rural, such as built trust with community

members and local knowledge about available resources to leverage during an emergency. Local providers provide an important resource that cannot be replaced by telehealth in resource poor areas, including community linkages, responsiveness or flexibility, and employment. A more balanced assessment of this risk is warranted. Circling back to our initial recommendation, including the perspectives of rural community economic development stakeholders in the discussion is advised.

Response

Thank you for this comment. The report acknowledges that telehealth is not a substitute to in-person care but can be used to enhance access to care in an emergency and/or disaster where care would otherwise not be available. The Committee recognized that local providers could experience reduced in-person volumes as an unintended consequence of increased telehealth, so NQF has highlighted this in Table 2 as a potential challenge and has provided potential solutions for mitigation.

RUPRI Health Panel at U of Iowa

Comment

Recommendations 4 and 5 are particularly important and too often overlooked. As much as we are learning about how effective telehealth can be, patient access to all relevant devices and technology, as well as the knowledge of how to use them, will be critical.

Response

Thank you for this comment.

LifePoint Health

Comment

The recommendations re: experience of care are logical and should be easy for a survey vendor to implement if these go into effect.

The health equity/SDOH recommendations are quite the opposite. SDOH factors are not asked on CMS-mandated surveys (e.g., were SDOH assessments/interventions delivered during a visit). And while it is acknowledged that access to broadband could be limited by neighborhood constraints, the recommendations assume that asking survey questions of telehealth patients is still feasible. Folks without access to broadband/lacking tech knowledge will not use telehealth. So, asking folks who do use telehealth about this makes no sense. Suggested alternative: Ask folks who are NOT using telehealth why not. And that is not feasible. It is suggested that recommendation #9 be excluded.

Response

Thank you for this comment. The Committee discussed potential revisions to Recommendation 9 and were in consensus to keep this recommendation in the report. Committee members discussed that surveys can assess perspectives from patients who do not use telehealth, particularly when delivered through nonelectronic means (i.e., mail). These perspectives are valuable in identifying barriers to telehealth use, some of which may be lack of access to broadband. Patients without access to broadband may also be able to access telehealth outside the home at a secondary location, such as at their local hospital or in more populated areas where there is a broadband signal. Lastly, there may also be differences in experience among people who use telehealth based on SDOH, which could also be captured by newly developed measures.

Other

Radiation Injury Treatment Network

Comment

Please change on page 15 "Paucity of local in-person resources" to common language, such as "scarcity of local in-person resources." It appears to be used only once in the document and can be readily replaced with a more common synonym.

Response

Thank you for your comment. NQF has reworded this phrase according to this suggestion.

Comment

In all tables, add bullets for comments, notes, and descriptions to make it clearer between sentences. They all jumble together a bit as formatted.

Response

Thank you for your comment. NQF will consider this comment to improve readability of the report.

NC Office of Rural Health

Comment

It seems that chronic care management should be mentioned here as well. That particular issue (vs. the emergent issues mentioned) [is] equally, if not more correlated to early mortality.

Response

Thank you for this comment. The Committee discussed during this past year of work that care for chronic conditions is particularly important during extended emergencies, such as the COVID-19 pandemic. NQF has acknowledged this discussion on pages 9, 18, and 22. In addition, the list of potentially relevant measures includes several measures related to chronic conditions, including diabetes, COPD, and heart failure (reference Appendix B).

Research and Training Center on Disability in Rural Communities (RTC: Rural)

Comment

On behalf of the Research and Training Center on Disability in Rural Communities (RTC: Rural), we appreciate the opportunity to provide formal comments regarding the Rural Telehealth and Healthcare System Readiness Measurement Framework. We received this call for comments through a contact at the Administration on Community Living, National Institute on Disability and Rehabilitation Research.

RTC: Rural has conducted disability research for over 30 years to increase the capacity of people with disabilities to engage in rural community living. People with disabilities are overrepresented in rural communities, and resources supporting them to access economic and community living opportunities are often lacking. Our work has led to the development of community development tools, health promotion programs, disability and employment policy, and support and education for providers who serve people with disabilities in rural communities across the nation. The following comments are based on this experience.

We sincerely appreciate NQF’s efforts to fully assess the impacts of telehealth in rural communities. In this light, we offer four considerations (contained in the comment boxes above) to improve the framework in the contexts of equity, access, and community infrastructure.

Sincerely,
Catherine Ipsen, Principal Investigator

Lillie Greiman, Project Director
Meg Ann Traci, Knowledge Broker

Research and Training Center on Disability in Rural Communities (RTC:Rural)
University of Montana Rural Institute for Inclusive Communities
Corbin Hall
Missoula, MT 59812

Response

We appreciate you taking the time to review and provide comments on the draft report.

Neurocrine Biosciences, Inc.

Comment

(Please note that a PDF version of this letter was sent by email to the Rural Telehealth project team.)

Neurocrine Biosciences, Inc., appreciates the opportunity to comment on the NQF's Rural Telehealth and Healthcare System Readiness Measurement Framework Draft Report.

Neurocrine Biosciences is a neuroscience-focused biopharmaceutical company dedicated to discovering, developing, and delivering life-changing treatments for people with serious, challenging, and under-addressed neurological, endocrine, and psychiatric disorders. The company's diverse portfolio includes FDA-approved treatments for tardive dyskinesia, Parkinson's disease, endometriosis, and uterine fibroids, and clinical programs in multiple therapeutic areas. For nearly three decades, Neurocrine Biosciences has specialized in targeting and interrupting disease-causing mechanisms involving the interconnected pathways of the nervous and endocrine systems.

We commend NQF and the Committee for recognizing potential limitations of telehealth in its Draft Report and specifically for recognizing that certain conditions should not be diagnosed or treated by telehealth. In particular, we applaud the Draft Report's inclusion of Recommendation 7, which addresses the concept of "telehealth-sensitive" conditions.

We believe that any telehealth quality measurement framework must carefully consider telehealth sensitivity—and specifically must ensure that conditions that are not telehealth sensitive are not treated via telehealth. Given the importance of this concept, we encourage NQF and the Committee to include a more fulsome consideration of telehealth sensitivity in the preceding sections of final report. The impact of the use of telehealth on health outcomes should be paramount, particularly for those living in rural areas.

We believe that tardive dyskinesia (TD) is among those conditions that are not telehealth sensitive. TD is a persistent, irreversible, and potentially disabling drug-induced movement disorder that is associated with prolonged exposure to antipsychotics and other dopamine receptor blocking agents, often prescribed to patients with serious mental illnesses, such as schizophrenia and bipolar disorder. A diagnosis of TD requires performing both a thorough patient history examination as well as a careful visual assessment for involuntary, abnormal movements, such as writhing, twisting, thrusting, or grimacing in body regions, including the face, trunk, or extremities. Further, testing for limb rigidity is impossible to do virtually and is essential to differentiate TD from other drug-induced movement disorders. Finally, because TD can present in multiple regions in the face and body, but not in all regions in all patients, a full visual assessment is necessary.

Should you have any questions or wish to discuss these comments, please contact me at kmartello@neurocrine.com or (858) 354-3866.

Response

Thank you for your comment. The Committee discussed that with the rapidly evolving landscape for telehealth, a specific list of conditions or guidelines for telehealth-appropriate visits could become outdated rapidly. Instead, the Committee was in consensus that the report should emphasize that the appropriateness of telehealth care is highly context-specific and depends on a provider's best judgment, capabilities, and comfort providing the standard of care via telehealth; patient needs; and timing (e.g., emergency context). Based on this discussion, NQF will not include additional language specifying telehealth-appropriate conditions at this time; instead, the report broadly states that use of telehealth is context-specific.

American Association on Health and Disability

Comment

The American Association on Health and Disability and the Lakeshore Foundation submit our support for comments submitted by the University of Montana RTC – Rural Institute for Inclusive Communities.

The American Association on Health and Disability (AAHD) (www.aahd.us) is a national, non-profit organization of public health professionals, both practitioners and academics, with a primary concern for persons with disabilities. The AAHD mission is to advance health promotion and wellness initiatives for persons with disabilities. AAHD is specifically dedicated to integrating public health and disability into the overall public health agenda.

The Lakeshore Foundation's (www.lakeshore.org) mission is to enable people with physical disability and chronic health conditions to lead healthy, active, and independent lifestyles through physical activity, sport, recreation, and research. Lakeshore is a U.S. Olympic and Paralympic Training Site; the UAB/Lakeshore Research Collaborative is a world-class research program in physical activity, health promotion, and disability linking Lakeshore's programs with the University of Alabama, Birmingham's research expertise.

The University of Montana RTC submission addressed four considerations to improve the framework in the contexts of equity, access, and community infrastructure.

1. There appeared to be a lack of Committee representation from key rural community and community living agencies or stakeholders. Seventeen percent of rural community members have a disability, and folks with disability experience from a rural perspective should be engaged with NQF panels on this topic.

2. Measurement tools lacked specificity regarding user experiences related to accessibility. Planning for accessibility and inclusion of people with disability cannot be phased in later but should be a component of the planning and analysis work.

3. Measures appear to target those receiving services and don't fully assess those who do not. Although the framework acknowledges disparities in health and technology literacy, as well as other dimensions of user experiences, it doesn't fully capture those who lack technology and would likely not be served in an emergency situation.

4. Community level indicators are vital to understanding both the positive and negative impacts of emergency-driven telehealth. While the framework highlights these benefits of telehealth in terms of increased access to timely care and specialists, and decreased barriers in terms of transportation, it lacks significant inquiry into the risks of lost community capacity to serve people in-person. A more balanced assessment of this risk is warranted.

Respectfully submitted,
American Association on Health and Disability
and
Lakeshore Foundation

E. Clarke Ross, D.P.A.
AAHD Public Policy Director
Lakeshore Fd Washington Representative

Response

Thank you for taking the time to review and provide comments on the draft report and for sharing your support for the comments submitted by Research and Training Center on Disability in Rural Communities (University of Montana RTC). As indicated above, NQF has added language throughout the report to reflect accessibility-related measure gaps and specificity in defining broadband access.

National Rural Health Association

Comment

The National Rural Health Association (NRHA) is pleased to offer comments on the National Quality Forum's (NQF) Rural Telehealth and Healthcare System Readiness Measurement Framework. NRHA appreciates the time and attention the NQF has devoted to rural health outcomes and looks forward to continuing working with you to ensure access to care in rural America.

NRHA is a non-profit membership organization with more than 21,000 members nationwide that provides leadership on rural health issues. Our membership includes nearly every component of rural America's healthcare infrastructure, including rural community hospitals, critical access hospitals, doctors, nurses, and patients. We work to improve rural America's health needs through government advocacy, communications, education, and research.

NRHA appreciates NQF's commitment to understanding the impact telehealth flexibilities have had on healthcare outcomes, especially in rural communities. The flexibilities granted at the beginning of the COVID-19 pandemic through the Coronavirus Aid, Relief, and Economic Security (CARES) Act and various 1135 waiver flexibilities afforded to rural providers by the Centers for Medicare & Medicaid Services (CMS) have allowed for more expansive healthcare delivery options for rural providers and patients. As the nation looks towards the future of telehealth, NRHA agrees that standardized, comprehensive measures are critical to understanding the true benefit these flexibilities have offered patients and providers.

NRHA is supportive of NQF's quality measurement framework and the four domains used for measures: access to care, financial impact or cost, experience, and effectiveness. In particular, NRHA appreciates NQF's focus on rural-centric issues that have previously hindered telehealth utilization and will continue to present obstacles in the future, such as the lack of access to broadband connectivity among rural providers and patients. While NRHA is supportive of the measurement framework within the report, we encourage NQF to use measures that are either formally endorsed through NQF, use within a CMS quality program, and/or are part of the NCQA chart abstraction process. NRHA is concerned that if the framework relies upon measures not widely adopted or tested through rigorous scientific validation, it will cause implementation and administrative issues in recommending policy in the future.

NRHA looks forward to continuing working with NQF on the benefit telehealth flexibilities have to rural patients and communities. We appreciate the attention to this important issue and would be happy to

discuss it in greater detail. For more information, please contact Josh Jorgensen, NRHA's Government Affairs and Policy Manager, at jjorgensen@nrharural.org.

Response

Thank you for this comment and for NRHA's support for the measure framework and its description of rural-centric considerations, including telehealth flexibilities and broadband availability.

NQF acknowledges the importance of using scientifically rigorous measures in order to support the framework. In prior meetings with the Rural Telehealth and Healthcare System Readiness Committee, members discussed criteria for the list of relevant measures; while some Committee members expressed a preference for NQF-endorsed measures, the group ultimately agreed to consider any measures that were determined to be scientifically sound based on publicly available information. The group also emphasized during Web Meeting 5 that the existing measures potentially relevant to rural areas, telehealth services, and emergencies are limited; while a list of these potentially relevant measures is included in the report for reference, the Committee would encourage the development of new measures for use in this area in the future, which can eventually be submitted for NQF endorsement.