



# Time to rethink phase 1 cardiac rehabilitation

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I have no potential conflicts of interest to disclose regarding this presentation

# Plan

**1) Background**

**2) History** of cardiac rehabilitation (CR)

**3) Objectives and components** of phase 1 CR

**4) Conclusions**



## Cardiac rehabilitation (CR) is defined as the

“sum of activity and interventions required to ensure the best possible physical, mental, and social conditions so that patients with chronic or post-acute CVD may regain their proper place in society and lead an active life”



## CR is divided into 3 phases

- **Phase I:** in-hospital phase
- **Phase II:** early post-discharge phase (2-16 weeks)
- **Phase III:** long-term maintenance phase

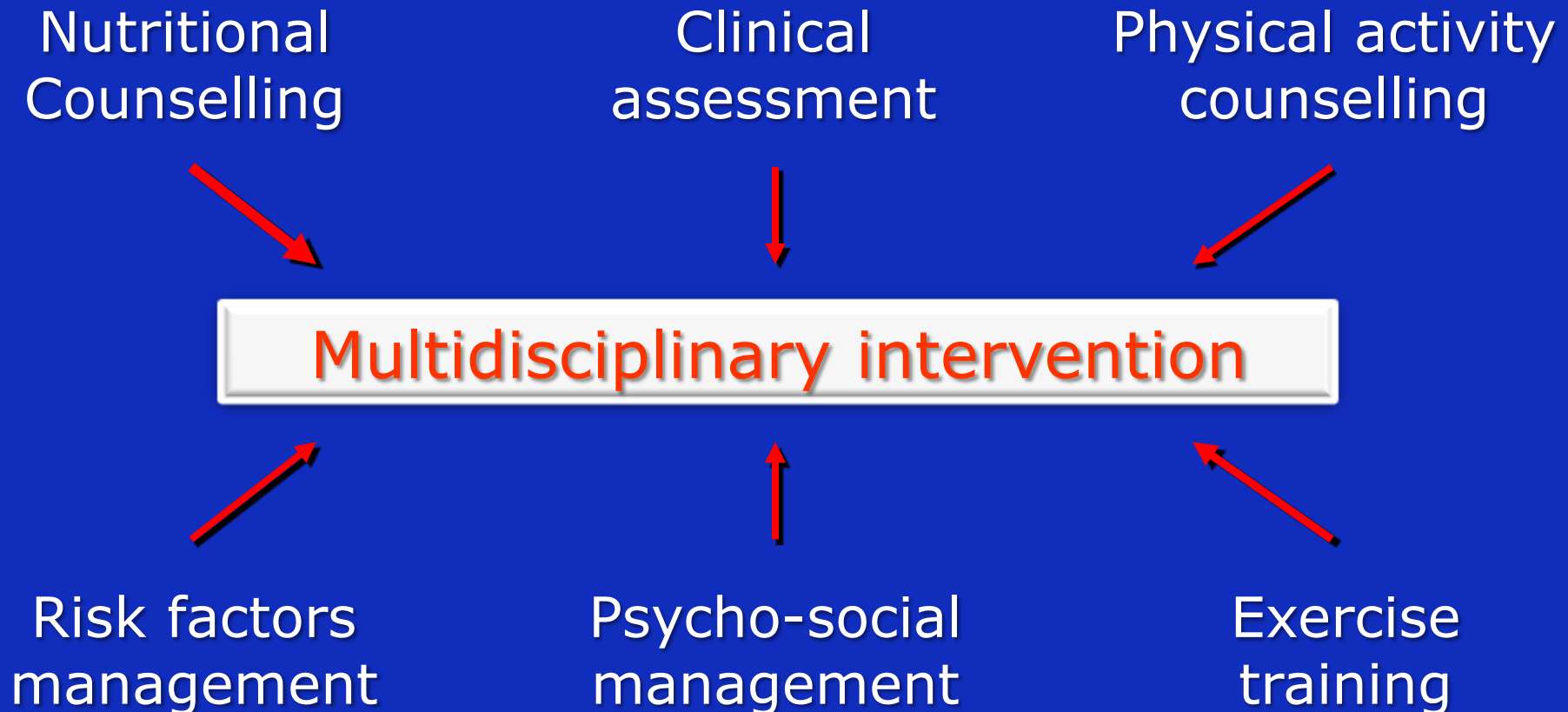


## Most studies have focused on phase 2 CR

Phase 2 cardiac rehabilitation has been demonstrated through meta-analysis to reduce all-cause mortality by 20% and is considered as a class I recommendation after a cardiovascular event



# Components of phase 2 CR programs are well defined



# Limited evidence and no consensus for phase 1 CR

## **Efficacy of In-Hospital Multidimensional Interventions of Secondary Prevention After Acute Coronary Syndrome A Systematic Review and Meta-Analysis**

Reto Auer, MD; Jacques Gaume, MA; Nicolas Rodondi, MD, MAS;  
Jacques Cornuz, MD, MPH; William A. Ghali, MD, MPH

- Inclusion of 26 studies
- RR all-cause mortality: 0.79 (95% CI, 0.69-0.92) at 1 year
- Benefits only in before-after studies not in controlled studies
- Specific components could not be evaluated





# In-hospital phase post-MI: PAST

**Lewis T.** Disease of the Heart  
New York, Macmillan, **1937**

8 weeks of bed rest



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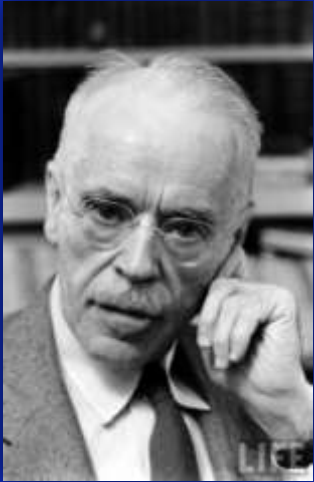
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## Dr Paul D. White: the founder of preventive cardiology



*"A vigorous five mile walk will do more good for an unhappy, but otherwise healthy adult than all the medicine and psychology in the world."*



# Dr Paul D. White: the founder of preventive cardiology



Dwight Eisenhower  
President of the USA  
Myocardial infarction in 1955

Continued as president  
Early rehabilitation

Example for millions of  
coronary patients that life can  
go on after a MI

But... 6 additional MI until his  
death in 1969



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3-6 weeks of bed rest



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## In-hospital phase post-MI: PRESENT

- **NSTEMI ESC guidelines.** Eur Heart J. 2007;28:1598-1660  
“Patients with NSTEMI-ACS should be hospitalized for at least **24 hours after successful stenting** of the culprit lesion”
- **STEMI ESC guidelines.** Eur Heart J. 2008;29:2909-2945  
“...the patient who has become asymptomatic and with minimum myocardial damage may go home **after a few days**”



## In-hospital phase post-MI: FUTURE

### A Randomized Study Comparing Same-Day Home Discharge and Abciximab Bolus Only to Overnight Hospitalization and Abciximab Bolus and Infusion After Transradial Coronary Stent Implantation

Olivier F. Bertrand, MD, PhD; Robert De Larochellière, MD; Josep Rodés-Cabau, MD; Guy Proulx, MD; Onil Gleeton, MD; Can Manh Nguyen, MD; Jean-Pierre Déry, MD, MSc; Gérald Barbeau, MD; Bernard Noël, MD; Éric Larose, DVM, MD; Paul Poirier, MD, PhD; Louis Roy, MD;

for the Early Discharge After Transradial Stenting of Coronary Arteries (EASY) Study Investigators

- 1005 patients: 66% unstable angina, 20% NSTEMI
- Treated by transradial PCI
- Randomized to same-day discharge or overnight hospitalisation
- **No significant differences in outcomes at 30 days**
- **Save 1141 \$ at 30 days**



# We have a problem...

Nutritional  
Counselling

Physical activity  
Counselling



Risk factor  
management

Exercise  
training



# Why should we care about this short phase 1 CR?

1. Unique learning or teaching moment
2. Need for a «survival kit» before discharge
3. Best opportunity to refer patients to phase 2



# 1. Unique learning or teaching moment

## LEARNING

- What happened to me ?
- Am I going to be OK ?
- This is because of my boss
- Why me ?
- What can I do ?

## TEACHING

- Inform about diagnosis
- Reassure
- Find out misconceptions
- Discuss CV risk factors
- Initiate lifestyle changes



# The patient education challenge « acute - chronic »

## THE PATIENT EXPERIENCE

### Acute coronary syndrome

- Sudden event
- Emotional shock
- Rapid therapeutic response
- Impressive technical resources

**PASSIVE - FEAR**

## EDUCATIONAL INTENTIONS

### Manage a chronic disease

- Make the patients aware of their chronic disease
- Promote lifestyle changes
- Improve adherence to treatment

**ACTIVE - ACCEPTANCE**



**Combined teaching strategies**, including written and audiovisual materials in addition to **motivational interviewing** are the most effective and time-sparing approaches.

Cooper H et al. *Patient Educ Couns.* 2001;44:107-17.

Hettema J et al. *Annu Rev Clin Psychol.* 2005;1:91-111



Adapted from E. Dale, *Audiovisual Methods in Teaching*, 1969, NY: Dryden Press.

## 2. Need for a «survival kit» before discharge

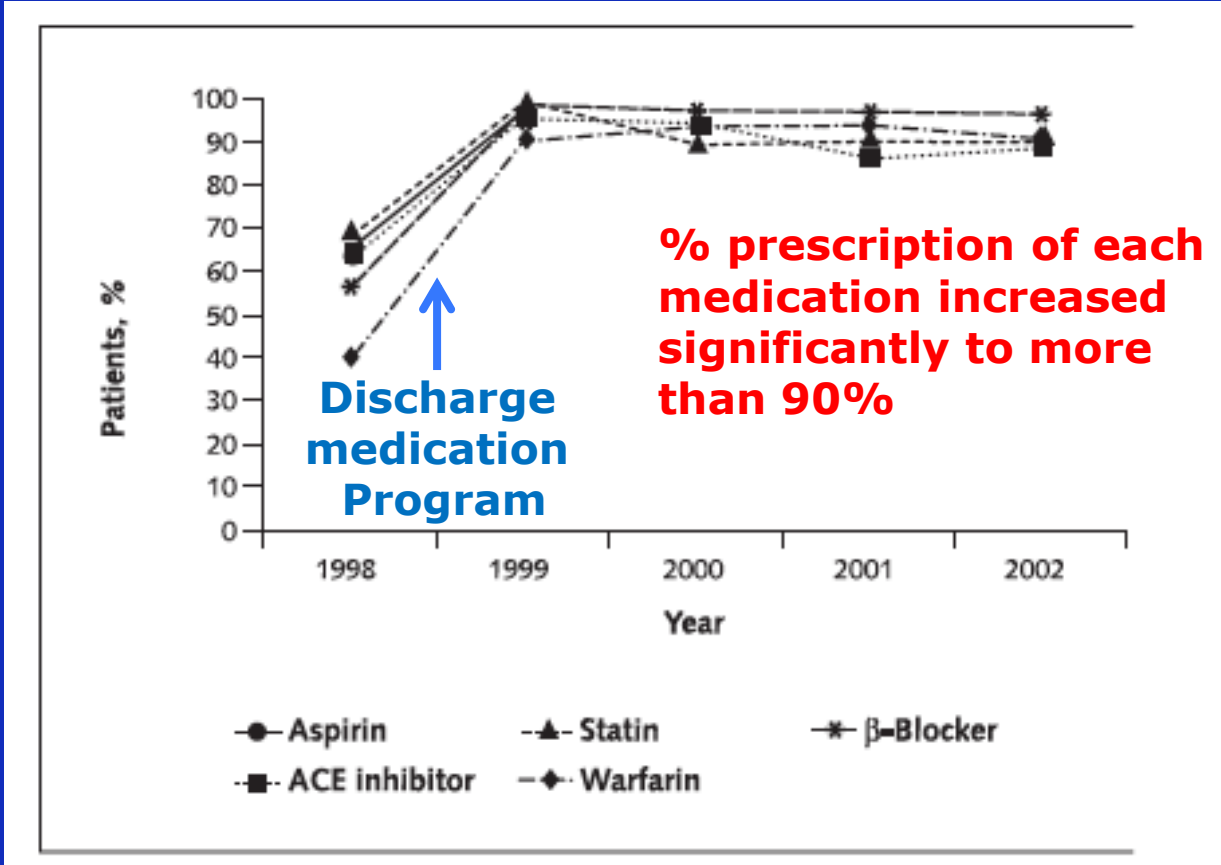
- Clear information about medication
- Clear advice on managing chest pain recurrence
- Advice and information on “what they can do” (work, travel, exercise, sexual activities, etc)
- Contact phone numbers





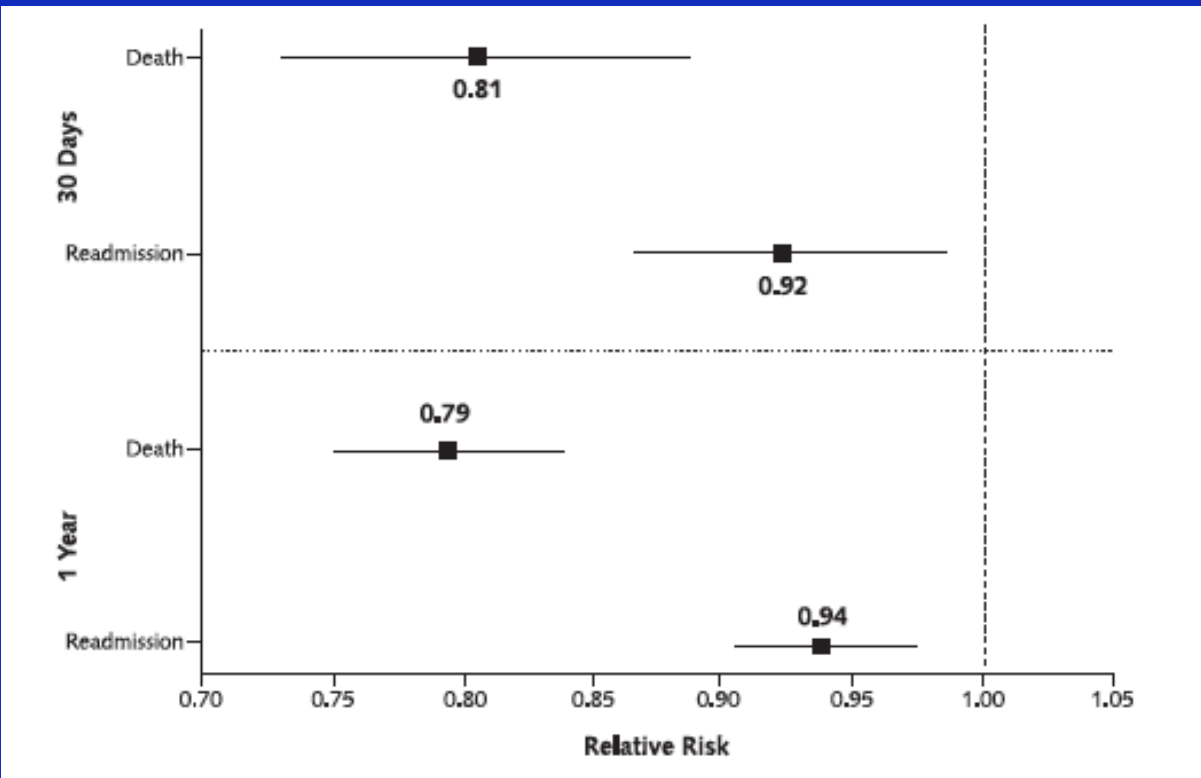
# Improvements in 1-Year Cardiovascular Clinical Outcomes Associated with a Hospital-Based Discharge Medication Program

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**DEATH -20%**  
**READMISSION -10%**



### 3. Best opportunity to refer patients to phase 2

- If possible appointment date should be fixed before discharge
- For patients ineligible for (or refusing) phase 2 CR, a multidimensional in-hospital prevention program may serve as a support for a home-based phase 2 CR and for long-term phase 3 CR
- CR would probably be more coherent if viewed as a continuum using the same learning tools instead of 3 distinct phases

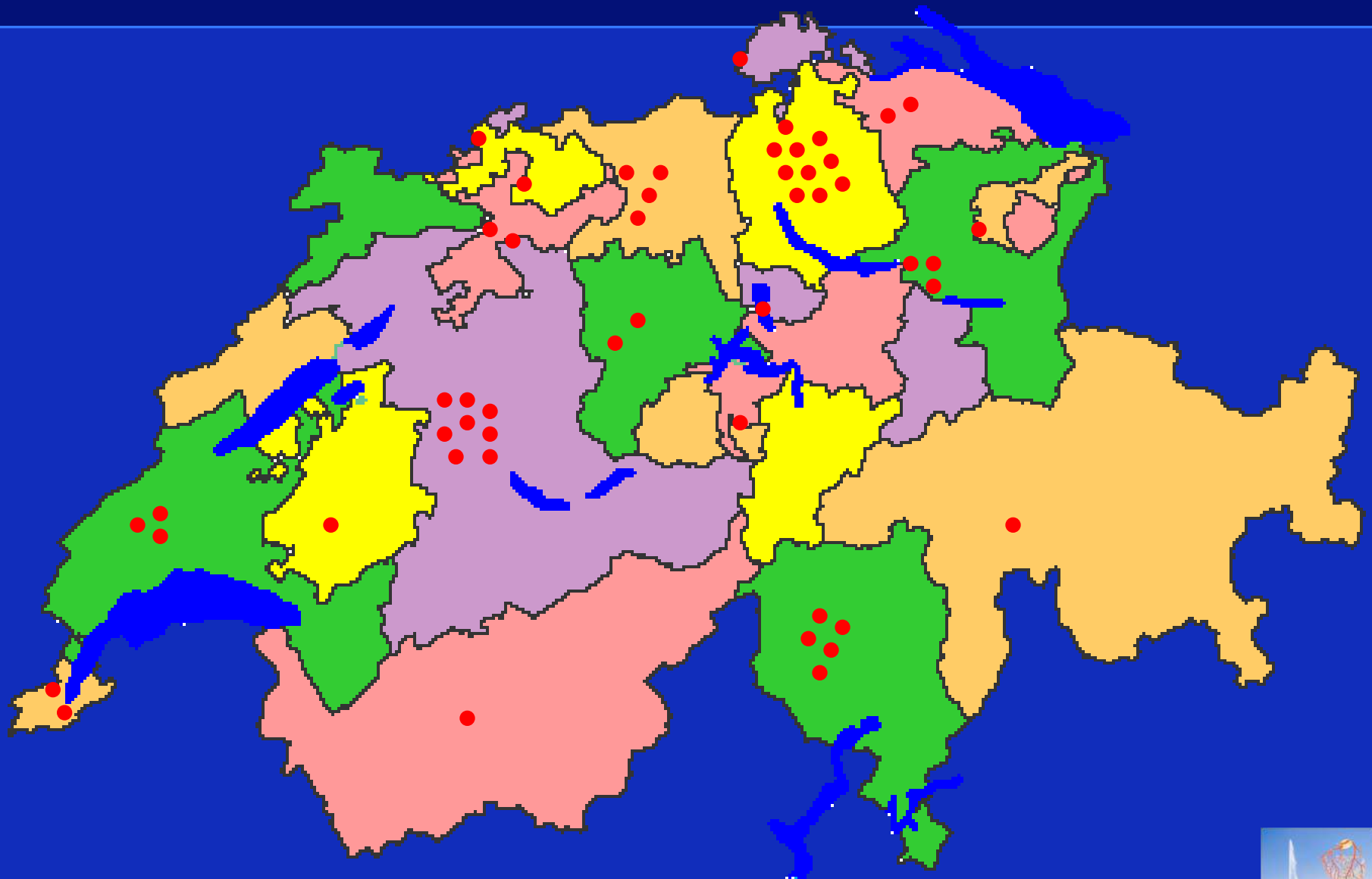


# Cardiac rehabilitation in Europe: Results from the European Cardiac Rehabilitation Inventory Survey

Table 2 Number of eligible patients participating in phase II and phase III cardiac rehabilitation programmes by country ( $n=28$ )

Country	Phase II	Phase III
	%	%
Austria	30	20
Republic Belarus	40	5–10
Belgium	15–20	5
Croatia	40	4
Cyprus	4	6.5
Czech Republic	15–20	5–8
Denmark	20	Unknown
Finland	20–30	10
France	10–30	Unknown
Germany	≥ 50	25–40
Hungary	30	Unknown
Iceland	≥ 50	Unknown
Ireland	Unknown	Unknown
Italy	25–30 <sup>b</sup>	Not available
Lithuania	90 <sup>a</sup>	30
Luxembourg	40–50	Unknown
Netherlands	30	20
Norway	Unknown	Unknown
Poland	17	Not available
Portugal	4	4
Romania	10	10
Russian Federation	Unknown <sup>c</sup>	(100) <sup>d</sup>
Serbia	Unknown	Unknown
Slovak Republic	41	58
Spain	<3	Unknown
Sweden	10–50	Not available
Switzerland	30	Unknown
United Kingdom	40–50	Unknown

# Ambulatory phase 2 CR programs in Switzerland



## Referral to phase 2 ambulatory CR post-ACS

**BEFORE** 

**June-October 2010**

**138 eligible patients post-ACS**

**57 (41%) referred to phase 2 CR**

**AFTER** 

**November 2010-March 2011**

**112 eligible patients post-ACS**

**57 (51%) referred to phase 2 CR**



# Conclusions

- There is limited evidence and consensus supporting specific in-hospital rehabilitation/prevention programs after a CV event
- Hospital stay will become shorter and this may have a negative impact on secondary prevention
- Phase 1 cardiac rehabilitation needs to be rethought using multidimensional strategies aimed to reassure, support, educate patients and to increase referral to phase 2 CR programs
- Cardiac rehabilitation should probably be viewed as a continuum using the same learning tools rather than 3 distinct phases





**Thank you for your attention**

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