Availability and Utilization of Cardiac Rehab in the VA: Current Challenges and Opportunities

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Associate Professor of Medicine, Harvard Medical School

Mary Whooley, MD, FACP, FAHA, FACC
Director, Cardiac Rehabilitation, San Francisco VA Medical Center
Professor of Medicine and Epidemiology
University of California, San Francisco

April 29, 2013
Poll Question #1

• What is your primary role in VA?
  – student, trainee, or fellow
  – clinician
  – researcher
  – manager or policy-maker
  – Other
Poll Question #2

• What percent of eligible patients receive cardiac rehab in the VA?
  – Less than 10%
  – 10 to 25%
  – 26 to 50%
  – 51 to 75%
  – Greater than 75%
Poll Question #3

• Which statement best describes your personal experience with cardiac rehab?

  – I am not familiar with cardiac rehab
  – I am familiar with cardiac rehab but have not used it
  – I have referred patients for cardiac rehab
  – I am a cardiac rehab provider
  – I conduct research about cardiac rehab
Cardiac Rehabilitation in VHA

• History of Cardiac Rehabilitation (Forman)
• Current Status (Whooley)
• Challenges for Implementation (Forman)
• Opportunities and Future Directions (Whooley)
History of Cardiac Rehabilitation

Underuse of Cardiac Rehabilitation

Post-MI once regarded as a period in which physical movement was highly destabilizing and harmful.

- Bernard Lown (Re. AMI therapy in the 1950s):

  Patients were confined to strict bedrest for four to six weeks. Sitting in a chair was prohibited. They were not allowed to turn from side to side without assistance. During the first week, they were fed. Moving their bowels and urinating required a bedpan.
Getting AMI Patients Out of Bed:  

**Controversial Care**

- Predictions that patients would experience fatal arrhythmias, heart rupture, or congestive heart failure from an overstressed heart muscle

Levin S, Lown B. NEJM. 1952;148:1365-9
Dwight Eisenhower

Heart attack in office in 1955

Paul Dudley White prescribed graded levels of exercise (swimming, walking, and golf).

Viewed by many physicians as reckless and inappropriate, but results remarkably positive.
Historical orientation overshadows broader relevance of Cardiac Rehabilitation in 2013

Multifactorial Program:

- Exercise/physical activity
  - Prescription and Surveillance: Advance activity amidst clinical instability
- Education
- Risk factor management
- Nutrition (weight management)
- Psychosocial support

Team Approach

- Cardiologist; Nurse; Exercise physiologist; Nutritionist; Psychologist
Paradigm of Cardiac Rehabilitation (1970’s-1980’s)

• Oriented to
  – Completed MI
  – Ischemic cardiomyopathy
    • Pro-ischemic; Pro-arrhythmic
    • Hemodynamically unstable

• Cardiac rehabilitation as a means to initiate and advance exercise for a population presumed unstable.

• Conceptualized as a means to get a “man back to work”
Insurance Eligible

• CAD: Revascularized (CABG), stable angina, recent MI
  – Added to recent ACS guidelines

• Recently Expanded Eligibility:
  – MI within the preceding 12 months
  – Percutaneous coronary intervention
  – Heart valve repair/replacement
  – Heart or heart-lung transplant
  – Heart Failure
  – PAD
  – 1° Prevention for women

• Heart failure, PAD, and Primary Prevention not currently covered for CR by most insurers
3 Phases of Cardiac Rehabilitation

• Phase I: inpatient phase (1960s), early graded mobilization to the level of activity required to perform simple household tasks.

• Phase II: hospital-based outpatient program (1970s on) monitored exercise and risk factor reduction.

• Phase III: maintenance phase. Hospital- or medically-based; goal of continuing the risk factor modification and maintaining exercise intensity.
Exercise Training

- **Class B:**
  Clinically stable; Low risk of CV complications

- **Class C:**
  Moderate–High risk of CV complications (Hx low EF, cardiac arrest, NYHA class III or IV, low Ex capacity, or residual ischemia

**Exercise Prescription**

- Intensity
- Mode
- Frequency
- Content and duration
Therapeutic Goals 2013

• Physical Activity (Surveillance, education)
• Risk Factor Modification (Rx, Education)
  – Tobacco, Diabetes, Blood Pressure, Cholesterol, Weight, Inflammation
  – Stabilize Coronary Plaque, endothelial responsiveness, distensibility, remodeling
• Modify Stress, Anxiety, Depression
• Diet (salt, cholesterol, cooking, restaurants, weight loss)
• Return to work, key family roles, QOL, independence, rehospitalization
Cardiac Rehabilitation and Survival

- 21-34% Mortality Reduction
- Advanced ages
- Socioeconomic range
- ACS: Revasc, HF
- Severity of dz
- Extent of Comorbidity

Cardiac Rehabilitation in VHA

- History of Cardiac Rehabilitation (Forman)
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Cardiac Rehabilitation in VHA

- History of Cardiac Rehabilitation (Forman)
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- Challenges for Implementation (Forman)
- Opportunities and Future Directions (Whooley)
Exercise-based rehabilitation for coronary heart disease (Review)

Jolliffe J, Rees K, Taylor RRS, Thompson DR, Oldridge N, Ebrahim S
26% reduction in mortality among patients with CHD

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment n/N</th>
<th>Control n/N</th>
<th>Peto Odds Ratio Peto,Fixed,95% CI</th>
<th>Weight</th>
<th>Peto Odds Ratio Peto,Fixed,95% CI</th>
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</thead>
<tbody>
<tr>
<td>Anderson 81</td>
<td>4/46</td>
<td>3/42</td>
<td></td>
<td>3.4%</td>
<td>1.23 [0.27, 5.74]</td>
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<tr>
<td>Bethell 90</td>
<td>16/113</td>
<td>12/116</td>
<td></td>
<td>12.9%</td>
<td>1.42 [0.65, 3.14]</td>
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<tr>
<td>Carson 82</td>
<td>12/151</td>
<td>21/152</td>
<td></td>
<td>15.5%</td>
<td>0.55 [0.27, 1.13]</td>
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<tr>
<td>Erdman 86</td>
<td>4/40</td>
<td>0/40</td>
<td></td>
<td>2.0%</td>
<td>8.00 [1.08, 58.98]</td>
</tr>
<tr>
<td>Holmback 94</td>
<td>1/34</td>
<td>1/35</td>
<td></td>
<td>1.0%</td>
<td>1.03 [0.06, 16.81]</td>
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<tr>
<td>Kentala 72</td>
<td>5/152</td>
<td>8/146</td>
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<td>6.5%</td>
<td>0.59 [0.20, 1.80]</td>
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<tr>
<td>NEHDP</td>
<td>15/323</td>
<td>24/328</td>
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<td>19.2%</td>
<td>0.62 [0.33, 1.19]</td>
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<tr>
<td>Sivarajan 82</td>
<td>3/88</td>
<td>2/84</td>
<td></td>
<td>2.6%</td>
<td>1.44 [0.24, 8.47]</td>
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<tr>
<td>Specia 96</td>
<td>5/125</td>
<td>13/131</td>
<td></td>
<td>8.8%</td>
<td>0.41 [0.16, 1.06]</td>
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<tr>
<td>Stern 83</td>
<td>0/42</td>
<td>1/29</td>
<td></td>
<td>0.5%</td>
<td>0.09 [0.00, 4.66]</td>
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<tr>
<td>Vecchio 81</td>
<td>0/25</td>
<td>2/25</td>
<td></td>
<td>1.0%</td>
<td>0.13 [0.01, 2.14]</td>
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<tr>
<td>Wilhelmson 75</td>
<td>28/158</td>
<td>35/157</td>
<td></td>
<td>26.5%</td>
<td>0.75 [0.43, 1.31]</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>1297</strong></td>
<td><strong>1285</strong></td>
<td></td>
<td><strong>100.0%</strong></td>
<td><strong>0.74 [0.56, 0.98]</strong></td>
</tr>
</tbody>
</table>

Total events: 93 (Treatment), 122 (Control)
Heterogeneity: Chi² = 14.33, df = 11 (P = 0.22); I² = 23%
Test for overall effect: Z = 2.09 (P = 0.037)
Efficacy and Safety of Exercise Training in Patients With Chronic Heart Failure
HF-ACTION Randomized Controlled Trial
Decreased CV mortality or HF hospitalization, JAMA 2009;301:1439-50

Effects of Exercise Training on Health Status in Patients With Chronic Heart Failure
HF-ACTION Randomized Controlled Trial
Improved quality of life, JAMA 2009;301:1451-1459

Effects of Exercise Training on Depressive Symptoms in Patients With Chronic Heart Failure
The HF-ACTION Randomized Controlled Trial
Lower depressive symptoms, JAMA 2012;308:465-474
Performance Measures for Referral to Cardiac Rehab

AACVPR/ACCF/AHA Performance Measures

AACVPR/ACCF/AHA 2010 Update: Performance Measures on Cardiac Rehabilitation for Referral to Cardiac Rehabilitation/Secondary Prevention Services

A Report of the American Association of Cardiovascular and Pulmonary Rehabilitation and the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Clinical Performance Measures for Cardiac Rehabilitation)

Endorsed by the American College of Chest Physicians, the American College of Sports Medicine, the American Physical Therapy Association, the Canadian Association of Cardiac Rehabilitation, the Clinical Exercise Physiology Association, the European Association for Cardiovascular Prevention and Rehabilitation, the Inter-American Heart Foundation, the National Association of Clinical Nurse Specialists, the Preventive Cardiovascular Nurses Association, and the Society of Thoracic Surgeons

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Patients Who Should be Referred from an Inpatient Setting (AACVPR/AACF/AHA Performance Measures):

All patients with a primary diagnosis of:
- Myocardial infarction
- Chronic stable angina
- Heart failure
- Peripheral artery disease

All patients status post one of these procedures:
- Coronary artery bypass grafting
- Percutaneous coronary intervention
- Cardiac valve surgery
- Cardiac transplantation

* Circulation. 2011;124:2458-2473
Patients Who Should be Referred from an Outpatient Setting (AACVPR/AACF/AHA Performance Measures):

All patients who within the past 12 months have experienced:

• Acute myocardial infarction
• Chronic stable angina
• Coronary artery bypass grafting
• Cardiac valve surgery
• Cardiac transplantation
• Percutaneous coronary intervention

*Circulation. 2011;124:2458-2473*
Performance Measures for Secondary Prevention

ACCF/AHA/AMA–PCPI Performance Measures

ACCF/AHA/AMA–PCPI 2011 Performance Measures for Adults With Coronary Artery Disease and Hypertension

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures and the American Medical Association–Physician Consortium for Performance Improvement

Developed in Collaboration With the American Academy of Family Physicians, American Association of Cardiovascular and Pulmonary Rehabilitation, American Association of Clinical Endocrinologists, American College of Emergency Physicians, American College of Radiology, American Nurses Association, American Society of Health-System Pharmacists, Society of Hospital Medicine, and Society of Thoracic Surgeons

Performance Measures for Secondary Prevention

1) Blood pressure control
2) Lipid control
3) Smoking cessation
4) Anti-platelet therapy
5) Beta-blocker therapy
6) ACE/ARB therapy
7) Physical activity assessment
8) Symptom management
9) Cardiac rehabilitation

Performance Measures for Secondary Prevention

1) Blood pressure control
2) Lipid control
3) Smoking cessation
4) Anti-platelet therapy
5) Beta-blocker therapy
6) ACE/ARB therapy
7) Physical activity assessment
8) Symptom management
9) Cardiac rehabilitation

“All patients evaluated in an outpatient setting who within the previous 12 months have experienced acute MI, CABG, PCI or who have chronic stable angina and have not already participated in a cardiac rehab or secondary prevention program for the qualifying event/diagnosis must be referred to such a program.”

*Drozda et al, Circulation. 2011;124:248-270*
Figure. Standardized rates of CR by state.
2011 Survey of VA Cardiovascular Specialty Care Services

(Healthcare Analysis & Information Group)

VA Medical Centers (n=149)

Inpatient care provided (n=123)

CR program (n=35, 28%)

No CR program (n=88, 72%)

Schopfer D, presented at AHA Scientific Sessions, Nov 2012
### 35 VA Facilities with Onsite Cardiac Rehab (by VISN)

<table>
<thead>
<tr>
<th></th>
<th>Facility Name</th>
<th></th>
<th>Facility Name</th>
<th></th>
<th>Facility Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Boston HCS - West Roxbury</td>
<td>8</td>
<td>Caribbean HCS - San Juan</td>
<td>16</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>2</td>
<td>Syracuse, NY</td>
<td>8</td>
<td>Miami HCS</td>
<td>16</td>
<td>Oklahoma City, OK</td>
</tr>
<tr>
<td>2</td>
<td>Western New York HCS</td>
<td>8</td>
<td>Tampa, FL</td>
<td>17</td>
<td>North Texas HCS</td>
</tr>
<tr>
<td>3</td>
<td>New Jersey HCS - East Orange</td>
<td>8</td>
<td>West Palm Beach, FL</td>
<td>18</td>
<td>Phoenix, AZ</td>
</tr>
<tr>
<td>3</td>
<td>New York Harbor HCS - Brooklyn</td>
<td>9</td>
<td>Louisville, KY</td>
<td>19</td>
<td>Montana HCS</td>
</tr>
<tr>
<td>3</td>
<td>New York Harbor HCS - New York</td>
<td>10</td>
<td>Cleveland, OH - Wade Park</td>
<td>19</td>
<td>Salt Lake City HCS</td>
</tr>
<tr>
<td>3</td>
<td>Northport, NY</td>
<td>10</td>
<td>Dayton, OH</td>
<td>20</td>
<td>Puget Sound HCS - Seattle</td>
</tr>
<tr>
<td>4</td>
<td>Wilkes-Barre, PA</td>
<td>11</td>
<td>Ann Arbor HCS</td>
<td>22</td>
<td>Greater Los Angeles HCS</td>
</tr>
<tr>
<td>5</td>
<td>Washington, DC</td>
<td>12</td>
<td>Hines, IL</td>
<td>22</td>
<td>Long Beach HCS</td>
</tr>
<tr>
<td>6</td>
<td>Richmond, VA</td>
<td>12</td>
<td>Madison, WI</td>
<td>23</td>
<td>Black Hills HCS - Fort Meade</td>
</tr>
<tr>
<td>7</td>
<td>Augusta, GA</td>
<td>12</td>
<td>Milwaukee, WI</td>
<td>23</td>
<td>Black Hills HCS - Hot Springs</td>
</tr>
<tr>
<td>8</td>
<td>Bay Pines HCS</td>
<td>15</td>
<td>Columbia, MO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Number of Veterans hospitalized 2008-2011:
  • 20,837 myocardial infarction
  • 25,214 percutaneous coronary intervention
  • 10,989 coronary artery bypass grafting

• Proportion who participated in CR (VA or non-VA):
  • 8.9% at VA facilities with onsite CR program
  • 5.1% at VA facilities without onsite CR program
Common Barriers

- **Patient-level factors:**
  - Distance from center
  - Lack of transportation
  - Financial constraints
  - Time off from work
  - Limited motivation

*Schopfer D, presented at AHA Scientific Sessions, Nov 2012*
Common Barriers

- **Patient-level factors:**
  - Distance from center
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- **Provider-level factors**
  - Awareness of guidelines
  - Unsure how to refer

*Schopfer D, presented at AHA Scientific Sessions, Nov 2012*
Common Barriers

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  - Distance from center
  - Lack of transportation
  - Financial constraints
  - Time off from work
  - Limited motivation

- **Provider-level factors**
  - Awareness of guidelines
  - Unsure how to refer

- **System-level factors:**
  - Poor reimbursement
  - Variability /complexity of programs

Schopfer D, presented at AHA Scientific Sessions, Nov 2012
The remarkably wide treatment gap between scientific evidence of the benefits of cardiac rehabilitation and clinical implementation of rehabilitation programs is unacceptable.
Cardiac Rehabilitation in VHA

• History of Cardiac Rehabilitation (Forman)

• Current Status (Whooley)

• Challenges for Implementation (Forman)

• Opportunities and Future Directions (Whooley)
Cardiac Rehabilitation in VHA

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Secondary Prevention: Recognizing the need

There is a need...

There is proven efficacy...

How to modify process of care to better suit the patients?
Challenges of Secondary Prevention

- Risk factor modification often complicated, especially amidst multimorbidity and polypharmacy
- Exercise neither intuitive or easily adapted.
- Behavior changes are hard to sustain
- Meaningful education hard to achieve

- How to achieve personalized care more comprehensively and with greater efficiency?
Secondary Prevention: harder than it seems...

Physical Activity, diet, tobacco, medical compliance
Personalized Care

- Relatively more patients are stable from a CV perspective, but more are vulnerable from a composite health perspective
Complexity of most patients

• Age, multimorbidity, polypharmacy
• Life stressors—divorce, finances, job
• Education, socioeconomics, family dynamics, pain, depression, nutrition
• Frailty
  – Physical limitations
  – Cognition
Cardiac Rehabilitation is useful

• Redefining the process of care to better capitalize on its benefits
  – Access; Relevance for patients

• Are there key elements or CR that may be similarly or better achieved at home or in a community setting?

• Technology may help facilitate exercise, education, and risk factor modification
Technology-augmented care

*modifying the paradigm*

• Technology facilitates
  – Virtual provider in your home
    • Reinforce links to exercise physiologist, nutritionist, nurse, physician
  – Virtual community
    • Reinforce links to members of the group

• Out of the hospital can be **better** medicine
Linking the patient to the provider and the hospital structure

Physical monitoring is one component

- Means to facilitate guidance and proactive care.

• Relative safety with contemporary care (revascularization and medical therapy), but...
  - Ischemia, hemodynamics, arrhythmia, balance
  - Age and complexity of patients (Comorbidity, Medications, Mood)
  - Sensory, cognitive, and physical limits
Technology-augmented education and risk factor modification

Day-to-day prompts: links to pertinent education with different levels of sophistication

• Immediate feedback
  – Medical questions
  – Dietary questions
  – Symptoms and signs

Potential to share information: to reinforce/refine care

  – Medical staff, designated family members
  – Reduce risk, increase compliance
Generating Data

Fit fitness into your day

Fitbit Ultra
Wireless Activity + Sleep Tracker

Activity Today

<table>
<thead>
<tr>
<th>Activity</th>
<th>Amount of steps taken</th>
<th>Miles travelled</th>
<th>Calories burned</th>
<th>Calories consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
<td>3,451</td>
<td>1.4</td>
<td>348</td>
<td>625</td>
</tr>
</tbody>
</table>

Activity Levels
- Sedentary - 5hrs 40min
- Lightly Active - 3hrs 23min
- Fairly Active - 40min
- Very Active - 30min
Data that are linked to a programmatic CR design

Objective Tracking:
Accelerometer data to track day-to-day activity

Daily Guidance:
Personalized prompts for daily activity, therapy (compliance), and daily education

Potential Links:
Links to CR staff, as well as to designated family members, and/or to others in CR
For Clinicians:

Efficiencies...and enhancement of care
Next generation:
Visual feedback... Watching a trainer, watching your own body movements (position, breathing)
• Multiple patients monitored by providers
• Patients can be watching other patients

Strength training, balance training, broader groups of patients
Efficiency and Personalized-care

• Linking providers to more patients with greater efficiency, but also higher quality

• Tailored-care that responses to each patient’s circumstances
Cardiac Rehabilitation Hybrid Model

• Technological links can be initiated as part of acute care
  – Options for better hospital-based outpatient program
  – Options for better home care
  – Options for better community care

• *Overriding goals to establish therapeutic models that increase efficiency and quality of care.*
Cardiac Rehabilitation in VHA

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Cardiac Rehabilitation in VHA

- History of Cardiac Rehabilitation (Forman)
- Current Status (Whooley)
- Challenges for Implementation (Forman)
- Opportunities and Future Directions (Whooley)
Of the 9.3 million Veterans currently enrolled in VHA, 6.9 million (74%) live more than 60 minutes from a VA CR center.
Home-based versus centre-based cardiac rehabilitation (Review)

Taylor RS, Dalal H, Jolly K, Moxham T, Zawada A

The Cochrane Collaboration

Home-based versus centre-based cardiac rehabilitation (Review)
Copyright © 2010 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
No significant difference in mortality (home vs. center-based)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Home-based CR</th>
<th>Centre-based CR</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
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<tr>
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<td>n/N</td>
<td>n/N</td>
<td>M-H,Fixed,95% CI</td>
<td></td>
<td>M-H,Fixed,95% CI</td>
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<tr>
<td>Bell 1998</td>
<td>12/152</td>
<td>7/99</td>
<td>1.12 [ 0.46, 2.74 ]</td>
<td>64.5 %</td>
<td>1.12 [ 0.46, 2.74 ]</td>
</tr>
<tr>
<td>Dalal 2007</td>
<td>4/60</td>
<td>1/44</td>
<td>2.93 [ 0.34, 25.35 ]</td>
<td>8.8 %</td>
<td>2.93 [ 0.34, 25.35 ]</td>
</tr>
<tr>
<td>Daskapan 2005</td>
<td>1/15</td>
<td>0/14</td>
<td>2.81 [ 0.12, 63.83 ]</td>
<td>3.9 %</td>
<td>2.81 [ 0.12, 63.83 ]</td>
</tr>
<tr>
<td>Jolly 2007</td>
<td>3/263</td>
<td>3/262</td>
<td>1.00 [ 0.20, 4.89 ]</td>
<td>22.9 %</td>
<td>1.00 [ 0.20, 4.89 ]</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>490</strong></td>
<td><strong>419</strong></td>
<td><strong>1.31 [ 0.65, 2.66 ]</strong></td>
<td><strong>100.0 %</strong></td>
<td><strong>1.31 [ 0.65, 2.66 ]</strong></td>
</tr>
</tbody>
</table>

Total events: 20 (Home-based CR), 11 (Centre-based CR)

Heterogeneity: Chi² = 1.00, df = 3 (P = 0.80); I² = 0.0%

Test for overall effect: Z = 0.76 (P = 0.45)
“Home- and center-based CR programs appear to be equally effective in improving the clinical and health-related quality of life outcomes in acute MI and revascularization patients. This finding, together with an absence of difference in healthcare costs between the two approaches, would support the extension of home-based programs.”
Similar efficacy x greater participation may lead to greater effectiveness

Referral to Cardiac Rehabilitation

Home-based

Efficacy X Participation

Effectiveness

Yes No

Center-based

Yes No
“A home-based CR program can be substituted for a supervised, center-based program for low-risk patients.”

(Class I Recommendation; Level of Evidence A)
5060 exercise studies in 4250 high risk patients, including:

- N= 1289 Congestive Heart Failure
- N= 598 Hypertrophic Cardiomyopathy
- N= 194 Pulmonary Hypertension
- N= 212 Aortic Stenosis
- N= 686 Age 75 or Older
- N= 1748 Women
- N= 1192 Peak VO2 < 14 ml/kg/min

Skalski et al, *Circulation* 2012;126:2465-2472
The Safety of Cardiopulmonary Exercise Testing in a Population With High-Risk Cardiovascular Diseases

Joseph Skalski, MD; Thomas G. Allison, PhD, MPH; Todd D. Miller, MD, FAHA

No adverse events in 5,052 studies (99.84%)

6 (0.12%)
Sustained Ventricular Tachycardia

1 (0.02%) MI
1 (0.02%) Other

Skalski et al, Circulation 2012;126:2465-2472
The Safety of Cardiopulmonary Exercise Testing in a Population With High-Risk Cardiovascular Diseases

Joseph Skalski, MD; Thomas G. Allison, PhD, MPH; Todd D. Miller, MD, FAHA

No adverse events in 5,052 studies (99.84%)

Adverse event in 8 studies (0.16%)

6 (0.12%) Sustained Ventricular Tachycardia
1 (0.02%) MI
1 (0.02%) Other
0 Deaths

Skalski et al, Circulation 2012;126:2465-2472
Exercise Training and Implantable Cardioverter-Defibrillator Shocks in Patients With Heart Failure
Results From HF-ACTION (Heart Failure and A Controlled Trial Investigating Outcomes of Exercise TraiNing)
Jonathan P. Piccini, MD, MHS,* Anne S. Hellkamp, MS,* David J. Whellan, MD,†
Stephen J. Ellis, PhD,* Steven J. Keteyian, PhD,‡ William E. Kraus, MD,*
Adrian F. Hernandez, MD, MHS,* James P. Daubert, MD,* Ileana L. Piña, MD, MPH,§
Christopher M. O’Connor, MD,* for the HF-ACTION Investigators
Durham, North Carolina; Philadelphia, Pennsylvania; Detroit, Michigan; and Cleveland, Ohio

No evidence of increased ICD shocks associated with exercise training (n=546) vs. usual care (n=507) in patients with HF and reduced LVEF.

Kaiser Permanente Multifit Program

MULTIFIT Care Management Program

Living Healthier with Multiple Risk Factors for Heart Disease

What is MULTIFIT?

MULTIFIT is a highly effective rehabilitation program for patients who have just had a heart attack, heart bypass surgery, angioplasty or a recent diagnosis of angina. MULTIFIT will support you during your recovery and help you achieve a healthier lifestyle. Designed and researched by Stanford’s Cardiac Rehabilitation Program and Kaiser Permanente, the program helps you lower multiple coronary risk factors so that you can become fit. Hence the name: MULTIFIT.

http://www.permanente.net/homepage/kaiser/pdf/6377.pdf
American Heart Association (AHA), January 2013
“An Active Partnership For the Health of Your Heart”
Remote Cardiac Rehab Program, Iowa City VA
Veteran’s Rural Health Resource Center-Central Region

Project Lead: Bonnie Wakefield, PhD

Following discharge from a cardiac event, traditional rehabilitation is often provided in a hospital setting. This rehab requires the patient to come in for outpatient sessions three times a week for twelve weeks. These travel arrangements and the impact on patient work schedules can make it difficult for them to attend these sessions, especially for Veterans living in rural areas. To address this issue, this pilot program tested the feasibility of Remote Delivery of Cardiac Rehabilitation program in which patients received similar rehabilitation services while in their home.

In other words, the Remote Delivery of Cardiac Rehabilitation program gives patients another option for cardiac rehabilitation. Focused on Veterans who had recently had a myocardial infarction (heart attack), coronary artery bypass graft procedure (CABG), percutaneous coronary intervention (PCI), or stable angina, this program was developed to include the benefits of traditional outpatient programs through a home-based setting. Patients participated in a twelve-week long program consisting of nutrition, exercise, and heart disease educational information. Additionally, patients were provided with materials to aid in lifestyle modifications including a blood pressure cuff, pedometer, peddler, and heart rate monitor. Patients received weekly calls to monitor progress, discuss nutrition, exercise, and heart disease, and how to make appropriate life style and risk factor modifications.

The overwhelming response to this program has been positive. Overall participants were highly satisfied with their care and patient health improved. To help disseminate this program more widely, a toolkit has been created to provide recommendations for program implementation and quality monitoring. This toolkit includes a Program Implementation Manual, a Patient Manual, and a cost analysis spreadsheet and can be provided to interested individuals by contacting the Central Region staff.

http://www.ruralhealth.va.gov/resource-centers/central/cardiac-rehab.asp
Pedometer ($27)

Exercise Peddler ($25)

TheraBand
Conclusions

• Cardiac rehabilitation improves cardiac outcomes

• Vastly underutilized both inside and outside VA

• Geographic distance a major barrier

• Home cardiac rehab and new technologies may improve utilization
Contact Information

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