IDENTIFYING AND ADDRESSING OPPORTUNITIES TO INCREASE CARDIAC REHABILITATION PARTICIPATION IN NORTH CAROLINA

North Carolina Cardiopulmonary Rehabilitation Association 45th Annual Symposium

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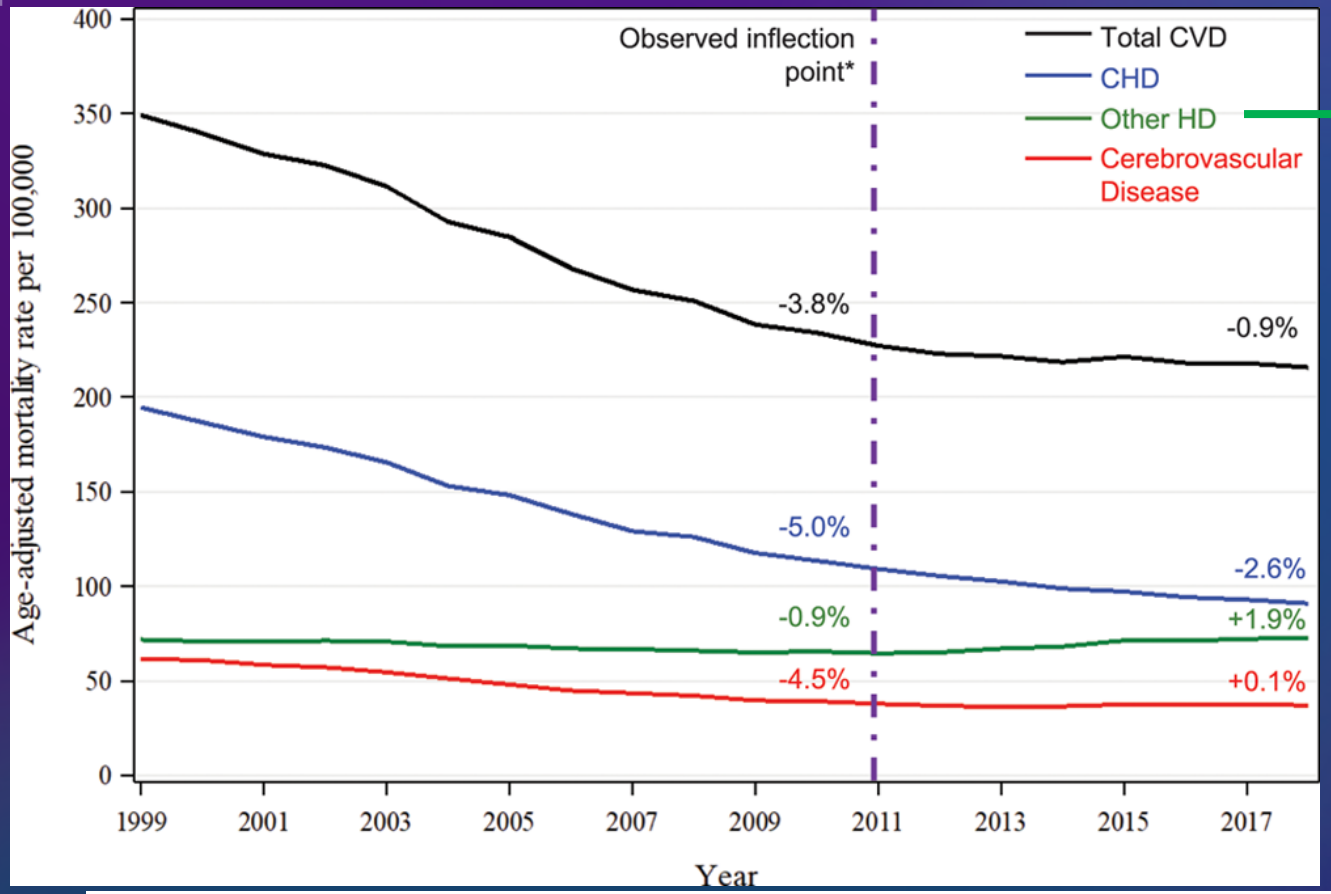
April 4, 2025

LEARNING OBJECTIVES

1. Increased awareness of North Carolina's performance in cardiac rehabilitation (CR) and regional differences in CR eligibility, participation, and availability
2. Identification of at least 3 tools or resources that can be applied to increase participation in CR
3. Explore supplemental tools, resources, and opportunities for engagement

CARDIOVASCULAR DISEASE MORTALITY 1999–2018



heart failure

CVD = cardiovascular disease
CHD = coronary heart disease

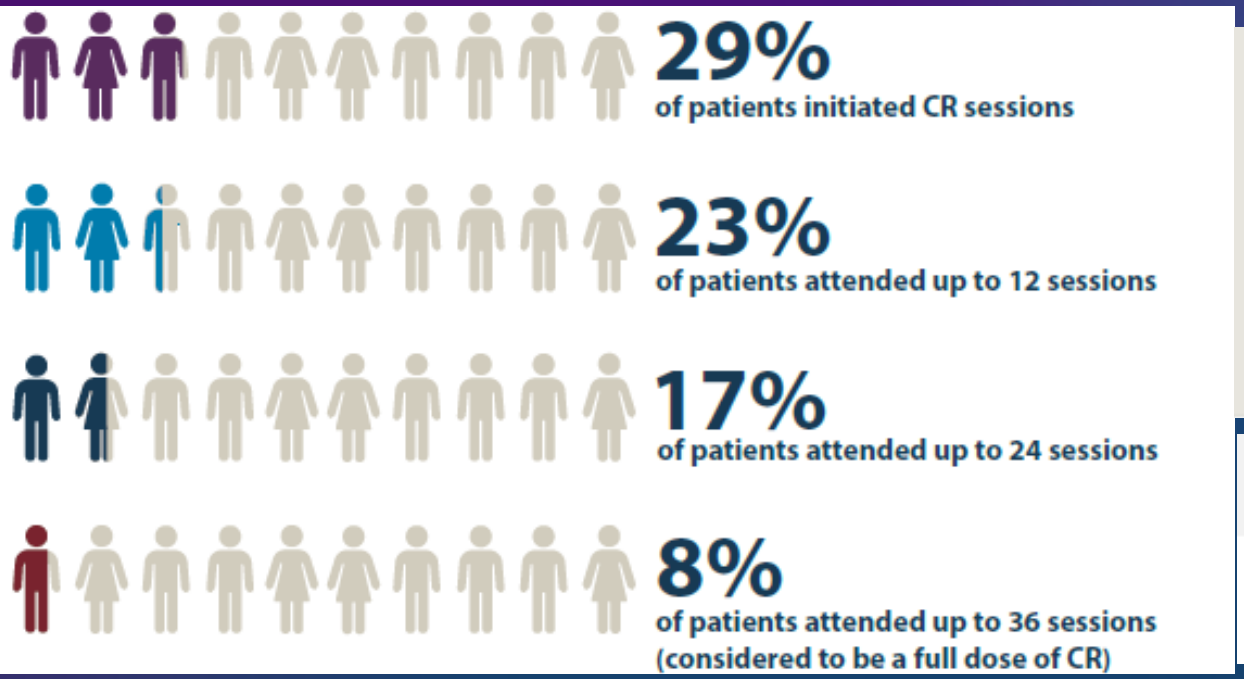
Figure 2. Trends in age-adjusted mortality rates per 100 000 population attributable to total cardiovascular disease and to leading subtypes of cardiovascular disease as underlying causes of death in the United States with the average annual percentage change before and after the inflection point* between 1999 to 2011 and 2011 to 2018. Declines in age-adjusted mortality rates per 100 000 population attributable to total cardiovascular disease and to leading subtypes of cardiovascular disease as underlying causes of death in the United States with average annual percentage change before and after the inflection point* between 1999 to 2011 and 2011 to 2018. CHD indicates coronary heart disease; CVD, cardiovascular disease; and HD, heart disease.

Goff DC, et al. *Circulation*. 2021;143(8):837-851.

CARDIAC REHABILITATION IS UNDERUSED

Cardiac Rehabilitation Enrollment, Engagement, and Completion Among Medicare Beneficiaries Aged 65 and Over

who had a primary qualifying event* in 2017:



Enrollment rates by sex:

3:2

number of **men vs. women** who initiated CR sessions.

Enrollment rates by race/ethnicity:

2:1

number of **non-Hispanic White vs. non-Hispanic Black people** who initiated CR sessions.

** hospitalization for acute myocardial infarction; coronary artery bypass graft surgery; heart valve repair or replacement; percutaneous coronary intervention; or heart or heart-lung transplant.*

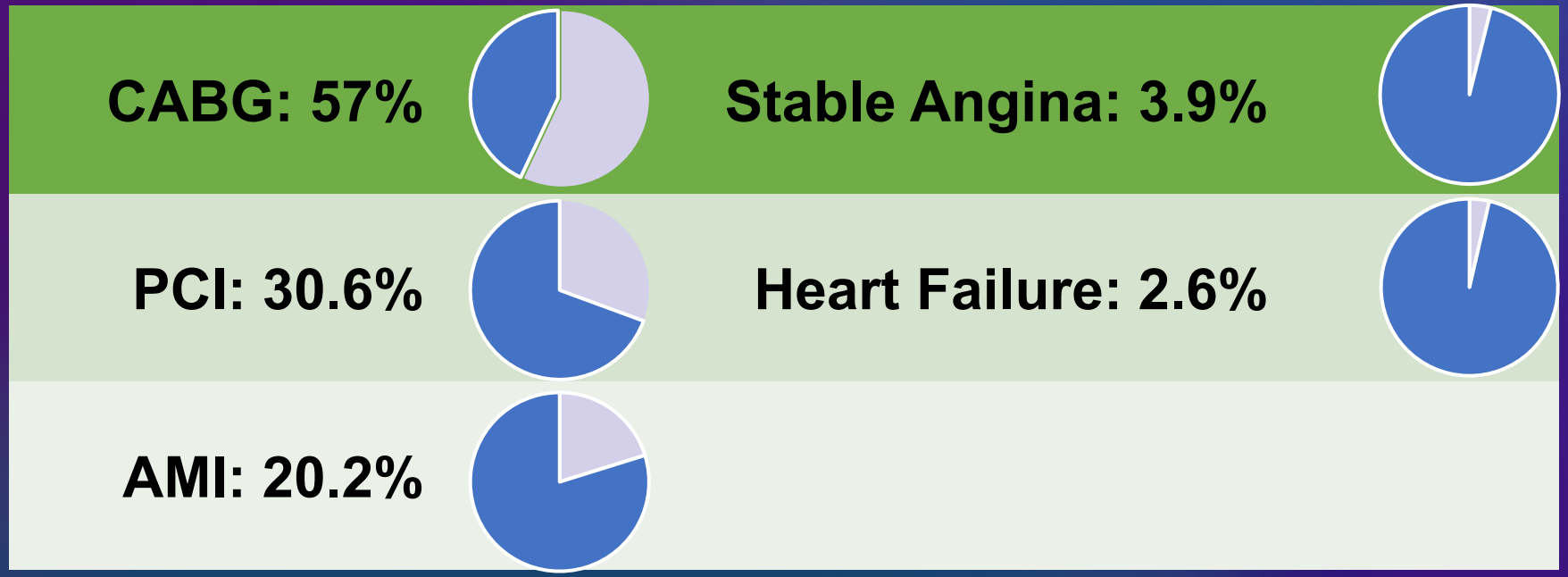
Keteyian SJ, Jackson SL, Chang A, et al. Tracking Cardiac Rehabilitation Utilization in Medicare Beneficiaries: 2017 Update. *J Cardiopulm Rehabil Prev.* 2022;42(4):235-245.

https://millionhearts.hhs.gov/about-million-hearts/optimizing-care/cardiac-rehabilitation-infographic.html

CR USE AMONG MEDICARE PART B FEE-FOR-SERVICE BENEFICIARIES BY QUALIFIER

= % of Medicare beneficiaries with specified qualifier who **participated in ≥1 session of CR** within 365 days of diagnosis or procedure

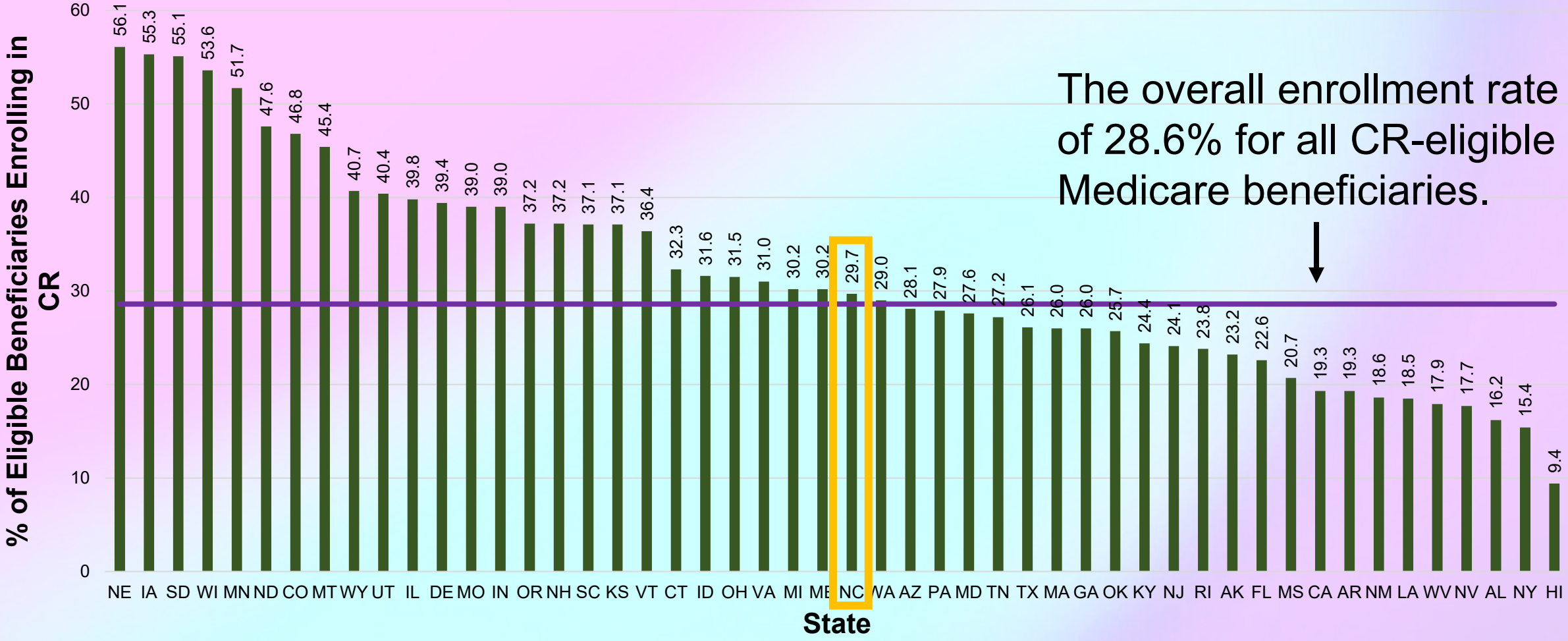
= % of Medicare beneficiaries with specified qualifier who **did not** participate in CR



CABG = Coronary Artery Bypass Graft; PCI = Percutaneous coronary intervention; AMI = Acute Myocardial Infarction

Keteyian SJ, et al. *J Cardiopulm Rehabil Prev.* 2022;42(4):235-245.

CR USE AMONG MEDICARE PART B FEE-FOR-SERVICE BENEFICIARIES BY STATE

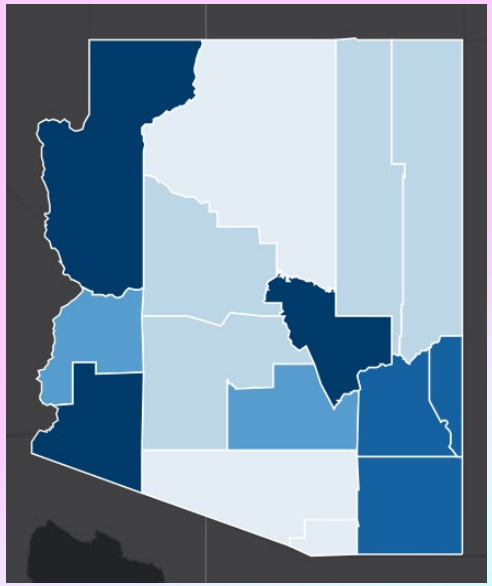


Keteyian SJ, et al. *J Cardiopulm Rehabil Prev*. 2022;42(4):235-245.

DO YOU KNOW HOW YOUR COUNTY OR STATE IS DOING?

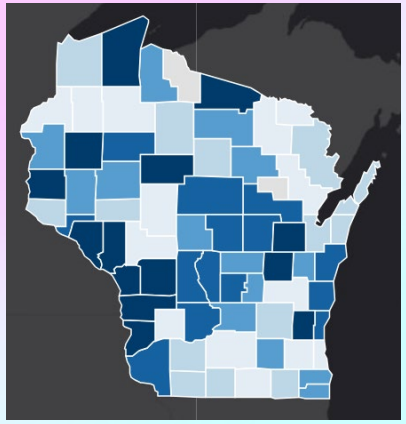
EXPLORE CARDIAC REHABILITATION DATA AMONG MEDICARE PART B FEE-FOR-SERVICE BENEFICIARIES USING **CDC'S ATLAS OF HEART DISEASE AND STROKE**

Eligibility Rate



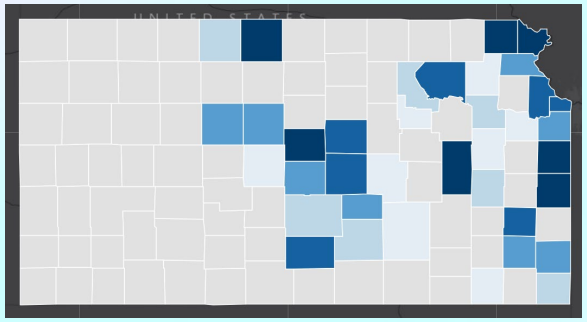
Number (per 1,000) of beneficiaries with a primary qualifying event or procedure

Participation Rate



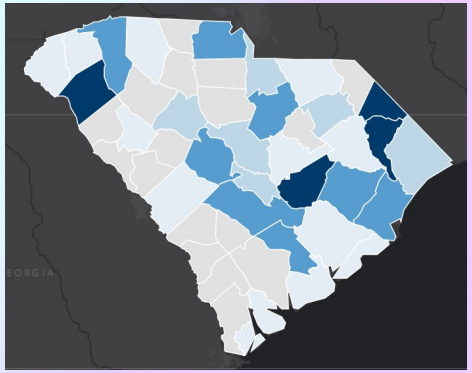
Percent of eligible beneficiaries who attended ≥1 CR sessions within one year of a qualifying event

Completion Rate



Percent of eligible beneficiaries who initiated participation and attended ≥ 36 sessions

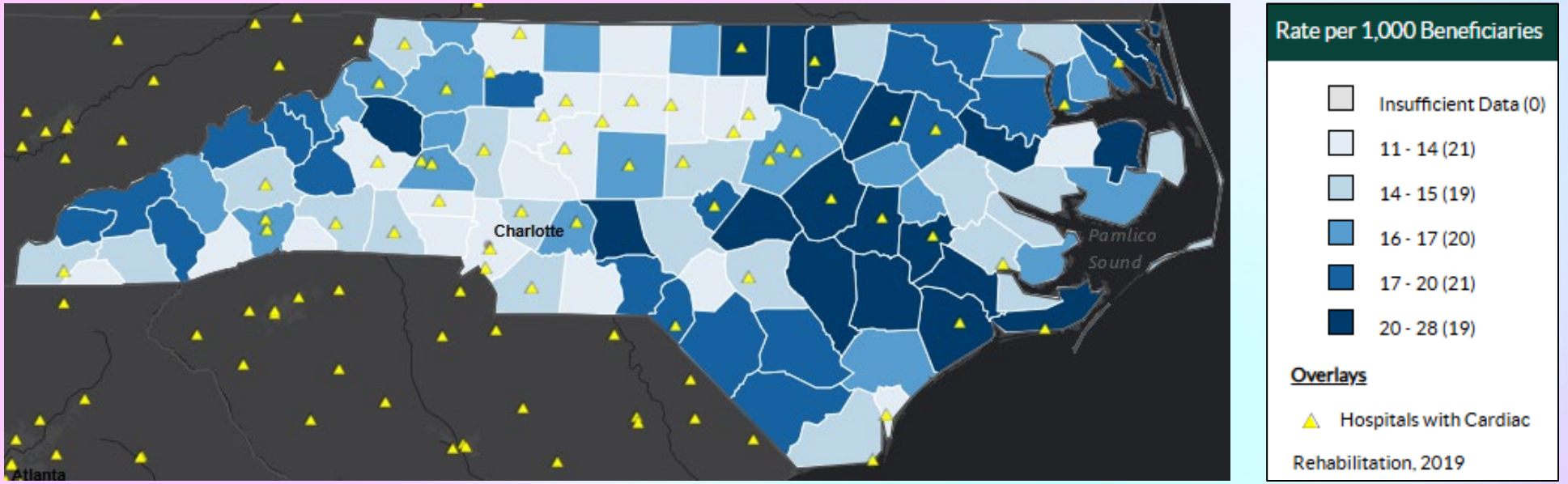
Mean Number of Sessions Attended



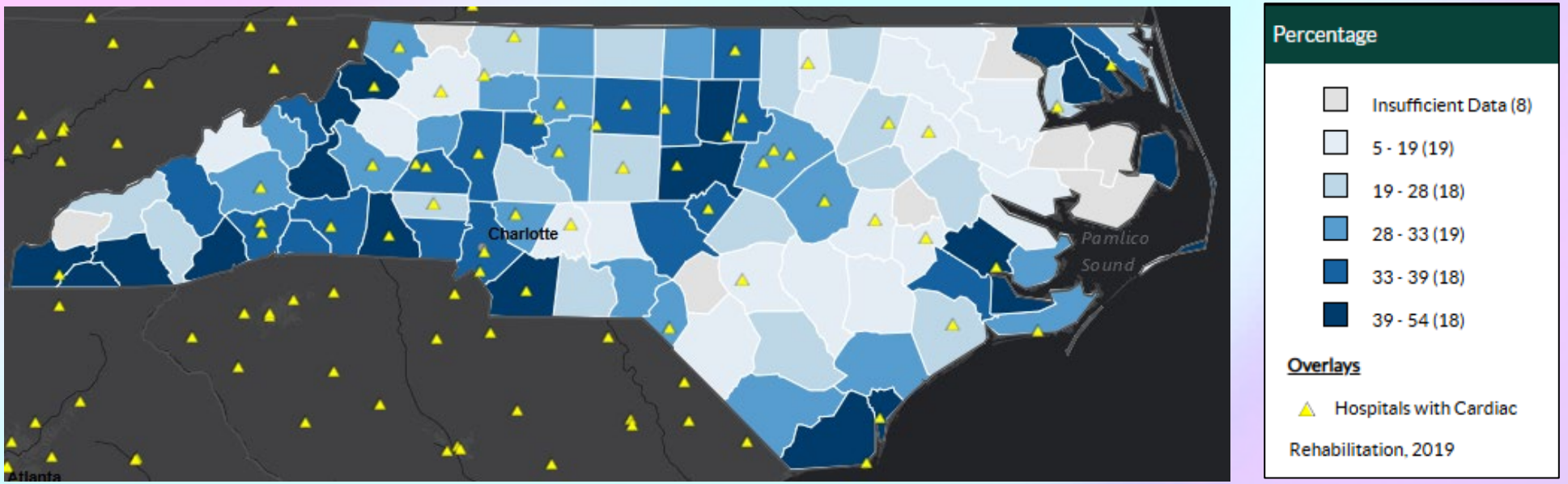
Mean # of CR sessions attended by eligible beneficiaries within one year of a qualifying event or procedure

Atlas of Heart Disease and Stroke | cdc.gov

Cardiac Rehabilitation **Eligibility Rate** per 1,000 Medicare Fee-for-Service Beneficiaries, 2018-2019

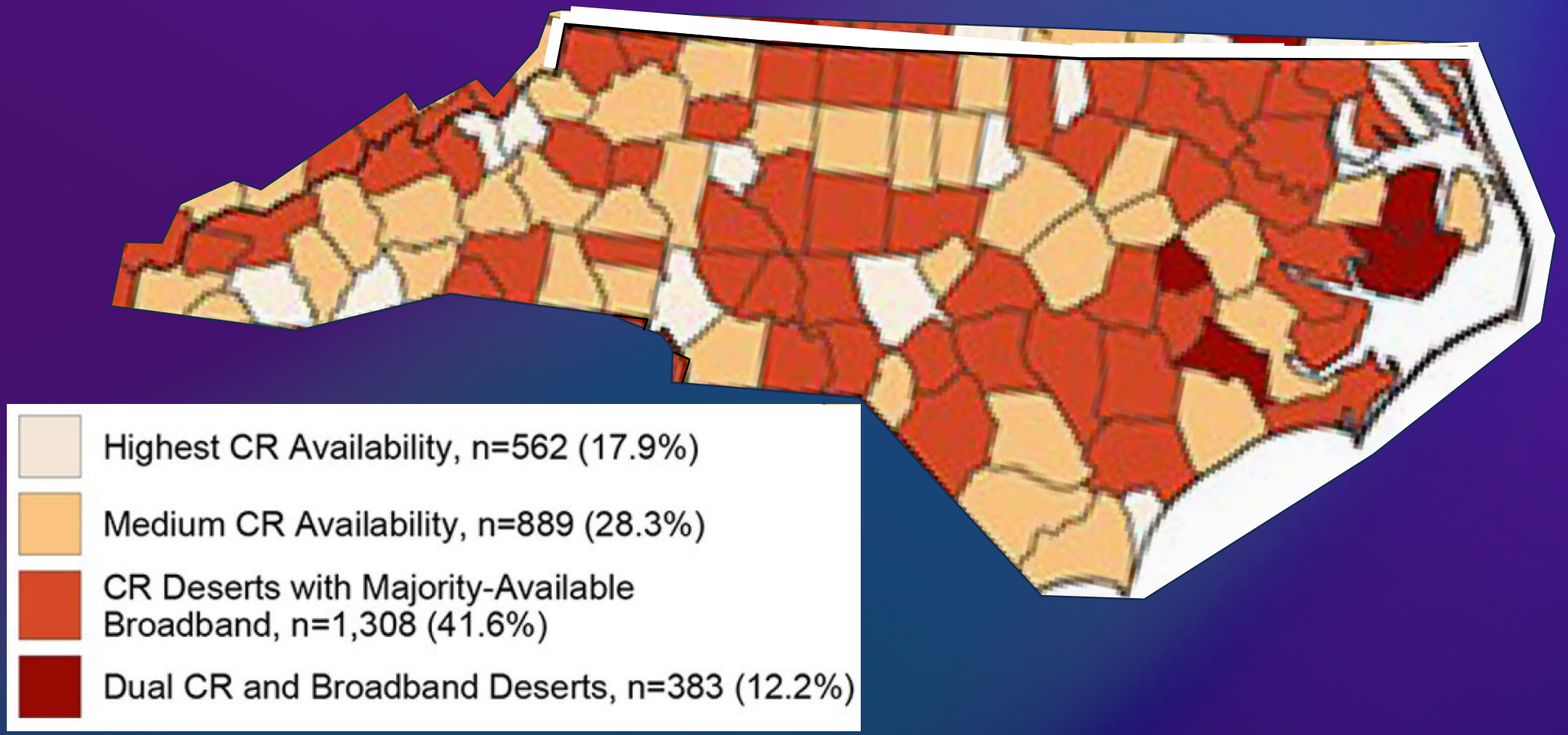


Cardiac Rehabilitation **Participation Rate** Among All Eligible Fee-For-Service Medicare Beneficiaries, 2018-2019



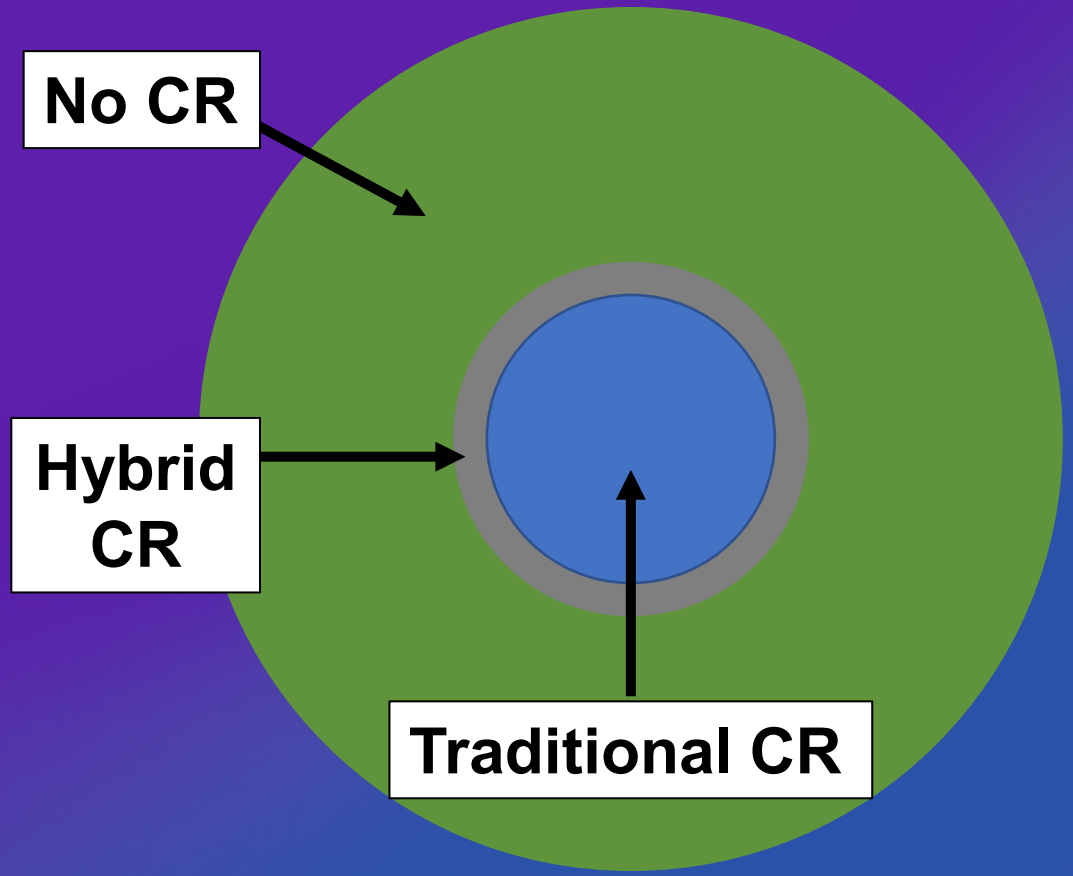
This map was created using the Interactive Atlas of Heart Disease and Stroke, a website developed by the Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. https://nccd.cdc.gov/DHDSPAtlas/

GEOGRAPHIC PATTERNS OF COUNTY-LEVEL AVAILABILITY OF CR AND BROADBAND

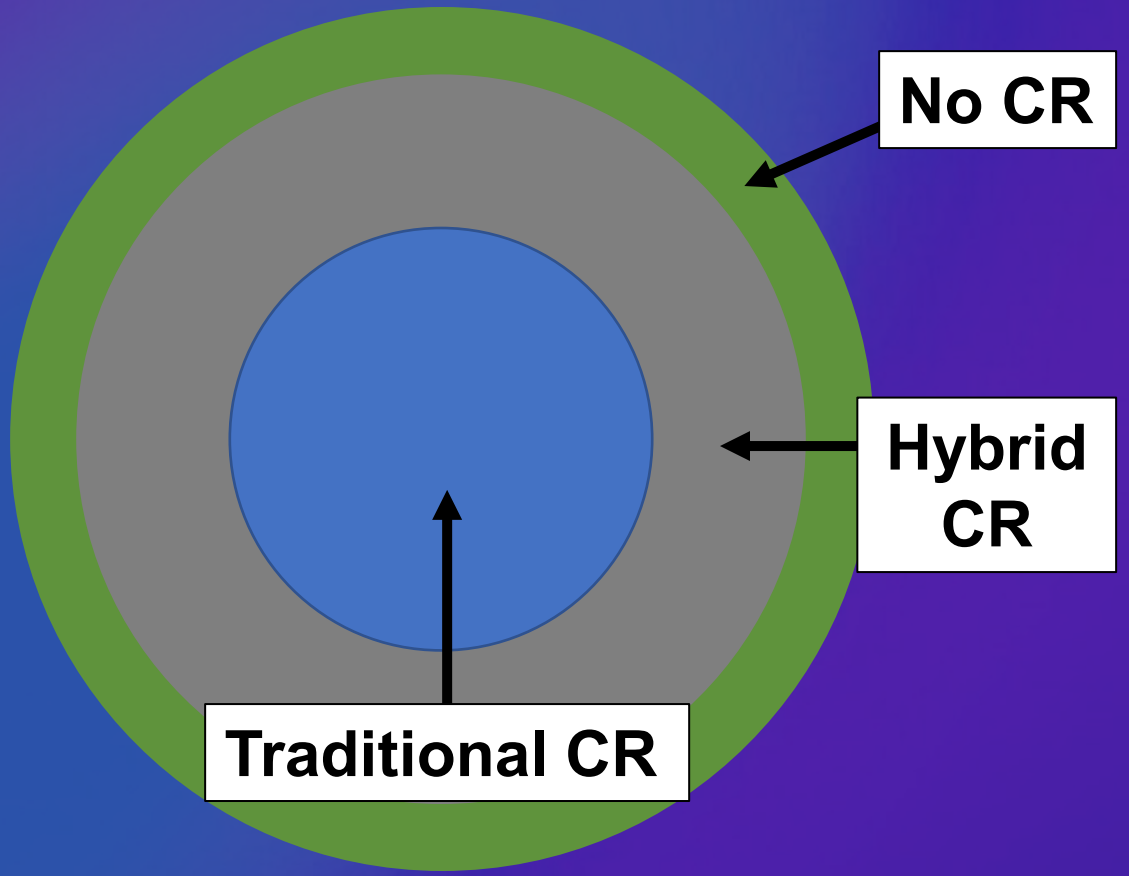


DeLara D, et al. *J Cardiopulm Rehabil Prev*. 44(4):231-238.

NEW PARADIGM TO OPTIMIZE USE OF CARDIAC REHABILITATION



Old Paradigm
(current model)



New Paradigm
(new model)

Adapted from Olson, T. Balancing Technology with the Human Touch to Promote Exercise is Medicine. AACVPR 2018

BARRIERS TO OPTIMAL CR PARTICIPATION

BARRIERS TO CR REFERRAL

- CR program is not available or not integrated into cardiovascular services and workflows
- Lack of awareness about CR
- No automated or “opt-out” electronic referral process
- No clear, consistent signal to patients and families

Studies have shown the strength of a physician’s endorsement can greatly influence patient enrollment in CR.

Ghisi GL, et al. *Clin Cardiol*. 2013;36(6):323-335.
Ades PA, et al. *Mayo Clin Proc*. 2017;92(2):234-242.

INADEQUATE AND DISPARATE CR REFERRALS

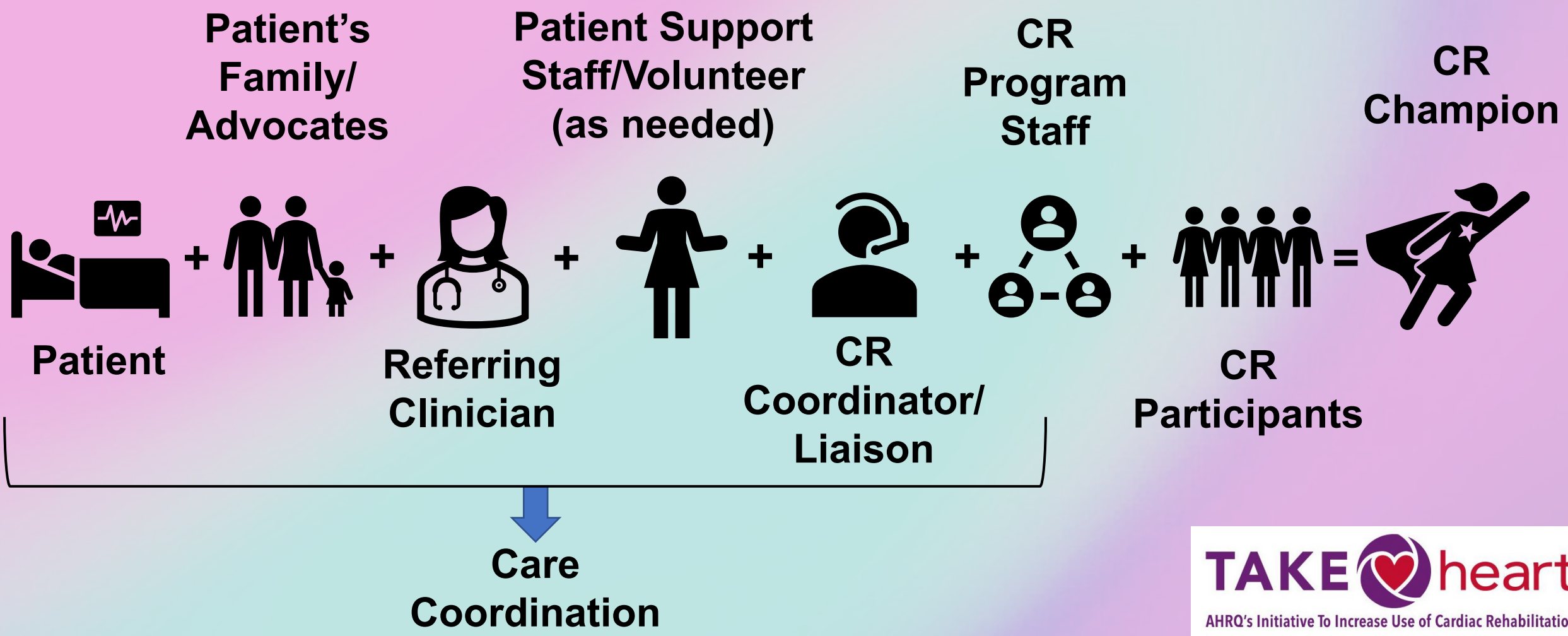
Referral to CR varies by:

- Hospital
- Sex of patient
- Race/ethnicity of patient
- Age of patient
- Geographical location
- Patient's qualifying condition and/or procedure(s)

Implementing automatic CR referral strategies with care coordination can help 45% more patients enroll in CR.

Aragam KG, et al. *J Am Coll Cardiol*. 2015;65:2079–88.
Golwala H, et al. *J Am Coll Cardiol*. 2015;66:917–26.
Gomez Gonzalez L, et al. *Front, Cardiovasc. Med*. 2022;9:848610.
Li S, et al. *J Am Heart Association*. 2018;7:e008088.
Grace SL, et al. *Arch Intern Med*. 2011;171(3):235-241.

CR REFERRAL AND CARE COORDINATION



TAKE heart
AHRQ's Initiative To Increase Use of Cardiac Rehabilitation
TRAINING • AWARENESS • KNOWLEDGE • ENGAGEMENT

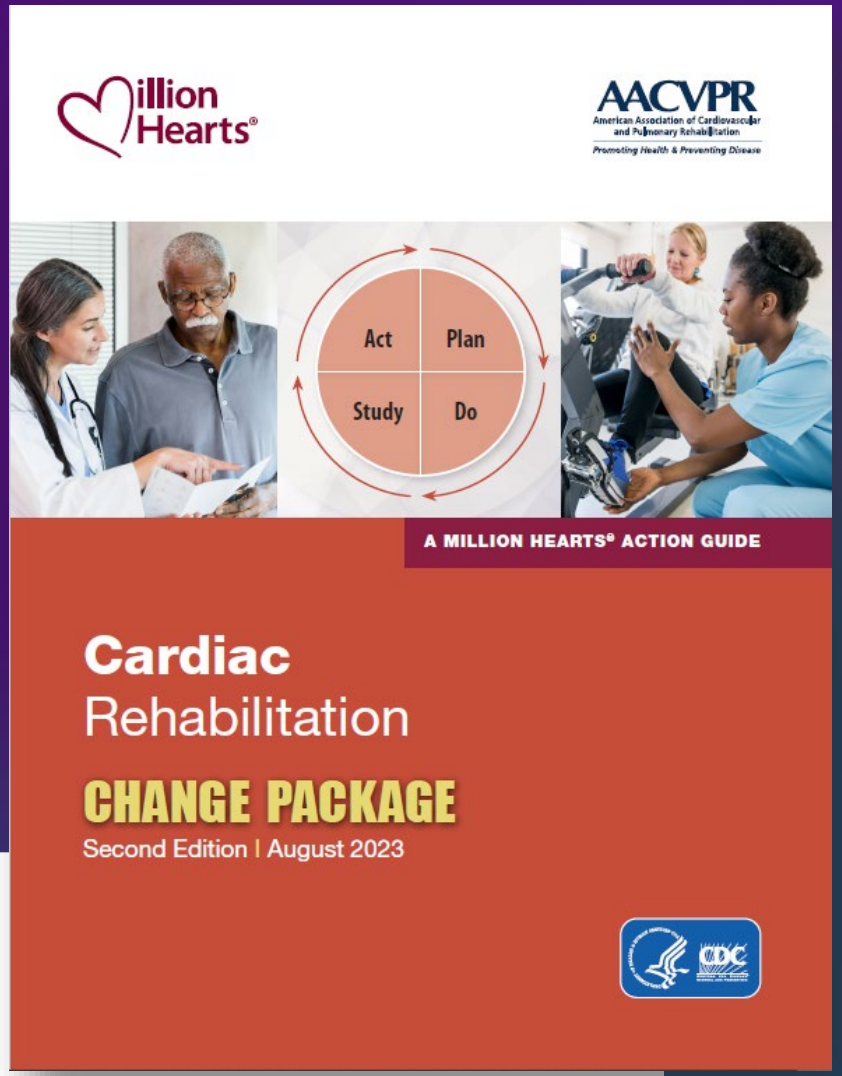
PATIENT-LEVEL BARRIERS TO CR PARTICIPATION

- Patient-Level Barriers to attend 36 CR sessions:
  - Logistics of attending:
    - In-person (e.g., transportation, parking, available hours)
    - Virtually (e.g., internet connection, device access, available hours)
  - Cost-sharing
  - Competing responsibilities (e.g., work, childcare, eldercare)
  - Cultural and language barriers

Ades PA, et al. Mayo Clin Proc. 2017;92(2):234-242.

WHAT CAN BE DONE?

MILLION HEARTS®/AACVPR CARDIAC REHABILITATION CHANGE PACKAGE, 2ND EDITION (CRCP)



Includes new tools to:

- Communicate the opportunity for improvement to hospital leadership
- Access and use data to drive improvement
- Develop new CR program staffing models
- Implement automatic referrals with care coordination
- Increase CR participation among disparate populations
- Advance hybrid CR delivery models

https://millionhearts.hhs.gov/files/Cardiac_Rehab_Change_Pkg.pdf

WHAT'S IN IT?

4 Focus Areas:

16 Change Concepts (notions of change)

63 Change Ideas (specific and actionable strategies)

200+ Tools and Resources from **40** Organizations

HIGHLIGHTED TOOLS AND RESOURCES

New = New tools added to the CRCP 2nd edition.

SET = Tools/resources that may be adapted to increase participation in supervised exercise therapy (SET).

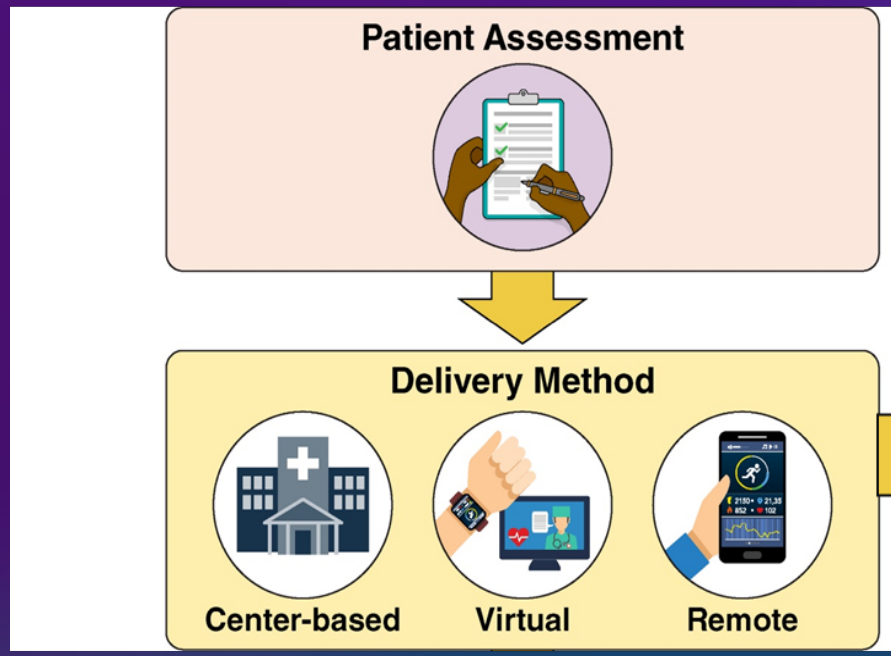
HE = Addresses the characteristics of equitable quality care.

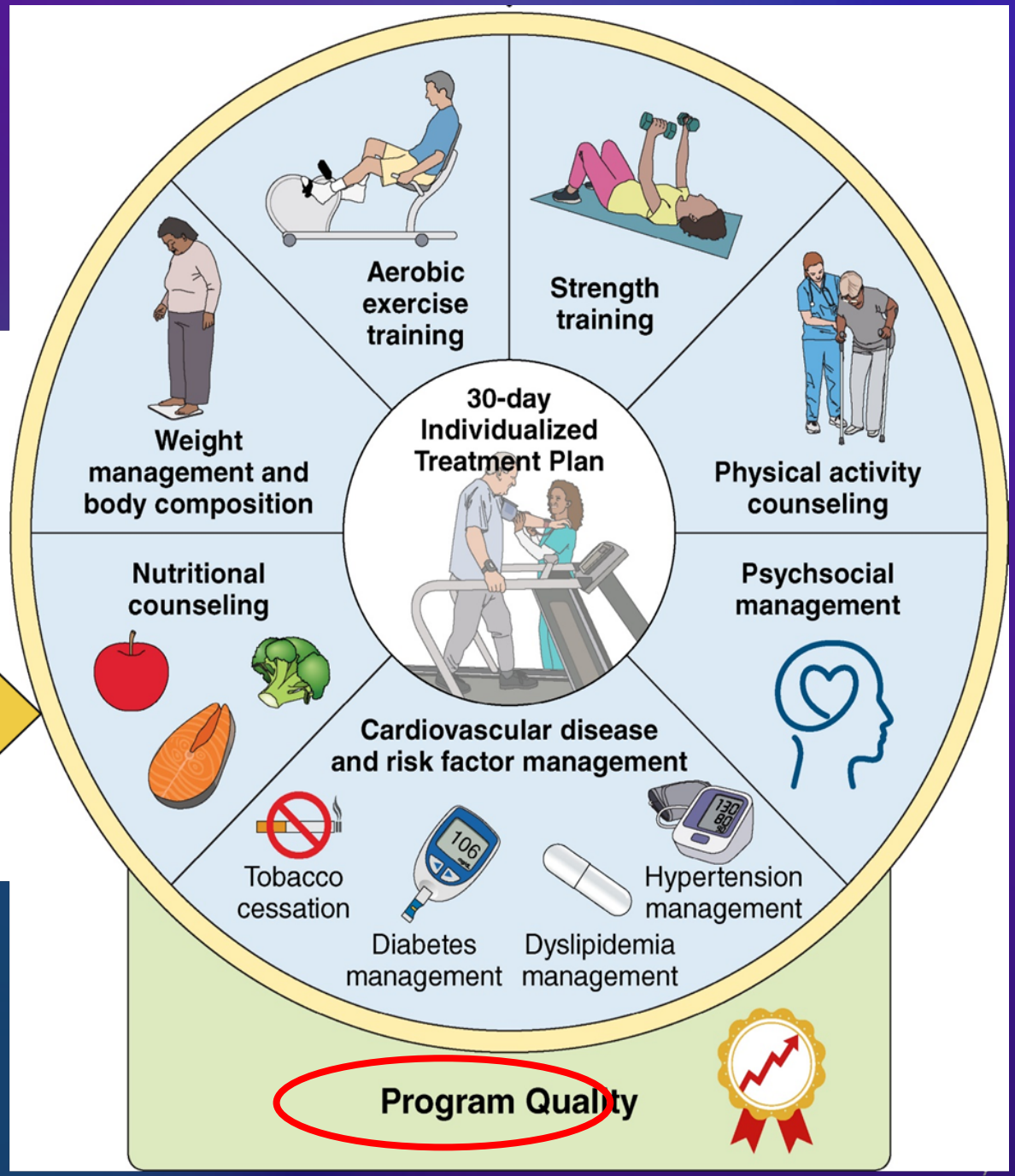
Table 2. Referrals

Change Concepts	Change Ideas	Tools and Resources
Incorporate Referral to CR Into Hospital Standardized Processes of Care for Eligible Patients	Support the verbal recommendation of CR to eligible patients by the referring clinician	• KITE-Toronto Rehabilitation Institute, University Health Network—Cardiac Rehabilitation Referral Promotion Scripts for Referring Clinicians and Referral Liaisons (New, SET, HE) • KITE-Toronto Rehabilitation Institute, University Health Network—Patient Cardiac Rehabilitation Conversation Documentation Form (New)
	Include referral to CR in order sets for appropriate patients; incorporate into EHR as appropriate	• TAKEheart—Consolidated Curriculum - Implementation Guide for Automatic Referral (New) • TAKEheart Training—Module 5: Building and Implementing a Successful Automatic Referral System (New) • TAKEheart Training—Module 7: Troubleshooting Your Automatic Referral System (New) • *Case Study*: **Lifespan Cardiovascular Institute**—Improving Inpatient Cardiac Rehabilitation Referrals for Patients Receiving a PCI (New) • **Henry Ford Health System**—EMR Discharge Order Set, 'Opt Out' Cardiac Rehabilitation Referral Screenshot • Template AMI Orders. Pages 24B–25B, Montoye CK, et al., 2005[19]
	Include referral to CR in discharge checklists for appropriate patients; incorporate into EHR as appropriate	• Multidisciplinary Cardiac Discharge Checklist/Instructions. Page 1409, Thomas RJ, et al., 2007[20]
	Include referral to CR in appropriate patient discharge forms; incorporate into EHR as appropriate	• *Case Study*: **ECU Health Medical Center**—Inclusion of the Cardiac Rehabilitation Referral within the Patient's After Visit Summary (AVS)/ Discharge Paperwork (New) • Heart Attack Discharge Form. Page 29B, Montoye CK, et al., 2005[19]
	Develop a standard process for informing an external CR program of a referred patient	• *Case Study*: **Massachusetts General Hospital**—Referral of Patient to External Cardiac Rehabilitation Program (SET) • Centers for Disease Control and Prevention—How to Access Cardiac Rehabilitation Data Using the CDC Interactive Atlas of Heart Disease and Stroke (New) • AACVPR—Program Directory • *Case Study*: IPRO QIN-QIO—Developing and Maintaining A List of Local Cardiac Rehabilitation Programs (New, SET) • IPRO QIN-QIO Resource Library—Cardiac Rehabilitation Programs – New England, New York, New Jersey, Ohio & Mid Atlantic Regions • **Massachusetts General Hospital**—Fax Cover Sheet for External Cardiac Rehabilitation Referrals (SET) • **Massachusetts General Hospital**—Cardiac Rehabilitation Referral Form (SET)

(New)=New tools added to the CRCP 2nd edition. (SET)=Tools/resources that may be adapted to increase participation in SET. (HE)=Addresses the characteristics of equitable quality care.

DELIVERY METHODS AND CORE COMPONENTS OF CARDIAC REHABILITATION PROGRAMS





Brown TD, et al. Circulation. 2024;07;115:2675-2682.

A DEEPER DIVE INTO THE CRCP

CRCP, 2ND ED. QUICK REFERENCE: SYSTEMS CHANGE

Systems Change
Make CR a Health System Priority
Establish a hospital champion, such as a quality-of-care leader or a CR administrator
Engage hospital administrators and senior staff in optimizing CR delivery
Secure and sustain a sufficient and multidisciplinary CR workforce
Engage the care team in CR and ensure their support for CR
Use CR referral, enrollment, and participation as quality-of-care indicators

CDC: HOW TO ACCESS CARDIAC REHABILITATION DATA USING THE CDC INTERACTIVE ATLAS OF HEART DISEASE AND STROKE

How to Find the Eligibility Rate for CR Programs

You can use the Atlas to map the CR eligibility rate of Medicare beneficiaries by county. This information can help you assess the potential demand for CR services across the United States.

You can use the **Overlay Features** filter to add information about the locations of hospitals with CR services. See the **How to Add Hospitals With CR Services to a Map** section for more information.

You can also use the **Compare Layers** tool to compare two sets of data. For example, you can compare the eligibility rate to the participation rate among eligible beneficiaries. This information can identify areas where the demand for CR is not being met. See the **How to Compare Data** section for more information.

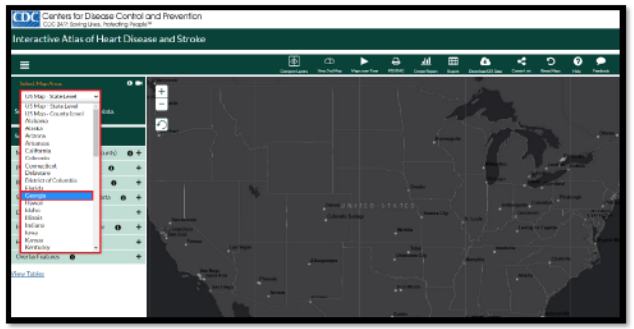
Areas with higher rates of eligibility and lower rates of participation may benefit from strategies designed to improve program referral and enrollment.

Step 1

Go to the Interactive Atlas of Heart Disease and Stroke website. You can launch the Atlas in one of three ways. You can click on the **US Map - County Level** link above the map, click on a state on the map, or select a state from the drop-down list below the map.

Step 2

If you select the **US Map - County Level** link, you can choose a state by clicking on the **Select Map Area** box in the top left corner.



Includes step-by-step guidance to access:

- CR eligibility rate for Medicare beneficiaries
- CR participation rate for Medicare beneficiaries
- CR Completion rate for Medicare beneficiaries
- Mean number of CR sessions attended by Medicare beneficiaries
- Location and name of CR programs as reported to the American Hospital Association

Centers for Disease Control and Prevention-How to Access Cardiac Rehabilitation Data Using the CDC Interactive Atlas of Heart Disease and Stroke. Available at https://bit.ly/43xujSy. Accessed April 5, 2024.

CRCP, 2ND ED. QUICK REFERENCE: REFERRALS

Referrals
Incorporate Referral to CR Into Hospital Standardized Processes of Care for Eligible Patients
Support the verbal recommendation of CR to eligible patients by the referring clinician
Include referral to CR in order sets for appropriate patients; incorporate into EHR as appropriate
Include referral to CR in discharge checklists for appropriate patients; incorporate into EHR as appropriate
Include referral to CR in appropriate patient discharge forms; incorporate into EHR as appropriate
Develop a standard process for informing an external CR program of a referred patient
Develop a standard process for eligible patients to self-refer to CR
Standardize the CR Referral Process
Develop and communicate a standardized referral process or policy for patients
Develop and communicate a standardized outpatient CR referral process or policy for patients discharged to inpatient acute or subacute rehabilitation or to home care services
Implement standardized paper/faxed referral to CR from an **inpatient** setting
Implement standardized paper/faxed referrals to CR from an **outpatient** setting
Use **inpatient** EHR tools to automate referrals to CR for all eligible patients including default or "opt-out" orders for patients with qualifying diagnoses
Use **outpatient** EHR tools to automate referrals for patients with qualifying diagnoses who have not participated in CR
Use Data to Drive Improvement in Referrals to CR
Determine **inpatient** referral metrics to CR
Determine **outpatient** referral metrics to CR
Use CR referral performance measures in a quality improvement system
Regularly provide a dashboard with CR referral metrics, goals, and performance
Implement a CR registry to identify, track, and manage patients who are referred to a CR program
Identify patients who had a cardiac event without a referral to a CR program

Incorporate Referral to CR Into Hospital Standardized Process of Care for Eligible Patients

Standardize the CR Referral Process

Use Data to Drive Improvement in Referrals to CR

TAKEHEART: IMPLEMENTATION GUIDE FOR AUTOMATIC REFERRAL

Table of Contents

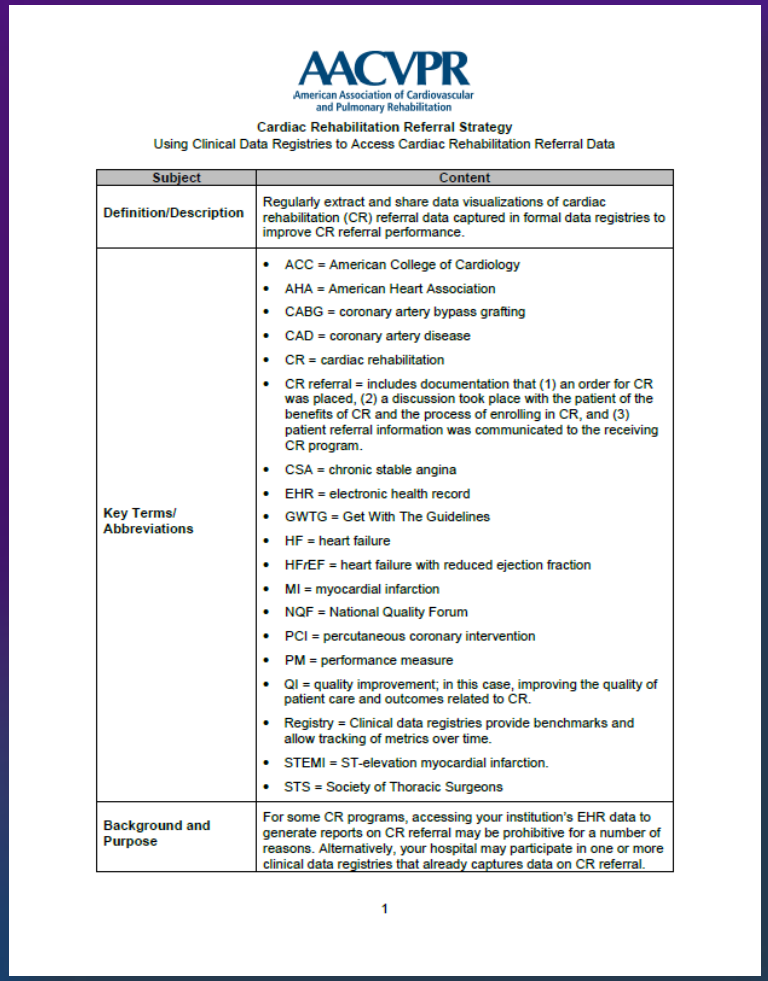
TAKEheart

AHRQ's Initiative To Increase Use of Cardiac Rehabilitation

TRAINING • AWARENESS • KNOWLEDGE • ENGAGEMENT

Agency for Healthcare Research and Quality. TAKEheart: Implementation Guide for Automatic Referral. Available at https://www.ahrq.gov/sites/default/files/wysiwyg/takeheart/training/implementing-automatic-referral-implementation-guide.pdf. Accessed August 21, 2023.

AACVPR: USING CLINICAL DATA REGISTRIES TO ACCESS CARDIAC REHABILITATION REFERRAL DATA



AACVPR
American Association of Cardiovascular and Pulmonary Rehabilitation

Cardiac Rehabilitation Referral Strategy
Using Clinical Data Registries to Access Cardiac Rehabilitation Referral Data

Subject	Content
Definition/Description	Regularly extract and share data visualizations of cardiac rehabilitation (CR) referral data captured in formal data registries to improve CR referral performance.
Key Terms/ Abbreviations	• ACC = American College of Cardiology • AHA = American Heart Association • CABG = coronary artery bypass grafting • CAD = coronary artery disease • CR = cardiac rehabilitation • CR referral = includes documentation that (1) an order for CR was placed, (2) a discussion took place with the patient of the benefits of CR and the process of enrolling in CR, and (3) patient referral information was communicated to the receiving CR program. • CSA = chronic stable angina • EHR = electronic health record • GWTG = Get With The Guidelines • HF = heart failure • HFrEF = heart failure with reduced ejection fraction • MI = myocardial infarction • NQF = National Quality Forum • PCI = percutaneous coronary intervention • PM = performance measure • QI = quality improvement; in this case, improving the quality of patient care and outcomes related to CR. • Registry = Clinical data registries provide benchmarks and allow tracking of metrics over time. • STEMI = ST-elevation myocardial infarction. • STS = Society of Thoracic Surgeons
Background and Purpose	For some CR programs, accessing your institution's EHR data to generate reports on CR referral may be prohibitive for a number of reasons. Alternatively, your hospital may participate in one or more clinical data registries that already captures data on CR referral.

1

Includes:

- A list of clinical data registries that capture and report CR referral data
- A description of CR referral metrics
- Step-by-step guidance on how to access and use CR referral registry data
- Sample CR registry reports

AACVPR Cardiac Rehabilitation Referral Strategy—Using Clinical Data Registries to Access Cardiac Rehabilitation Referral Data. Available at https://bit.ly/44zHjbc Accessed April 4, 2024.

CRCP, 2ND ED. QUICK REFERENCE: ENROLLMENT AND PARTICIPATION

Enrollment and Participation
Optimize CR Care Coordination
Develop the infrastructure for deploying inpatient CR "liaisons"
Train inpatient "liaisons"
Identify patients' social needs for optimal CR participation
Engage patients' families and/or advocates
Educate Patients About the Benefits of Outpatient CR
Promote CR to eligible patients and their families
Use videos to describe your CR program and the impact of CR on health outcomes before hospital discharge or at the beginning of outpatient CR
Provide patient education materials that convey CR benefits
Reduce Delay From Discharge to First CR Appointment
Before hospital discharge establish an early (within 12 days of discharge) outpatient follow-up appointment
Coordinate handoffs for patients with deferred CR enrollment
Use Data to Drive Improvement in CR Enrollment or Participation
Determine CR enrollment or participation metrics
Regularly provide a dashboard with CR enrollment or participation metrics, goals, and performance
Improve Efficiency of Enrollment
Incorporate group orientations
Develop Flexible Delivery Models That Better Accommodate Patient Needs
Offer accelerated CR programs
Modify program structure and hours of operation to match patient preferences to accommodate more patients
Shift from a class structure to an open gym model
Provide case management or patient support services
Offer Hybrid CR Programs
Make the case for offering hybrid CR
Design and develop work processes to deliver hybrid CR
Identify which patients may be most appropriate for hybrid CR
Establish an approach to bill for hybrid CR
Offer self-administered educational programs to supplement CR participation
Modify Some Program Procedures Based on Clinical Need
Match frequency and/or use of ECG telemetry monitoring to clinical need
Improve operational efficiency with BP management
Use Clinician Follow-Up to Bolster Enrollment or Participation
Engage referring clinicians by providing letters that highlight non-enrolled patients for clinician follow-up
Engage referring clinicians by providing progress reports and completion of program outcomes

Optimize CR Care Coordination

Educate Patients About the Benefits of Outpatient CR

Reduce Delay From Discharge to First CR Appointment

Use Data to Drive Improvement in CR Enrollment or Participation

Improve Efficiency of Enrollment

CRCP, 2ND ED. QUICK REFERENCE: ENROLLMENT AND PARTICIPATION (CONTINUED)

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Develop Flexible Delivery Models That Better Accommodate Patient Needs

Offer Hybrid CR Programs

Modify Some Program Procedures Based on Clinical Need

Use Clinician Follow-Up to Bolster Enrollment or Participation

Change Concept

Change Ideas

Tools and Resources

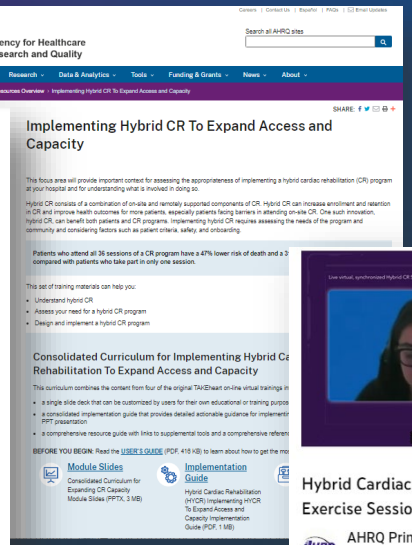
Offer Hybrid CR Programs

- Make the case for offering hybrid CR
- Design and develop work processes to deliver hybrid CR
- Identify which patients may be most appropriate for hybrid CR
- Establish an approach to bill for hybrid CR
- Offer self-administered educational programs to supplement CR participation


Scientific Review

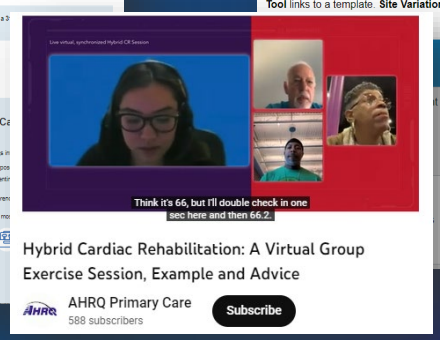
A Review of the Design and Implementation of a Hybrid Cardiac Rehabilitation Program

AN EXPANDING OPPORTUNITY FOR OPTIMIZING CARDIOVASCULAR CARE


Agency for Healthcare Research and Quality

Implementing Hybrid CR To Expand Access and Capacity

Consolidated Curriculum for Implementing Hybrid Cardiac Rehabilitation To Expand Access and Capacity



Hybrid Cardiac Rehabilitation: A Virtual Group Exercise Session, Example and Advice

AHRQ Primary Care

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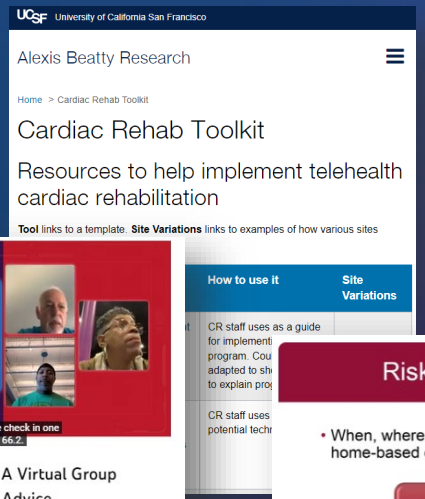

UCSF University of California San Francisco

Alexis Beatty Research

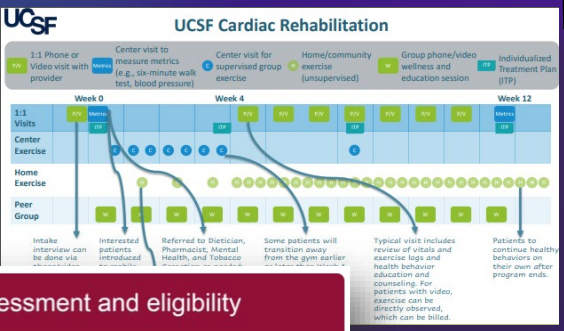
Home > Cardiac Rehab Toolkit

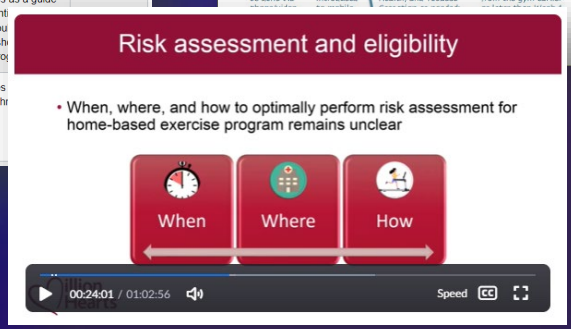
Cardiac Rehab Toolkit

Resources to help implement telehealth cardiac rehabilitation

Tool links to a template. Site Variations links to examples of how various sites

How to use it | Site Variations





SOUTHWEST FLORIDA HEART GROUP: OPEN GYM CONCEPT

AACVPR
American Association of Cardiovascular and Pulmonary Rehabilitation

AACVPR Case Study: Southwest Florida Heart Group

Title: Open Gym Concept

Authors: Mark Lui, MS, Karen Lui, BSN, MS, MAACVPR

Author Institution: Southwest Florida Heart Group

Motivation and Operations:

1. **What was your motivation for implementing these changes in your program?**
   We started discussing the Open Gym model in 1989 at Baptist Hospital in Memphis Tennessee. Karen ran a traditional Phase II cardiac rehabilitation (CR) class schedule and Mark ran the Phase III Health-Plex, a 40,000 square foot Medical Fitness Facility with 3,000 participants. The drop-out rate for Phase III was 75% and we concluded that we could never match the intimate class structure of Phase II with the independence requirements of the Medical Fitness Facility.

   We moved to Sarasota where we ran a traditional Phase II class structure with a separate Phase II/III facility. The program grew to 125 Phase II patients in two months, making the traditional class structure impossible. It was in the Phase II/III facility that we started the Open Gym. Participants scheduled themselves for their appointments more traditional to a gym setting.

   Three years later we started the Southwest Florida Heart Group program that accommodated 140 Phase II participants during the Florida season of October to May. This was a 4,000 square foot facility that operated solely under the Open Gym model.

2. **How long did it take to implement these changes?**
   Most of our programs were initiated with the Open Gym model. The Anchor CR program in Naples, Florida transitioned to Open Gym and that transition took three months. Participants remained in the class setting until that class ran its course.

3. **What staffing changes did you have to make in order to achieve these changes?**
   Open gym operates with the same staff. The open gym model requires staggering of lunch breaks with reduced scheduling of participants from 11:30 am to 1:00 pm. The staff needs to develop the goal of participant self-efficacy and relinquish control. This can be difficult for a more traditional established program. A noted difference is in the delivery of your educational material. We shifted to single concept educational delivery since participants no longer met in classes. We supplemented this with periodic educational evening classes.

Reflection on Process:

4. **What worked well?**
   Participants prefer the Open Gym concept. Control and flexibility in participant schedules allows for better compliance. We could offer the opportunity for participants to come 5 days per week. Participant self-efficacy is promoted from day one. The Open Gym model accommodates 30 percent more participants thus reducing or eliminating a waiting list into the program.

5. **What were the opportunities for improvement?**
   Initially, Open Gym is more difficult for the staff of an established program, but, once established, not many programs have ever returned to the class model. Adjusting to a different educational delivery is also stressful for an established program. The schedule book must be monitored closely or chaos can occur with too many participants for too few telemetry monitors. Participants quickly learned to self-adjust their time preferences to less "prime-time" slots.

   We found that triage off telemetry greatly helps with the Open Gym model and helps with self-efficacy as well. We used heart monitor devices from day one to assist with self-efficacy and home exercise strategies. (Chest monitors and watches were provided. Many participants opted to then purchase their own for long-term use.)

6. **How long have you been implementing these changes?**
   We have been doing Open Gym since 1991.

Future/Next Steps

7. **Do you anticipate making any changes in the future to your current process?**
   I would like to add accelerated CR to the Open Gym model. I would also like to add a more aggressive triage of telemetry with less than six monitored sessions.

8. **Do you have any supplemental materials you would be willing to share?**
   - Sample Open Gym Schedule: Scheduling is very important for the Open Gym model. You must maintain a tight schedule book - scheduling two participants every fifteen minutes if you have eight monitors, three every fifteen minutes if you have twelve monitors and four every fifteen minutes for sixteen monitors. We found that adding four extra monitors helped greatly until we started the triage of telemetry.
   - How to Use the Sample Open Gym Schedule
   - Case Study – Mount Carmel Health System. Open Gym

Case Study: Southwest Florida Group – Open Gym Concept. Available at https://bit.ly/43uVM77. Accessed April 5, 2024.

A REVIEW OF THE DESIGN AND IMPLEMENTATION OF A HYBRID CR PROGRAM

Scientific Review

A Review of the Design and Implementation of a Hybrid Cardiac Rehabilitation Program

AN EXPANDING OPPORTUNITY FOR OPTIMIZING CARDIOVASCULAR CARE

Steven J. Keteyian, PhD; Philip A. Ades, MD; Alexis L. Beatty, MD, MAS; Anne Gavic-Ott, MPA; Stephen Hines, PhD; Karen Lui, MS, RN; David W. Schopfer, MD, MAS; Randal J. Thomas, MD, MS; Laurence S. Sperling, MD

Keteyian SJ, et al. *J Cardiopulm Rehabil Prev*. 2022;42(1):1–9. Available at https://bit.ly/3rnDDLf. Accessed April 5, 2024.

CRCP, 2ND ED. QUICK REFERENCE: ADHERENCE

Adherence
Identify Populations At Risk for Low Engagement
Know the characteristics that are predictive of attendance and dropout to identify patients at particular risk to offer extra support
Address Patient Barriers
Address the patient's social needs related to CR participation
Offer transportation support
Assist patients with high out-of-pocket costs or economic burden
Establish a philanthropic fund to partly underwrite CR costs for patients with high co-payments or without insurance
Improve Patient Engagement
Incorporate motivational and financial incentives for meeting goals for session attendance
Automate reminders and communication for CR sessions
Connect enrolled patients with a CR graduate patient ambassador or "sponsor"

MICHIGAN CARDIAC REHAB NETWORK: ELIMINATING TRANSPORTATION AS A BARRIER TO PARTICIPATION

Eliminating Transportation as a Barrier to Participation

KEY STAKEHOLDERS

- Program managers
- Class instructors
- Support staff
- Scheduling staff
- Referring physicians
- Hospital administrators
- Social workers

DIRECT CONTACTS FOR QUESTIONS

- **Diane Hamilton, BAA, CEP**
  Diane.Hamilton@beaumont.org

REFERENCES

- American Cancer Society: Road to Recovery Program
- ACS grant removes barriers for patients in treatment

IMPROVE ATTENDANCE WITH RIDE ASSISTANCE

Cardiac rehab programs have low enrollment rates. Transportation is often a barrier to obtaining these important services. To increase enrollment and retention rates, programs need to assist patients in obtaining reliable transportation.

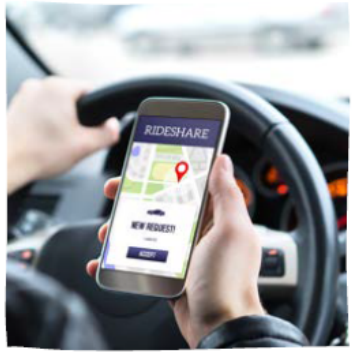
METRICS OR RESOURCES NEEDED

Professional contacts who specialize in:

- Senior programs
- Community programs
- Veterans organizations
- Philanthropy

PROCESS DESCRIPTION

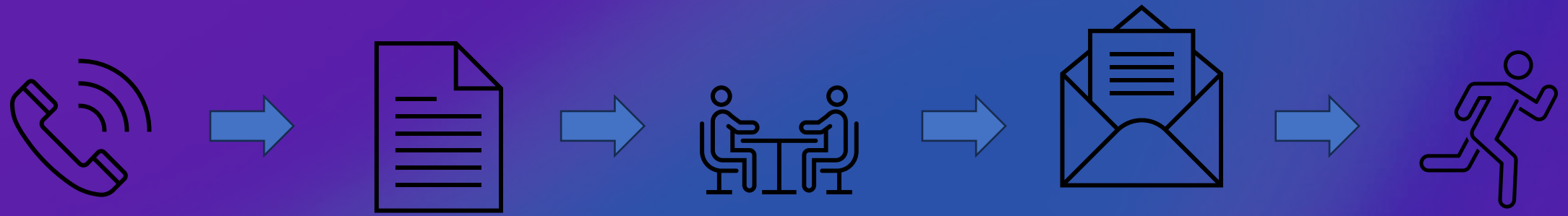
1. Identify contacts at current transportation programs within local communities and reach out to discuss options for a transportation assistance program.
2. Draft agreements with relevant rideshare programs that include any important details or arrangements.
3. Draft materials for patients that promote local transportation assistance programs and outline the patient's steps to obtain rides.
4. Inform any relevant stakeholders of patients' options for transportation and integrate the use of any newly-created patient educational materials into their workflow where appropriate.
5. To accommodate the logistics of drivers, work with scheduling staff and class instructors to incorporate more flexibility when scheduling patient appointments.
6. Identify a waiting area for patients who are using a rideshare program, as well as those who have family or friends driving them. Similarly, consider adding pick-up location markers for drivers of rideshare programs to reduce congestion near lobbies and entrances.
7. Consider funding a van service to transport patients to appointments. Possible funding sources could include grants, but the cost could also be shared if the service is utilized hospital-wide.



12 BACK TO TOP

Michigan Cardiac Rehab Network—Eliminating Transportation as a Barrier to Participation. Available at https://bit.ly/44MYWV7. Accessed April 5, 2024.

Holland Hospital: Using State-Based Vocational Rehabilitation Programs for Co-Pay Assistance



Patient initiates contact with VR office

Application & medical records are submitted

Patient meets with VR counselor

Patient receives approval letter

Patient starts CR with $0 co-pays!

Vocational Rehabilitation (VR) helps individuals **return to work** as quickly as possible.

AACVPR Case Study: Holland Hospital – Using State-Based Vocational Rehabilitation Programs for Co-Pay Assistance. Available at https://bit.ly/3pMt2Jr. Accessed Sep 21, 2023.

ADDITIONAL TOOLS AND OPPORTUNITIES

ADDITIONAL PATIENT EDUCATION RESOURCES

From Alliant Health:

- Do It For You! Do It For Your Heart! Say Yes to Cardiac Rehabilitation (patient handout)
- What's Holding You Back from Going to Cardiac Rehab? (patient handout)

https://quality.alliancehealth.org/wp-content/uploads/2023/04/QIN-QIO-Cardiac-Rehab-Flyer-Version-2_508.pdf

https://quality.alliancehealth.org/wp-content/uploads/2023/05/Cardiac-Rehab-Barriers-Flyer-FINAL_508.pdf

Do It For You!
Do It For Your Heart!
SAY YES TO CARDIAC REHABILITATION

Who couldn't use a little heart health right now?

A healthier heart will help you:
- Increase your independence
- Spend more time doing what you enjoy
- Learn ways to pace and adjust your physical activities to help you do more and recover faster
- Be less winded or short of breath as you go about your daily routine

Getting started is simple
Make the call!
- ✓ Call the cardiac rehab program your care team referred you to.
- ✓ If you can't find your referral paperwork or did not get a referral, call your primary care provider or cardiologist and tell them you are interested in cardiac rehab. You can go to an outpatient clinic or hospital rehab center. You may also be able to do virtual or home sessions.

Cardiac rehab is more than exercise! Here's what to expect:
An initial evaluation to tailor a program just for you. The evaluation may include:
- Medically supervised heart-healthy exercises, like walking, riding a stationary bike or using a step trainer
- Activities to strengthen your muscles, like lifting free weights or resistance bands.
- Strategies for healthy eating and information about programs that can help you get healthy food within your budget
- Help with quitting smoking
- Help with managing stress

It's better than your regular exercise routine
- Cardiac rehab provides a **team of experts** who will ensure you progress toward your goals and support you if you feel you're doing too much or not enough. Continuing at-home exercises is important, but cardiac rehab is the first step to improving your heart health.

What will it cost?
Most insurance companies, Medicaid and Medicare Part B will pay for cardiac rehab to help you safely exercise and learn heart-healthy habits. Call the number on the back of your insurance card to find out if you have co-pays or deductibles. Some hospitals and community agencies have staff to help you understand your benefits or arrange transportation.

"Cardiac Rehab changed my life!"

At 75, Joyce was working full time and walking eight miles a day when her heart problems happened and "all of a sudden," she "couldn't do anything."

When Joyce started cardiac rehab, she could only walk 660 steps in six minutes. After completing her program, she could walk 1100 steps in that same amount of time.

Joyce says that cardiac rehab gave her **confidence.** Her message to you?

"JUST GIVE IT A TRY!"

SCAN ME

Watch Joyce share her story about how cardiac rehab has changed her life.

Sources:
American Heart Association, Centers for Disease Control, CardioSmart.org, TAKEHeart Program, Medicare.gov

This material was prepared by Alliant Health Solutions, a Quality Innovation Network - Quality Improvement Organization (QIN - QIO) under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services (HHS). Views expressed in this material do not necessarily reflect the official views or policy of CMS or HHS, and any reference to a specific product or entity herein does not constitute endorsement of that product or entity by CMS or HHS. Publication No. 12SOW-AHS-QIN-QIO-TOI-PCH-3887-05/31/23

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www.quality.alliancehealth.org

CRCP MADE EASY VIDEO SERIES

1. Communicating the Value of Cardiac Rehabilitation to Your Hospital or Health System
2. Optimizing Cardiac Rehabilitation Referrals and Enrollment
3. Unlocking Potential to Maximize Cardiac Rehabilitation Productivity
4. The Next Generation: Hybrid Cardiac Rehabilitation

https://chronicdisease.org/page/cardiovascularhealth/crcp-video-package/

AHRQ'S TAKEHEART INITIATIVE (2019-2023)

- Executed **10 online training modules**
- Supported **120+ Partner Hospitals** across 3 cohorts to increase CR referrals with care coordination
- Informed **>850 professionals** participating in the TAKEheart **Learning Community Webinar Series**
- Developed an evergreen website with a 4-part training curriculum:
  - **Getting Started**
  - **Implementing Automatic Referral**
  - **Enhancing Care Coordination**
  - **Implementing Hybrid CR To Expand Access and Capacity**

TAKE heart
AHRQ's Initiative To Increase Use of Cardiac Rehabilitation
TRAINING • AWARENESS • KNOWLEDGE • ENGAGEMENT

PULMONARY REHABILITATION IN NORTH CAROLINA -

EFFECTIVENESS, UTILIZATION AND OPPORTUNITIES FOR IMPROVEMENT

Connie Paladenech, RRT, RCP, MAACVPR, FAARC

OBJECTIVES

- Review history of clinical effectiveness and safety of center-based Pulmonary Rehabilitation (PR).

Review data on availability and utilization of PR in NC, identify some factors contributing to poor uptake and discuss some possible options to facilitate increased participation in PR.

Where do we go from here?

SAFETY & EFFECTIVENESS OF CENTER-BASED PR

- Improved exercise capacity/tolerance[1]
- Improved symptoms of dyspnea[1]
- Improved HRQOL[1]
- Safe for COPD and other chronic respiratory diseases[2]
- Decreases exacerbation frequency
- Cost savings to health care system[4]
- Prolongs life
- *Decrease Exacerbation and Mortality in Patients with COPD. A Nationwide Korean Study*[3]

1. Spruit MA, Singh SJ, Garvey C, ZuWallack R, Nici L, Rochester C, et al.; ATS/ERS Task Force on Pulmonary Rehabilitation. **An official American Thoracic Society/European Respiratory Society statement: key concepts and advances in pulmonary rehabilitation.** Am J Respir Crit Care Med 2013;188:e13–e64

2. Rochester CL, Alison JA, Carlin B, Jenkins AR, Cox NS, Bauldoff G, et al. **Pulmonary rehabilitation for adults with chronic respiratory disease: an official American Thoracic Society clinical practice guideline.** Am J Respir Crit Care Med 2023;208:e7–e26.

3. J.Y. Choi, K.U. Kim, D.K. Kim, *et al.* **Pulmonary rehabilitation is associated with decreased exacerbation and mortality in patients with COPD: a nationwide Korean study.** Chest, 165 (2) (2024), pp. 313-322

4. Mosher CL, Nanna MG, Jawitz OK, Raman V, Farrow NE, Aleem S, *et al.* **Cost-effectiveness of pulmonary rehabilitation among US adults with chronic obstructive pulmonary disease.** *JAMA Netw Open* 2022;5:e2218189.

WHAT WE'RE DOING ISN'T WORKING

… *MAJOR REASONS FOR POOR UPTAKE*

- Even though Pulmonary Rehabilitation is a highly effective treatment for people with chronic respiratory disease it remains underused across the world.
- In the US
  - Less than 4% of Medicare members with COPD receive PR
  - Less than 10% receive PR following discharge for acute exacerbation of COPD
- Barriers include: **availability, access, and attrition**

AJRCCM Articles in Press Published March 27,2024 as 10.1164/rccm.202402-0392VP

KEY BARRIERS TO PR

	Definition	Potential Metrics
Access	Are eligible patients offered a pulmonary rehabilitation program?	Number of programs available per geographical area/population. Percentage of eligible patients who are referred
Uptake	Do patients take up the offer of rehabilitation?	Percentage of referred patients who attend a pulmonary rehabilitation assessment. Percentage of referred patients who attend at least one session
Completion	Do patients finish the rehabilitation program?	Percentage of patients attending 70% of sessions. Percentage of patients attending a discharge assessment

Annals ATS Volume 18 Number 5| May 2021

WHAT WE'RE DOING ISN'T WORKING

··· *MAJOR REASONS FOR POOR UPTAKE*

- **Availability**
  - Insufficient number of PR programs in US
    - 1,700+ PR programs in US
    - ~ 14 million patients with COPD are eligible for PR
    - Translates to ~ 8,235 patients/center
  - A 2011 international survey indicated that median PR program capacity was 40 to 75 individuals per year, meaning that it would take roughly 137 years for all existing patients with COPD to participate in PR
  - One certified center for 43,000 patients with COPD

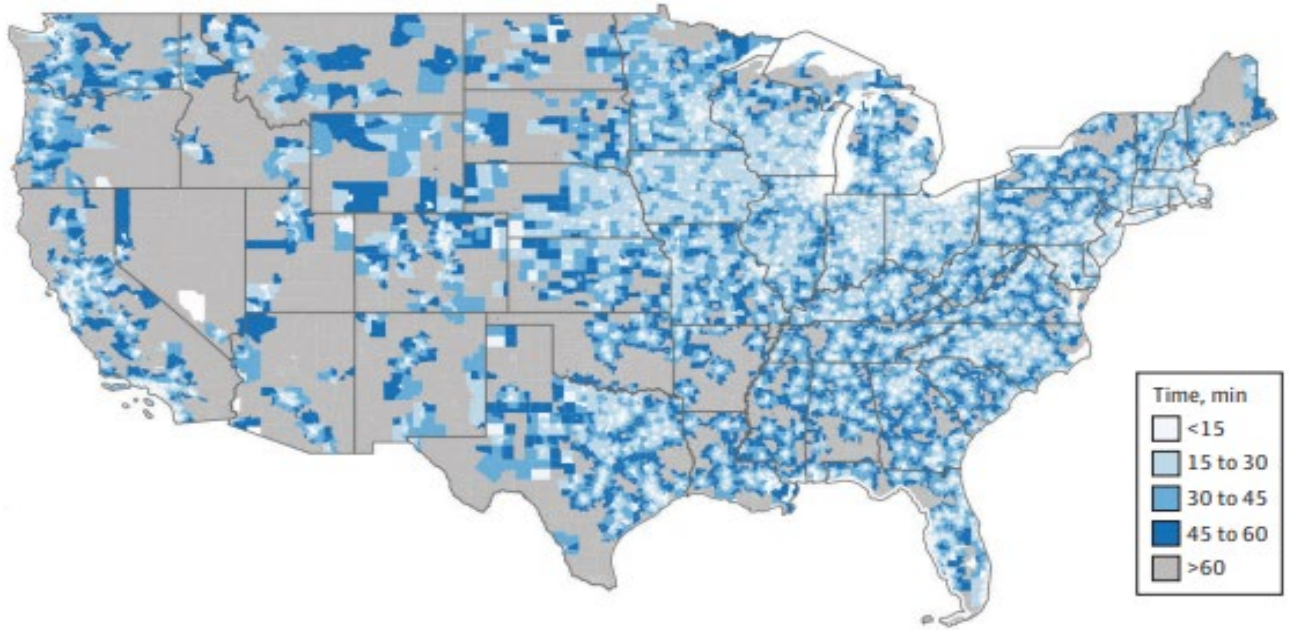
Kahn PA, Mathis WS. Accessibility of Pulmonary Rehabilitation in the US. JAMA Netw Open. 2024;7(2):e2354867. doi:10.1001/jamanetworkopen.2023.54867

WHAT WE'RE DOING ISN'T WORKING

••• *MAJOR REASONS FOR POOR UPTAKE*

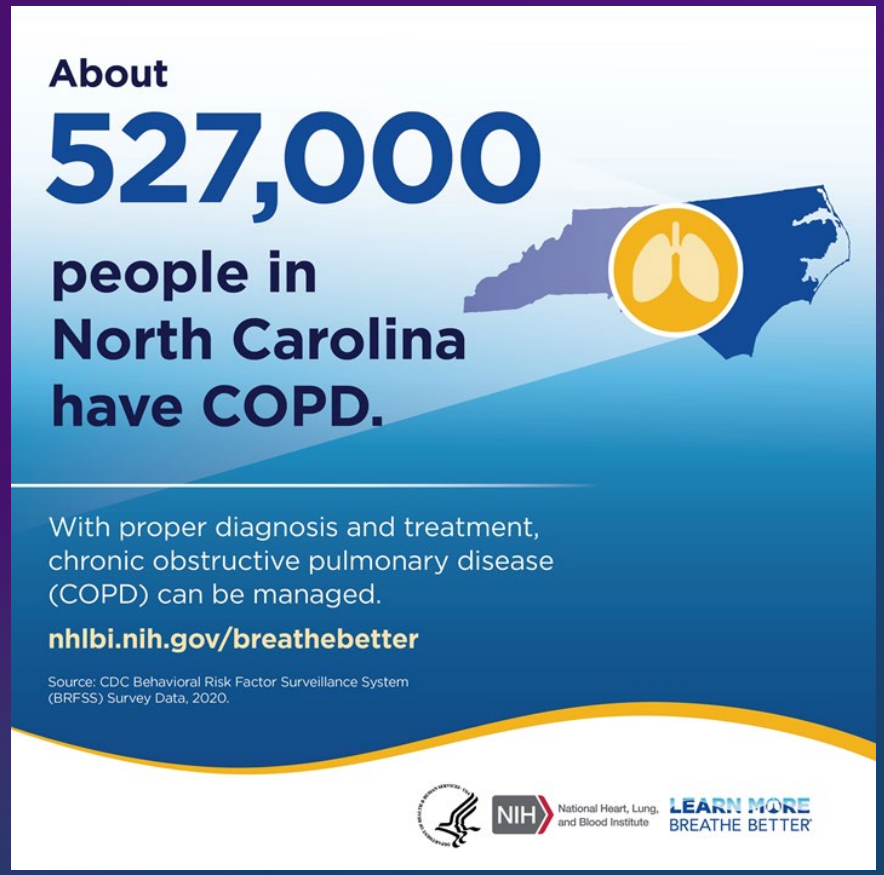
- **Accessibility**
  - Distance to PR center [12] map
  - NETT showed that participants living more than **36 miles** from PR center are **51%** less likely to be adherent than those living less than six miles away[13]
  - Commute time of more than **30 minutes** more than doubled risk of poor attendance
  - Lack of transportation

Figure 2. Population-Weighted Mean Minimum Travel Time to Pulmonary Rehabilitation Facilities by Census Tract



JAMA Network Open. 2024;7(2):e2354867. doi:10.1001/jamanetworkopen.2023.54867

AACVPR lists 36 programs in NC



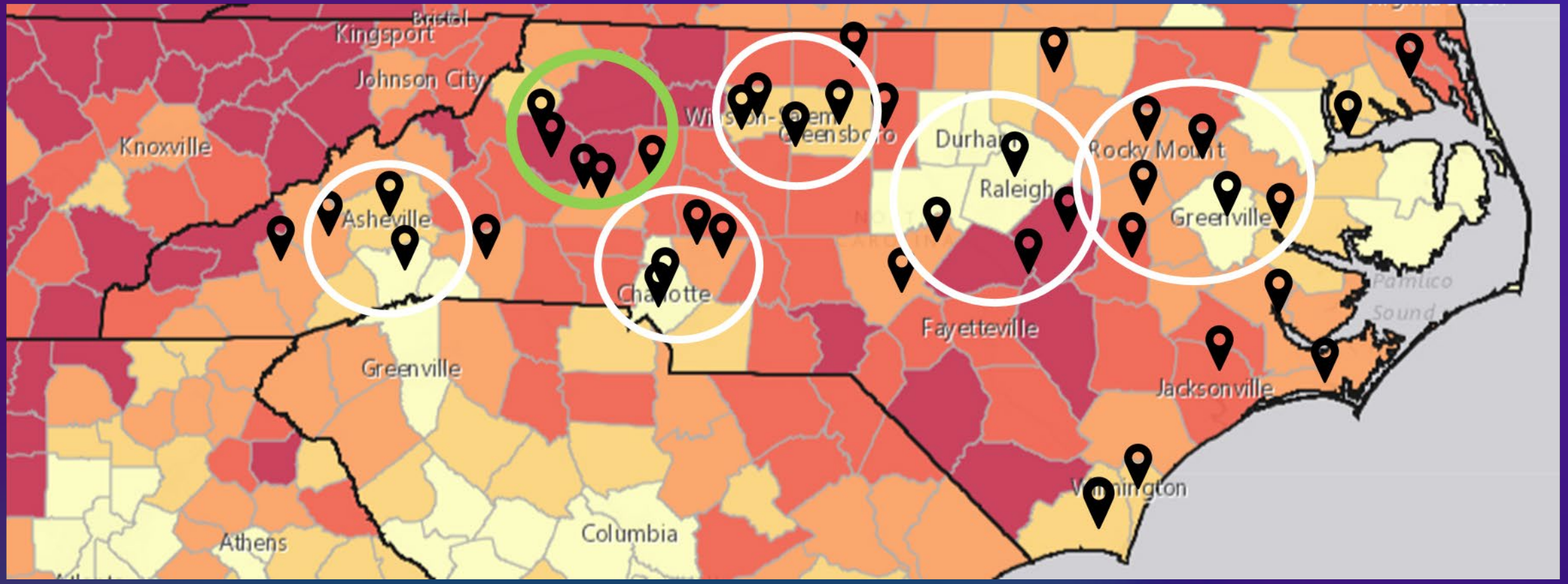
From Jill Ohar, MD

- NASH UNC
- Almanace Regional Med Ctr
- Annie Penn Hospital
- Atrium (Cabarrus, Pineville, Main)
- Cape Fear Valley Betsy Johnson Hospital
- CarolinaEast Med Ctr
- Carteret Health Care
- Catawba Valley Med Ctr
- Central Carolina Hospital
- Cone Health
- Vidant Edgecombe Hospital
- FirstHealth of the Carolinas
- Forsyth Med Ctr
- Happy Valley Med Ctr*
- Haywood Regional Med Ctr
- High Point Regional Health System
- Iredell Health System
- Johnston Health
- Maria Parham Health
- Mission Hospital
- New Hanover Regional Med Ctr
- Novant Health Presbyterian
- Onslow Med Specialties Clinic
- Pardee Hospital
- Rutherford Regional Health System
- Sentara Albemarle Med Ctr
- UNC Rex Healthcare
- Vidant Chowan Hospital (Med Ctr, Wellness Ctr)
- Wake Forest Baptist Med Ctr (Lexington, Main, Wilkes)
- Westcare Health System
- Wilson Medical Ctr

1 clinic per 14,638 adults living with COPD today
If a clinic sees approximately 300-400 patients/year, it will take 37 to 49 years for everyone with COPD to get PR at the clinic.

* indicates a Grace Anne Dorney Koppel PR Clinic

ACCESSIBILITY – WHERE COPD IS PULMONARY REHAB ISN'T



WHAT WE'RE DOING ISN'T WORKING

••• *MAJOR REASONS FOR POOR UPTAKE*

- **Attrition**
  - Commute distance
  - Medical factors
    - High baseline respiratory morbidity, poor QOL, dyspnea, poor exercise tolerance
    - Exacerbations, hospitalizations
    - Other tests and procedures – missed appointments
  - Economic factors
    - Parking fees, co-pays, limited insurance coverage
  - Socioeconomic disadvantage and health status impact patients' ability to attend PR over extended periods of time
  - Poor understanding of what PR entails
  - Caring responsibilities

Kahn PA, Mathis WS. Accessibility of Pulmonary Rehabilitation in the US. JAMA Netw Open. 2024;7(2):e2354867. doi:10.1001/jamanetworkopen.2023.54867

UPTAKE

- Despite huge benefits reaped from PR participation just **3%** of all eligible COPD patients participate in 1 or more sessions
- **Factors associated with poor uptake, low/non-adherence, lack of completion**: current smoking, depression, social isolation, poor mobility, lack of perceived benefit, extremes of age, dyspnea severity, long-term oxygen therapy, transportation difficulty or travel distance, socio-economic disadvantage and costs

Completion

- Travel
- Car, access to vehicle for transportation
- Parking
- Cost Disability
- Co-morbidities including depression
- Smoking status

ROCHESTER CL. RESPIROLOGY (2019) 24, 844–853
ANNALS ATS VOLUME 18 NUMBER 5| MAY 2021

POSSIBLE OPTIONS TO FACILITATE ENROLLMENT AND ADHERENCE TO PR

- Free parking
- Parking vouchers
- Facilitated rides with non-profits
- Vouchers for ride sharing programs
- Direct transportation assistance
- Telerehabilitation programs
  - Real time face-to-face
  - Remote
  - Hub and spoke
- Scholarships
- Partnerships w/ commercial insurers
- Negotiation w/ third party payers to waive or reduce co-payments

REIMBURSEMENT/PAYMENT OPTIONS

- US differs from other countries
  - Insurance
  - Providers
- PFS reimbursement
- HOPPS reimbursement
- Contract agreements
- Behavioral model (VPM/VTM)
- Patient self-pay

???

THANK YOU!