



Using Telemedicine in Your Clinical Practice

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“information technology must play a central role in the redesign of the health care system if a substantial improvement in quality is to be achieved”

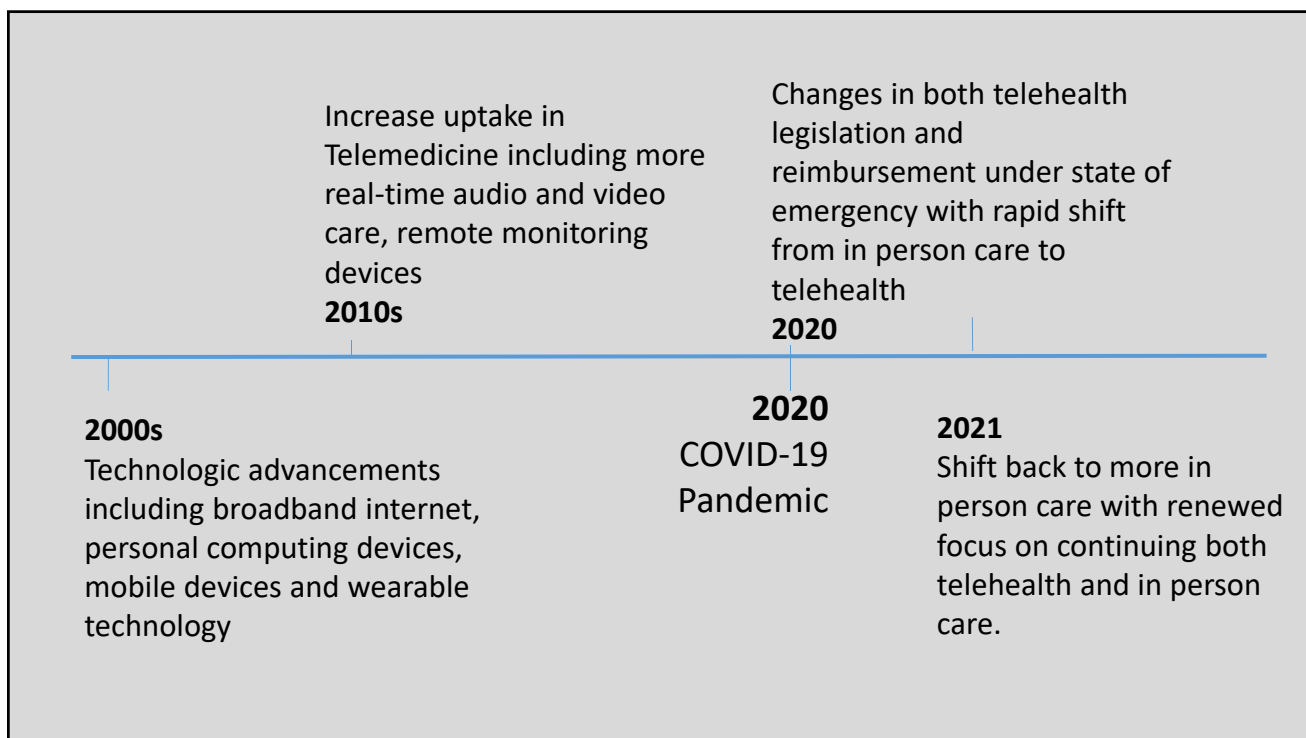
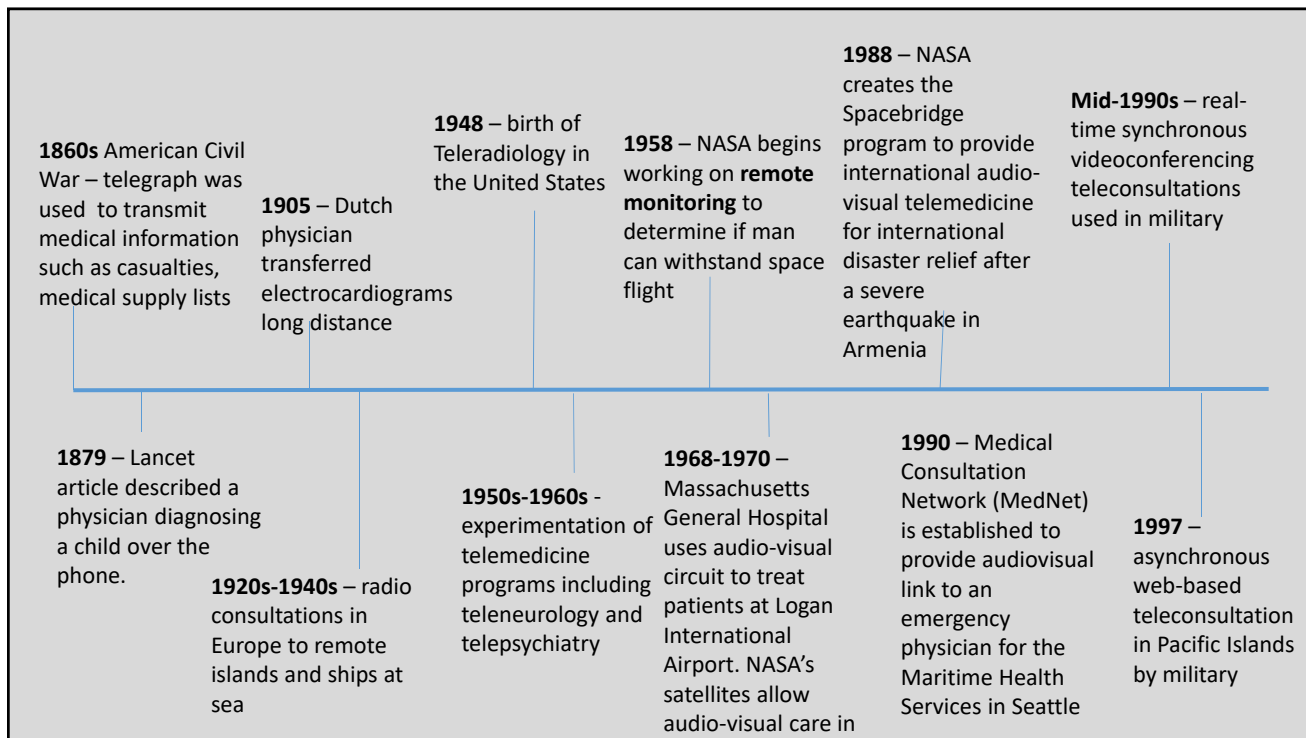
- Institute of Medicine, Crossing the Quality Chasm

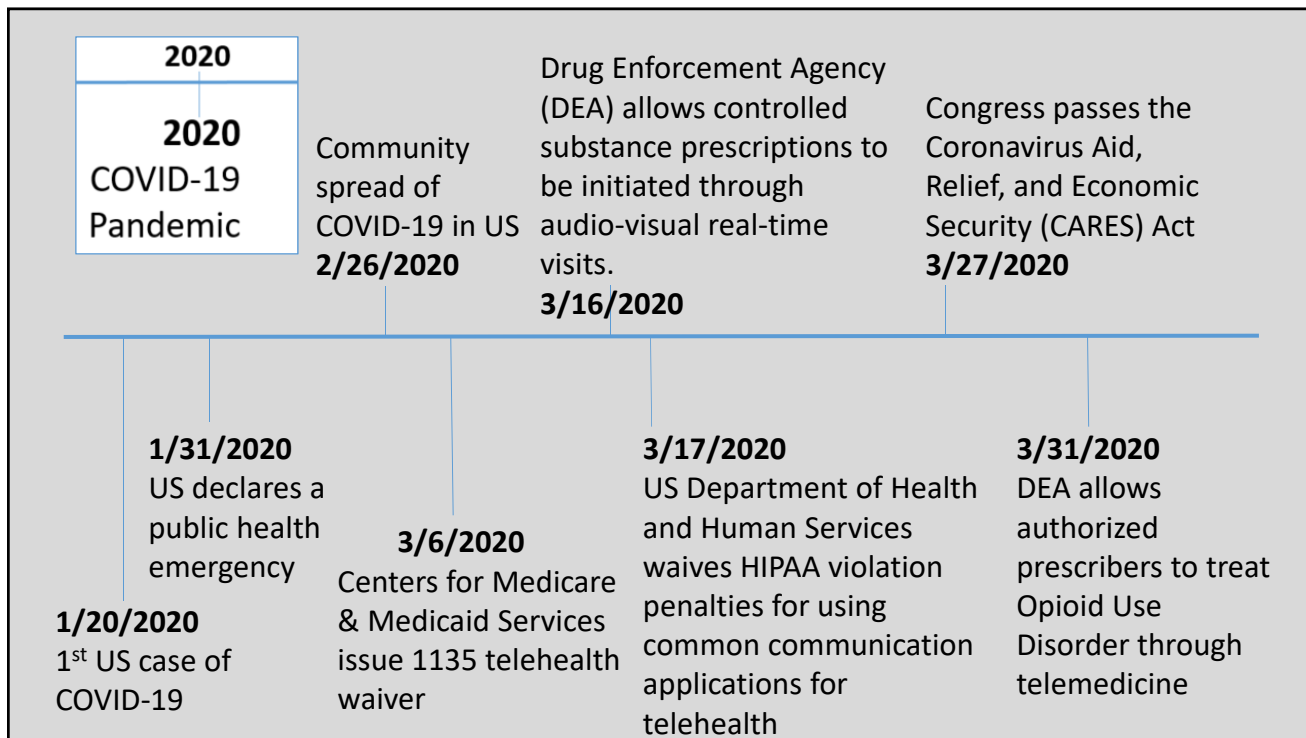
Objectives

- Be familiar with the different forms of telehealth.
- Recognize the benefits and limitations of telehealth.
- Be aware of how telehealth may be leveraged to improve access to care as well as how it may discriminate against certain populations.
- Recognize the legal and reimbursement updates to telehealth through the COVID-19 state of emergency.
- Be comfortable with the logistics of performing a telehealth encounter.
- Be able to do a video physical exam.
- Know which ailments are amenable to telehealth and which are not.



“The Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) defines **telehealth** as the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, and public health and health administration”

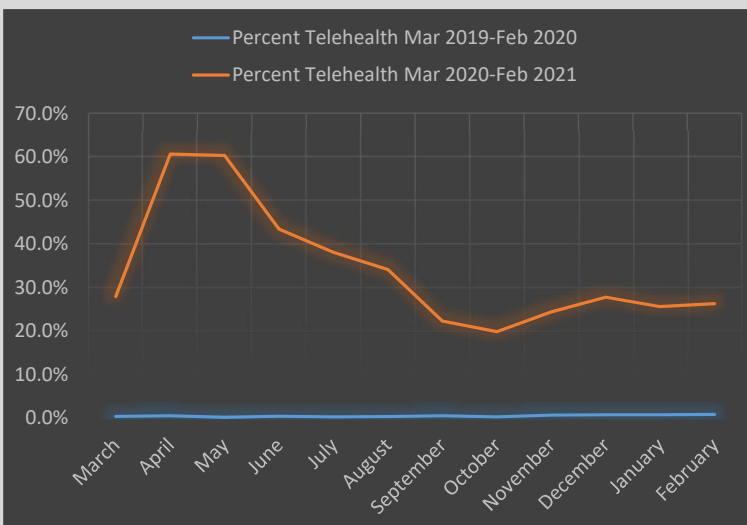




The COVID-19 effect

Rapid shift from in-person to telehealth.

- Reduced transmission
- Conservation of PPE



Telemedicine Pioneers & Iterations

- Military
- Prison
- Rural locations
- Native American Reservations
- NASA
- Telecardiology
- Teleradiology
- Telepathology
- Telepharmacology
- Teledermatology
- Teleneurology & Telestroke
- TeleICU/eICU
- Telesurgery

Benefits

“Traditionally telehealth has been viewed as a tool to improve access to services, but interest is growing to see if telehealth has the potential to reduce health care costs.”

- U.S. Senate Committee on Finance

Increase access to care

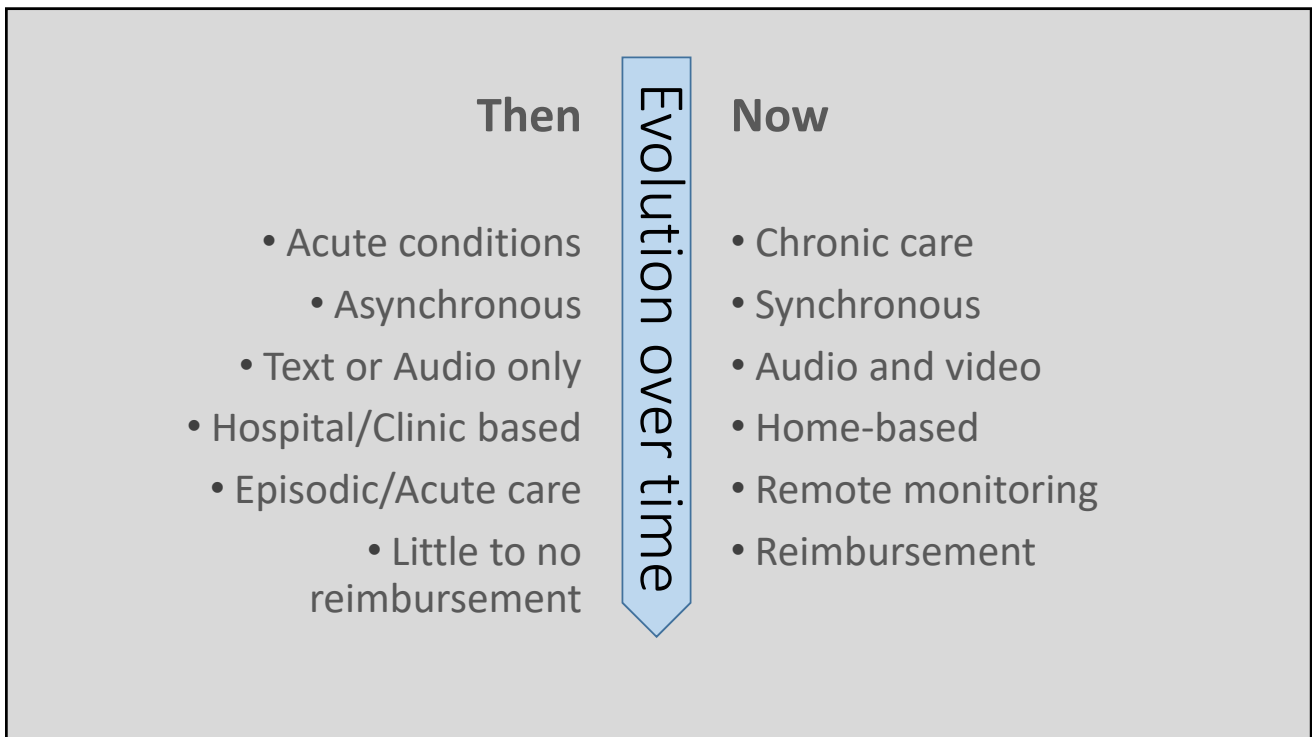
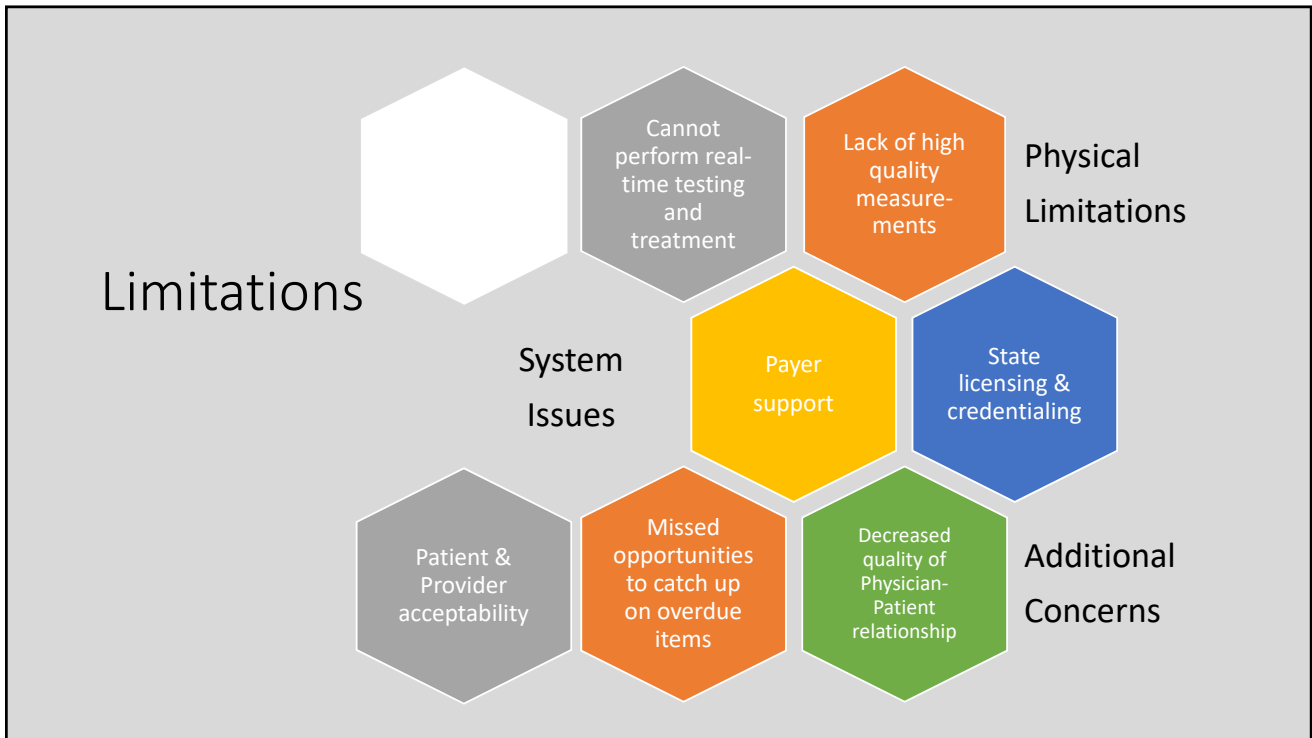
- Remote locations
- Homebound individuals
- Helps address transportation concerns
- “maldistribution” of physicians

Cost

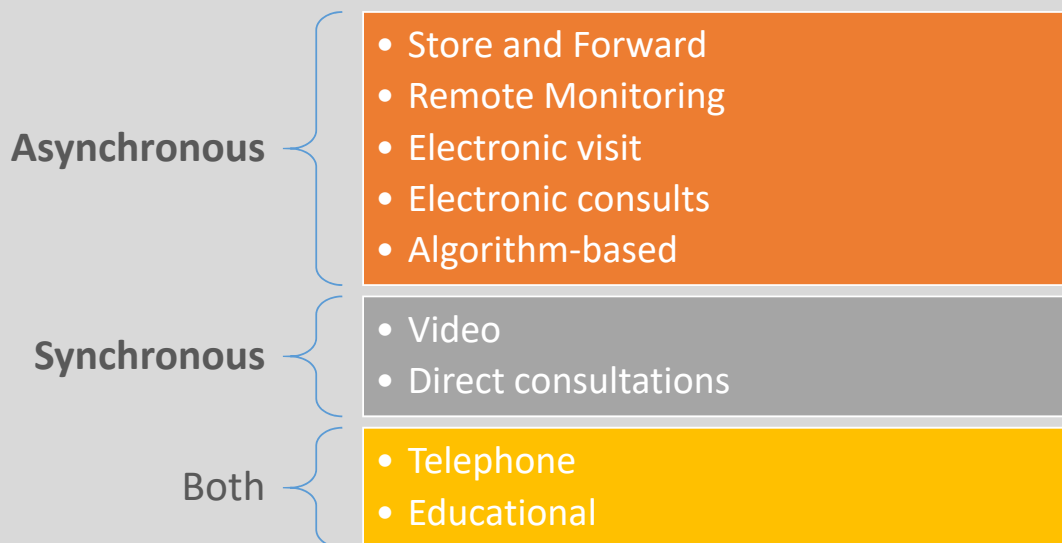
- Prevent ED visit
- Lower rate of diagnostic testing
- Decreased overall cost in a system
- May increase use (# of visits).

Convenience

- Saves time, travel, time off, childcare, etc
- High levels of patient satisfaction



Types of visits



Synchronous (Real-time) Audio and/or Video

- Telephone has been extensively over the years by not just providers but also medical staff (nurses, MAs, pharmacists, social workers, psychologists, etc)
- May be preferred by less technologically savvy individuals
- Preferred for those without needed technology for video (eg broadband internet, video recording device such as smartpone)
- May not be ideal for hearing-impaired.



Author: Raysonho @ Open Grid Scheduler / Grid Engine (CCO 1.0)

Synchronous (Real-time) Audio and/or Video



Video & Audio

- Can do a physical exam.
- Improves communication, can see non-verbal queues.
- Can see the environment including equipment, medications if needed.
- Allows for demonstration of technique.

Store and Forward



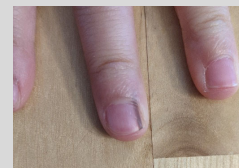
- Sending something for review
 - Photos
 - Medical images (eg X-rays, EKGs)
 - Receive documents
- Consultative care

E-visit

- Secure messaging
 - Ask a medical question
 - Request medications and referrals
 - Receive and clarify results
- Patient inputs data
 - Symptoms via questionnaires
- Common conditions:
 - Upper respiratory/cold symptoms
 - Pink eye
 - Urinary problems
 - Vaginal issues
 - Back pain
 - Diarrhea

Mobile Health

- Increasing number of direct-to-consumer applications
 - Video visits and E-visits on demand
 - Teledermatology
 - 526 dermatology mobile apps in 2017 study
 - many apps combine algorithms with Dermatologist's expertise. Some incorporate artificial intelligence
 - Birth control & emergency contraception
 - Natural Cycles
 - FDA cleared method of contraception
 - Uses algorithm to determine fertile/non-fertile days
 - PreP, STI testing and treatment
 - Educational applications



Remote Patient Monitoring



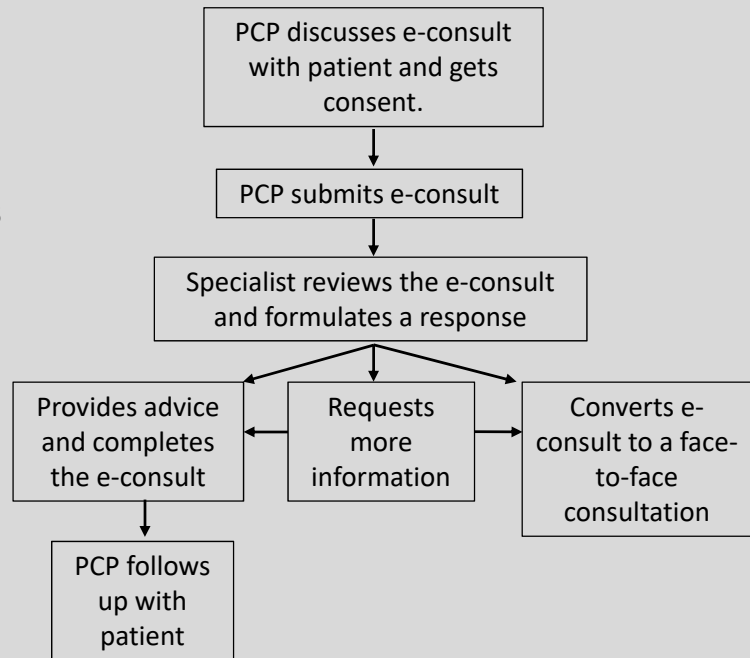
Condition	Monitor
Diabetes mellitus	Blood glucose
Cardiovascular disease	Weight, blood pressure, heart rate, electrocardiograms
Pregnancy	Blood pressure, dopplers, weight
Obesity	Weight
Lung disease	Pulse oximetry
Behavioral health and substance abuse	Medication adherence, symptom surveys
Anticoagulation	INR
Geriatrics	Medical alert device, pill dispenser

Electronic Consultations (e-consult)

Goal: improve access to specialty care without need for face-to-face visit

2015 Systematic Review Outcomes (Vimalananda et al)

- high levels of patient & PCP satisfaction
- Shorter time from placement of referral to specialist input compared to traditional referral
- Improved healthcare utilization for specialty visits



Education & Mentoring

- **Project ECHO** (Extension for Community Healthcare Outcomes) was developed in 2003 at University of New Mexico to extend care for Hepatitis C across the state.
- Wheel and spoke model for primary care providers in underserved communities to interface with specialist using teleconferencing technology.
 - Telementoring
 - Bi-directional case discussions and peer-to-peer learning
 - Didactic sessions
 - Care is safe and effective
 - Has spread internationally and to a multitude of different conditions and specialties



Logistics: The Nitty Gritty Details

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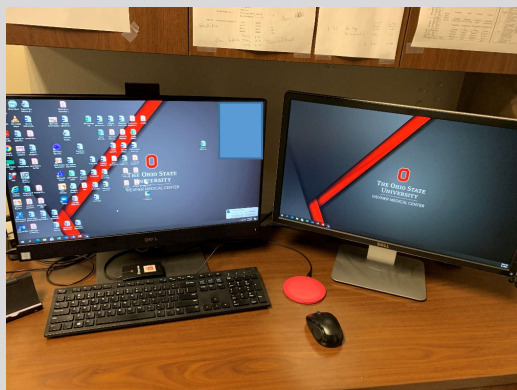
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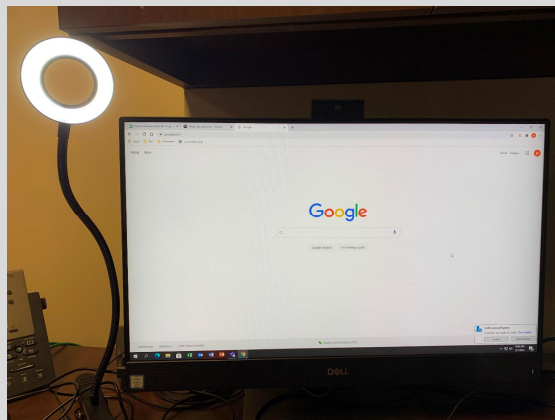
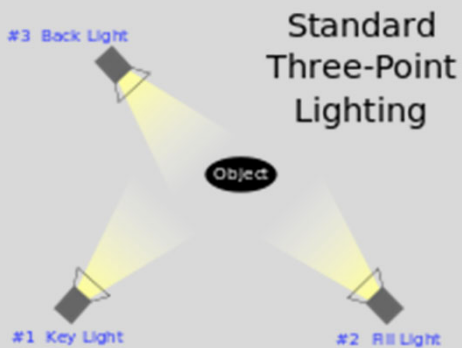
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Office set up – connection and device

- Ensure you have a secure internet connection
- Choose what type of device or computer you will use

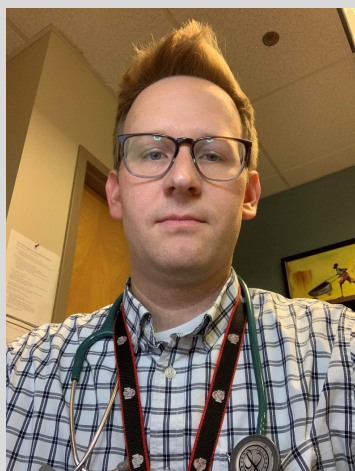


Office set up –background and lighting



https://en.wikipedia.org/wiki/Three-point_lighting

Office set up – eye contact



Office set up – audio

- Ensure a quiet and private environment
- Test the audio and visual
- Utilize a headset



Building your template

- When starting, may be helpful to do at the beginning of a session
- Do them in succession to start
- As you become more comfortable, it is easy to scatter telehealth visits through a session
- Consider blocking an entire session for telehealth

Platforms

- Directly through your Electronic Health Record system (if available)
- Third party platforms
- Consider HIPAA compliance
- Benefits of having more than one option/back ups

Preparing the patient for the visit

- Equipment and internet access
- Location – no driving!!
- Insurance coverage
- Process for connecting to the visit
- Set expectations that provider may run late and what to do if the connection is not successful
- Test connection if possible
- Ask them to be ready with the necessary data for the visit

Informed consent

- Know your state laws
- Often verbal consent is sufficient but it is possible you may need written consent
- Obtain prior to the visit

Regulatory issues

- HIPAA
- Cybersecurity
- Jurisdiction/location of the patient

Colorado	Yes	License in good standing in other jurisdiction	Order Specific to physicians	Regulations appear to require the practice to be "occasional" and "gratuitous"	Currently scheduled to expire Feb 24, 2021 (can be extended by EO).
Connecticut	Yes	License in good standing in other jurisdiction	all advanced providers		Currently scheduled to expire Mar 15, 2021 per EO (can be extended by EO).
Delaware	Yes	*Mental health care providers only.* License in good standing in other jurisdiction	*Mental health care providers only.*	*Mental health care providers only.*	Out-of-state telemedicine privileges rescinded, with the exception of mental health care providers.
Florida	Yes	License in good standing in other jurisdiction	Physician assistants and advanced practice registered nurses		Currently scheduled to expire Feb 27, 2021, according to EO (can be extended).

Virtual rooming

- Can be done asynchronous from the visit and can be by video, messaging or telephone.
- MA can contact the patient prior to the visit and get information related to the complaint, do a med review, etc.
- This is a good chance to set expectations and give reminders

I contacted patient on 2/22/2021 9:20 AM. Answers were put into visit during pre-charting.

Will the patient be in the state of Ohio at the time of the telehealth visit? Yes

**if no, notify your manager & clinical manager of potential issue

Chief complaint entered and any additional discussion items added to chief complaint comments. Yes

Patient knows to log in 15 min in advance. Confirm if IHIS video or 3rd party video. If 3rd party video, confirm how she wants to be contacted and put in visit notes. Yes

I entered/confirmed pharmacy and updated on chart. Yes

I reviewed allergies and marked reviewed on chart: Yes

I reviewed tobacco use and updated on chart: Yes

I reviewed medications and asked patient to have them available at time of visit. Additional medications not in med list added to list. Medications patient no longer taking removed from list. Yes

Any refills needed (if yes, please queue up)? No

I asked for any home vitals listed in the visit notes such as weight, blood pressure, etc and entered them into vitals. If patient is on oxygen: no. I documented their most recent oxygen level in the SpO2 field. Yes

The examination

- Must supplement with an excellent history
- You can still get a good amount of information with some creativity
- You have to involve the patient, care givers, and other technology

General exam

- “sick/not sick”
- Signs of distress
- Vital signs
- Weight
- Speech
- Cognition

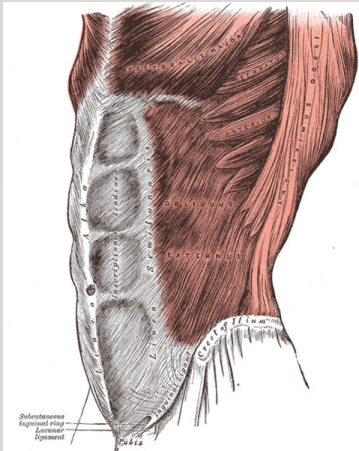
Skin exam

- Many platforms allow you to take still shots during the video feed
- Sometimes the video feed is fairly grainy and it will be better to have the patient take pictures of the rash and send a picture file via a secure patient portal
- It is helpful to coach the patient on optimal skin photos
 - Lighting
 - A close up shot
 - A shot further out to get background skin

Heart and lung exam

- Pulse (rate and regularity)
- Edema
- Deeply inhale/exhale with the mouth open
- Deeply inhale and hold breath
- O2 sat
- Must really supplement with history
- May get additional data from home monitors and wearables
- This is a really a screen to decide who needs to be seen in person and/or who needs imaging

Abdominal exam



- The patient can assist you
- Look for distension
- Have the patient palpate – can try to assess rebound
- Again, supplement with history
- Screen to decide who needs an in person evaluation

https://commons.wikimedia.org/wiki/File:Grays_Anatomy_image392.png

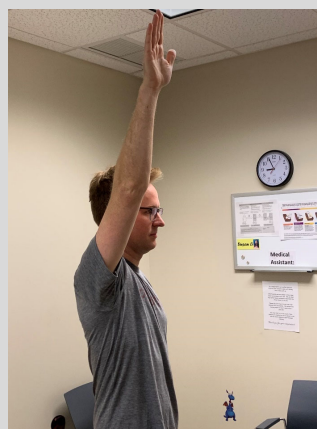
MSK exam



The Telemedicine Musculoskeletal Examination

Edward R. Laskowski, MD; Shelby E. Johnson, MD; Randy A. Shelerud, MD;
Jason A. Lee, DO; Amy E. Rabatin, MD; Sherilyn W. Driscoll, MD;
Brittany J. Moore, MD; Michael C. Wainberg, MD; and Carmen M. Terzic, MD, PhD

MSK exam



Diseases amenable to telehealth

- Mental health
- Management of chronic diseases (hypertension, diabetes mellitus, hyperlipidemia, gastroesophageal reflux, eczema, asthma)
- Acute complaints (URI symptoms, UTI symptoms, rashes, musculoskeletal complaints)

Complaints that are difficult to do via telehealth

- Chest pain
- Vertigo
- Dyspnea
- Abdominal pain
- Complaint of a mass
- Very young children who are nonverbal
- Patients who are nonverbal for other reasons, such as intellectual disability

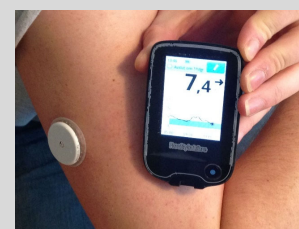
Collecting data for chronic disease management

- Home vital signs and blood glucose
- Patient completed logs within the EHR
- Remote patient monitoring devices
- Get labs prior to the visit
- Utilize home health

Time Taken	Time Submitted	Systolic Blood Pressure - Patient Entered	Diastolic Blood Pressure - Patient Entered	Resting Pulse (Beats/Minute)	Comment	MyChart Heart Rate
2/21/2021 10:08 AM	2/21/2021 10:08 AM	128	78	77	While I had a headache	
2/18/2021 9:49 PM	2/18/2021 9:49 PM	128	78	74		
2/17/2021 8:27 PM	2/17/2021 8:28 PM	128	71	62		
2/16/2021 10:14 PM	2/16/2021 10:14 PM	129	77	72		
2/12/2021 8:30 PM	2/12/2021 8:31 PM	132	74	72		
2/12/2021 8:20 PM	2/12/2021 8:30 PM	142	82	72		
2/11/2021 9:10 PM	2/12/2021 10:15 AM	135	77	80		
2/11/2021 9:00 PM	2/12/2021 10:15 AM	144	85	81		
2/10/2021	2/12/2021	133	81			



Author: Jacek Halicki (CC BY-SA 4.0)



Author: Sjö (CC BY-SA 4.0)

Reimbursement

- Due to COVID, telehealth reimbursement was made the same as in person visits
- Must follow the payers closely over the coming months and years
- Most insurers do not allow preventive health via telehealth
- Use the proper modifier
- Telephone calls often billed differently
- Electronic visits, store and forward are being increasingly reimbursed
- Electronic consults – both PCP and consultant can bill
- Remote patient monitoring – increasing number of payers are reimbursing

Quality of care

2015 Cochrane review suggests telehealth:

- ↑ Improves diabetes glucose control
- ↔ No difference for heart failure care
- ↑ Improves hypertension control
- ↔ No difference for mental health & substance abuse care
- ↔ No difference in dermatologic care

Ethical Considerations

- Physician's responsibilities
 - Inform patients of limitations to the platform
 - Discuss follow-up recommendations
- Social determinants of health
 - Access to telecommunications technology
 - Literacy
 - Digital divide
 - Non-English speaking patients
- Privacy
 - Too much data?
- Legalities
 - Consent
 - Treatment of minors
 - state licensure/credentialing
 - TELE-MED Act of 2015 – allow any Medicare provider to provide telehealth to beneficiary in any state
 - liability/malpractice

Patient considerations

- Extremes of age
 - With the very young an exam is often needed
 - Tech savviness can be a more common issue in the geriatric population. Must also consider vision/hearing limitations

**Table 2. Adjusted Odds of Telemedicine Unreadiness
5 for Video Visits by Demographic and Clinical Factors**

Factor	Percentage unready (survey weighted)	Adjusted odds ratio (95% CI)
Age, y		
65-74	25	1 [Reference]
75-84	44	2.3 (1.8-3.0)
≥85	72	7.0 (5.3-9.1)

Source: Lam K, Lu AD, Shi Y, Covinsky KE. Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. JAMA Intern Med 2020; 180:1389.

Patient considerations

Race

Factor	Percentage unready (survey weighted)	Adjusted odds ratio (95% CI)
Race/ethnicity		
White, non-Hispanic	32	1 [Reference]
Black, non-Hispanic	60	1.8 (1.4-2.3)
Other, non-Hispanic ^a	45	1.0 (0.6-1.5)
Hispanic	71	2.4 (1.6-3.6)

Source: Lam K, Lu AD, Shi Y, Covinsky KE. Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. JAMA Intern Med 2020; 180:1389.

Patient considerations

Education level

Factor	Percentage unready (survey weighted)	Adjusted odds ratio (95% CI)
Educational level		
>High school	24	1 [Reference]
High school	48	2.1 (1.7-2.5)
<High school	74	3.9 (2.9-5.3)

Source: Lam K, Lu AD, Shi Y, Covinsky KE. Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. JAMA Intern Med 2020; 180:1389.

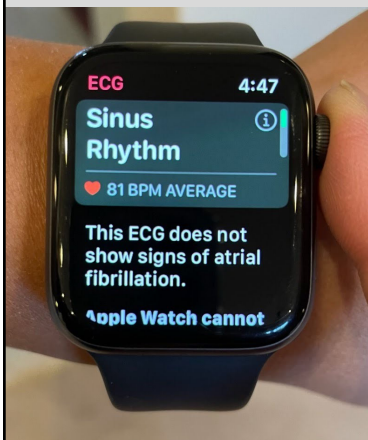
Patient considerations

Income level

Factor	Percentage unready (survey weighted)	Adjusted odds ratio (95% CI)
Income quintile^b		
Highest	17	1 [Reference]
Higher	23	1.2 (0.9-1.7)
Middle	34	1.5 (1.0-2.1)
Lower	43	1.9 (1.3-2.9)
Lowest	67	3.2 (2.2-4.6)

Source: Lam K, Lu AD, Shi Y, Covinsky KE. Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. JAMA Intern Med 2020; 180:1389.

Future Directions



- Building it into practice
 - Considering telehealth needs when building new clinics
- Integrating telehealth in student and resident curriculum
 - Standardized competencies
- Expand reimbursement beyond state of emergency
 - Increase coverage for electronic visits, telephone visits, remote monitoring
- Expanding care in developing nations
- Technological advances
 - Smartphones, wearable devices
 - Improved sensors
 - Tests that can be done at home
 - Machine learning

Resources for Providers

- Department of Health and Human Services: <https://telehealth.hhs.gov/>
- Rural Health Information Hub: <https://www.ruralhealthinfo.org/topics/telehealth>
 - FAQ, toolkit, links to local resources
- Center for Connected Health Policy: <https://www.cchpca.org/>
 - Interactive map with current state laws and reimbursement
- Federation of State Medical Boards: <https://www.fsmb.org/advocacy/covid-19/>
 - State licensing regulations and waivers

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