

# Cardiovascular Technology Update

Mobile Health for the Consumer

# Integrating Consumer Tech Into Care

Raymond Cord, MHP, PA-C, DFAAPA

Rhode Island Hospital

Cardiac Surgery / Critical Care / Clinical Informaticist

I have no disclosures

I have no financial interest in any of the products presented

# Multiple choices for all aspects for monitoring



# Atrial Fibrillation Detection



Not yet approved in the USA

# Atrial Fibrillation Detection

- **Automated Atrial Fibrillation Detection Algorithm Using Smartwatch Technology**
  - Joseph M. Bumgarner, Cameron T. Lambert, Ayman A. Hussein, Daniel J. Cantillon, Bryan Baranowski, Kathy Wolski, Bruce D. Lindsay, Oussama M. Wazni and Khaldoun G. Tarakji
    - Compared to ECG, the KB interpreted AF with 93% sensitivity, 84% specificity and K coefficient 0.77
- **Stanford University – Apple Heart Study**
  - Mintu Turakhia, Marco Perez, Kenneth Mahaffrey
  - Researchers from the Lankenau Heart Institute, Jefferson Medical College, the University of Colorado School of Medicine, Cooper Medical School of Rowan University, StopAfib.org, the American Foundation for Women’s Health and Duke University also contributed to the study
    - 400,000 participants. Evaluating rapid heart rate and atrial fibrillation algorithms
    - 84% Sensitivity with a 71% positive predictive value

# Home BP Monitoring

- Multiple devices available
- Avoid wrist and finger devices
- Be sure patient brings device into office to calibrate against office readings



# Pulse Oximetry

- **Clinical interpretation of peripheral pulse oximeters labeled “not for medical use”.**
  - Hudson AJ, Benjamin J, Jardeleza T, et al
  - Ann Fam Med. 2018; **16**(6): 552-554
- No real difference when Oxygen saturation is >90%
- Oxygen saturations reading < 90% should be confirmed



# Glucometers

- Easy to use
- Accurate
- Adequate glycemic control is an important part of a healthy cardiovascular plan



Low Wang CC, Hess CN, Hiatt WR, Goldfine AB. Clinical Update: Cardiovascular Disease in Diabetes Mellitus: Atherosclerotic Cardiovascular Disease and Heart Failure in Type 2 Diabetes Mellitus - Mechanisms, Management, and Clinical Considerations. *Circulation*. 2016;133(24):2459–2502. doi:10.1161/CIRCULATIONAHA.116.022194



# Scales

- Track daily weight and BMI
- Weight reduction is a pillar in cardiac care
- Early detection of weight gain can lead to reduced admissions for CHF

Gögebakan O, Kohl A, Osterhoff MA, van Baak MA, Jebb SA, Papadaki A, Martinez JA, Handjieva-Darlenska T, Hlavaty P, Weickert MO, Holst C, Saris WHM, Astrup A, Pfeiffer AFH. Effects of weight loss and long-term weight maintenance with diets varying in protein and glycemic index on cardiovascular risk factors: the Diet, Obesity, and Genes (DiOGenes) study, a randomized controlled trial. **Circulation**. 2011; 124:2829–2838.

Chaudhry SI, Wang Y, Concato J, Gill TM, Krumholz HM. Patterns of weight change preceding hospitalization for heart failure. *Circulation*. 2007;116(14):1549–1554. doi:10.1161/CIRCULATIONAHA.107.690768



# Pill Reminder Systems

- Pros
  - Better medication compliance
  - Less confusion and phone calls
  - Piece of mind for families
- Cons
  - Can be pricey
  - Requires set up or loading
  - Med change requires unloading



# Apps for Patients

## MyTherapy

- Available in App Store and Google Play

- Reminder System
- Tracker Logs
- Has a Free Web Dashboard for Providers



# Putting it all together

## Remote Management of Chronic Care

- Improves access and monitoring of those with chronic illness
- Potentially reduces admissions and readmissions
- Potentially improves quality of life and patient satisfaction
- Frees up appointment slots
- Can be managed in off hours from outside the office
- Potential alternative revenue stream for the practice

# CPT Codes for Remote Management

- **CPT code 99453:** “Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; set-up and patient education on use of equipment.” (\$19.46)
- **CPT code 99454:** “Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; device(s) supply with daily recording(s) or programmed alert(s) transmission, each 30 days.” (\$64.15)
- **CPT code 99457:** “Remote physiologic monitoring treatment management services, 20 minutes or more of clinical staff/physician/other qualified healthcare professional time in a calendar month requiring interactive communication with the patient/caregiver during the month.” (\$51.54)

# Best Practices

Use devices that:

1. Are backed by research or have a proven track record
2. Are easy to use both in physicality and in user interface
3. Track data collectively and can report back that data
4. Preferably have a physician dashboard
5. Function through the minimum amount of interfaces

# Any Questions?

