

Making the Most of a Cardiac-Focused Telehealth Visit

Midge Bowers DNP, FNP-BC, AACCC, CHSE, FAANP, FAAN



Session Description

- In this session participants will learn how to get the most out of completing a cardiac focused telehealth visit. Using a case study approach, you will learn how to complete components of a cardiovascular exam in the virtual environment while leveraging technology.

Objectives

1

Describe how to collaborate with patients to perform a cardiopulmonary assessment in a telehealth setting

2

Discuss how to leverage technology to obtain cardiovascular health data.

3

Identify key factors to being prepared for a telehealth cardiac emergency.

Not going to
discuss-
Remote
Telehealth

Consultative services

Telemonitoring services

Remote clinic with virtual
assessment

Overview of Telehealth

Benefits



Access

Disease
management
Flexible scheduling



Cost savings

Travel
Time

Barriers

- Broadband access
- Technology literacy
- Changes in workflow
- IT infrastructure

Benefits- Access to care



Flexible Scheduling

Visits before/after or in between

face-to-face visits

Remote options for provider



Disease management

Intensify treatment

Benefits- Cost Savings

Travel

- Distance
- Transportation
- Parking

Time

- Off work
- Coverage for child or elder care

Barriers-

- Broadband access
 - Limited in certain regions
- Financial impact





Barriers-

- Technology literacy
 - Ability to use technology safely and effectively to complete a task
 - Ability to navigate access to virtual visit
 - Able to navigate devices and digital information

Barriers-



CHANGES IN WORKFLOW



DISRUPTION IN CLINIC IF TELEVIDEO VISITS
ARE DELAYED OR EXTENDED



Barriers-

- Information technology infrastructure
- Infrastructure support for internet speed to support televideo visit
- Real time technology troubleshooting

Common diagnoses

Coronary artery disease

Hypertension

Heart failure

Syncope and palpitations

Dysrhythmias



Coronary Artery Disease

- Assess symptoms
 - **Require face to face visit if anginal symptoms are increasing**
 - Anginal symptoms
 - Chest pain/discomfort
 - Jaw, shoulder, tooth pain
 - Activity intolerance
 - Dyspnea at rest or with exertion



Hypertension

- Assess symptoms
 - Headache
 - Visual changes
 - Chest discomfort
 - Peripheral edema

The left side of the slide features a vertical strip with a blurred background of an electrocardiogram (ECG) tracing on a pink grid, set against a light blue gradient.

Heart Failure

Assess symptoms

- Orthopnea
- Bendopnea
- PND
- Exercise intolerance
- Edema
- Early satiety
- Cognitive changes



Syncope and palpitations

Assess symptoms:

- Passing out/almost passing out
- “Fluttering in chest”
- Lightheadedness
- Dizziness

Dysrhythmias

Assess symptoms

- Pain
- Palpitations/Fluttering
- Syncope and presyncope
- Lightheadedness
- Dizziness



Preparing for the visit

- Home data
 - Blood pressure
 - Heart rate
 - Weight
 - Pulse oximetry
 - Glucometer
- Follow trends rather than individual data points

Preparation

Contact the patient the day before the visit

- Vital signs including weights available
- Medication bottles and/or lists

Have a template for emergency information

- Who to contact
- Phone number

Electronic health record template to include:

- Consent
- Verification of privacy



Environmental Assessment

- Home environment scan
 - Lighting
 - Safety
 - Food
- How and where medications are located



Medication Reconciliation

- What are they taking?
- What are they NOT taking?
- Are the doses and frequency accurate?
- Vitamins, herbs, supplements or other substances



Cognitive assessment

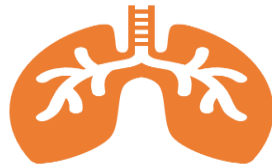
- Cognitive evaluation- assessing for cerebral perfusion
 - Executive function-
 - Follows directions and can access technology
 - Orientation
 - Name
 - DOB
 - Date



General Assessment

- Appearance
 - Looks good vs. Looks bad
 - Grooming
 - Cognitive status
- Skin
 - Color
 - Turgor
 - Diaphoresis

Respiratory assessment



Observe respiratory effort

Can pt speak in complete sentences?

Are they seated upright?

Costal retractions

Tachypnea

Prolonged expiration



Listen for

Stridor

Wheezing

Cough



Respiratory assessment

- Evaluate for exertional dyspnea
 - Ask patient to walk across the room and back to the computer (pulse oximeter)
 - Observe for tachypnea and change in respiratory effort
 - Listen for adventitious sounds

Jugular Vein Distention

- Ask patient to turn head
- Look for carotid pulsation
- Ask patient to use one hand to press under the ribcage on the right side to elicit hepatojugular reflux which can make the neck veins more prominent.
- If seated upright and neck veins are visible= volume overload



Rhythm Abnormalities

- Find pulse
 - Carotid, radial or brachial
- Ask patient to call out “beat” each time a pulse is felt
- Ask about available data
 - Blood pressure
 - Heart Rate
 - Rhythm strip

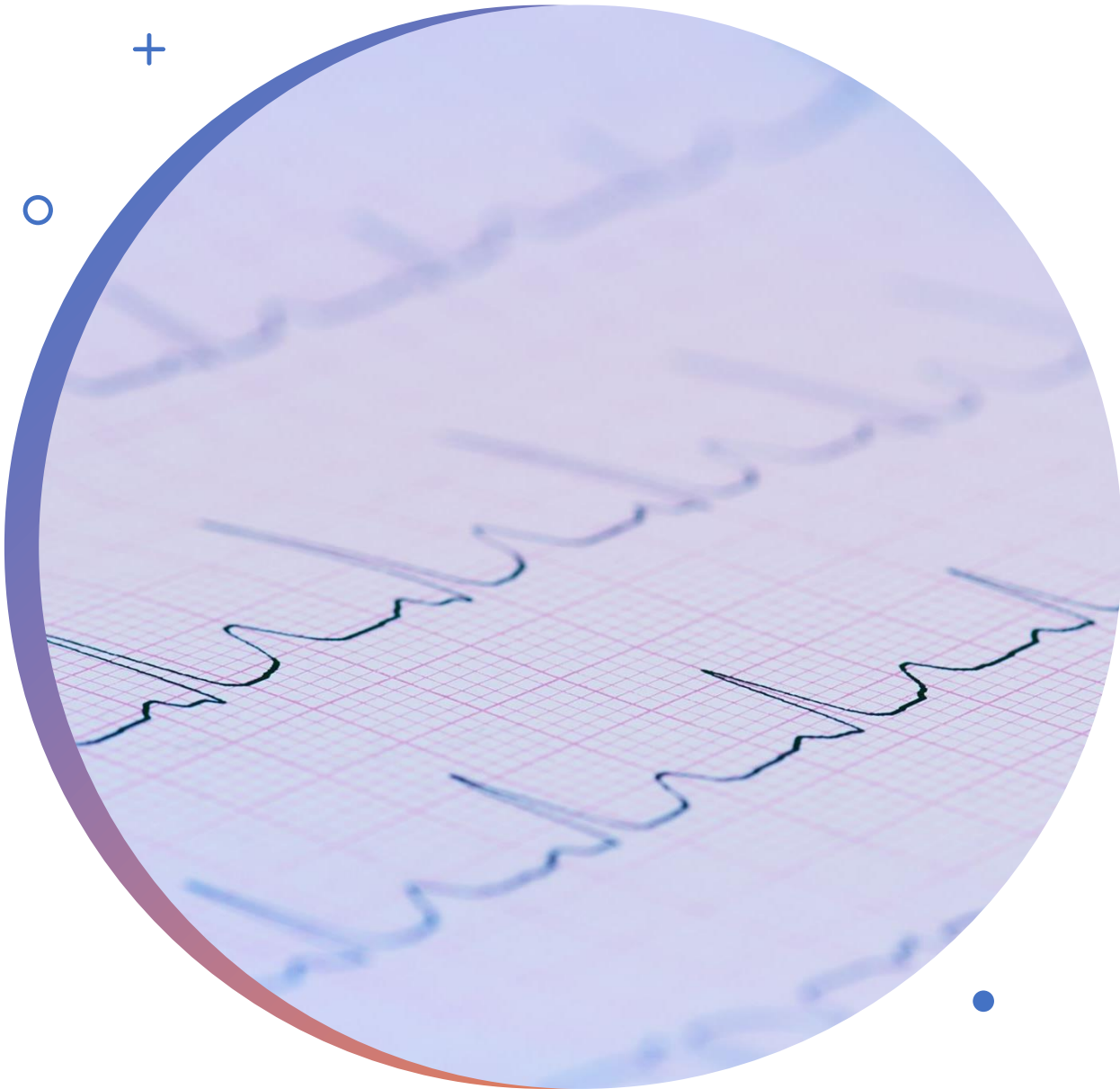
Lower extremity assessment

Visualize the lower extremities

- Skin color
- Presence/absence of hair or lesions

Ask patient for assistance in evaluating for edema

- Press against bony prominence using thumb
- Observe the length of time of induration



Remote patient monitoring

What to ask a cardiology provider?

- Defibrillator
 - Recent shocks
- Pacemaker
 - Percent time pacing
 - Underlying rhythm
- Implanted cardiac monitor
 - Rhythm monitor
 - Hemodynamic monitor

Wearable technology

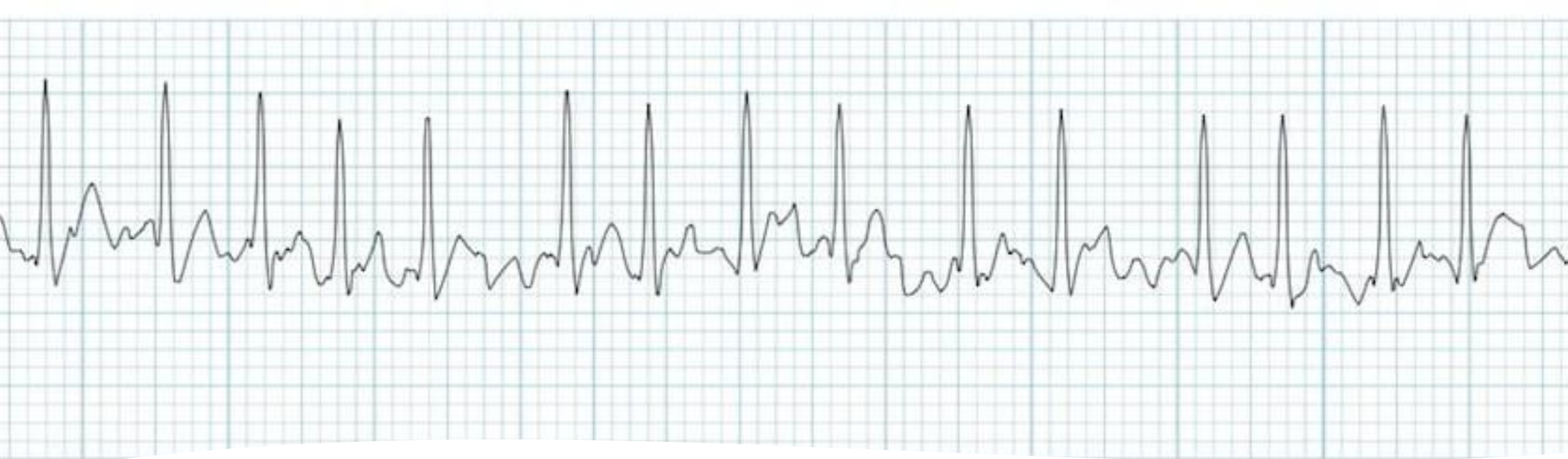
- Biometric data
 - Smartphones and Smartwatch
 - Remote EKG
- Data
 - Blood pressure
 - Heart rate
 - Physical Activity
 - Sleep
 - Pulse oximetry*
 - Heart rhythm*
 - Blood glucose*



Billing for chronic conditions



<https://telehealth.hhs.gov/providers/best-practice-guides/telehealth-for-chronic-conditions/managing-chronic-conditions-through-telehealth#remote-patient-monitoring-to-keep-track-of-symptoms-and-vital-signs>



Case 1

- 54 yo male with h/o atrial fibrillation recent c/o exercise intolerance. He shares a rhythm strip during the visit.
- Cardiovascular Meds
 - Metoprolol tartrate 25 mg bid
 - Apixaban 5 mg bid

Defining severity of atrial fib symptoms

CCS-SAF

1. Does pt have any of these symptoms- palpitations, weakness or fatigue, chest pain, dyspnea, dizziness, syncope, presyncope?
2. Is atrial fibrillation associated with these symptoms?
3. Do symptoms impact your ability to function or impair quality of life?

Class 0- asymptomatic

1- mild effect


2- minor effect

3- moderate effect

4- severe effect




Case 1

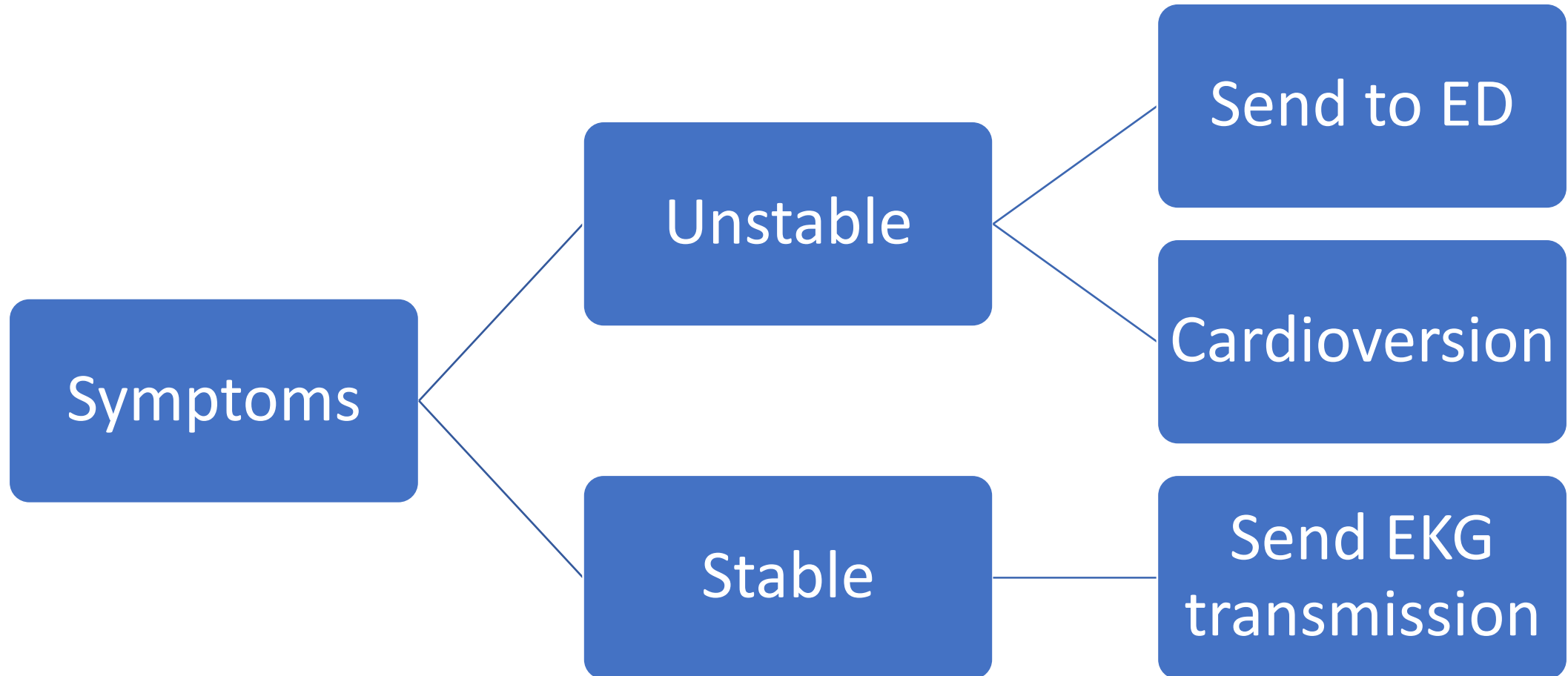
- Focused physical exam
 - Skin color
 - Neck vein distention
 - Prominent carotid pulsation
 - Respiratory effort and rate
 - Peripheral edema
- 



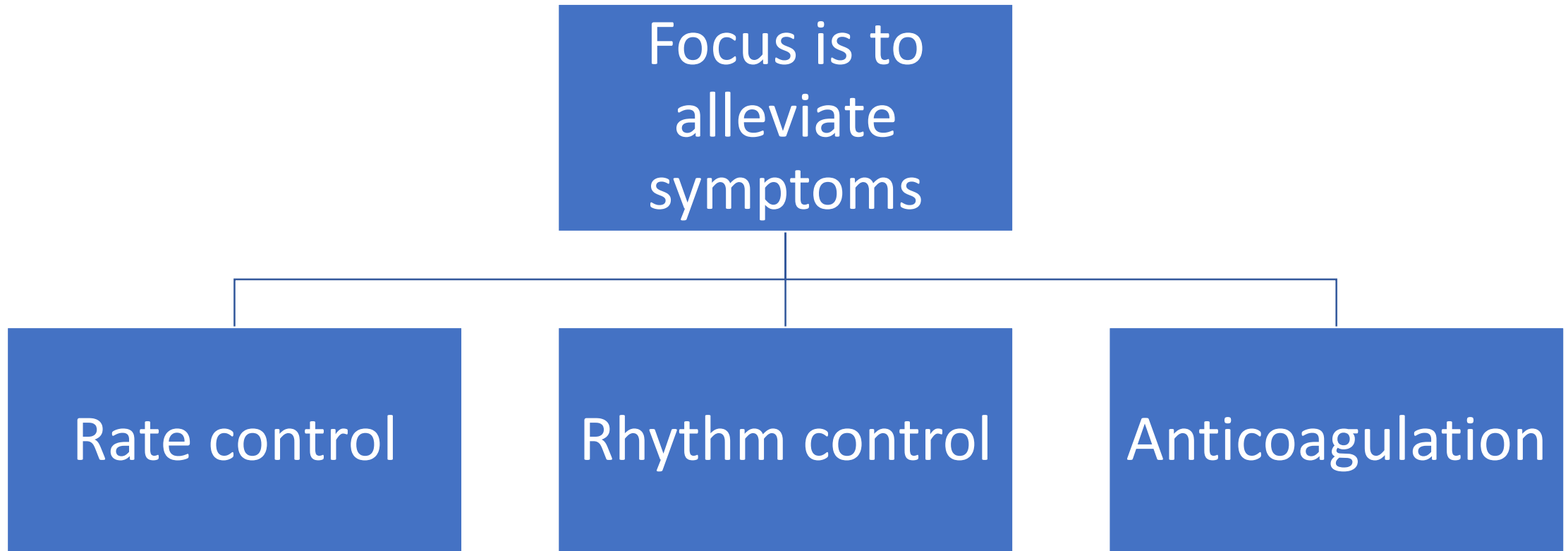
Case 1

- Home vital signs
 - BP range 114-126/75-80
 - HR range 88-140
 - Pulsox 96-99%
 - Stable or unstable?
 - What is your plan for today?
 - When will you followup?
- 

Algorithm for Atrial Fib via telehealth

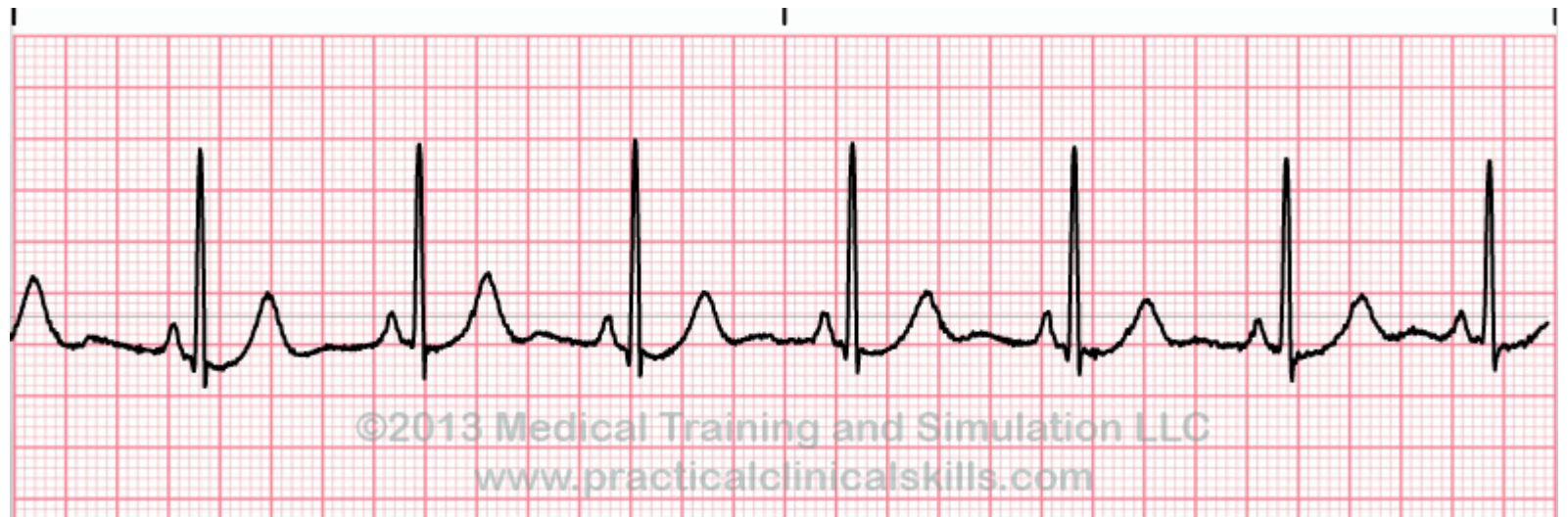


Algorithm for Atrial Fib via telehealth



Case 1

- He returns for a televideo visit in one week after your medication adjustment. He sends in the rhythm strip below.
- Home vital signs
 - BP range 111-120/72-75
 - HR range 70-82
 - Pulsox 98-100%



Case 2

- 62 yo female with h/o CAD (stent in distal LAD 2 yrs ago), osteoarthritis and lives alone presents for a 3-month followup visit with c/o fatigue and occ. nausea.
- Recently started Naproxen 250 mg every 8 hrs for worsening OA.
- Home meds:
 - Clopidogrel 75 mg daily
 - ASA 81 mg daily
 - Omeprazole 20 mg daily
 - Ramipril 2.5 mg daily
 - Metoprolol succinate 50 mg daily
 - Nitro 0.4 mg sl prn

Labs 3 months ago
Na+ 140 K+ 4.1 Cl 102
CO2 24 BUN 18 Cr 1.2 Gluc 110

Case 2

- Home vital signs
 - BP range 127-134/82-90
 - HR range 87-92
 - Pulsox 99-100%
 - Weight 163 lbs
 - BMI 29
- Focused physical exam
 - Skin color
 - Neck vein distention
 - Carotid pulsation
 - Respiratory effort and rate
 - Peripheral edema

Case 2



Symptoms present differently in women

Fatigue and nausea may be anginal equivalent
Is nausea related to naproxen?



What is her risk of a cardiovascular event?

[ASCVD Risk Estimator Plus](#)

Case 2

Optimizing medical regimen

Review of lifestyle

Diagnostics

Address SDOH

Followup

Case 3



39 yo male with a h/o HTN, OSA on CPAP with BMI >55 recently hospitalized for new onset HFpEF with fluid overload scheduled for a telehealth hospital followup visit.



Home vital signs: BP 156/74 HR 88 Pulsox 96% Wt. 385 lbs (EDW= 379 lbs)



Cardiac Meds:

Furosemide 40 mg daily Spironolactone 25 mg daily
Empagliflozin 10 mg daily Amlodipine 5 mg daily



Labs at discharge- Kidney function, CBC WNL, Potassium 4.1 and Magnesium 1.9

Case 3

- Symptoms today
 - Breathless with exertion
 - Occasional cough

- Focused physical exam
 - Skin color
 - Neck vein distention
 - Prominent carotid pulsation
 - Respiratory effort and rate
 - Peripheral edema

Case 3



Reasons for worsening symptoms:



Medication changes in hospital

Has not started SGLT2 inhibitor



Dietary changes

Sodium restriction is new (peak in pantry)



Elevated blood pressure




Obstructive Sleep Apnea



Case 3

- During visit becomes tachypneic and pulsox drops to 88%
- How do you handle an emergency during a telehealth visit?



Decompensation
during the televisit

Were you prepared for an emergency?



Consent- privacy, identity, agree to televisit



Address-where are they located during visit



Phone numbers- patient and backup contact, local 911



Scene- visualize surroundings



Confirm information at visit onset and document



Recognition of Emergency



Response to emergency



OVERALL ASSESSMENT



RECOGNIZE CHANGES



**ACTIVATE EMERGENCY
RESOURCES**



**REMAIN WITH THE
PATIENT**

Key References

- <https://www.acc.org/Tools-and-Practice-Support/Clinical-Toolkits/Telehealth-Workbook>
- Houser SH et al. Patient clinical documentation in telehealth environment: are we collecting appropriate and sufficient information for best practice? Mhealth. 2022 Jan 20;8:6. doi: 10.21037/mhealth-21-30. PMID: 35178437; PMCID: PMC8800202.
- <https://telehealth.hhs.gov/providers/best-practice-guides>
- Telehealth Physical Exam: Cardiopulmonary. © 2021 Old Dominion University, Center for Telehealth Innovation, Education, and Research (C-TIER). All rights reserved.



Personal photo: M. Bowers

Questions

Margaret.bowers@duke.edu