

Intensive Cardiac Rehabilitation



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Financial Disclosures

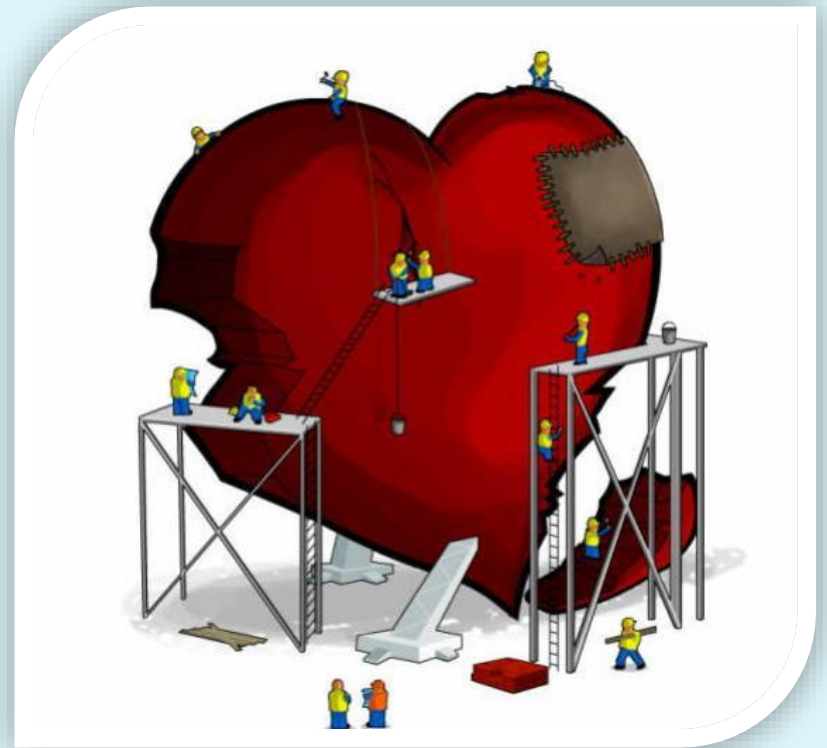


- None to disclose.

Overview



- Evolution of Cardiac Rehab and Influence of Lifestyle Medicine
- Introduction to Intensive Cardiac Rehabilitation (ICR)
- Overview of ICR Programs
- Areas of Consideration for Potential Partners

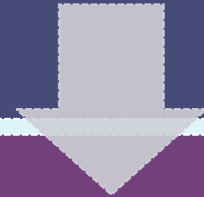


Evolution of Cardiac Rehabilitation



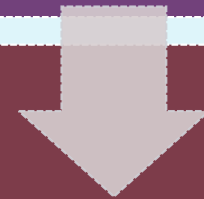
1930s-1950s—Development of Cardiac Rehab

- Bedrest after acute myocardial infarction (AMI)
- Chair therapy introduced, walking incorporated



1970s—Structured Physical Exercise

- Exercise Alone—ECG-monitored exercise



Over Time to Present—Cardiac Risk Factor Modification

- Reducing lipids, blood pressure, weight
- Smoking cessation
- Nutrition counseling
- Psychosocial support

Influence of Lifestyle Medicine



- Definition

- The integration of lifestyle practices into medicine
- Scientific, evidence-based guidelines
- Lower risk factors for chronic disease
- Accommodate recovery, treatment, and/or management of conditions



Introduction to ICR



Traditional Cardiac Rehabilitation

- 36 sessions
- 36 week limit
- 2 session limit per day
- Outpatient format
- Supervising Physician
- Individualized treatment plan
- ECG Monitored Exercise
- Limited lifestyle education
- Traditionally unprofitable
- CHF approved

Intensive Cardiac Rehabilitation

- 72 sessions
- 18 week limit
- 6 session limit per day
- Outpatient format
- Supervising Physician
- Individualized treatment plan
- ECG Monitored Exercise
- Comprehensive lifestyle education
- Sustainable

Intensive Cardiac Rehabilitation



- **Qualifying Events or Conditions**
 - **Acute myocardial infarction**
 - ✦ Within the preceding 12 months only
 - **Coronary artery bypass graft surgery**
 - ✦ No time limit
 - **Percutaneous transluminal coronary angioplasty or stenting procedure**
 - ✦ No time limit
 - **Current stable angina pectoris**
 - ✦ No time limit
 - **Heart or heart-lung transplant**
 - ✦ no time limit
 - **Heart valve repair or replacement**
 - ✦ No time limit



CMS Approval Stipulations



- An ICR program must show, in peer-reviewed published research, that it accomplished one or more of the following for its patients:
 1. Positively affected the progression of coronary heart disease
 2. Reduced the need for coronary bypass surgery
 3. Reduced the need for percutaneous coronary interventions

CMS Approval Stipulations Continued



- The ICR program must also demonstrate through peer-reviewed published research that it accomplished a statistically significant reduction in *five or more* of the following measures for patients from their levels before cardiac rehabilitation services to after cardiac rehabilitation services:
 1. Low density lipoprotein
 2. Triglycerides
 3. Body mass index
 4. Systolic blood pressure
 5. Diastolic blood pressure
 6. The need for cholesterol, blood pressure, and diabetes medications

Medicare Reimbursement Rates for ICR



	Traditional Cardiac Rehab		Intensive Cardiac Rehab (ICR)	
	Physician Office	Hospital	Physician Office	Hospital
Visits Covered	36	36	72	72
2014 Approximate Medicare Payment	\$17 - \$25	\$103	\$103	\$103
Program Availability	No restrictions		Ornish Program for Heart Disease Reversal (Healthways) Pritikin Program (Pritikin) Benson-Henry Institute Cardiac Wellness Program (Massachusetts General Hospital)	

Source: Newsad, N, "Cardiac rehab emerges as readmission reduction solution as Medicare targets hospital readmissions with payment policies," Becker's Hospital Review, <http://www.beckershospitalreview.com/quality/cardiac-rehab-emerges-as-readmission-reduction-solution-as-medicare-targets-hospital-readmissions-with-payment-policies.html>

New ICR Reimbursement Rate



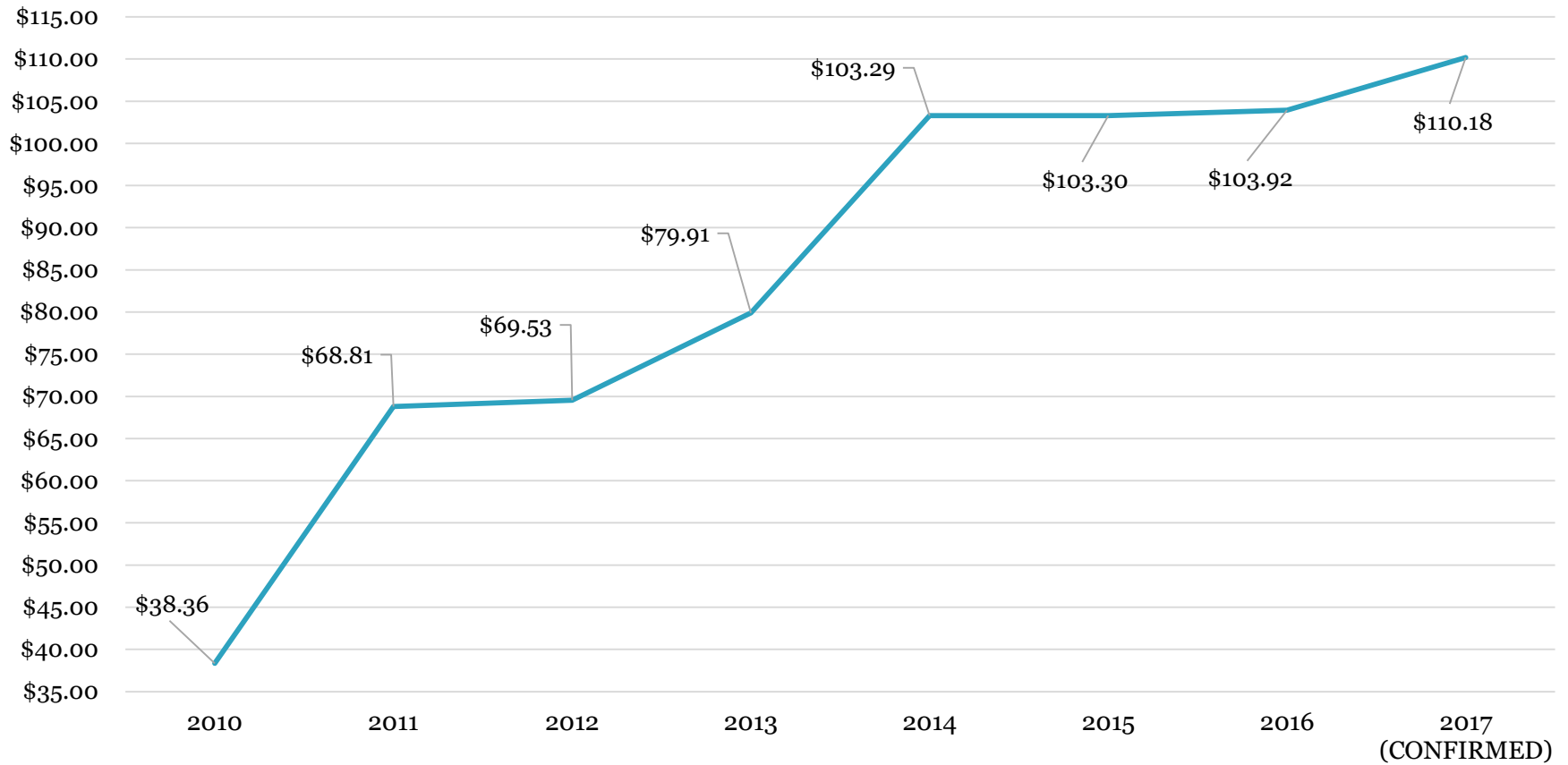
- **CMS'S CALENDAR YEAR 2017 HOSPITAL OUTPATIENT REIMBURSEMENT RATE:**
 - CMS has announced a new national average rate of \$110.24 per ICR session, effective January 1, 2017

HCPCS Code	Short Descriptor	CI	SI	APC	Relative Weight	Payment Rate	National Unadjusted Copayment	Minimum Unadjusted Copayment
G0422	Intens cardiac rehab w/exerc		S	5771	1.4717	\$110.24	.	\$22.05
G0423	Intens cardiac rehab no exer		S	5771	1.4717	\$110.24	.	\$22.05

Medicare ICR Reimbursement Rates Over Time



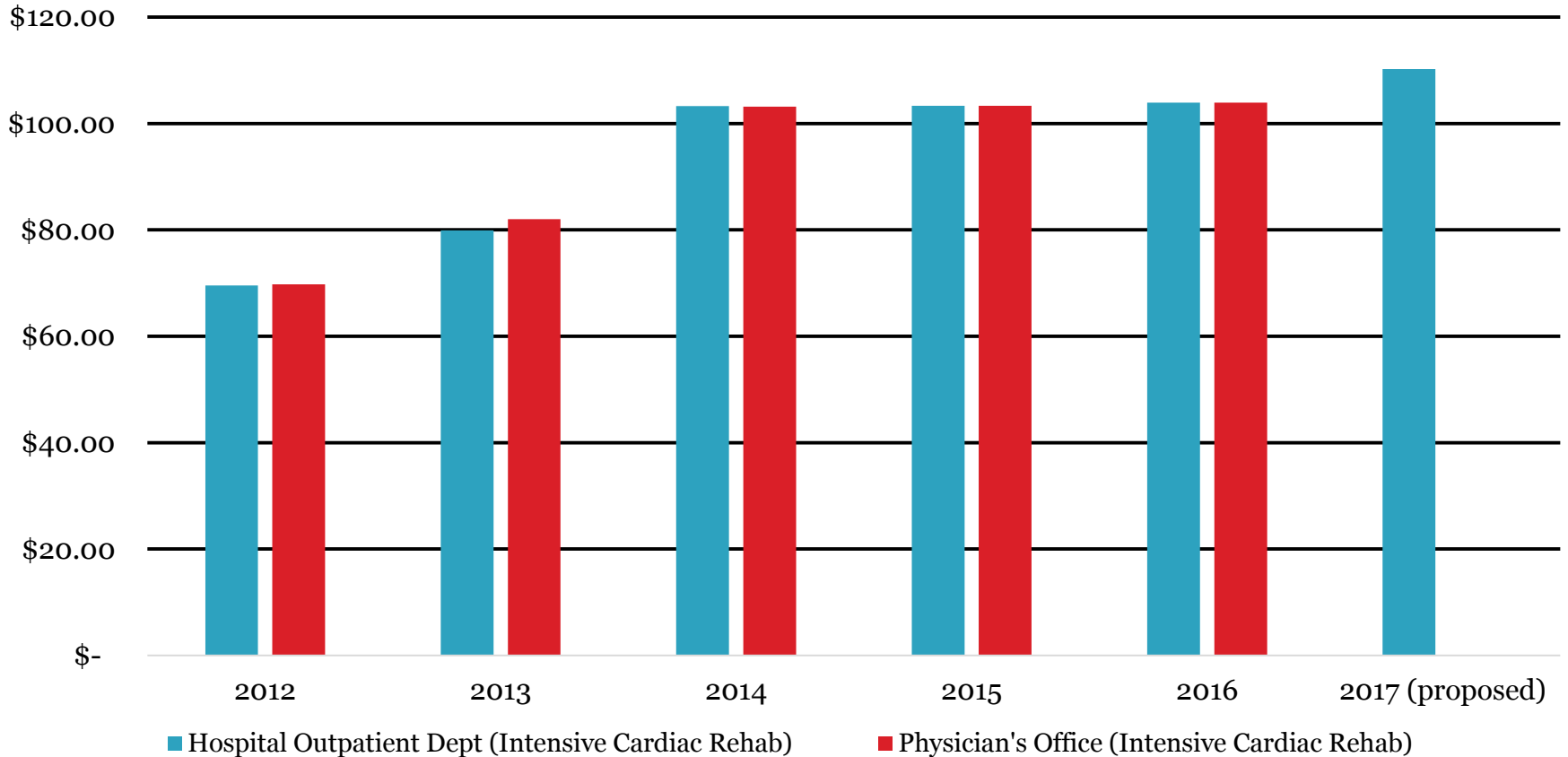
Hospital Outpatient Dept (Intensive Cardiac Rehab)



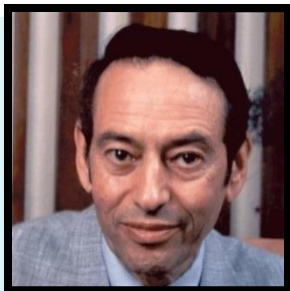
Medicare ICR Reimbursement Comparisons



Hospital Outpatient Reimbursement Comparison



Overview of ICR Programs



- Pritikin Program
 - ✦ Effective date 08/12/2010



- Dr. Ornish's Program for Reversing Heart Disease
 - ✦ Effective date 08/12/2010



- Benson-Henry Institute Cardiac Wellness Program
 - ✦ Effective date 05/06/2014

Nathan Pritikin



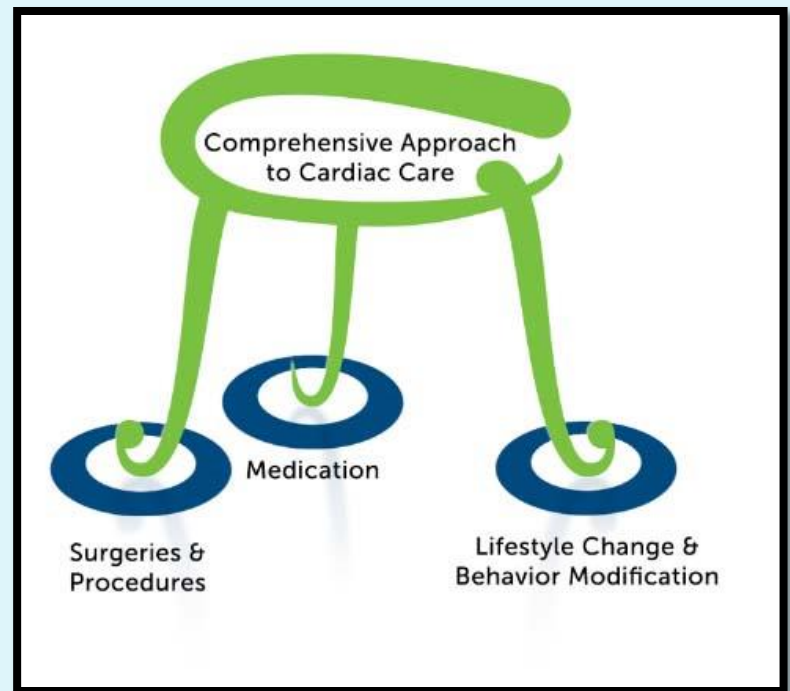
- Nathan Pritikin–1950s
 - Personal History
 - ✦ Serious coronary problems at 40 years old
 - ✦ Changed his diet to follow after the diet of the Tarahumara Indians
 - ✦ Reduced his serum cholesterol from 280 mg/dL to 122 mg/dL within 3 years
 - Lectured in Santa Barbara
 - Development of Pritikin Longevity Program
 - Autopsy in 1985
 - ✦ “...near absence of atherosclerosis and the complete absence of its effects...” (Hubbard et al., 1985)



Pritikin Intensive Cardiac Rehab



- 40 years of expertise
- Over 100 peer-reviewed published studies
- Licensed to providers and easy to implement
- Opportunity for improved outcomes, reduced readmissions, and enhanced revenue and program sustainability



Pritikin Program Pillars



**Regular
Exercise**



**Healthy
Eating Plan**



**Healthy
Mind-Set**



The Pritikin Eating Plan



- **Predominately plant-based**
 - Minimally processed vegetables, fruits, whole grains, starchy vegetables, and plant-based proteins
- **Modest amount of animal foods**
 - Egg whites, nonfat dairy and dairy substitutes
 - Lean protein-rich animal foods
 - ✦ ≤ 1 serving (3.5 to 4 oz.)/ day
 - Omega-3-rich fish at least 2x/week
 - White meat poultry, game meat ≤ 1 x wk
 - Other lean red meat ≤ 1 x mo.
- **Low in sodium**
 - ✦ ≤ 1500 mg sodium/day
 - ✦ A 1:1 calorie to mg sodium ratio in packaged foods
- **Low in all added and refined fats**
 - No more than 20% calories from fat in packaged foods
 - No more than 1 teaspoon (oil)/1000 calories consumed
- **Low in added sugar**
 - No sugar in the first 3-5 ingredients of packaged foods



CMS Analysis – Pritikin ICR



- An ICR program must show, in peer-reviewed published research, that it accomplished one or more of the following for its patients:
 1. Positively affected the progression of coronary heart disease
 2. Reduced the need for coronary bypass surgery
 3. Reduced the need for percutaneous coronary interventions
- YES
 - Research by Barnard and colleagues (1983)
 - ✦ Small sample size(n=64), long term follow up—all recommended for bypass prior to enrollment
 - ✦ Four deaths in five years (6%)
 - ✦ Twelve patients had bypass surgery after five years (19%)

CMS Analysis Continued – Pritikin ICR



- Studies by Sullivan and colleagues (2006) and studies by Roberts and colleagues (2002, 2006)
 - Participation in Pritikin Program—significant reductions:
 - ✦ Low density lipoprotein
 - ✦ Triglycerides
 - ✦ Body Mass Index
 - ✦ Systolic blood pressure
 - ✦ Diastolic blood pressure

- Studies by Barnard and colleagues (1992, 1997)
 - Participation in Pritikin Program—significant reductions:
 - ✦ Low density lipoprotein
 - ✦ Triglycerides
 - ✦ Body Mass Index
 - ✦ Systolic blood pressure
 - ✦ Diastolic blood pressure
 - ✦ Medication use

A Typical Day with Pritikin ICR



- **Pritikin ICR**

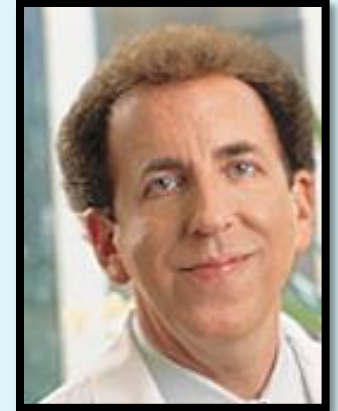
- Typically two sessions a day/ three times a week
 1. ECG monitored cardiovascular exercise and stretching
 - Yoga available after regular exercise
 2. Education
 1. Class offering for the day
 - a. Nutrition class
 - b. Cooking class
 - c. Healthy mind-set class
 2. Pritikin video
- Various class times throughout the week
 - ✦ Convenient for working individuals
 - ✦ Efficient with two hour time blocks
- Consistent scheduled class groups
 - ✦ Develops community
 - ✦ Predictability for patients and staff



Dr. Ornish's Program for Reversing Heart Disease ®



- Dr. Dean Ornish, MD, –1970s
 - The Ornish Program for Reversing Heart Disease
 - ✦ Multisite Cardiac Lifestyle Intervention Program and the Lifestyle Heart Trial Program was initially described in the 1970s
- 37 years of scientific evidence
 - Conducted by Dr. Ornish, MD, and colleagues in collaboration with the UC San Francisco and other leading academic institutions



Dr. Ornish's Program for Reversing Heart Disease ®



- Healthways
 - Certifies sites
 - Trains multidisciplinary teams
 - Annual re-certification
- Increasing number of commercial payer coverage
- Opportunity for strategic service line development
- Proven clinical outcomes and reduced readmissions



Four Lifestyle Elements



**Eat
Well**



**Move
More**



**Stress
Less**



**Love
More**



Ornish Lifestyle Medicine™ Dietary Guidelines



- Eat mostly plants in their natural form
 - Vegetables, fruits, whole grains, legumes, and soy
- Eat mostly plant-based proteins
 - Non-fat dairy foods (≤ 2 servings/day) and egg whites
 - Tofu, tempeh, beans, and legumes
 - Meat, poultry, fish and any products made from these foods are eliminated
- Limit bad carbs
 - Refined carbs, white flour, white rice, sugar, and concentrated sweeteners
- 4 grams of good fat a day
 - Fish oil, flaxseed oil, nuts, seeds, and plankton based omega-3 fatty acids
- Moderate salt use
 - Spices, herbs, citrus and vinegars are encouraged
- Caffeine
 - Up to 2 cups of green tea a day
 - Coffee limited to 1 cup or 2 cups of decaf or 2 cups of black tea a day



CMS Analysis – Ornish Program



- An ICR program must show, in peer-reviewed published research, that it accomplished one or more of the following for its patients:
 1. Positively affected the progression of coronary heart disease
 2. Reduced the need for coronary bypass surgery
 3. Reduced the need for percutaneous coronary interventions

- YES
 - The Lifestyle Heart Trial–(Ornish et al., 1998)
 - ✦ Small sample size (n=43)
 - ✦ Significant regression of coronary atherosclerosis measured by angiography
 - Multicenter Lifestyle Demonstration Project–(Ornish et al., 1998)
 - ✦ Reduction in revascularization at 3 year follow-up
 - ✦ Continued reduction in revascularization at 5 year follow-up
 - Usual care group had a 2.5 times greater risk of cardiac events
 - 87.9% of people who began the 73 hr program were still following the program one year later (Ornish, 2011)

CMS Analysis Continued – Ornish Program



- The Multisite Cardiac Lifestyle Intervention Program
(Daubenmeir et al., 2007; Frattaroli et al., 2008; Silberman et al., 2010)
 - Participation in Ornish Program—significant reductions:
 - ✦ Low density lipoprotein
 - ✦ Triglycerides
 - ✦ Body Mass Index
 - ✦ Systolic blood pressure
 - ✦ Diastolic blood pressure

- The Lifestyle Heart Trial—(Ornish et al., 1983, 1990, 1983)
 - Participation in Ornish Program – significant reductions:
 - ✦ Low density lipoprotein
 - ✦ Triglycerides
 - ✦ Body Mass Index
 - ✦ Systolic blood pressure
 - ✦ Diastolic blood pressure
 - ✦ Medication use

A Typical Day with the Ornish Program



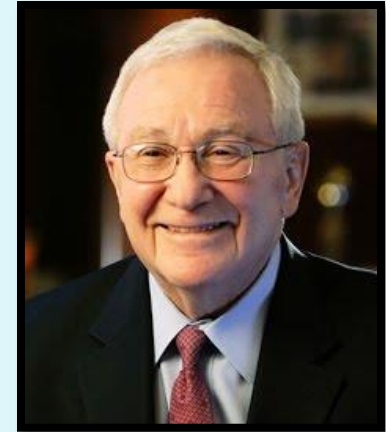
- The Ornish Program
 - Delivered over the course of nine weeks
 - ✦ Four hour sessions twice a week—18 sessions total
 - Exercise
 - Group support
 - Stress workshop
 - Curative yoga at the end
 - Nutrition lecture over mealtime
 - ✦ Cohort groups
 - 8-16 patients
 - Small and consistent
 - Develops close community
 - Adequate staff attention and follow through
 - ✦ Alumni groups after completion



Benson-Henry Intensive Cardiac Rehabilitation



- Dr. Herbert Benson, MD, –1960s
 - Relaxation Response researcher
 - Connection between stress and hypertension
 - Disease prevention through self care and healthy lifestyle choices
 - Between 60-90% of healthcare visits are related to stress



CMS Analysis – Benson-Henry Program



- An ICR program must show, in peer-reviewed published research, that it accomplished one or more of the following for its patients:
 1. Positively affected the progression of coronary heart disease
 2. Reduced the need for coronary bypass surgery
 3. Reduced the need for percutaneous coronary interventions

- YES
 - Medicare Lifestyle Modification Program Demonstration–(Zeng, 2013)
 - ✦ Mortality rate was lower at one year and three years compared to controls – specific hospital diagnoses not reported
 - ✦ Reductions in all-cause mortality and cardiovascular mortality
 - Medicare Lifestyle Modification Program Demonstration–(Shepard/Stason, 2009)
 - ✦ Reduction in death hazard among participants
 - ✦ Not fully published in a peer-reviewed journal

CMS Analysis Continued – Benson-Henry



- **Journal of Cardiopulmonary Rehabilitation and Prevention**
(Casey, 2009)
 - Participation in Benson-Henry–significant reductions:
 - ✦ Low density lipoprotein
 - ✦ Triglycerides
 - ✦ Body Mass Index
 - ✦ Systolic blood pressure
 - ✦ Diastolic blood pressure
- **Journal of Alternative and Complementary Medicine**
(Dusek, 2008)
 - Participation in Benson-Henry–significant reductions:
 - ✦ Systolic blood pressure
 - ✦ Medication use

Transition Time for Benson-Henry ICR



- Partnership with Massachusetts General Hospital
 - Benson-Henry ICR team trained group at Mass. General
 - Restructuring program to launch at Mass. General
- Anticipated Program Structure
 - Three hours once a week
 - ✦ Cardiac exercise
 - ✦ Stress management and meditation
 - ✦ Nutrition counseling and classes



BENSON-HENRY INSTITUTE FOR MIND BODY MEDICINE AT
MASSACHUSETTS GENERAL HOSPITAL

A background image showing a man and a woman in a gym setting. The man is on the left, wearing a dark purple polo shirt and light-colored pants, smiling. The woman is in the foreground, wearing a blue sleeveless polo shirt, also smiling. They appear to be on a treadmill. The image is slightly blurred and has a light blue overlay.

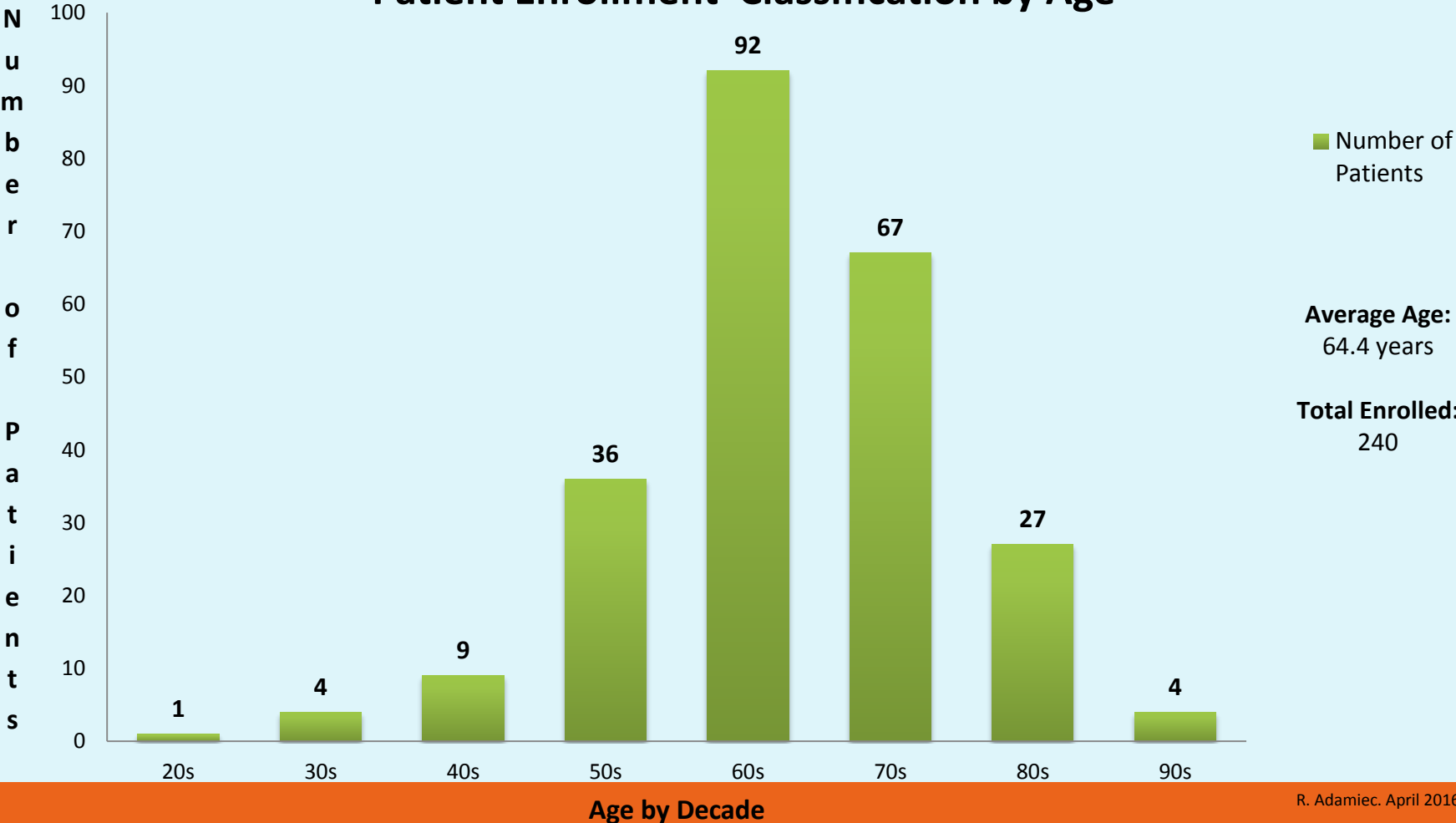
OHH Outpatient Cardiac Rehabilitation

**Established
November 3rd, 2014**

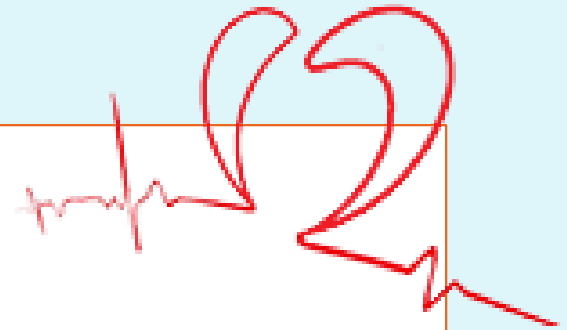
Our Patient Population



Current OHH Outpatient Cardiac Rehab Patient Enrollment Classification by Age



Sample Patient Outcomes



Male - 59 Years Old

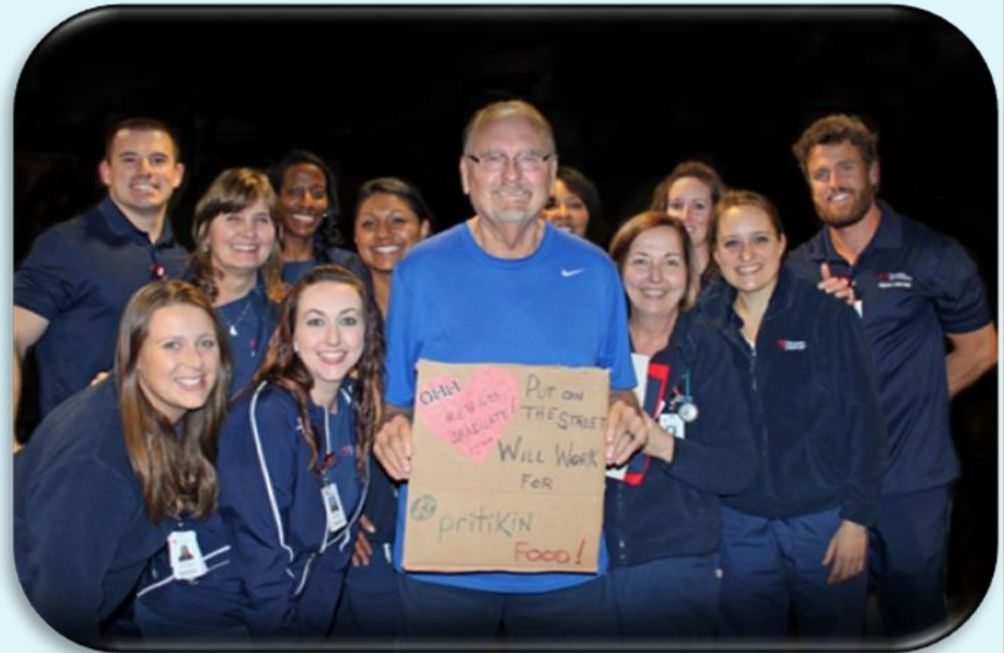
MI/Stent RCA

	Pre Rehab	Post Rehab	% Improvement
Total Cholesterol	123	100	18
Non-HDL	92	46	50
HDL	31	54	74
Triglycerides	198	68	65
HA1C	11.4	5.8	49
Weight	196.4	175	10
Body Fat	26.31	20.8	5
Waist	40.5	36	9
BMI	30.8	27.4	10
VO2 Max	22.4	49.1	83

Support on All Levels



- Doctor's automatic referral
- Staff visits to inpatients with referral
- Hospital's inpatient menu – Pritikin offerings
- Orientation classes
- Initial evaluation
- Monthly newsletter
- Supportive environment
- Phase III for graduates



Why Intensive Cardiac Rehabilitation



- Supported by peer-reviewed evidence
- Integrative patient centered care
- Comprehensive education and exercise
- Evidence of patient adherence and benefit
- Opportunity for improved outcomes
- Opportunity for reduced readmissions
- Opportunity for reduced healthcare costs



Areas of Consideration for Potential Partners



- Considerations
 - Hospital culture and processes
 - City/state openness
 - Physician agreement
 - Patient population response
 - Contractual commitment
 - Changes in healthcare
 - Healthcare costs and readmissions



CHANGED LIVES!



Thank You Questions?



**FOR ADDITIONAL QUESTIONS
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FOR MORE ABOUT ICR:

PRITIKIN ICR: [HTTP://WWW.PRITIKINICR.COM/](http://www.pritikinicr.com/)

ORNISH ICR: [HTTPS://WWW.ORNISH.COM/](https://www.ornish.com/)

BENSON-HENRY ICR: [HTTP://BENSONHENRYINSTITUTE.ORG/](http://bensohenryinstitute.org/)