Telehealth

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Mama called the doctor and the doctor said:
No more monkeys jumping on the bed!

—English language folk song

Learning Objectives:
1. Define telehealth and telemedicine.
2. Consider clinical applications for telehealth and the strength of the data supporting its use.
3. Describe the benefits and limitations of telehealth for patients, clinicians, and the healthcare system.
4. Discuss best practices in performing a telemedicine visit.

Primary Reference:

Editor’s Note: This module explores specific considerations related to telehealth. For a broader discussion about out-of-office communication, refer to the separate chapter “Telephone & Electronic Communication.”

CASE ONE:

Kojak is a 20-year-old who comes to your office for follow-up of obesity and hypertension. You’ve been seeing him every three months for the past year and his weight and blood pressure have stabilized through dietary changes. You are both pleased to see that his blood pressure today is 128/82 and his recent labs revealed a normal lipid profile, HbA1c, and Cr. A lot has changed in his life since your last visit - he has gotten a job as a dental assistant and moved in with his partner that he met in high school. As the next step in his care, he commits to walking 5 days a week after work. As you wrap up the visit, he meekly inquires “Doc, I like seeing you and all, but next time can’t we talk about this stuff on the phone? I had to take the morning off work to be here.”

1. What are telehealth and telemedicine? What might a remote follow-up visit look like for this patient?

Telehealth and telemedicine are often used interchangeably, however, telehealth is often defined as a broader concept that encompasses telemedicine. Telehealth includes a wide variety of telecommunication and electronic tools that allow for and assist with providing health care from a distance. Telemedicine falls under this umbrella, and refers specifically to the provision and support of typical medical care remotely by a clinician through a telecommunication or electronic tool. In addition to telemedicine, telehealth encompasses a wide variety of other tools deployed remotely (e.g., glucose monitors, activity trackers, cardiac monitors, patient portals). Telehealth is rapidly increasing in scope but has been around since at least the 1960s. Early telehealth modalities included teleradiology, in which images were read by off-site radiologists, as well as telepsychiatry and teledermatology, in which images were taken by off-site specialists, as well as telepsychiatry and teledermatology, in which images were taken by off-site specialists.

Tuckson and colleagues classify telehealth services as follows:

<table>
<thead>
<tr>
<th>Parties involved</th>
<th>Mode of Communication</th>
<th>Examples</th>
</tr>
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<tbody>
<tr>
<td>Clinician ⇔ Clinician</td>
<td>Secure messaging, video, audio, secure email</td>
<td>Dermatology or radiology consult, surgical mentorship, remote ICU monitoring</td>
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</table>
The number of telemedicine visits was already growing rapidly, but dramatic increases are occurring due to the COVID-19 pandemic since simply coming to a medical facility confers risk. Regardless of an individual provider’s interest, telehealth services are becoming an even more prevalent part of healthcare services.

An integrated telehealth approach for Kojak could include remote monitoring of weight and blood pressure with reliable instruments. Values could be transmitted to the clinician in advance of a visit, with bidirectional between-visit communication done via secure messaging. The visit itself could be performed over a HIPAA-secure video interface or telephone.

CASE continued:

2. What are specific hardware, software, and environmental considerations prior to conducting a telemedicine visit?

Both the provider and patient must meet certain hardware and technology requirements. For video encounters both parties need to have a quality webcam, microphone, and a HIPAA compliant telemedicine platform installed on the device they are using. Most smartphones are enabled with the audio-visual requirements, and many EHR platforms have HIPPA-compliant mobile apps for both providers and patients, though laptops, desktops, and tablets may also be used. Providers should be aware of any local standards related to hardware, such as requirements to use encrypted, practice-owned devices. Sufficient internet bandwidth or speed ensures that video data is transmitted and received without marked pauses or poor quality.

It is helpful for the provider to understand the technology well enough to address common problems in real time to avoid frustration and distraction during the visit. Work-flow with the healthcare team needs to discussed in advance (e.g., who will “open” the visit in the EHR, what role will a medical assistant play during the visit). Dry runs with mock-patients are often available in health systems deploying telemedicine, which can be helpful for troubleshooting before going live with a patient.

Providers should position the camera at eye level to enable eye contact, just as one would do in person. Visits should occur in locations that are professional, quiet, and private, with no protected health information for other patients visible or audible. Virtual backgrounds are available in some platforms which can help with creating a professional appearance. Providers should wear the same professional attire they would wear if they were seeing the patient in person.

3. How might a provider structure an actual telemedicine visit?

Many aspects of a telemedicine visit should not differ from in-person visits, especially as it relates to the medical history. Providers should prepare for a visit just as they would for an in-person visit by reviewing the chart and identifying gaps in care that need to be discussed. Previsit questionnaires can be sent via a patient portal. Visits should be kept on time, starting and finishing when expected. Visit structure can remain intact with attention to agenda setting and eliciting personal and emotional context in addition to the patient’s symptoms. Verbal expression of empathy, while important in all types of visits, is especially critical in telemedicine because subtle non-verbal expressions of empathy may be easily missed by the patient. Additionally, the provider should make efforts to lean in and maintain eye contact during video visits.
Certain aspects of the physical exam are more conducive to telemedicine than others. For example, inspection (e.g., general appearance, work of breathing, skin findings) is feasible if the patient’s webcam and lighting are high quality. Specialized examinations (e.g., otoscopic or ophthalmoscopic exams) may not be accessible except for patient-captured images that can be seen by providers using teleultrasound, teleotoscope, and even teleophthalmoscope devices, though these are limited by device cost, technical skill, and availability. Vital signs can be measured if the patient has reliable instruments at home. Maneuvers requiring auscultation, percussion, or palpation are obviously more limited, though one can ask the patient or a family member to assist with eliciting findings such as tenderness, pulse rate, and cervical lymphadenopathy.

Clear communication at visit closure is essential for telemedicine visits. Patients may be used to getting information in writing (e.g., health handouts, medication list, future appointments) that they can take with them. Some EHR patient portals allow providers to share these documents electronically, but this may not be possible for all providers or practical for many patients (e.g., limited literacy or technologic know-how). Providers should make deliberate use of techniques to assess understanding such as teach-back or ask-respond-tell. Follow-up plans should be clarified, and a discussion about whether the next visit should be by telehealth or in-person is appropriate in many cases.

4. For what types of visits is telemedicine most appropriate?

In a review by Shigekawa, et al., telehealth was found to have the strongest evidence of equivalence to in person care for mental health, rehabilitation (i.e., neurologic, speech, cardiac), and dermatology. Additionally, the authors cite data to suggest telehealth is also as good as face-to-face care for anticoagulation management, nutrition counseling, and diabetic foot care. The data supporting teleconsultative care are weaker and more heterogenous given the wide practice variation between fields, though it is an accepted alternative to in-person consultation, especially for urgent decision-making or for those with limited access to care (e.g., due to specialist availability, patient transportation barriers). In a 2015 Policy Statement, the AAP touts these “eReferrals” as among the most promising aspects of telehealth.

Clinical outcomes data supporting telemedicine in primary care settings for adults and children are lacking. While the AHRQ highlights that there is sufficient evidence to support telehealth for monitoring and counseling in chronic disease management, the literature contains a wide variety of studies with multiple variables making it hard to draw conclusions. This may be due to the broad scope of primary care practice. However, since much of primary care involves health maintenance, disease prevention, and chronic disease management, it is not surprising that a large survey of patients in a Kaiser Permanente primary care network revealed high patient satisfaction with video visits due to convenience and quality of care. These findings were supported by qualitative work by Powell and colleagues, in which patients in academic primary care practices were enthusiastic about video visits due to factors such as convenience, efficiency, privacy, and comfort. Numerous professional organizations support the broad use of telehealth in primary care settings including the American College of Physicians (ACP), American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), and American Medical Association (AMA). All provide resources for healthcare providers on their websites (see Resources).

The AAP specifically recommends using telemedicine for school-based teleconsultation and home video consultations for children and families, as well as integrating biometric data from wearables and apps into telemedicine visits. However, they also call for more effectiveness research. Foster and colleagues argue for the inclusion of telehealth for children and families in remote areas, far away from needed specialty care, or who are difficult to transport. Using telehealth to monitor a patient’s status, manage symptoms, support in-home caregivers, and make treatment adjustments may decrease emergency department and inpatient utilization. For example, monitoring respiratory parameters or blood sugars remotely for children and adults with cystic fibrosis or type 1 diabetes respectively can be instrumental in disease control between face-to-face visits.

5. What are the downsides of telehealth? What types of visits might be less conducive to telemedicine?
Clinical limitations include the obvious such as the inability to check vital signs, perform a thorough physical exam, or administer immunizations. Even when patients have medical equipment at home, the precision needed to plot growth curves during early well child visits or check calibration on home blood pressure kits may warrant face-to-face visits. Neither typical screening (hearing or vision), nor point of care testing is accessible, potentially leading to the need for in-person rechecks, increased health care costs for specialty visits, or more invasive laboratory testing.

Additionally, the provider-patient relationship could be negatively impacted by less personal interaction. This is especially true when a patient’s family member or caregiver is driving the visit as can happen with young children, older adults, or those who rely on caregivers for a variety of other reasons. The evaluation of patients with intellectual disabilities, cognitive or speech impairments, and sensory disabilities (i.e., vision, hearing) may be particularly challenging. There is also the possibility of fragmentation of care amongst providers within an organization and practice unless there is clear coordination between the various providers.

Legal issues include licensing requirements which vary by state to state, credentials for providers and sites that are providing telehealth services, liability concerns in making sure patients understand the limitations of a telemedicine visit, and documentation requirements which can vary between states and payors. This is addressed in greater detail below.

Social and structural equity issues include the availability and cost of internet connectivity and mobile phones and computers. Additionally, technological literacy is a significant issue making navigating telemedicine visits challenging for some. The use of an interpreter adds complexity during a telemedicine encounter, and not all EHR platforms support the inclusion of a third-party during video visits. These factors lead to gaps in access to telehealth based on individuals’ and communities’ social and geographic realities.

Moderators can pose common clinical scenarios, discuss which are (or are not) conducive to telemedicine, and brainstorm how one might approach the situation remotely. For example:

<table>
<thead>
<tr>
<th>Clinical situation</th>
<th>Telehealth?</th>
<th>Possible approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper respiratory symptoms</td>
<td>Yes</td>
<td>Through video can assess work of breathing, general appearance.</td>
</tr>
<tr>
<td>Vomiting &amp; diarrhea</td>
<td>Yes</td>
<td>Assessment &amp; counseling regarding hydration status.</td>
</tr>
<tr>
<td>Exacerbation of chronic lung disease</td>
<td>Maybe</td>
<td>Can assess symptoms and work of breathing, but lack of auscultation and oxygen saturation.</td>
</tr>
<tr>
<td>Depression</td>
<td>Yes</td>
<td>Can assess symptoms and severity. Problematic if patient is alone and unsafe.</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>Review glucose log, diet history, and make appropriate treatment adjustments.</td>
</tr>
<tr>
<td>Pain (back pain, headache, other MSK injury, etc.)</td>
<td>Maybe</td>
<td>Inability to examine affected structures may limit detection of “red flags”</td>
</tr>
</tbody>
</table>

CASE continued:

You contact Kojak via your EHR’s patient portal to inform him that you’ve taken his suggestion - your next visit will be a telemedicine follow-up. You talk with your practice administrator about next steps to make this happen.

6. What are some practice-based factors that need to be considered?

Getting telehealth services off the ground can be daunting depending on specific practice details. The good news is that most providers are already doing some basic telehealth whenever they engage in phone calls. The AMA, American Telemedicine Association, and the AAP outline practice considerations that are necessary to get started. Some of the larger questions include:

- Billing and Reimbursement: Many insurance companies will pay for telehealth encounters using common evaluation and management codes, though each may have their own requirements that
need to be met (e.g., patient consent, location of the patient). The AMA has a helpful overview (see Resources).

- **National and State Laws:** Guidelines are evolving, thus an implementation strategy relies on understanding current requirements (e.g., licensure, patient consent). The National Consortium of Telehealth Resource Centers and American Telemedicine Association provide state-specific considerations on their websites, while the ACP, AAP, and AAFP offer discipline-specific guidance (see Resources).

- **Liability:** Malpractice insurance likely covers telehealth services but this must be confirmed with the malpractice provider.

- **Cost:** The price of implementing telehealth for a practice depends on existing hardware and infrastructure and thus can range from being relatively inexpensive to very expensive. Costs add up quickly if a practice has to purchase a telehealth platform, hardware, and IT and billing support. Time and expertise for training staff and clinicians add costs and possible short-term loss of revenue.

- **Patient Access and Interest:** Some patient populations may be more technology-proficient and interested in engaging in telehealth services. Getting input from patients regarding the deployment and implementation of a telehealth strategy may increase chances for success. Enrolling patients may take up significant time and resources.

- **Space:** Practices should determine where providers and the necessary hardware will be located. A dedicated telehealth space may be needed for busy practices.

- **Training:** Provider and staff comfort with telehealth platforms is essential. Ideally an existing technical support team could also help with telehealth training and troubleshooting.

- **Staff and Clinician Buy-in:** Without buy-in from front-line clinicians, support staff, and administrators, getting telehealth off the ground will be challenging. Engaging with all individuals and assessing interest and concerns will greatly help with the telehealth implementation.

- **Technology:** Many EHRs have an integrated telehealth platform. Embedded telehealth functionality may need to be purchased or simply turned on. It is critical to ensure that hardware is compatible with the telehealth platform that will be used.

**Additional References:**


**Resources:**

1. Telehealth resources from professional medical organizations: