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Telehealth Ten: A Guide for a Patient-Assisted Virtual Physical Exam

Katie Benziger, MD, MPH, FACC, FAHA
Heart and Vascular Center
Essentia Health, Duluth, MN

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TexLa Telehealth at the Crossroads

@DrBenzigerHeart

Catherine.Benziger@essentiahealth.org



Essentia Health



Conflicts of interest

- None

Learning objectives



Identify different types of telehealth visits



Describe change in ambulatory visit types in 2020



Describe the Telehealth 10 patient-assisted exam



Future directions for telehealth

Clinical confidence and the 3 C's

- Caring
- Communicating
- Competence

EDITORIAL

Clinical Confidence and the Three C's: Caring, Communicating, and Competence

Table 1 Qualities that convey confidence in a physician

Caring

- "He treats me like a person who he cares about."
- "Always tries to see what he can do to make me better."
- "His approach to you."

Communication

- "Someone who listens, especially with empathy."
- Repeats back concerns
- Explains the basis of his/her decisions
- "Explains things."
- "A person who talks straight to me."
- "Someone with good communication; who gets back to me."
- "I like a doctor who isn't afraid to admit what he/she doesn't know about my condition."
- "Someone who listens; a lot of the young doctors don't do that today."
- "Someone who sits down and listens; some of the residents talk to you as they are walking out of the room."

Competence

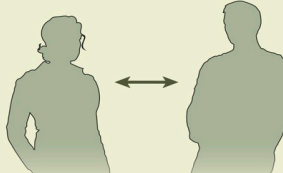
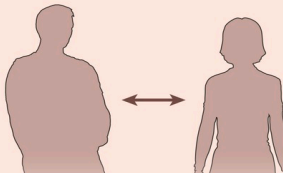


- "It's certainly not his degree; it has to do with time and attention and the doctor's continual education."
- "Someone with a good reputation who is competent; keeps up."
- "A doctor who reviews tests personally and gives you his/her opinion on their meaning."
- "A doctor who doesn't prescribe something when you call with a complaint, but tries to understand what is wrong with you."

Above are responses to the question "What gives you confidence in a doctor?"



Defining Telemedicine

- As defined by the [American Telemedicine Association \(ATA\)](#) “telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status”.
 - Ex: tele-education, tele-consultation, tele-practice, and tele-research
- Telehealth Visit (hub-and-spoke)
 - Provider is in clinic; patient is in person in outreach clinic
- Virtual Visits (interactive videoconference or telephone)
 - Provider is in clinic (or home); patient is at home (or their workplace)
- E-visits
 - Patient is at home and answers questions. Provider reads patient’s story and responds electronically.

	TELEMEDICINE TOOLS	TELEMEDICINE SERVICES
Clinician to Clinician 	Clinicians often communicate through e-mail, video, or both	Dermatology Radiology Surgical peer mentoring Emergency trauma and ICU care
Clinician to Patient 	Video Phone E-mail Remote wireless monitoring Internet	Care for chronic conditions Medication management Wound care Counseling Postdischarge follow-up Mental health
Patient to Mobile Health Technology 	Wearable monitors Smartphones Mobile apps Video E-mail Web portals Games	Health education Monitoring of physical activity Monitoring of diet Medication adherence Cognitive fitness
 Integration with electronic medical records Data analytics		

Tuckson RV et al. N Engl J Med 2017;377:1585-1592.

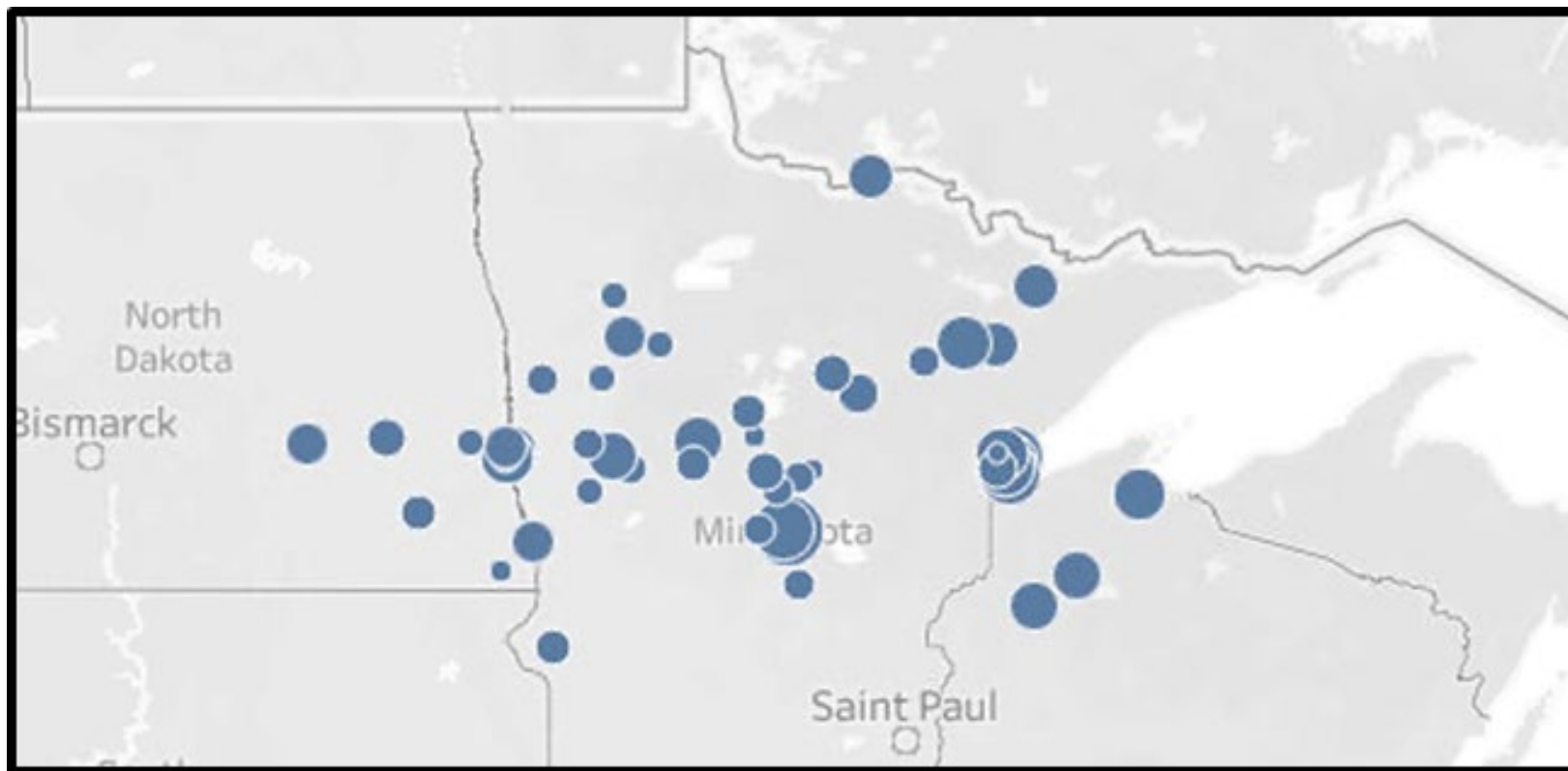


Essentia Health – Minnesota, Wisconsin, North Dakota

- **Pediatric, family and internal medicine:**
 - 162,710 primary care virtual visits (3/1/2020-12/20/2020)
 - Virtual visits (primary care):
 - 52% telephone (N=84,411)
 - 39% videoconference (N=63,870)
 - 9% unknown (N=14,429)
 - Top 5 primary diagnoses: long-term current use of opiate analgesic, hypertension, well-child visit, type-2 diabetes mellitus, and anxiety.
- **Cardiology:**
 - 12,479 virtual visits (vs. 32,580 in person) (3/1/2020-12/20/2020)
 - Virtual visits (cardiology):
 - 66% telephone (N=8,298)
 - 25% videoconference (N=3,110)
 - 9% unknown (N=1,082)
 - Top 5 primary diagnoses: coronary artery disease, chronic diastolic heart failure, paroxysmal atrial fibrillation, chronic systolic heart failure, and hypertension

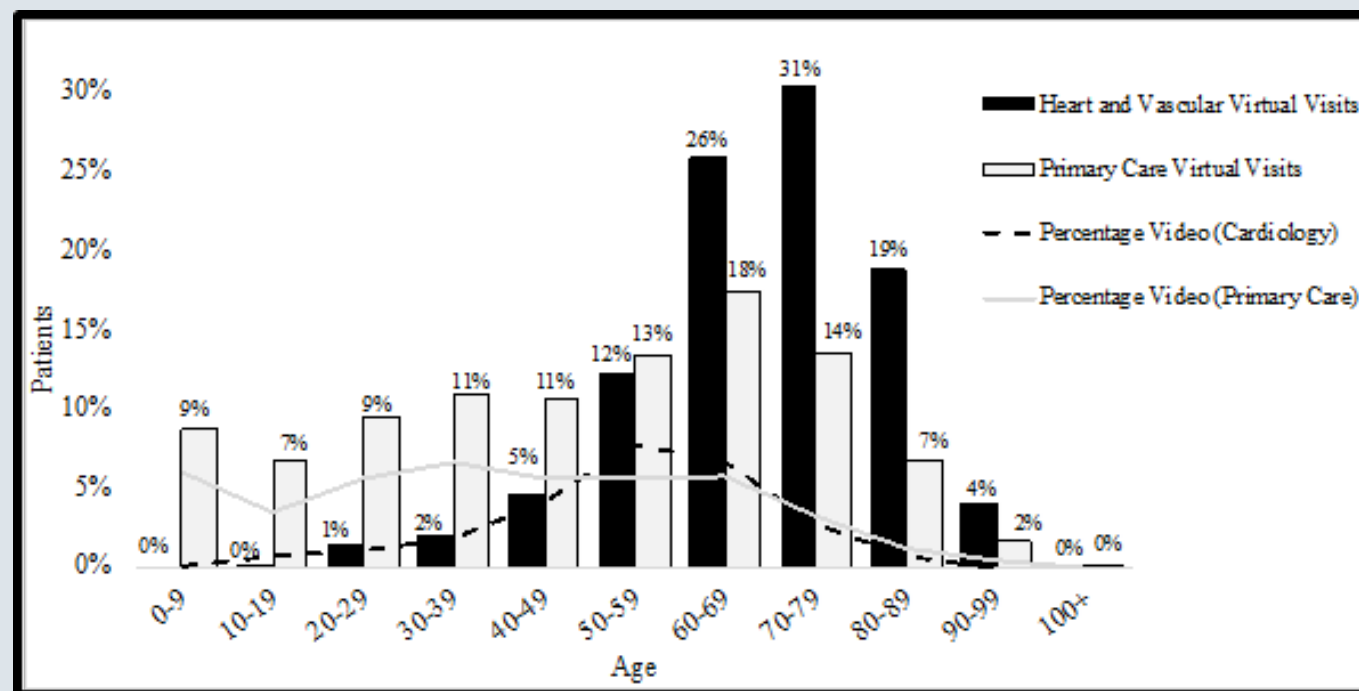


Essentia Health Telehealth Locations



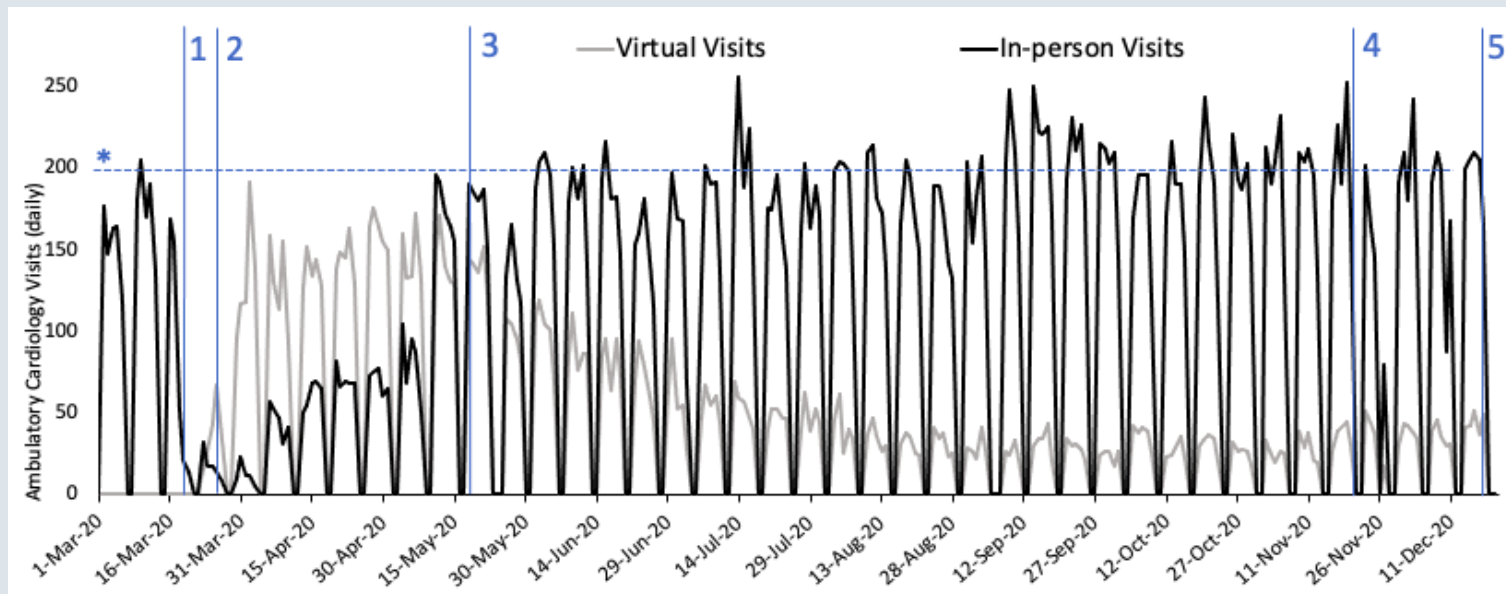
Differences between primary care and cardiology

Compared to primary care, cardiology patients were older and more likely to have telephone visits (52% vs. 66%) compared to video (39% vs. 25%).





Trends in cardiology visit type over time



- Virtual visits (primary care): telephone (52%, N=84,411) and videoconference (39%, N=63,870), or unknown (9%, N=14,429).
- Top 5 primary diagnoses: long-term current use of opiate analgesic, hypertension, well-child visit, type-2 diabetes mellitus, and anxiety.



Five Key Trends That Will Influence the Growth of Telehealth Care Delivery



Table 1. Five Key Trends That Will Influence the Growth of Telehealth Care Delivery.

Trend
Continuous innovation in the consumer technology market (e.g., with respect to applications, wearable sensors with wireless monitoring capabilities, and related digital capabilities), which will continue to attract financial capital for product development ¹²
Continuous advancement in electronic health records and clinical-decision support systems, which has the potential to better integrate telehealth services into care-delivery processes and thus make care delivery more efficient for clinicians ¹³
Projected shortages in the health professional workforce, which will increase the need to provide access to primary and specialty care for rural and underserved urban populations ¹⁴
Reorganization in the delivery and financing of medical care, as a result of private-sector initiatives and the Affordable Care Act, toward value-based reimbursement, which provides an incentive for service delivery in lower-cost care settings outside of traditional hospital facilities ¹⁵⁻¹⁷
Growth of consumerism in health care, with increasing public expectations for convenient and real-time access to health services, personal health information, prescription refills, and other health interventions in a manner similar to other sectors of the economy ¹⁸⁻²⁰

Tuckson RV et al. N Engl J Med 2017;377:1585-1592.











ILLINOIS
WINDY CITY



The Telehealth Ten

- Systematic way to conduct a virtual visit and obtain key physical exam components
- Triage patients who need to be seen in person
- Note: this is not a comprehensive list. Nor do I perform all of these on every patient

Benziger C et al. Am J Med. 2021 Jan;134(1):48-51

	Step 1: Vital Signs -Weight, blood pressure, pulse, oxygen saturation, temperature
	Step 2: Skin assessment -New bruises, rash, swelling
	Step 3: Head, Eyes, Ears, Nose, and Throat -Assess vision, hearing, sense of smell; observe throat, swallowing
	Step 4: Neck -Assess pain with rotation, jugular venous distension, Corrigan's pulse
	Step 5: Lungs -Deeply inhale and hold; observe wheezing and tachypnea
	Step 6: Heart -Assess pulse; incorporate data from wearables
	Step 7: Abdomen -Assess if abdomen is firm, tender, or distended
	Step 8: Extremities -Press thumb into pre-tibial area and assess edema; perceived temperature
	Step 9: Neurological -Speech, gait, Romberg, stand from seated position
	Step 10: Social Determinants of Health -Diet, physical activity, sleep, stress, housing, transportation, safety, mood



Step 1: Vital Signs

- Digital automatic blood pressure cuff
 - Blood pressure (systolic / diastolic)
 - Heart rate
- Scale
 - Body weight
- Thermometer
 - Temperature
- Pulse oximeter
 - Oxygen and heart rate



Image from: <https://techno-soft.com/wearable-technology-in-healthcare.html>



Step 2: Skin assessment

- Self-assessment
 - New bruises, rashes, lacerations, psoriasis plaques (elbows, knees), or swelling
 - Inspect face, neck, arms, elbows, chest, abdomen and legs

Video: have them show you the area of concern



Step 3: Head, Eyes, Ears, Nose and Throat

“Can you hear me now?”

- Do they wear hearing aids?

Video:

- Close their eyes to look for xanthelasma on lids
- Open their eyes and look up to assess for prominent corneal arcus

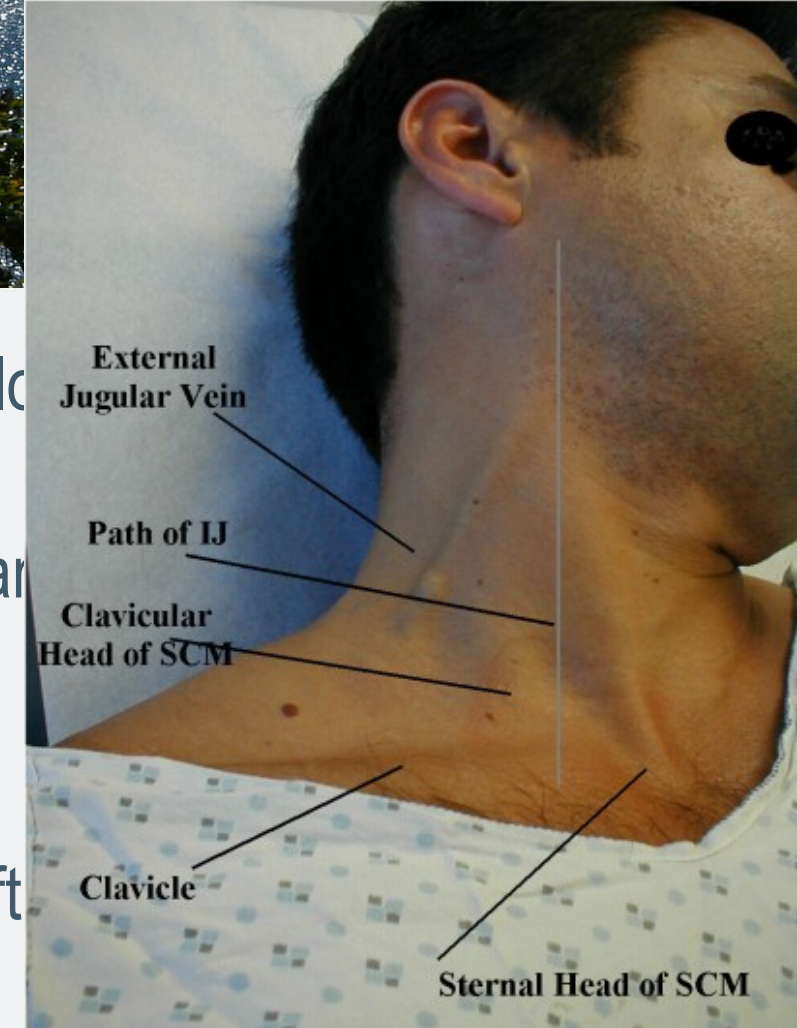




Step 4: Neck

- Instruct patients to look over their right shoulder and then left shoulder. Any pain or limitation with motion?
- Ask patient to swallow. Any pain with swallowing, which can indicate thyroiditis?
- Ask if they note a bounding pulsation in the neck?

Video: While sitting, ask patients to turn their head to the left and right. Observe the jugular veins while sitting.





Step 5: Lungs

- Ask patients to deeply inhale and exhale through an open mouth. Listen for cough or wheezes.
- Ask patients to deeply inhale again and hold their breath while you count to 10 and listen again.

Video: Watch for tachypnea and accessory muscle use as signs of impaired respiration.



Step 6: Heart

- Ask if the patient or caregiver can take the pulse at the wrist. Have them count out the beats they feel.
- Ask if there are any skips or pauses or if the pulse is irregular in nature, which can be a clue to atrial fibrillation, atrial flutter with variable block, or atrial or ventricular ectopy.
- If the BP cuff has the visual pulse indicator, ask if they noticed irregularity (or error reading).



Step 7: Abdomen.

- Ask patients if their abdomen is soft, nontender, and normal in size. If tender or distended, and especially if coughing causes tenderness, then an in-person clinic visit may be required.
- Ask if any abdominal scars are present, and if so, what they were from.



Step 8: Extremities

- Ask if patients' hands or feet are colder than usual
- Have patients use the thumb to note any pitting edema
- Put hands around the calves. Is one more swollen than the other?
- For those with high cholesterol, have them feel the Achilles tendon and see if it feels lumpy or bigger than their thumb, which can be a clue for an Achilles tendon xanthoma seen in familial hypercholesterolemia.

Video: Confirm impression of lower leg swelling, especially if one leg is more swollen.



Step 9: Neurological

- Ask patients to hold their arms out with elbows straight, spread their fingers, and turn their hands up as if catching rain.
- Ask patients if they have noticed a tremor (or if tremor when using utensils to eat) or if one arm is weaker than the other.
- Ask patients to rise up from a seated position with arms folded across chest to detect proximal weakness.
- Ask them to walk to the door and back.



Step 10: Social Determinants of Health

- Inquire about issues regarding changes in diet, physical activity, sleep, stress, and social support. Ask about if they have insecurities related to food, medicines, and supplies, if they have adequate housing and transportation, and if they feel safe at home.

Video: Observe patients' surroundings and interactions with caregivers. Assess their mood and facial expressions during the visit.

Limitations in documenting the physical exam

NoteWriter

Clear Physical Exam

(1) Normal PE KB male (2) Severe AS (3) virtual visit

ROS Physical Exam

Basic Const HENT Eyes Neck Cardio Pulm Chest Abd GU Musc Foot Lymph Skin Neuro Psych

☒ vital signs reviewed ☐ nursing note reviewed ☐ chaperone present

Constitutional

☒ alert ☒ nl appearance ☐ nl weight ☐ obese

☐ acute distress ☐ ill-appearing ☐ toxic-appearing ☐ diaphoretic

HENT

Head

☐ normocephalic ☐ atraumatic

Ears

Right

☐ TM nl ☐ canal nl ☐ external ear nl ☐ impacted cerumen

Left

☐ TM nl ☐ canal nl ☐ external ear nl ☐ impacted cerumen

Nose

☐ nose nl ☐ congestion ☐ rhinorrhea

Mouth/Throat

☐ moist ☐ dry ☐ clear ☐ exudate ☐ erythema

Eyes

☐ PERRL ☐ EOM intact ☒ conjunctivae nl ☐ right eye discharge ☐ left eye discharge ☐ scleral icterus

Neck

☐ ROM nl ☐ supple ☐ neck rigidity ☐ tenderness ☐ cervical adenopathy ☐ carotid bruit

Cardiovascular

Rate

☐ normal rate ☐ tachycardia ☐ bradycardia

Rhythm

☐ regular rhythm ☐ irregular

Pulses and Heart Sounds

☐ pulses nl ☐ heart sounds nl ☐ murmur ☐ friction rub ☐ gallop

Pulmonary

☒ effort nl ☐ breath sounds nl ☐ respiratory distress ☐ stridor ☐ wheezes ☐ rhonchi ☐ rales ☐ chest tenderness

Abdominal

☐ flat ☐ soft ☐ bowel sounds nl ☐ distension ☐ mass ☐ tenderness ☐ hernia ☐ guarding ☐ rebound ☐ right CVA tenderness ☐ left CVA tenderness

Genitourinary/Anorectal

☐ penis nl ☐ testes nl ☐ prostate nl ☐ rectum nl ☐ guaiac result

Musculoskeletal

☐ ROM nl ☐ swelling ☐ deformity ☐ RLE edema ☐ tenderness ☐ injury ☐ LLE edema

Skin

☐ warm ☐ dry ☐ jaundiced ☐ pale ☐ bruising ☐ erythema ☐ lesion ☐ rash

Capillary Refill (seconds):

☐ < 2 ☐ 2-3 ☐ > 3

Neurological

☒ no focal deficit ☒ oriented x3 ☐ at baseline ☐ disoriented ☐ cranial nerve deficit ☐ sensory deficit ☐ weakness ☐ abnl coordination ☐ abnl gait ☐ abnl DTRs

Psychiatric/Behavioral

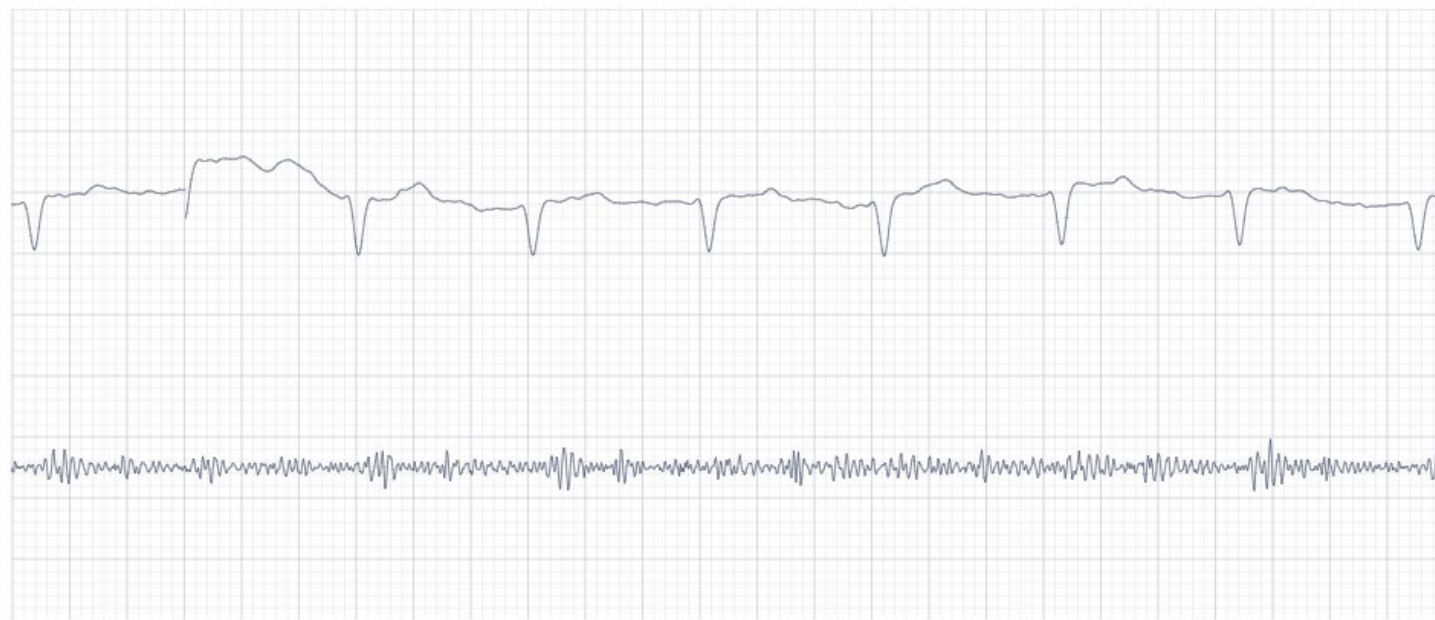
☒ mood nl ☒ behavior nl ☐ thought content nl ☐ judgment nl



Date
Feb. 22, 2021
10:08 AM

Live Stream By
HaywardClinic Essentia Health

HR
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11 10mm/mV 25mm/sec

Speaker icon and volume slider



Future Direction

1. Adapting telehealth visits to different populations, including the elderly, individuals with cognitive impairment, or individuals with low health technology literacy
2. Rates of feasibility, acceptability, and fidelity of patient-assisted virtual examinations
3. Integration of virtual examinations with interpreters
4. Meeting patients' psychosocial needs
5. Gaining and maintaining trust through a virtual interface



Limitations

- Tradeoffs: telehealth visit vs. in-person examination
 - No rooming staff doing medication reconciliation, allergies, vital signs
 - Remote monitoring
 - No “After Visit Summary” or Check-Out process to ensure timely follow up
 - Clinic protocols to aid in scheduling patients
 - Standardized clinic documentation
 - **Telehealth visits (TCON – patient at outreach clinic site)** Dot phrase: .telemedmnma
 - **Virtual Visits (video/telephone – patient at their home or in facility).** Dot phrase: .virtualvisitdocumentation
- Special populations: pediatric, geriatric, nursing home



Key to successful telehealth visit

1. Listen to the patient. 3 C's: caring, compassion, competence
2. Perform a limited, but potentially useful, patient-assisted physical examination
3. Perform closed-loop communication

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Questions?

Contact:

Katie Benziger, MD, MPH, FACC, FAHA

Email: Catherine.Benziger@essentiahealth.org
[@DrBenzigerHeart](https://twitter.com/DrBenzigerHeart)



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