INSUFICIÊNCIA CARDÍACA CRÔNICA: QUANTO CUSTA NÃO REABILITAR?

Daniel Arkader Kopiler

INC 38 Anos

SOCIEDADE BRASILEIRA de MEDICINA do ESPORTE

VITACOR CLÍNICA DE MEDICINA DO EXERCÍCIO

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

American Heart Association®

AHA Statistical Update

Heart Disease and Stroke Statistics—2012 Update

A Report From the American Heart Association

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Circulation. 2012;125:e2-e220

MORTE POR DOENÇA CARDIOVASCULAR (USA – 2008)

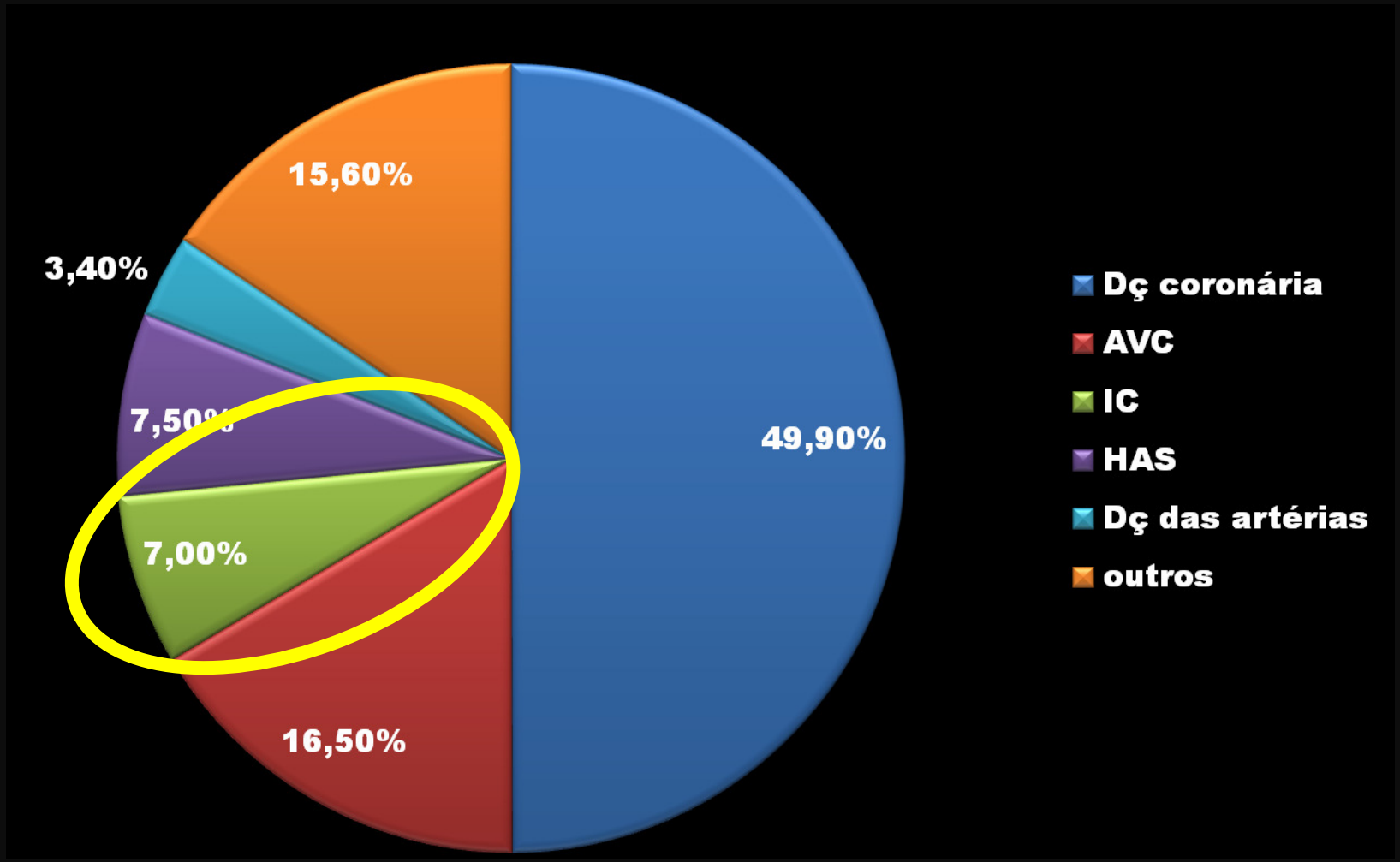


Chart 3-5. Percentage breakdown of deaths attributable to cardiovascular disease (United States: 2008). Source: National Heart, Lung, and Blood Institute from National Center for Health Statistics reports and data sets. *Not a true underlying cause. With any mention deaths, heart failure accounts for 35% of cardiovascular disease deaths. Total may not add to 100 because of rounding. Coronary heart disease includes International Classification of Diseases (ICD), 10th Revision codes I20–I25; stroke, I60–I69; heart failure, I50; high blood pressure, I10–I13; diseases of the arteries, I70–I78; and other, all remaining ICD I categories.

PREVALÊNCIA DE IC – SEXO e IDADE
(National Health and Nutrition Examination Survey)

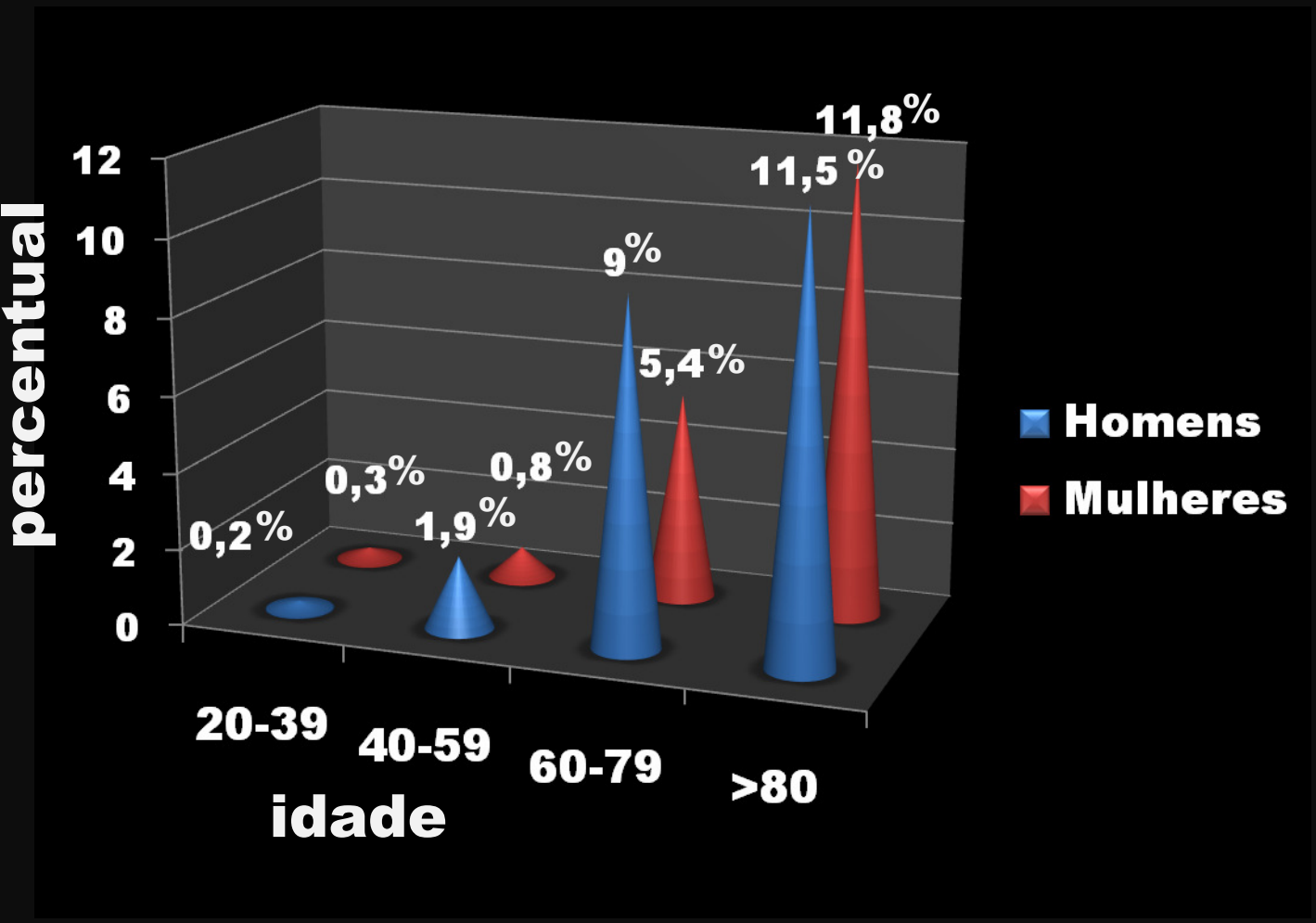


Chart 9-1. Prevalence of heart failure by sex and age (National Health and Nutrition Examination Survey: 2005–2008). Source: National Center for Health Statistics and National Heart, Lung, and Blood Institute.

ALTA HOSPITALAR da IC – por SEXO
(USA: 1979-2009)

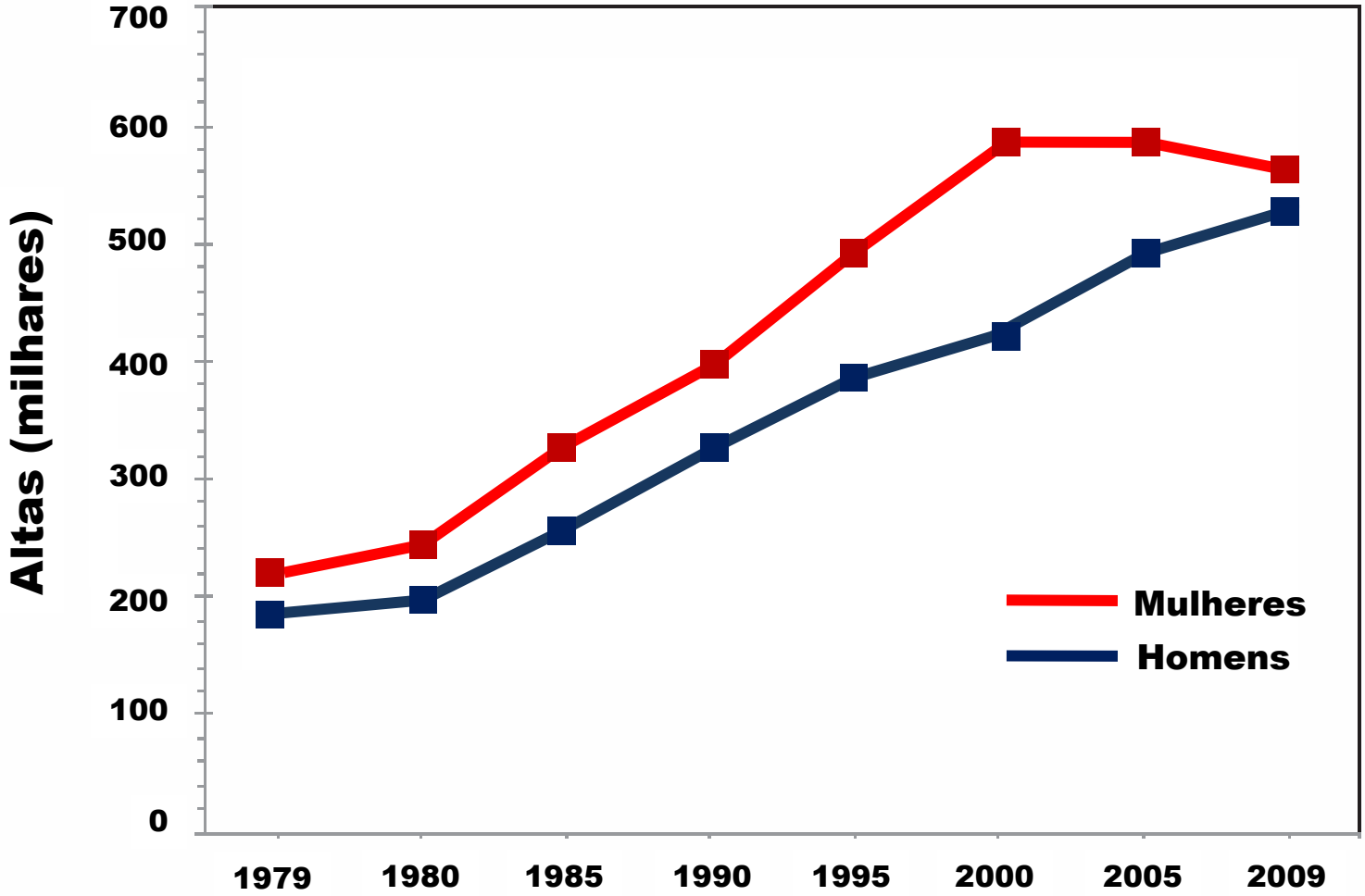


Chart 9-3. Hospital discharges for heart failure by sex (United States: 1979–2009). Note: Hospital discharges include people discharged alive, dead, and status unknown. Source: National Hospital Discharge Survey/National Center for Health Statistics and National Heart, Lung, and Blood Institute.

Mais de 4 milhões de beneficiários de planos de saúde tem o diagnóstico de insuficiência cardíaca.

Após hospitalização por IC:

- **1/4 pacientes readmitidos em 30 dias**
- **2/3 pacientes readmitidos em 1 ano**

PROSPECÇÃO de CUSTOS das DCV

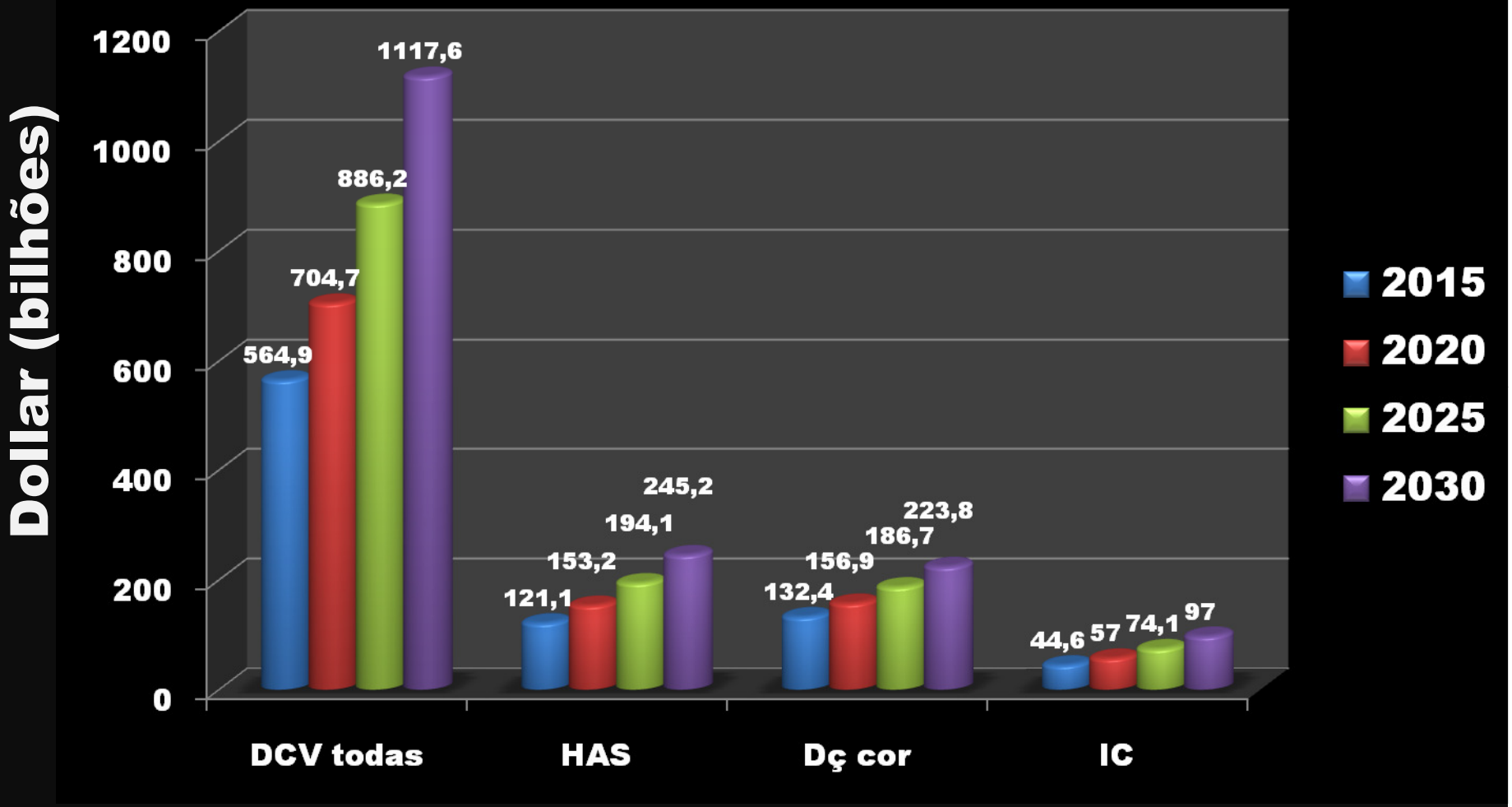
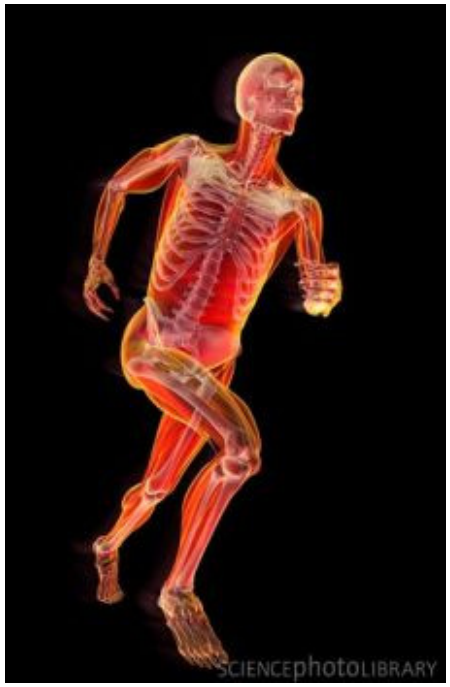


Chart 23-3. Projected total costs of cardiovascular disease (CVD), 2015–2030 (in billions 2008$) in the United States. CHD indicates coronary heart disease; HF, heart failure. Data derived from Heidenreich et al[8] with permission of the publisher. Copyright © 2011, American Heart Association.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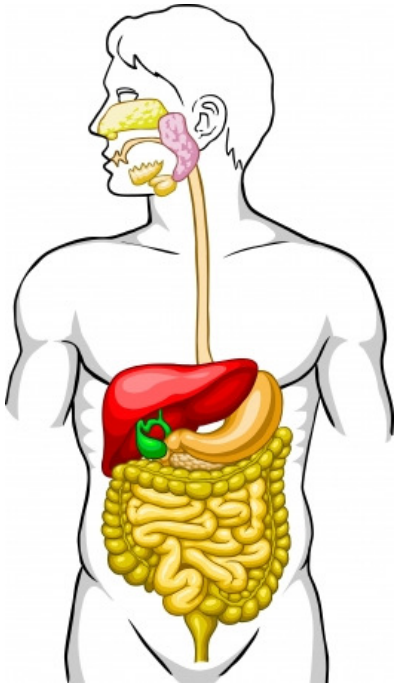
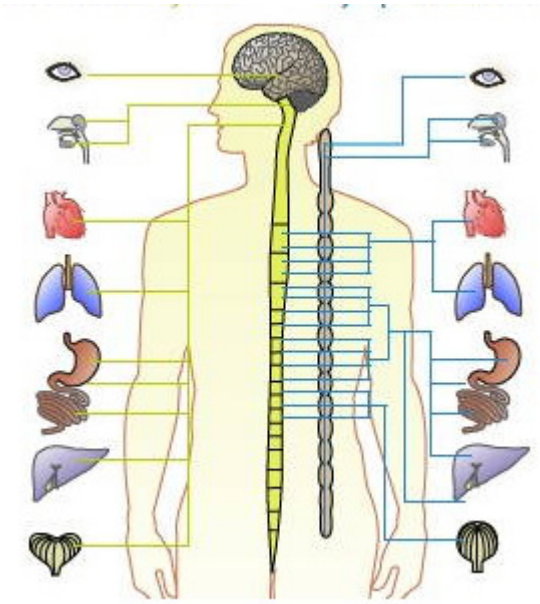
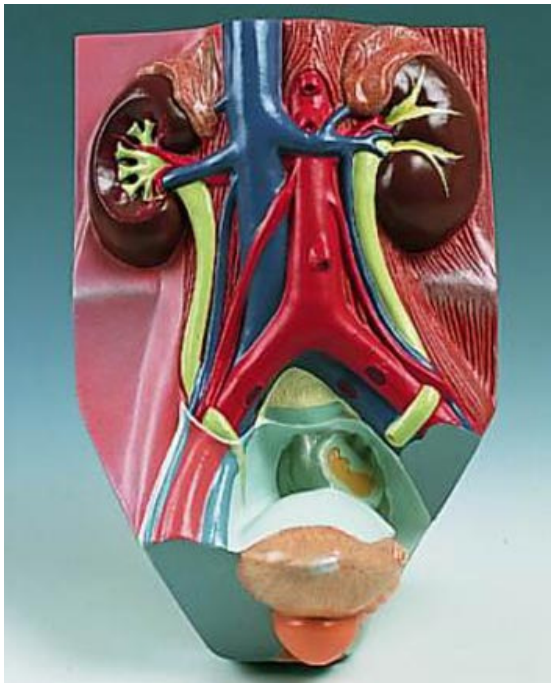






Economic Evaluation of the HF-ACTION (Heart Failure: A Controlled Trial Investigating Outcomes of Exercise Training) Randomized Controlled Trial

An Exercise Training Study of Patients With Chronic Heart Failure

Shelby D. Reed, PhD; David J. Whellan, MD, MHS; Yanhong Li, MD, MS; Joëlle Y. Friedman, MPA; Stephen J. Ellis, PhD; Ileana L. Piña, MD; Sharon J. Settles, MS; Linda Davidson-Ray, MA; Johanna L. Johnson, MS; Lawton S. Cooper, MD, MPH; Christopher M. O'Connor, MD; Kevin A. Schulman, MD; for the HF-ACTION Investigators*

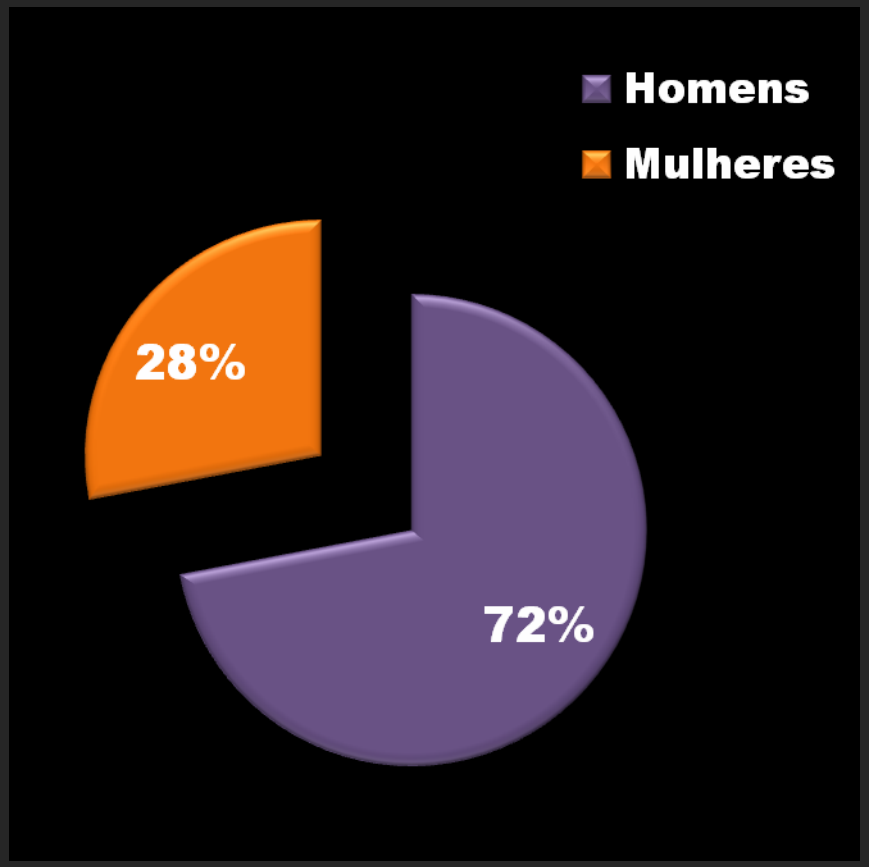
Background—Heart Failure: A Controlled Trial Investigating Outcomes of Exercise Training (HF-ACTION) assigned 2331 outpatients with medically stable heart failure to exercise training or usual care. We compared medical resource use and costs incurred by these patients during follow-up.

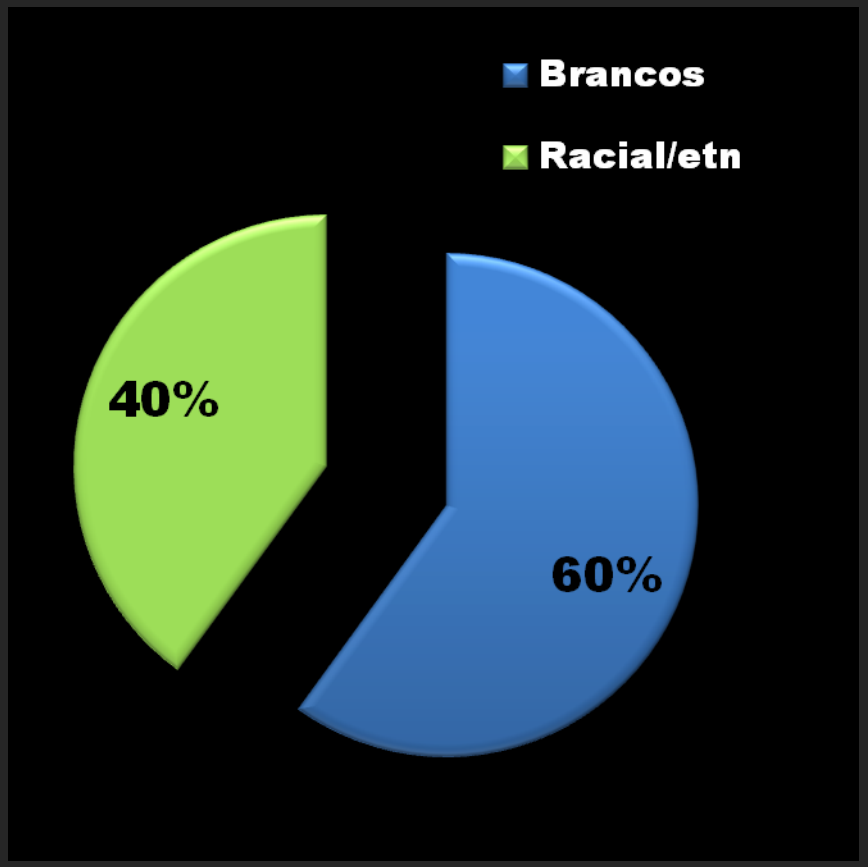
Methods and Results—Extensive data on medical resource use and hospital bills were collected throughout the trial for estimates of direct medical costs. Intervention costs were estimated using patient-level trial data, administrative records, and published unit costs. Mean follow-up was 2.5 years. There were 2297 hospitalizations in the exercise group and 2332 in the usual care group ($P=0.92$). The mean number of inpatient days was 13.6 (standard deviation [SD], 27.0) in the exercise group and 15.0 (SD, 31.4) in the usual care group ($P=0.23$). Other measures of resource use were similar between groups, except for trends indicating that fewer patients in the exercise group underwent high-cost inpatient procedures. Total direct medical costs per participant were an estimated $50 857 (SD, $81 488) in the exercise group and $56 177 (SD, $92 749) in the usual care group (95% confidence interval for the difference, $−12 755 to $1547; $P=0.10$). The direct cost of exercise training was an estimated $1006 (SD, $337). Patient time costs were an estimated $5018 (SD, $4600).

Conclusions—The cost of exercise training was relatively low for the health care system, but patients incurred significant time costs. In this economic evaluation, there was little systematic benefit in terms of overall medical resource use with this intervention.

Circ Cardiovasc Qual Outcomes. 2010;3:374-381

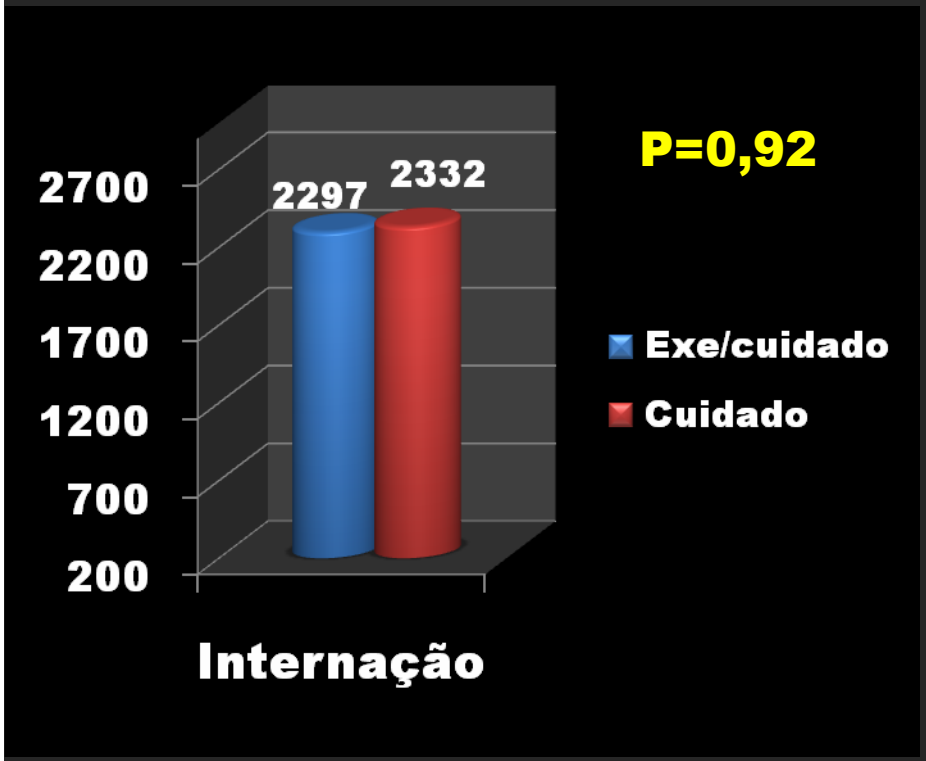
2331 pacientes
Mediana da Idade 59 anos
Follow-up 2,5 anos

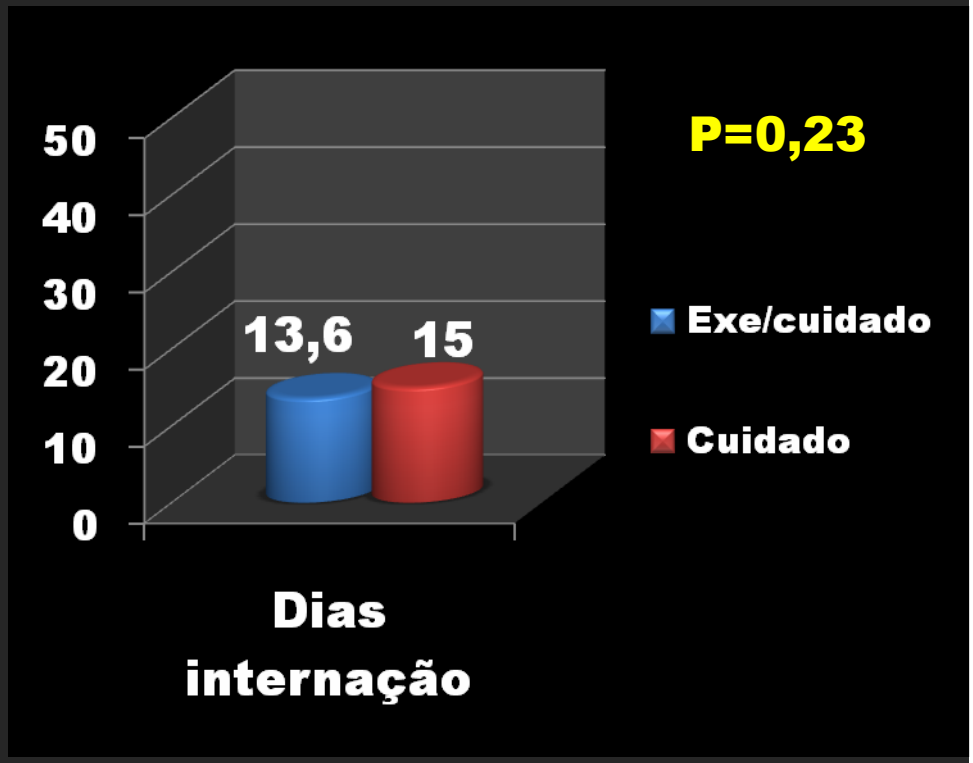




- Fração de ejeção ≤ 35%
- Classe funcional II-III
- Estudo randomizado:
  - Exercícios + cuidados gerais
  - Cuidados gerais
- Orientação: enfermagem + material
- Exercícios 30 min – maior nº vezes
- Intensidade moderada

INTERNAÇÕES
Total 4629





Hospitalização na IC: Todas as causas e ligadas a insuficiência cardíaca

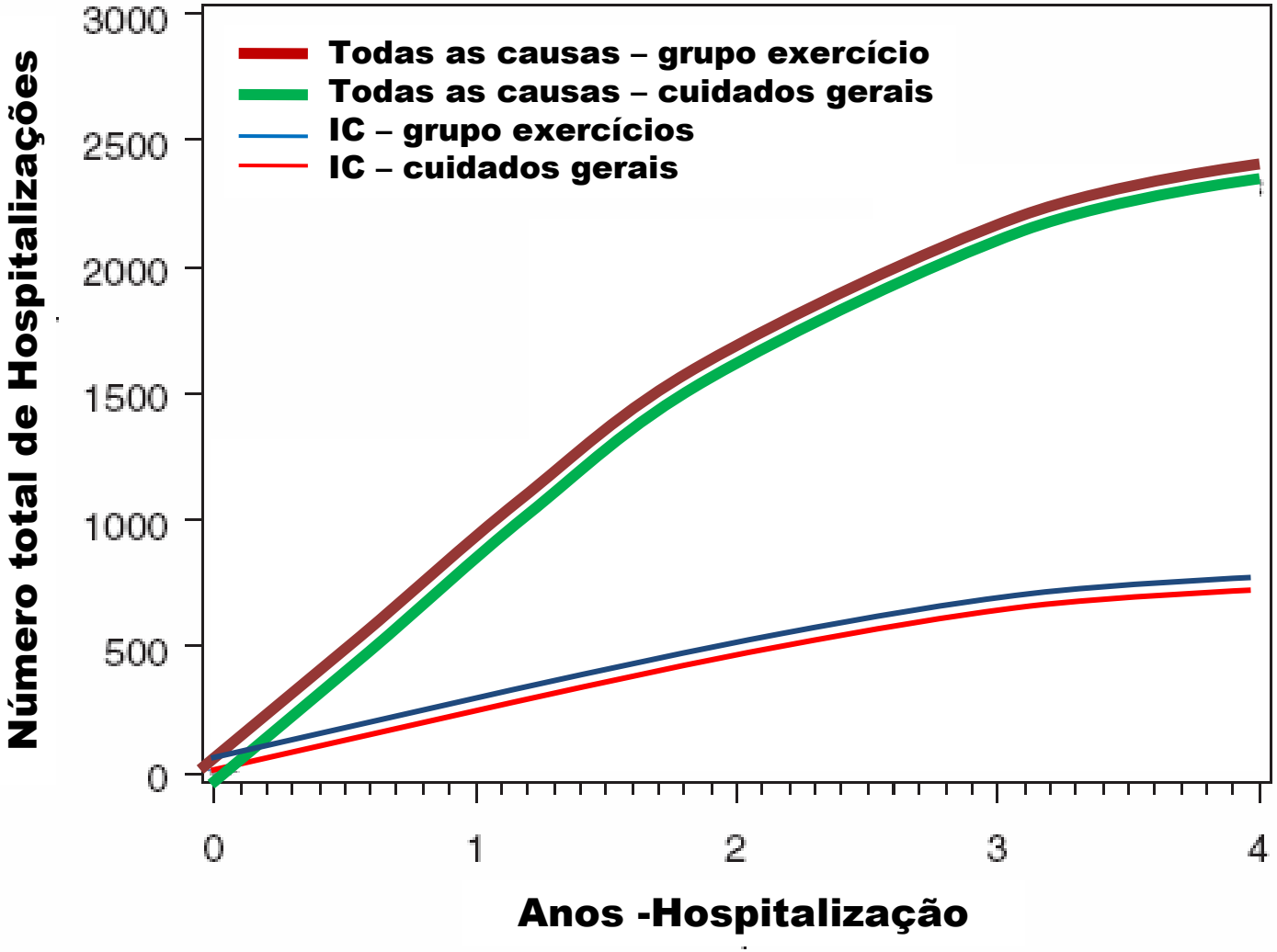


Figure 1. Cumulative counts of all-cause and heart failure

Procedimentos de alto custo e curta internação:

- PTCA + stent (qualquer um)
- CDI + Marcapasso (MP)
- Marcapasso
- MP biventricular ou ressincronização
  - sem significância estatística
- CDI colocação ou retirada
  - P= 0,003

Visitas médicas:

- Urgência – similar entre os grupos
- Eletiva
  - > grupo dos exercícios
  - Cardiologia e ortopedia
  - Clínico geral
  - Outras especialidade
- Exercícios + cuidados gerais
  - Poucos transplantes
  - Poucos “devices” de assistência de VE

Custos:

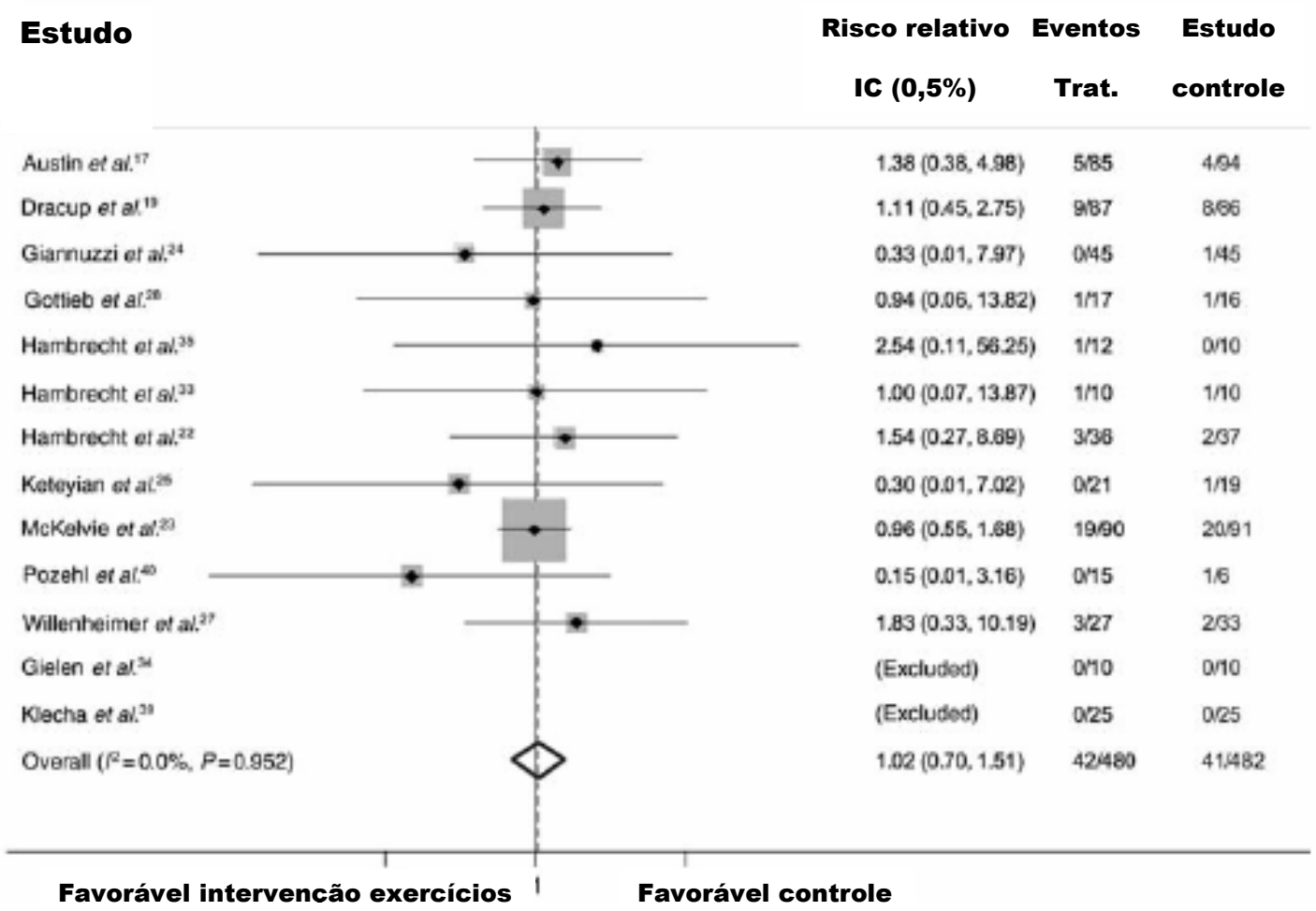
- + $50000 – custo médico direto por grupo
- Mais da metade internações e 1/6 medic
- Exercício – menos $4300
- Ajuste:
  - Tempo gasto
  - Transporte
  - Estacionamento
  - Diferença estatística desaparece
- Conclusão e limitações

Determinar os efeitos do treinamento com exercícios nos eventos clínicos e qualidade de vida nos pacientes com insuficiência cardíaca sistólica

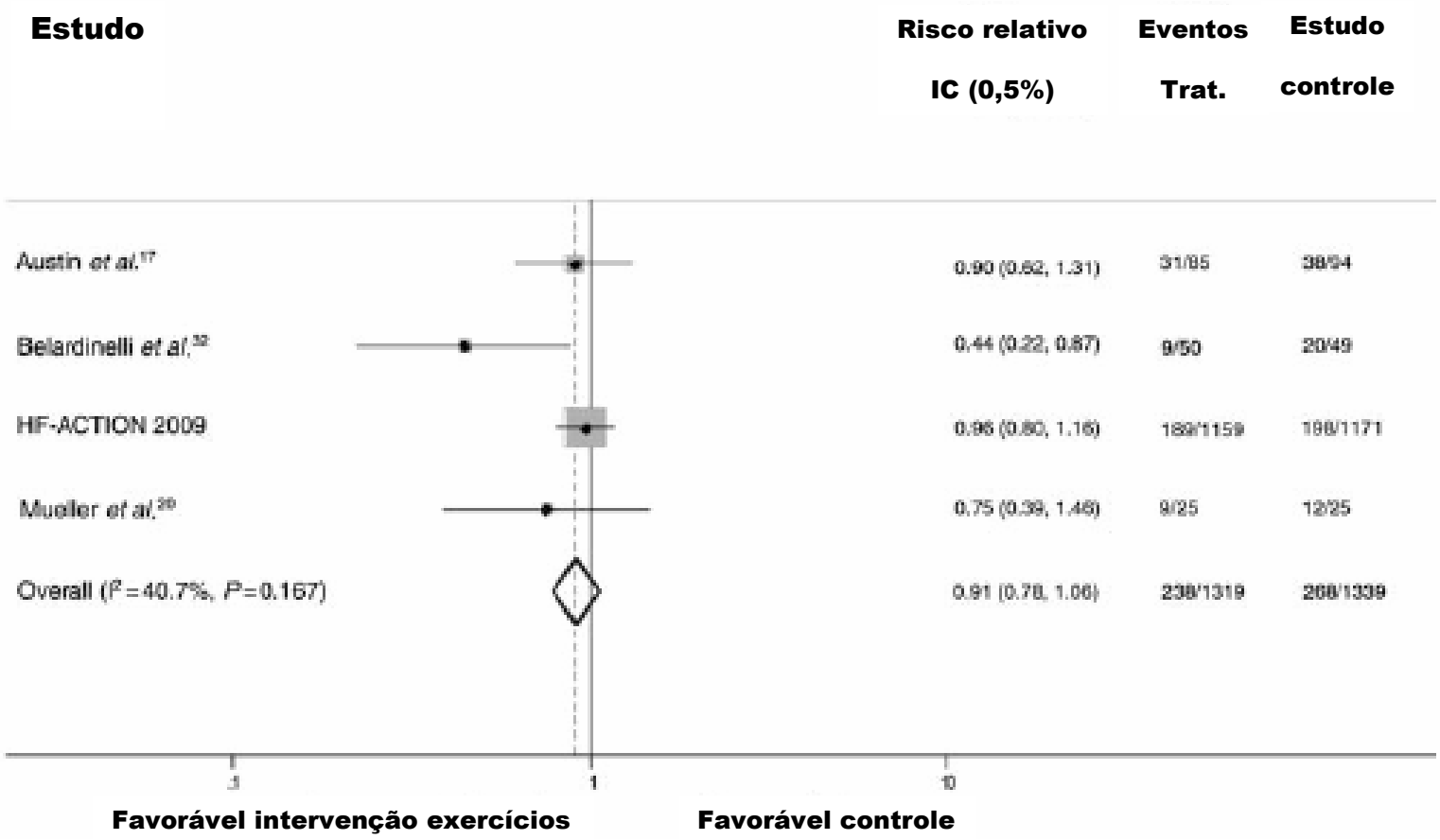
Edward J. Davies[1]*, Tiffany Moxham[2], Karen Rees[3], Sally Singh[4], Andrew J.S. Coats[5], Shah Ebrahim[6], Fiona Lough[7], and Rod S. Taylor[2]

- Trials randomizados (19) comparando exercícios X cuidados gerais,
- Mínimo de 6 meses de follow-up,
- 3647 pacientes,
- Classe funcional II-III da NYHA

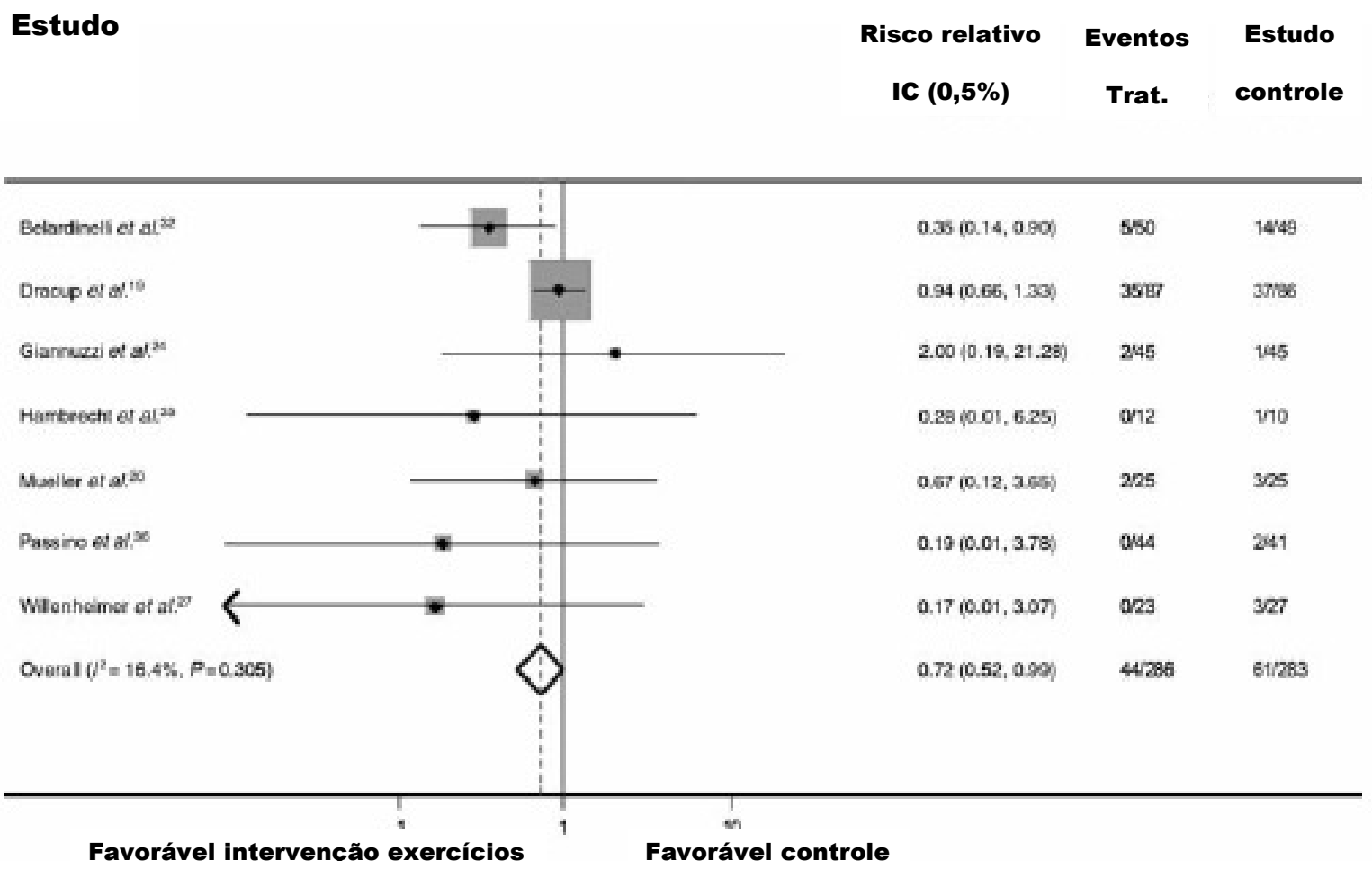
Meta-análises: Mortalidade por todas as causas follow-up <12 meses



Meta-análises: Mortalidade por todas as causas follow-up >12 meses



Meta-análises: Hospitalizações por Insuficiência Cardíaca



Conclusão - Exercíciosxcuidados:

- ⇓ risco hospitalização por IC
- Incremento na Qualidade de Vida (QV)
- = todas as causas de mortalidade (mort)
- Efeito dos exercícios na mort global e QV:
  - Disfunção de VE
  - Tipo de RC
  - Dose de exercício
  - Tempo de follow-up
  - Data de publicação

Cost-Effectiveness Analysis of Long-Term Moderate Exercise Training in Chronic Heart Failure

Demetrios Georgiou, MD, Yu Chen MPH, Sheila Appadoo, MPH, Romualdo Belardinelli, MD, Richard Greene, MD, PhD, Michael K. Parides, PhD, and Sherry Glied, PhD

The purpose of this study is to perform a cost-effectiveness analysis of long-term moderate exercise training (ET) in patients with stable chronic heart failure. In particular, the study focuses on the survival analysis and cost savings from the reduction in the hospitalization rate in the exercise group. In the past 10 years, ET has been shown to be beneficial for patients with stable class II and III heart failure in many randomized clinical trials. However, the cost-effectiveness of a long-term ET program has not been addressed for outcomes related to morbidity/mortality end points or health care utilization. We examined the cost-effectiveness of a 14-month long-term training in patients with stable chronic heart failure. The estimated increment cost for the training group, $3,227/patient, was calculated by subtracting the averted hospitalization cost, $1,336/patient, from the cost of ET and wage lost due to ET, estimated at $4,563/patient. For patients receiving ET, the estimated increment in life expectancy was 1.82 years/person in a time period of 15.5 years, compared with patients in the control group. The cost-effectiveness ratio for long-term ET in patients with stable heart failure was thus determined at $1,773/life-year saved, at a 3% discount rate. Long-term ET in patients with stable chronic heart failure is cost-effective and prolongs survival by an additional 1.82 years at a low cost of $1,773 per/life-year saved.

Am J Cardiol 2001;87:984–988

PROGRAMA DE EXERCÍCIOS – CUSTO/EFETIVIDADE

	Cost of Exercise Program Per Patient	Wage Lost from Exercise Program Per Patient	Hospitalization Rate†	Averaged Cost of Hospitalization Per Patient‡	Total Cost§	Incremental Cost of Exercise Program‖	Incremental Life Expectancy (yrs)¶	Cost-Effectiveness Ratio ($ per life-year saved)**
Training group	$2,054	$2,509	10%	$719	$5,282	$3,227	1.82	$1,773
Control group	$0	$0	29%	$2,055	$2,055	—	—	—

*Cost-effectiveness ratio of exercise training in patients with heart failure, expressed as dollars per year of life saved. With a discount rate of 3%, the numerator of the cost-effectiveness ratio, consisting of the incremental cost of exercise program, was estimated at $3,227/patient, and the denominator, expressed as the incremental life-years saved, was determined at 1.82 years/patient. The cost-effectiveness ratio was estimated at $1,773/life-year saved.

† Estimate = number of admissions/number of patients in the group.

‡ Estimate = discounted cost per hospitalization × hospitalization rate.

§ Estimate = cost of exercise program + wage lost per patient + averaged cost of hospitalization per patient.

‖ Estimate = total cost of exercise group − total cost of control group.

¶ Estimate = discounted increment in life expectancy of the training group.

** Estimate = Incremental cost of exercise program/incremental life expectancy of training group.

< $20,000 indica ótimo custo/efetividade

Kupersmith J, Holmes-Rovner M, Hogan A, Rovner D, Gardiner J. Costeffectiveness analysis in heart diseases. Prog Cardiovasc Dis 1995;37:243–271.

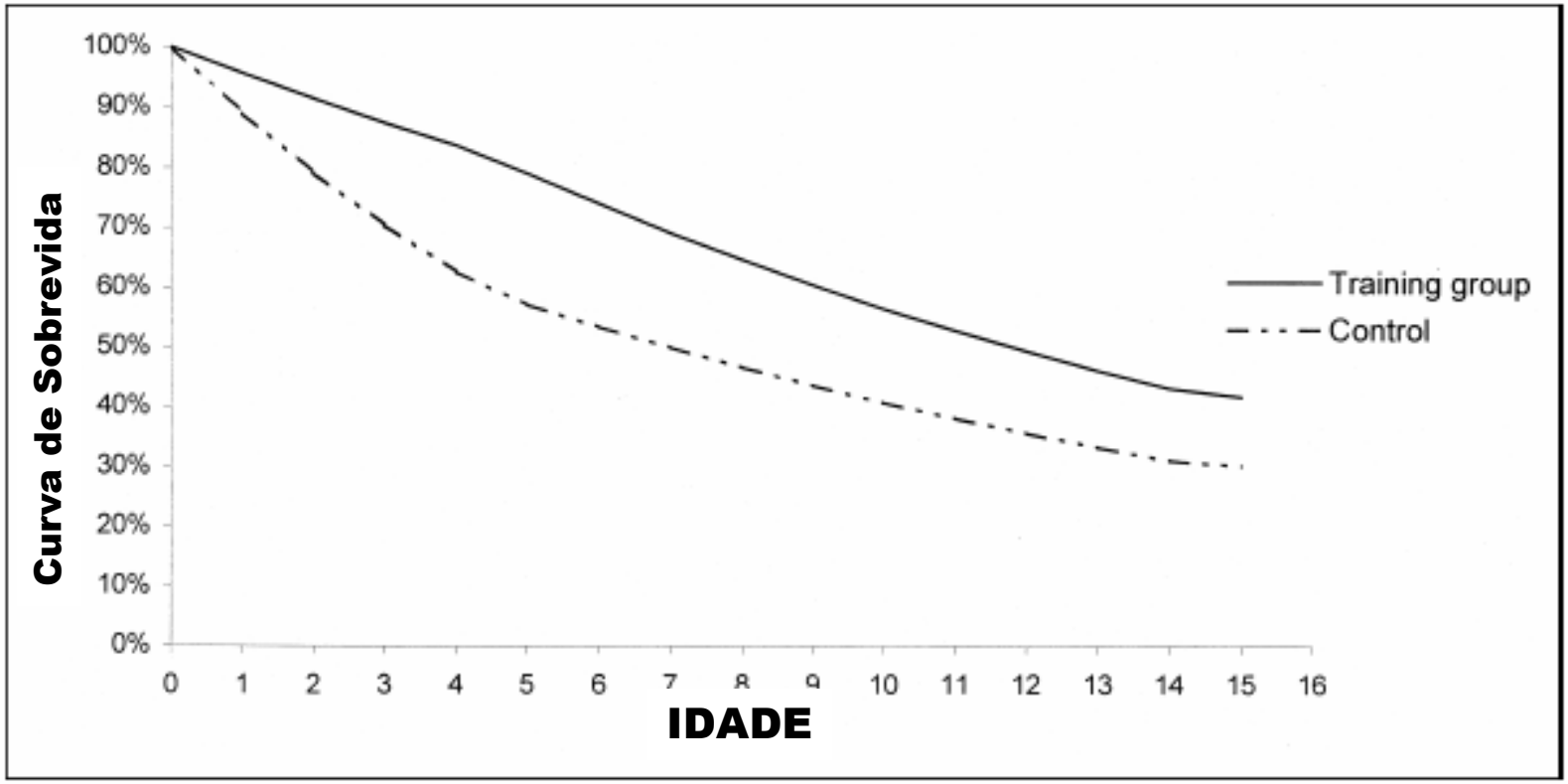


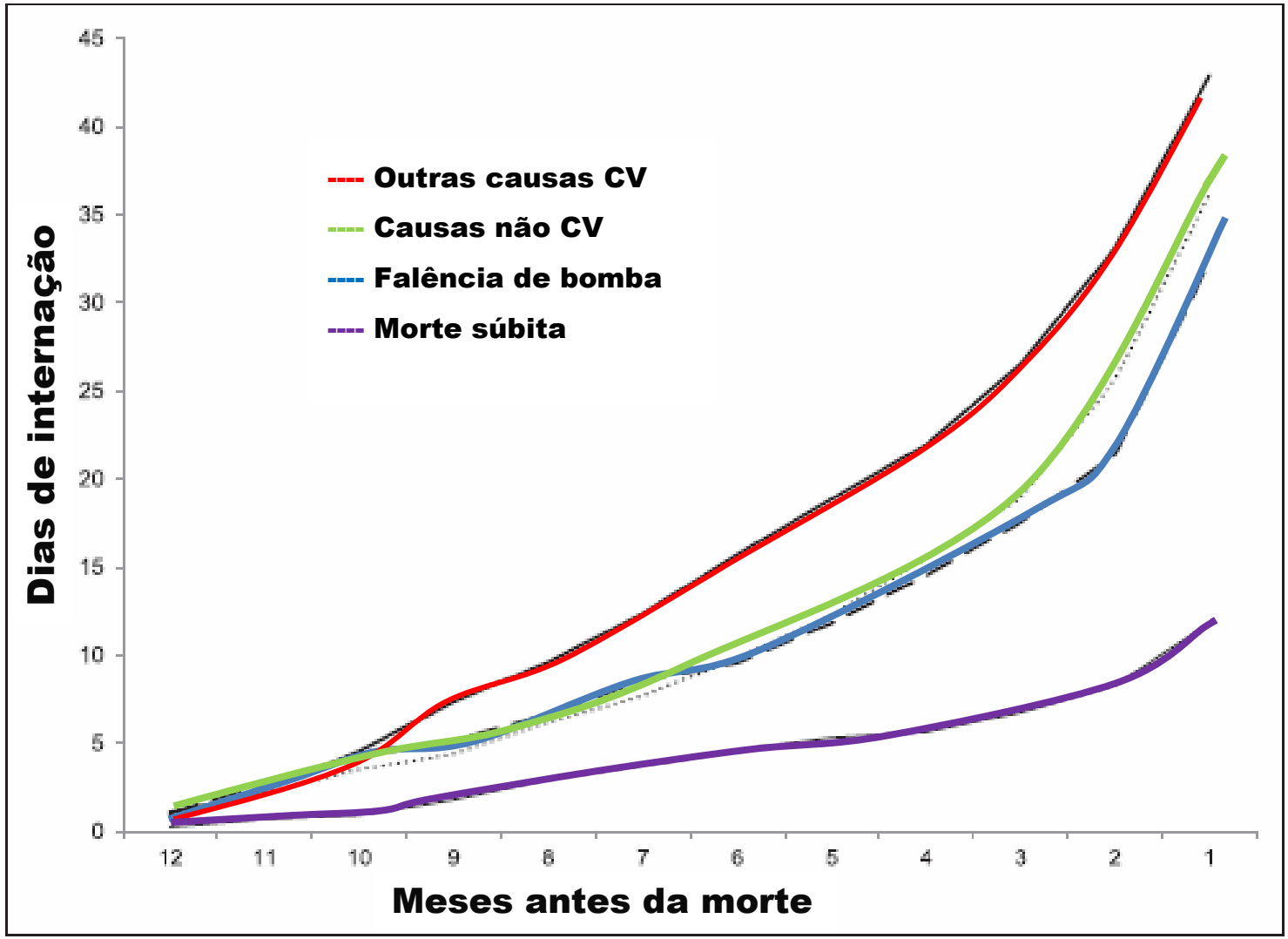
FIGURE 1. Survival curves and life expectancy of the training and control groups. The increase in life expectancy attributable to exercise training was thus represented by the difference between the areas under the 2 curves. The projected life expectancy was 10.24 years for patients in the exercise group and 7.96 years for the control group, resulting in an undiscounted incremental life expectancy of 2.28 years/patient.

In-Hospital Resource Use and Medical Costs in the Last Year of Life by Mode of Death (from the HF-ACTION Randomized Controlled Trial)

Shelby D. Reed, PhD[a,*], Yanhong Li, MD[a], Mark E. Dunlap, MD[b], William E. Kraus, MD[a], Gregory P. Samsa, PhD[a], Kevin A. Schulman, MD[a], Michael R. Zile, MD[c], and David J. Whellan, MD, MHS[d]

Patterns of medical resource use near the end of life may differ across modes of death. The aim of this study was to characterize patterns of inpatient resource use and direct costs for patients with heart failure (HF) who died of sudden cardiac death (SCD), HF, other cardiovascular causes, or noncardiovascular causes during the last year of life. Data were from a randomized trial of exercise training in patients with HF. Mode of death was adjudicated by an end point committee. Generalized estimating equations were used to compare hospitalizations, inpatient days, and inpatient costs incurred during the final year of life in patients who died of different causes, adjusting for clinical and treatment characteristics. Of 2,331 patients enrolled in the trial, 231 died after ≥1 year of follow-up with an adjudicated mode of death, including 72 of SCD, 80 of HF, 34 of other cardiovascular causes, and 45 of noncardiovascular causes. Patients who died of SCD were younger, had less severe HF, and incurred fewer hospitalizations, fewer inpatient days, and lower inpatient costs than patients who died of other causes. After adjustment for patient characteristics, inpatient resource use varied by 2 to 4 times across modes of death, suggesting that cost-effectiveness analyses of interventions that reduce mortality from SCD compared to other causes should incorporate mode-specific end-of-life costs. In conclusion, resource use and associated medical costs in the last year of life differed markedly in patients with HF who experienced SCD and patients who died of other causes. (Am J Cardiol 2012;xx:xxx)

Internações
12 meses antes da Morte



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