

# Making the Most of a Cardiac-Focused Telehealth Visit

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## 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

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- 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

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- 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

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



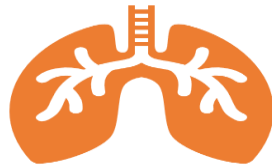


# General Assessment

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- 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

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- 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

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- 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

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- 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

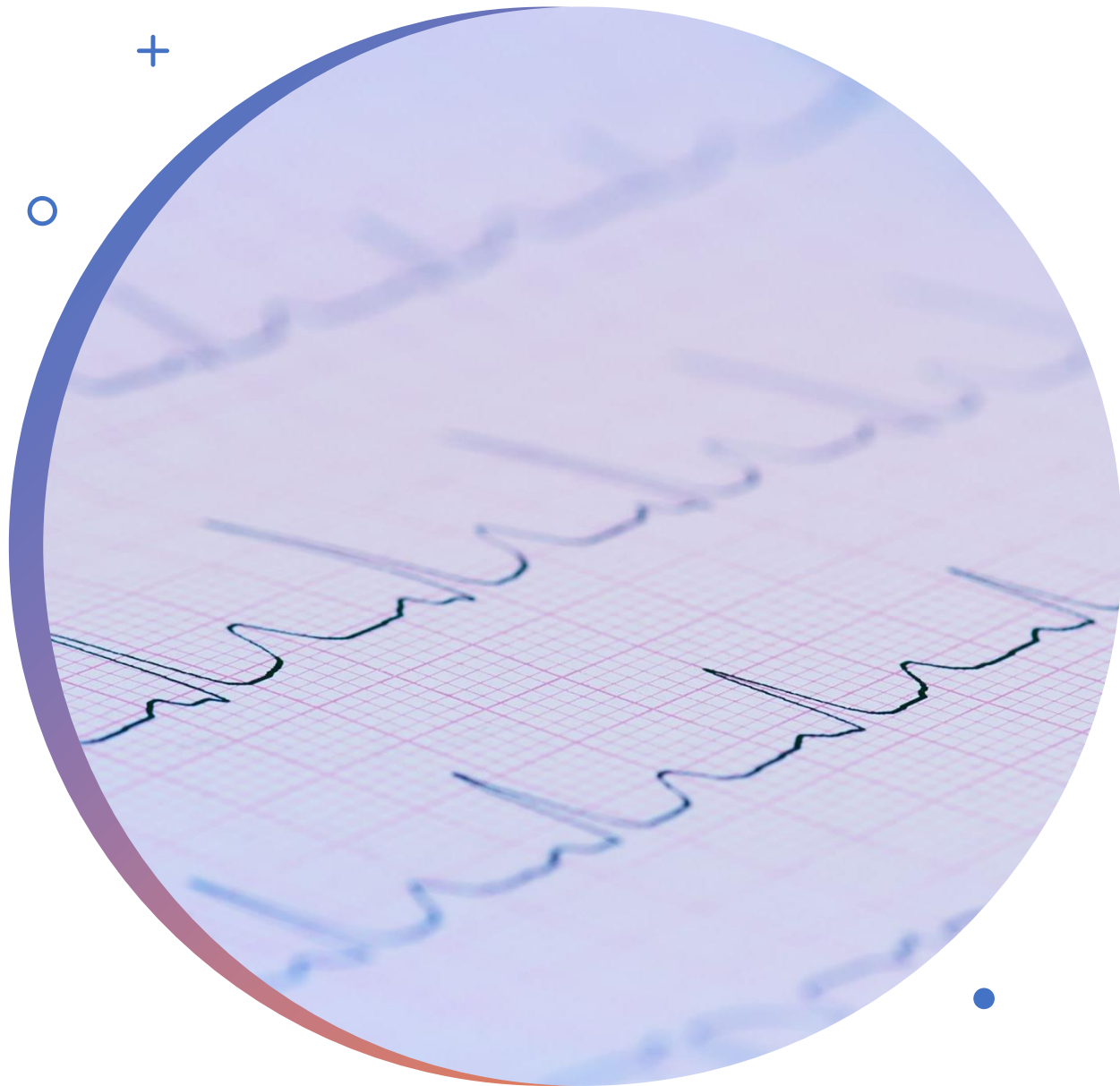
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## Visualize the lower extremities

- 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

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

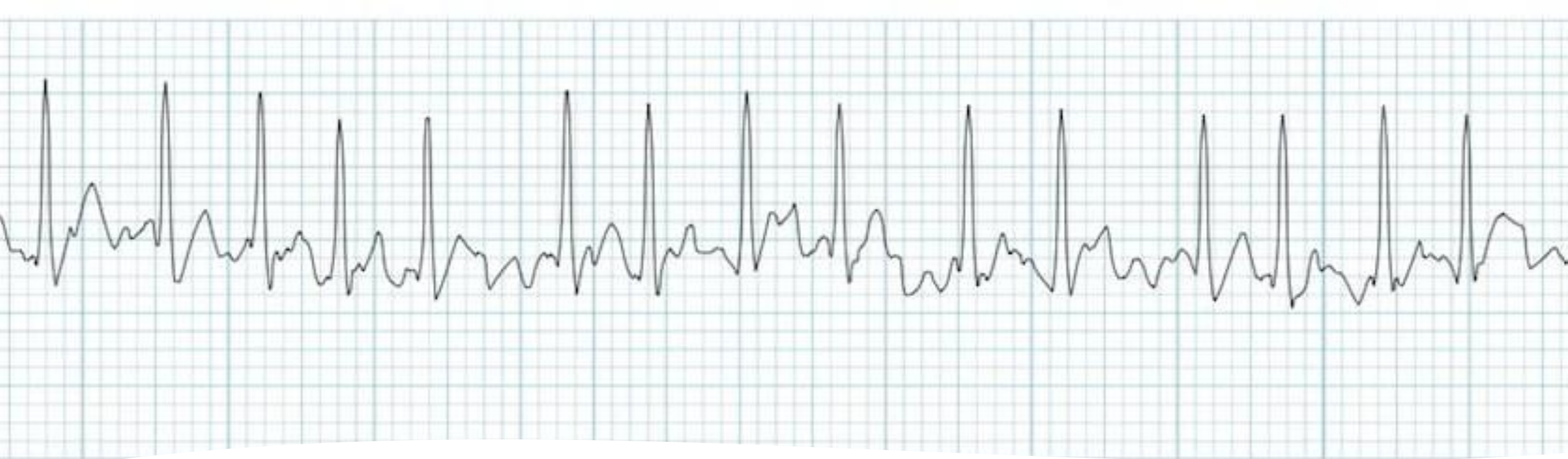


# Billing for chronic conditions



<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

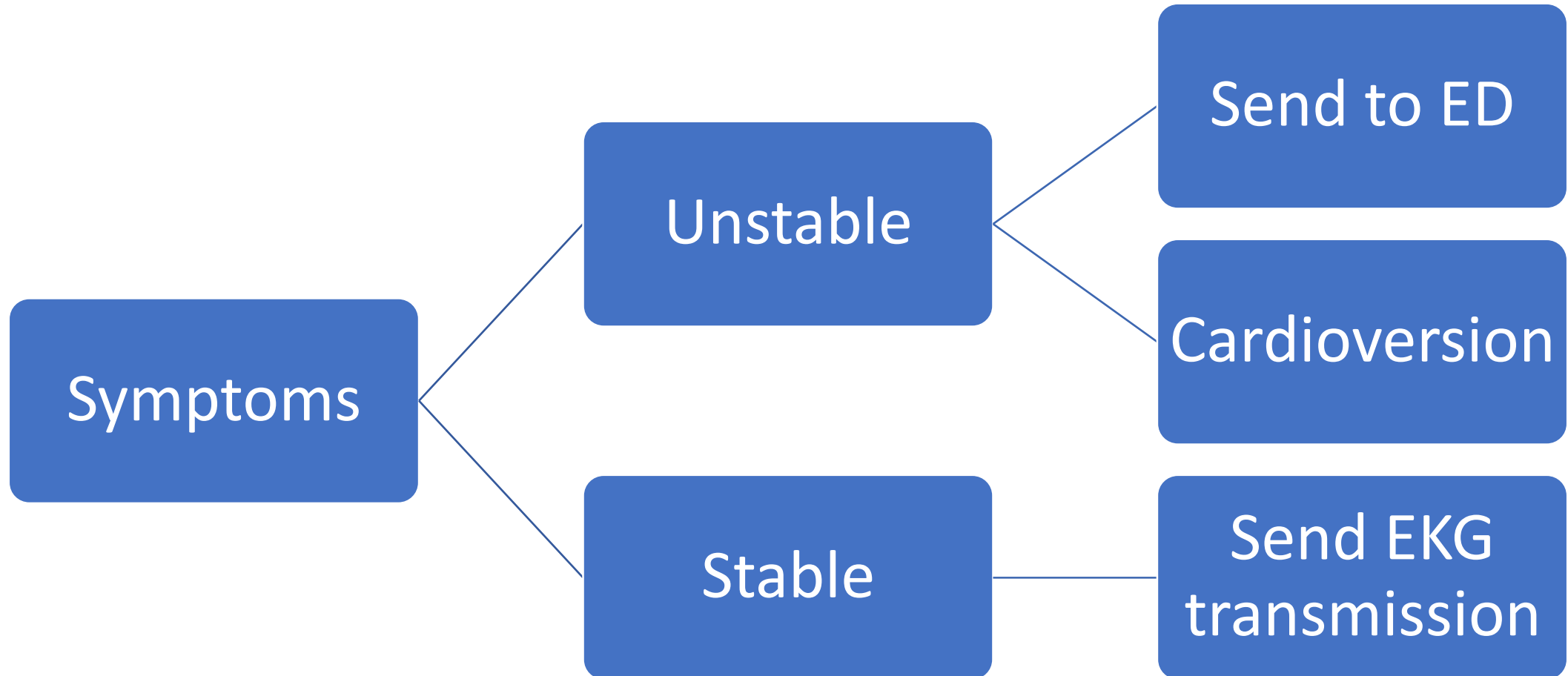
- Focused physical exam
    - Skin color
    - Neck vein distention
    - Prominent carotid pulsation
    - Respiratory effort and rate
    - Peripheral edema
- 



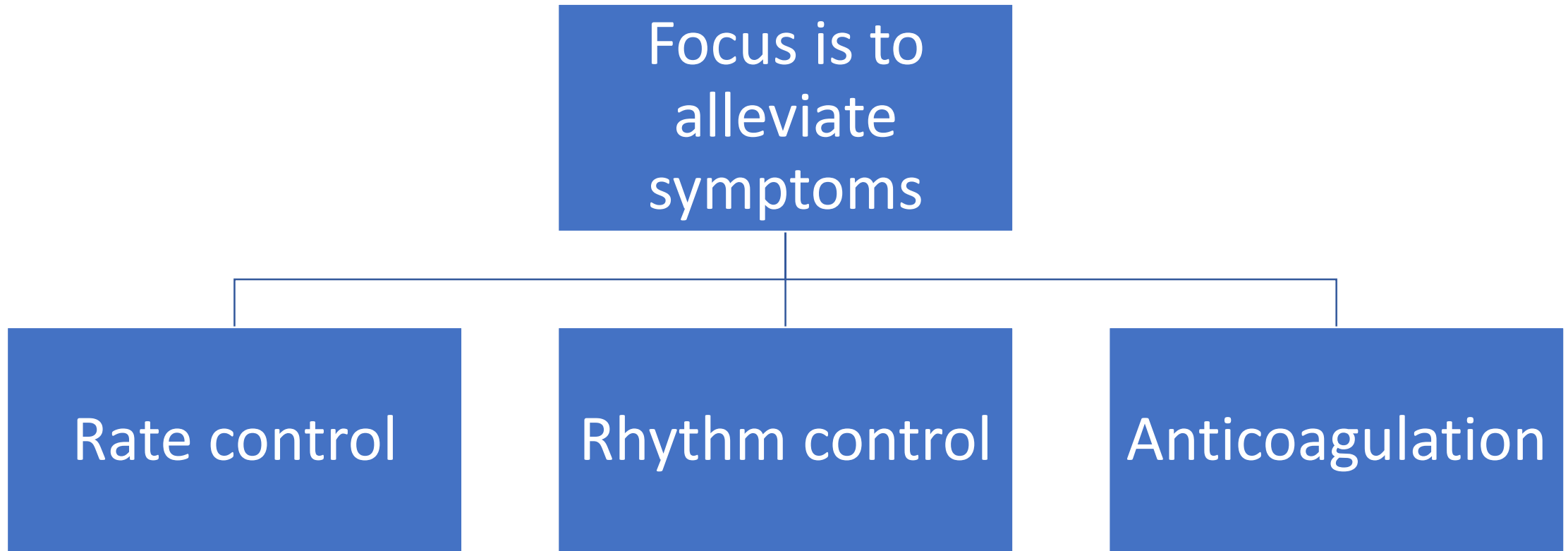
# Case 1

- 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?
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# Algorithm for Atrial Fib via telehealth

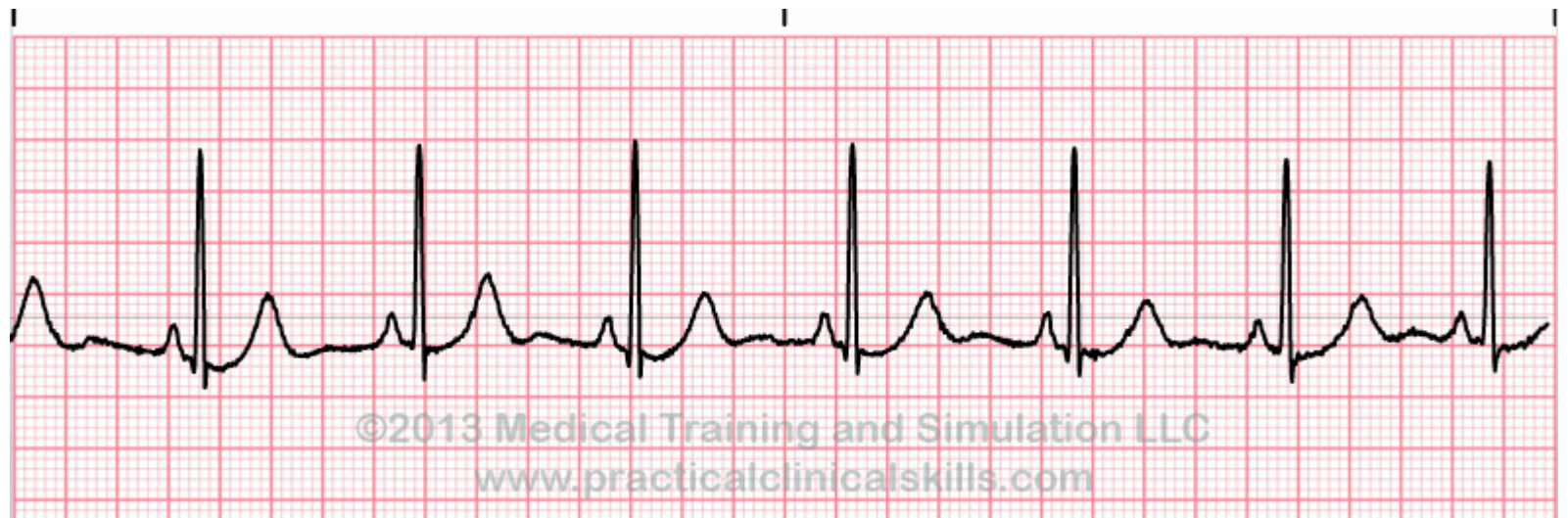


# Algorithm for Atrial Fib via telehealth



# 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

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Optimizing medical regimen

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Review of lifestyle

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Diagnostics

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Address SDOH

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Followup

# Case 3

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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

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



Decompensation  
during the televisit

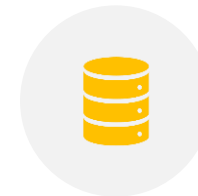
# Were you prepared for an emergency?



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

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**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

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