

Cardiac Rehabilitation

What we need to know

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Objectives

- Define elements & core components of Traditional Cardiac Rehabilitation
- Indications & eligibility requirements for Cardiac Rehab
- Research supporting benefits of Cardiac Rehab
- Utilization of & referral to Cardiac Rehab

What is Cardiac Rehab?

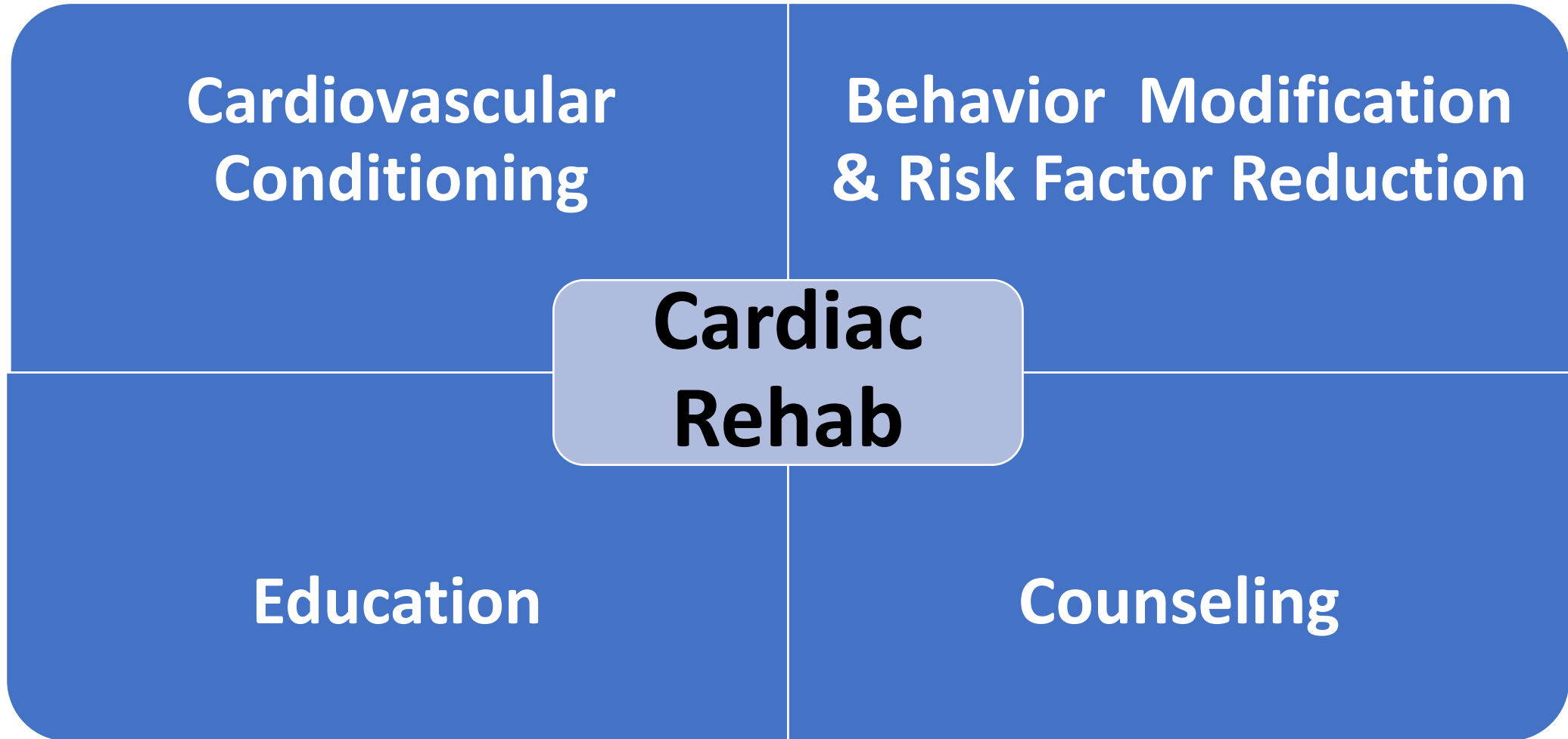
Cardiac Rehab is a medically supervised program of:
**monitored cardiovascular conditioning,
behavior modification,
counseling & education**

aimed at reducing the risk factors associated with heart disease for the purpose of secondary prevention.

MISSION :To restore and maintain an individual's optimal physiological, psychological, social and vocational status.

American Association of Cardiovascular and Pulmonary Rehabilitation, Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs,
5th edition; Human Kinetics, 2013

4 Elements of Program Structure



CR 10 required Core Components

Assessment, Intervention & Expected Outcomes

- Patient Assessment
- Nutrition Counseling
- Weight Management
- Blood Pressure Management
- Lipid Management
- Diabetes Management
- Tobacco Cessation
- Psychosocial Management
- Physical Activity Counseling
- Exercise Training

A Collaborative Team Approach

- Physicians
- Registered Nurses
- Exercise Physiologists
- Physical Therapists
- Clinical Psychologists
- Social Workers
- Pharmacists
- Dieticians



Indications for Cardiac Rehabilitation

- Myocardial Infarction
- Coronary Artery Bypass Surgery
- Valve Repair or Replacement
- Coronary Angioplasty or Coronary Stenting
- Heart Transplant
- Stable Angina
- Heart Failure*

- *EF \leq 35% & NYHA class II-IV symptoms, without a recent hospitalization in the past 6 weeks

The Model of Cardiac Rehabilitation

- Requires Physician Referral & Physician Supervision (Medicare change in 2023)
 - **TCR** 3x week for 12 weeks = 36 sessions, 1-2 hours per session
 - **ICR** 2x week for 9 weeks= 18 visits, 4 hours per session
- A **comprehensive, individualized** treatment plan is established, reviewed and signed by a physician every 30 days evaluation
- Baseline & discharge outcomes

Medicare: Federal Register; Volume 74, No 226, Nov. 25, 2006; Section 410.29

Utilization Benefits

- A 20-30% reduction in all cause mortality rates
- Decreased mortality up to 5 years post participation
- Reduced symptoms (angina, dyspnea, fatigue)
- Reduced risk of non-fatal MI for up to 12months
- Increased exercise performance
- Reduced number of hospitalizations & medical resources
- Cost effectiveness: studies, adjusted for quality of life, show savings of \$4,950 - \$9,200 per year of life saved

Taylor, RS et al. *American Journal of Medicine* .2004;116(10):682-692
Clark AM, et al. *Ann Intern Med* .2005 ;143(9) 659-672
Williams MA, et al. *American Heart Journal* .2006;152(5) ;835-841
Milani RV, Lavie CJ. *Am Journal of Med* 2007;120(9) 659-672

Utilization Benefits

- Improved adherence with medications
- Improved health factors i.e. lipids & blood pressure
- Increased knowledge about cardiac disease & it's management
- Enhances abilities to perform ADL
- Improved Health Related Quality of Life
- Improved psychosocial symptoms
- Increased ability to return to work or engage in leisure activities

Geol K etal, *Circulation* , 2011:123:2344-2352

Taylor RS, et al; *European Journal of Cardiovascular Prev Rehab*,2006;13(3);369-374

Suaya JA et al. *Journal American College of Cardiology* 209;54,25-33

Jolliffe JA, et al. *Cochrane Database Syst Rev* 2001,;(1) CD001800.

Stephens MB, *Am Fam Physicians* , 2009 Nov 1:80(9):955-959

Landmark Study

Methods:

- Studied 601,099 Medicare beneficiaries
- Examined 1 to 5 year mortality rates in CR users & nonusers
- Compared 70,040 propensity-based matched groups (CR participation versus non-participation)

Results:

- Only **12.2%** of the cohort participated in Cardiac Rehabilitation
- Significantly lower (p 0.001) 1- to 5-year mortality rates in CR users than nonusers
- **At 1 year**, Cardiac Rehabilitation participants (> 24 sessions) had a **58% relative risk** reduction for mortality
- **At 5 years**, Cardiac Rehabilitation participants had a **34% relative risk** reduction for mortality
- Mortality reductions extended to all demographic & clinical subgroups including patients with acute MI, HF & revascularization procedures.

Dose Response Relationship for CR Sessions and Risk of Death / MI *

Sessions Attended	36 vs 24 Sessions	36 vs 12 Sessions	36 vs 1 Sessions
Risk of Death	- 14%	- 22%	- 47%
Myocardial Infarction	- 12%	- 23%	- 31%

2018 CR Outcomes

	TMH Cardiac Rehab	Newport Cardiac Rehab	TCR National Registry	ICR Cardiac Rehab	ICR National Averages
METs	2.2	2.2	1.4	1.66	1.8
Weight loss	- 4.1 lbs	-4.5 lbs	-3.1 lbs.	-7.3 lbs	-10.5
Depression	43%	41%	30%	50.4%	49.5
Chol	10%	9%	10%	17%	16%
LDL	15%	13%	15%	23%	21.9%

Program Elements



Exercise

Education & Counseling

Behavior Modification

Exercise Training

Telemetry Monitored, Individualized, Exercise Prescription

- Orthopedic Restrictions and limitations
- Functional & occupational goals
- Functional capacity from entrance stress test or 6 min walk test

1. **CARDIOVASCULAR:** Frequency , Duration, Mode, Progression & Intensity

- **THR** (70-85% MHR or 50-70% of HRR)
- **METS** (50-70 % MMETS on gxt or 6 min walk)
- **RPE** (3-5 or 11-13)

2. **RESISTIVE TRAINING**

Muscle fatigue @ 12-15 reps ; 1-2 sets for the major muscle groups

- **Exercise benefits: Improves Strength & Endurance**

- Helps manage: BLOOD PRESSURE, GLUCOSE , BODY WEIGHT, LIPIDS, STRESS , ANXIETY & DEPRESSION



Patient Education & Counseling

EDUCATIONAL GOALS:

- Risk Factor education & intervention
- Symptom recognition and management
- Medication usage
- Provide the patients w/ the tools, knowledge & motivation to successfully fight the progression of CVD



CHALLENGE: Delivering Education In ways that meet individual Learning Needs

BARRIER: Age, educational levels, cultural differences, learning styles

SOLUTION: To provide a creative, enjoyable and interactive environment to assist patients with making behavioral changes

BEHAVIOR MODIFICATION

Psychosocial Management

- Depression & Anxiety
- Adjustment to Illness
- Pain & Anger Management
- Medication Compliance
- Sexual Dysfunction & Intimacy Issues

Risk Factor Modification

- Smoking Cessation
- Stress Management
- Weight Management
- Diabetes Management

Stages of Change

- **Precontemplation:** Not thinking about or considering change
- **Contemplation:** Thinking about change
- **Preparation:** Preparing for change or starting to make small changes
- **Action:** Making changes, modifying behaviors
- **Maintenance:** Changes have become a habit, focus on relapse prevention

Benefits of Cardiac Rehab

Physiological

- ↑Exercise tolerance
- ↑Muscle Strength
- ↓Symptoms of angina
- ↓Myocardial Ischemia
- ↓Morbidity / Mortality

Psychosocial

- ↑ Return to Work
- ↓ Depression
- ↓ Anxiety
- ↑ Psychological Well being
- ↑ Quality of Life

Improved Health Habits

- Dietary Habits
- Exercise habits
- Smoking habits
- Body weight
- Lipid profile

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Cardiac Rehab Referral National Guidelines

ACC/AHA guidelines:

Referral to CR **Class IA level of recommendation** both in an inpatient & outpatient setting for patients post: **MI, PCI, CABG, Valve Surgery, HF or Heart Transplant**

Highest for strength of recommendation & for level of evidence

National Quality Forum has endorsed CR as a performance measure

Why the Underutilization of Cardiac Rehab?

Most studies suggest that **only 30%** of eligible patients attend Cardiac Rehab

Represents one of the greatest quality gaps in the secondary prevention of heart disease

- Lack of referral to CR
- Less Likely to be referred & less likely to enroll
 - Older & Sicker
 - Women
 - Minority populations
 - Patients with lower socioeconomic status
 - Lower level of educations



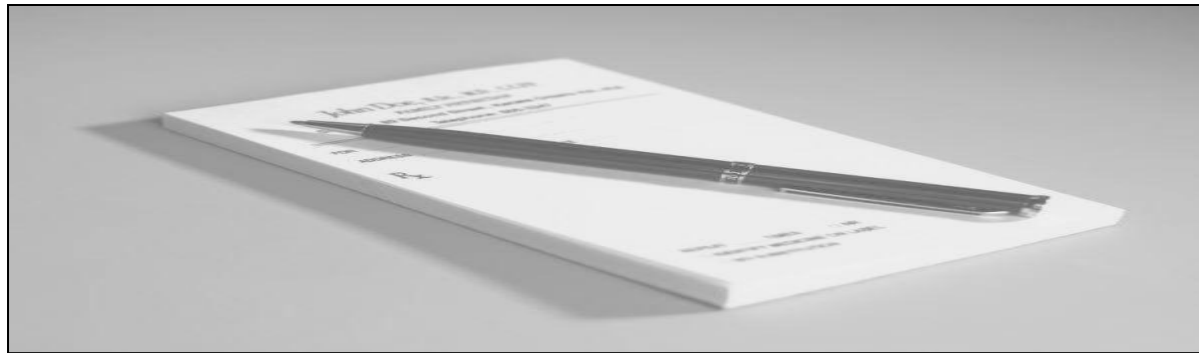
Barriers to Participation in CR

- **Lack of** referral
- **Strength** of referral or strong encouragement from physician
- Limited **follow-up** after referral
- **Cost-** Limited or no coverage
- **Home** responsibilities
- **Lack of program availability and access**
- Conflict with **Work** demands
- **Distance** to CR facility from home
- Access to public **transportation**
- **Lack of perceived need** for rehabilitation
- **Gender-dominated programs**
- **Language** problems and **cultural** beliefs

CDC Statistics

- About **600,000 people** die of heart disease in the United States every year—that's **1 in every 4 deaths**.
- Roughly **720,000 Americans** have a heart attack every year.
- Heart disease is the **leading cause of death** for both men and women.
- About **5.1 million** people in the United States have heart failure

Place the order and make the referral to CR



Circulation. 2015;131:e29-e322. DOI: 10.1161/CIR.0000000000000152

Traditional & Intensive CR Programs in RI

- Landmark Medical Center*
- South County Hospital
- Westerly Hospital*
- Lifespan Programs*

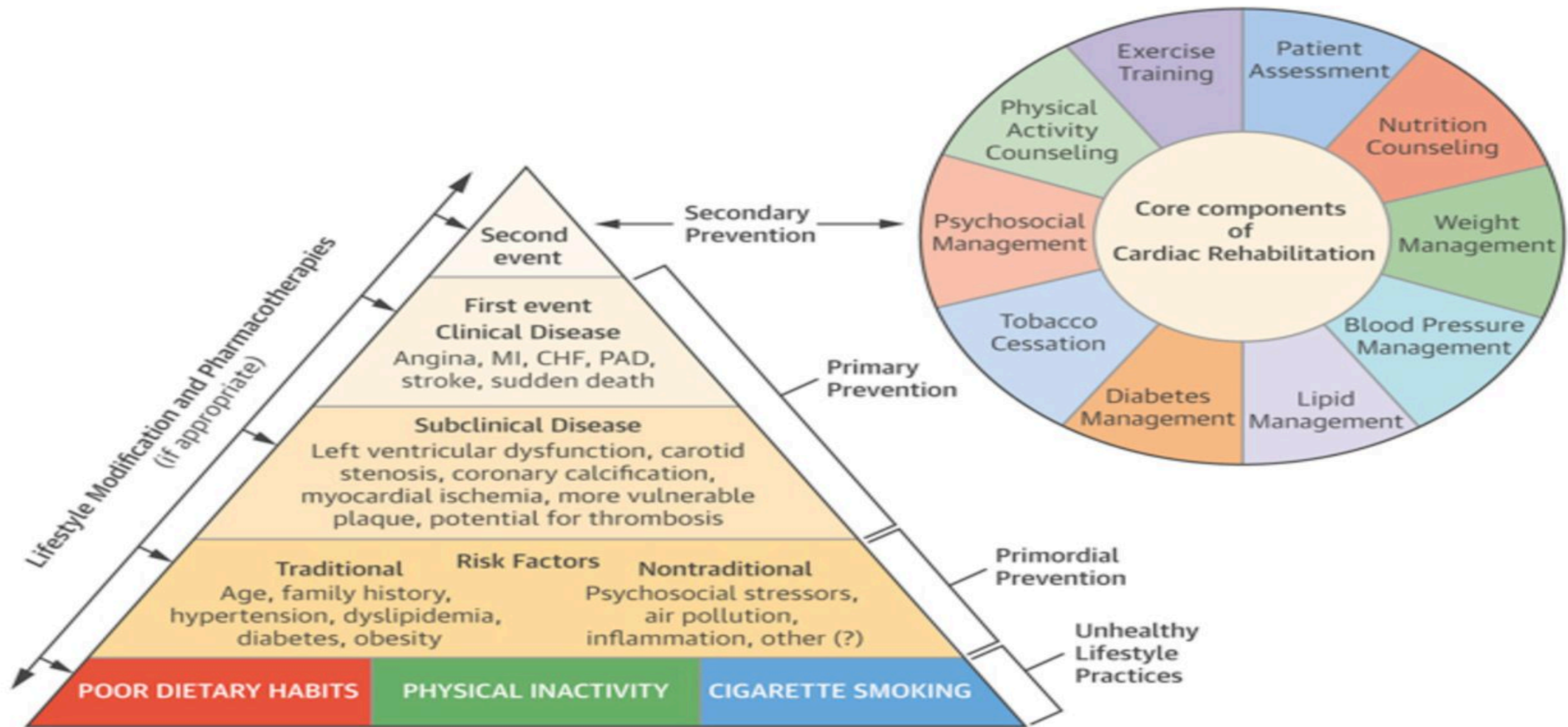
Newport Hospital Cardiac Rehab*

The Miriam Hospital- Center For Cardiac Fitness*

The Miriam Hospital- **Intensive Cardiac Rehab***

* Accredited Programs

Thank you



Sandesara, P.B. et al. J Am Coll Cardiol. 2015; 65(4):389-95.