Cardiac Rehabilitation
Bridging the Gap

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CVD Prevalence

2014 Update - AHA statistics

- > 15 million people with CHD
- 380,000 died of CHD
- 620,000 new MI/year
- 295,000 recurrent MI/year
- 5.1 million Heart Failure
- 397,000 CABG
- 492,000 PCI

Cardiac Rehab - defined

Cardiac Rehabilitation Services:
Comprehensive, long-term programs involving medical evaluation, prescribed exercise, cardiac risk factor modification, education, and counseling. These programs are designed to limit the physiologic and psychological effects of cardiac illness, reduce the risk for sudden death or re-infarction, and control cardiac symptoms, stabilize or reverse the atherosclerotic process, and enhance the psychosocial and vocational status of selected patients.

Cardiac Rehabilitation Clinical Practice Guidelines 1995
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

Economic
- Cost effective?

Improved Health Habits:
- Dietary Habits
- Exercise habits
- Smoking habits
- Body weight
- Lipid profile

Cardiac Rehabilitation Beneficial but Under-Used, Say New AHCPR Guidelines

- "Less than a third of heart patients participate in cardiac rehabilitation programs even though potentially all of them could benefit from the services,"

- "Cardiac rehabilitation should be part of the discharge plans for all heart disease patients," said Dr. Wenger

Clinical Practice Guidelines for Cardiac Rehabilitation 1995

Research Evidence Supporting Benefit of CR

- Decreases Cardiovascular Events
- Improves Modifiable Risk Factors
- Improves Adherence with Preventive Medications
- Improves Function and Exercise Capacity
- Improves Quality of Life
- Fosters Lifelong Healthy Behaviors
- Decreases hospitalizations
- Decreases Mortality at up to 5 years Post Participation
- Most Cost effective treatment
ACC/AHA Guideline Recommendations
Referral to Cardiac Rehabilitation

Due to significant benefits realized from CR –

Class I indication in clinical guidelines for
– Myocardial Infarction
– Percutaneous Coronary Intervention
– Coronary Bypass Grafting
– Chronic stable angina
– Heart failure
– Peripheral arterial disease
– Cardiovascular prevention in women

Referral Patterns
2000-2007

• 156 GWTG Hospitals
• 72,817 patient records
• 56% referred to CR
• Referral by hospital – range 0-100%
  – 35% hosp < 20%
  – 30% hosp > 60%
• GWTG hospitals ↑ compliance with performance measures
• ↓ Referral to CR ↓ Compliance with other measures
  (ASA/ B-blockers /ACE /ARB/ Lipid meds/smoking cessation)
• Referral to CR far ↓ compliance with other measures

Participation Rates
1997 Medicare Data - Reported 2007

• Participation rates universally low (Range 18-34%)
• 18% Received at least 1 session CR
• 31% CAGBS 11% MI

• Geographical differences:
  Low - Idaho 6.6%
  ≤10% S / SE states
  AR/ AL/ MS / KY / GA/ FL / HA / MD / NM/ OK / NC
  High - Nebraska 53.5%
  ≥29% Midwest/ W states
  IA / MN / ND/ SD / WI / WY / MT (30%)
Treatment Gap...

Unacceptable gap between evidence of benefit and receipt of care

Significant problem that 50-80% patients do not receive these benefits

Who is Most Likely to be Referred?

**Highest:**
- CABG / PCI
- Younger
- Male
- Caucasian

**Lowest:**
- More co-morbidities
- Medicare population
- NSTEMI
- Older


Physician Factors Influencing Referral

**Physician Characteristics**
- Medical specialty
- Physician attitude toward CR
  - Perception that those with co-morbidities are unlikely to benefit
  - Degree to which they believe CR is beneficial

**More likely to refer**
- Program accessibility
- Ease of referral process
- Perceived patient motivation and benefit

**Primary predictor of patient enrollment:**
- Physician endorsement and referral
Cardiac Rehab Utilization

CDC Report 2008

- Higher utilization rates seen in:
  - Men
  - White
  - Married
  - Higher income
  - Higher education
  - Living closer to city center

FACTORS INFLUENCING PARTICIPATION

PATIENT REASONS FOR REFUSING CARDIAC REHAB
LOCAL STUDY

• Survey of 155 patients enrolled in CR
• What inspired you MOST to enroll in Cardiac Rehab?

Rated #1

• 45% Physician recommendation
• 15% Wanted to learn to lower my risk
• 14% Received in-patient visit

Predictors of Participation

Medicare Data

• Clinical Factors
  – Co-morbidities \( \uparrow \) Participation
  – CABG \( \uparrow \) Participation

• Socio-economic and geographic
  – Distance to nearest facility
  – Higher levels of median income (23% more likely)
  – Higher levels of education (33% more likely)
  – Minority Status \( \downarrow \)
  – Dual eligibility / Medicare / Medicaid \( \downarrow \)

• System Factors
  – Referred from home (vs nursing home or extended care)
  – Smaller hospitals \( \uparrow \)

Low SES and Barriers to Participation in CR

• Patient
  – Unable to afford
  – Lack of insurance
  – Poor health behaviors

• Work Related
  – Inflexible work schedule
  – Fewer health benefits

• Provider Related
  – May not refer if patient expresses financial concern
  – Sensitivity to poor reimbursement

• System Related
  – Expense
  – Low reimbursement
  – Transportation
  – Poor communication of enrollment process

Minority Status Participation in CR

Barriers:

• Provider Related
  – Poor patient-physician relationship
  – Doubt over receiving equal treatment
  – Lack of diversity among CR Professionals
    • (96% white by AACVR survey)

• Work Related
  • Work conflict cited as reason to withdraw from CR in higher % Black women in urban area
  • Less flexible work schedules
  • Higher economic burden

• Patient related
  – Inability to speak English
  – Inadequate interpreter services
  – Lack of translated materials


Barriers to Participation in Underserved

Minorities / LSES / Less Educated...tend to have...

 Co-morbidities and CVD risk factors
 Health Literacy
 Disease self-management skills
 Insurance coverage
 Transportation
 Social support
  – Inability to take time from work
  – Fewer community resources
  – Different cultural attitudes toward disease and health

Conclusion: More need ......Less Access

Barriers to CR Enrollment for Women

• Strong Caregiver role
• Male dominated classes
• Lack of prior formal physical activity
• Return to home activity quickly – may not see need
• Not referred

** When referred – enroll at same rate as men
OPPORTUNITY

CHALLENGE

Performance Measures
2010 Update

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)

Thomas, Randal J. MD, MS, FAACVPR, FACC, Chair; King, Marjorie MD, FAACVPR, FACC; Lu, Karen RN, MS, FAACVPR; Osaba, John MD, FACMP; Lui, Karen L. MD, FAC, Spanos, John MD, BPH, FACC; ACCFAHA Task Force on Performance Measures

Cardiac Rehabilitation / Secondary Prevention Performance Measure: Set A

Cardiac Rehabilitation Referral from an Outpatient Setting:

1) All hospitalized patients with a qualifying CVD event are referred to an early outpatient CR program prior to hospital discharge.

2) All outpatients with a qualifying diagnosis within the past year who have not already participated in an early outpatient CR program are referred to an early outpatient CR program by their health care provider.
CR Referral Performance Measures

Goals:

- Encourage systematic and innovative referral system
- Incorporate CR Performance Measures into existing Treatment Guidelines
- Hold physicians responsible for these measures

Follow up to Performance Measures

2007-2012 Get With the Guidelines Data

- Referral rates increased 8%
- 72.9% - 80.7%
- Increased in all groups - greatest in white males
- Highest referral rates Midwest / Non-academic / Smaller hospitals

Enhanced Referral Methods

Boston Medical Center -- GWTG Clinical Pathway
Order set not mandatory – but highly encouraged
CR order set includes:

- PT visit prior to discharge
- Patient provided with written referral to a specific program
- Follow up done to determine whether patient enrolled

Predictors of referral:

- Clinical Pathway utilization
- Interaction with health care provider
- PCI
- Younger

55% Referred 19% Enrolled

Mazzini, MJ. Am J Cardiol 2008;101:1084-1087
Methods to Enhance Referral

- **Automated Referral System - Duke**
  - Integrated into physician order entry
  - Clinical reminder for CR
  - Display eligibility criteria
  - If “yes” to eligibility – automatic referral
  - Referral directly to CR program

  *Increased referral from 34-90%

AHA Scientific Advisory
Role of Healthcare Professional

“Calls on the inpatient and home health care teams ... to implement a coordinated effort to promote outpatient CR to eligible patients and to facilitate referral and enrollment”

- Form a multidisciplinary inpatient CR team
- Educate patient on CR benefit
- Assess patient readiness for outpatient CR
- Initiate referral

Referral Strategies

- **Usual** – dependent on physician writing and sending order
  - 6-32%
- **Systematic** – standing order based on eligible diagnosis
  - 19-54% (45%)
- **Liaison** – Health care provider personally facilitates referral process
  - 35-56% (44%)
- **Liaison + Systematic**
  - 53-78% (66%)

Grace, SL et al. JCRP;2011:31:E1-E8
Methods to improve referrals

- Standing Order
- Order Set
- Electronic Order
- Coordination by health care provider during inpatient stay
- Education of health providers / physicians

Increasing CR Participation

- Racial and ethnic minorities
  - Collect accurate data on ethnicity
  - Improve on racial disparity in health care workforce – improves how patients interact with health care services
  - Provide referral information and health information in primary language / interpreter
- Low SES
  - Identify concerns regarding cost and reimbursement during hospital stay
  - Work with patient to determine payment options
  - Consider other - lower cost delivery methods
  - Address work / transportation concerns

Women and CR Enrollment

Barriers to enrollment:
Lower levels of education completed
My physician doesn’t think I need it

Facilitators of enrollment:
Good Education classes
Will teach me to live with heart disease without fear

Self Efficacy**
How likely are you to attend CR? 1-5
Very Likely ......

Sanderson, BK, et al. JCRP. 2010;30:12-21
Gender specific CR Programming

Will attendance and completion improve in program tailored for women?

• Motivational Interviewing
• Readiness to change
• Two 1-hr individual counseling sess (wk 1/6)
• Psycho-educational sessions
  Gender based / relaxation / social support

Beckie, TM and Beckstead, JW. JCRP. 2010;30:147-156

Gender specific CR Programming

Gender Tailored Program

Increased exercise adherence by 4 sessions (28 vs 32)

Education session attendance by 31%

- Eliciting patient preferences and recognizing readiness to change helped to mold program to individual patient
- Encouraged to prioritize health behavior changes
- Social support

Beckie, TM and Beckstead, JW. JCRP. 2010;30:147-156

Interventions to Improve Participation in Cardiac Rehabilitation

• Include enrollment in CR as a quality indicator
  – ACC core measure reporting
  – TJC quality measure
  – Medicare Pay for Performance / Pay for Reporting
    Reward both hospital and referring physicians

• Facilitate referral processes to encourage participation
  – Include referral to cardiac rehab in discharge orders
  – Endorse benefit to patients by providers
  – Mended Hearts chapters provide peer endorsement
  – Provision of sufficient information to patient and cardiac rehabilitation program to facilitate enrollment
Enhancing Referrals and Enrollment

- Make Secondary prevention a high priority in continuum of care
- Educate patients and providers on benefit
- Simplify the referral and enrollment process
- Improve payment for traditional and novel treatment models
- Link reimbursement to compliance with practice standards and performance measures
- Increase program capacity to accommodate improved referral and enrollment

Improving Accessibility and Participation

Delivery Models:
- Traditional Model
- Patient-targeted strategies
  - Letters / phone / internet / texting
- Intensive CR
- Home based / trans-telephonic monitoring
- Phone / clinic based case management / coaching
- Internet based case management

Least Accessible
- Residential
- Hospital / Clinic
- Periodic Clinic Check in
- Trans-telephonic
- Community Based with Medical Supervision
- Technology assisted
- Community based - independent
- Home - independent

Most Accessible
Considerations for Determining Program Model

Clinical
- Risk Level
- Co-morbidities
- Severity of risk factors

Psychosocial
- Motivation
- Self efficacy
- Level of support

Physical
- Distance
- Transportation

Socio-economic
- Education level
- Program cost
- Cultural issues

Overall Effectiveness - Outcomes

Incentive to Increase CR Referral

Value-Based Payment

- Include referral measures in performance initiatives for hospital accountability
- Include CR performance measures in P4P
- Add CR referral to CVD core measures and link to payment
- Include CR in bundled payment for episode of care
- Encourage clinicians to track and report referral and enrollment
Future Opportunities: Integrating CR into continuum of care

Opportunities with Health Care Reform:
Shifts toward:
- Cost Effectiveness
- Continuity of Care
- Preventive Services
- Accountability
- Innovation
- Patient Centered Care

Cardiac Rehab in the new Health Care Environment

Balady, et. al. Referral, Enrollment and Delivery of Cardiac Rehabilitation / Secondary Prevention Programs at Clinical Centers and Beyond: A Presidential Advisory from the AHA
*Circulation, published online, November 14, 2011
http://circ.ahajournals.org/content/early/2011/11/13/CIR.0b013e31823b21e2.citation

Opportunities with Health Care Reform Initiatives

1. Essential Health Benefits
2. Center for Medicare / Medicaid Innovation (CMMI)
3. Accountable Care Organizations
4. Patient Centered Medical Home
5. Dual Eligibles
6. Shared Decision Making
7. Wellness Visits and Health Screening
8. Health Disparities
Summary

• CR has proven effectiveness – clinical, psychosocial, behavioral and in improving morbidity and mortality
• Despite evidence of effectiveness, CR is significantly underused
• To enhance patient benefit, referral and enrollment practices must be improved
• Referral can be improved by educating providers and automating the referral process
• Multiple methods of encouraging enrollment and completion have proven successful and focus on improving accessibility and individualizing program options to meet patient needs

THANK YOU!