

# SECONDARY PREVENTION AFTER MYOCARDIAL INFARCTION:

## Key messages

### Key References

- <sup>i</sup> World Health Organization (2008). The Global Burden of Disease: 2004 Update. Geneva: World Health Organization. ISBN 92-4-156371-0.
- <sup>ii</sup> Mozaffarian, D; Benjamin, EJ; Go, AS; Arnett, DK; Blaha, MJ; Cushman, M; de Ferranti, S; Després, JP; Fullerton, HJ; Howard, VJ; Huffman, MD; Judd, SE; Kissela, BM; Lackland, DT; Lichtman, JH; Lisabeth, LD; Liu, S; Mackey, RH; Matchar, DB; McGuire, DK; Mohler ER, 3rd; Moy, CS; Muntner, P; Mussolino, ME; Nasir, K; Neumar, RW; Nichol, G; Palaniappan, L; Pandey, DK; Reeves, MJ; Rodriguez, CJ; Sorlie, PD; Stein, J; Towfighi, A; Turan, TN; Virani, SS; Willey, JZ; Woo, D; Yeh, RW; Turner, MB; American Heart Association Statistics Committee and Stroke Statistics Subcommittee (27 January 2015). "Heart disease and stroke statistics-2015 update: a report from the American Heart Association." *Circulation* 131 (4): e29–322. PMID 25520374. "From 2001 to 2011, death rates attributable to CVD declined 30.8%."
- <sup>iii</sup> Schmidt M, Jacobsen JB, Lash TL, Botker HE, Sorensen HT. 25 year trends in first time hospitalisation for acute myocardial infarction, subsequent short and long term mortality, and the prognostic impact of sex and comorbidity: a Danish nationwide cohort study. *BMJ* 2012; 344:e356.
- <sup>iv</sup> Wilson K, Gibson N, Willan A, Cook D. Effect of smoking cessation on mortality after myocardial infarction: meta-analysis of cohort studies. *Arch Intern Med* 2000; 160(7): 939-944.
- <sup>v</sup> Critchley JA, Capewell S. Mortality risk reduction associated with smoking cessation in patients with coronary heart disease: a systematic review. *JAMA* 2003; 290(1): 86-97.
- <sup>vi</sup> Nichols M, Townsend N, Luengo-Fernandez R, Leal J, Gray A, Scarborough P, Rayner M (2012). European Cardiovascular Disease Statistics 2012. European Heart Network, Brussels, European Society of Cardiology, Sophia Antipolis
- <sup>vii</sup> Hansen D, Dendale P, Leenders M, Berger J, Raskin A, Vaes J, Meeusen R. Reduction of cardiovascular event rate: different effects of cardiac rehabilitation in CABG and PCI patients. *Acta Cardiol.* 2009; 64: 639-644.
- <sup>viii</sup> Piepoli MF, Corrà U, Benzer W, Bjarnason-Wehrens B, Dendale P, Gaita D, McGee H, Mendes M, Niebauer J, Zwisler AD, Schmid JP; Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. *Eur J Cardiovasc Prev Rehabil.* 2010 Feb; 17(1): 1-17.
- <sup>ix</sup> Mercado MG, Smith DK, McConnon ML. Myocardial infarction: Management of the subacute period. *American family physician.* 2013; 88:581-588

This summary document was produced in the framework of the ESC Secondary Prevention after Myocardial Infarction Programme, led by the European Association for Cardiovascular Prevention and Rehabilitation (EACPR) in collaboration with the Acute Cardiovascular Care Association (ACCA) and the Council on Cardiovascular Nursing and Allied Professions (CCNAP).

### Chairpersons:

A Pelliccia (EACPR president), H Bueno (ACCA President), D Fitzsimons (CCNAP Past-Chair)

### Writing Committee:

U Corrà, P Dendale, E Prescott, JP Schmid, M F Piepoli (EACPR); CVrints, D Walker (ACCA); C Jennings, T Hansen (CCNAP)

Visit [www.escardio.org](http://www.escardio.org) for more information

The ESC Secondary Prevention after Myocardial Infarction programme is supported by AstraZeneca in the form of an unrestricted educational grant



# SECONDARY PREVENTION AFTER MYOCARDIAL INFARCTION:

## Key messages

**Authors:** MF Piepoli, U Corrà, P Dendale, I Frederix, E Prescott, J-P Schmid - August 2015

### 1. THE BURDEN

- Worldwide, coronary artery disease (CAD) is the single most frequent cause of death. Every sixth man and every seventh woman in Europe will die from myocardial infarction (MI).<sup>i</sup> Of note, death rates from cardiovascular disease have decreased by almost a third between 2001 and 2011 in the United States.<sup>ii</sup> In Europe, the 30 day mortality after MI declined from 31.4% to 14.8% and the one-year mortality from 42.1% to 24.2% in the period 2004-8 compared to 1984-8.<sup>iii</sup>

#### Changes in risk factors controls: the good

- Lifestyle changes after MI is associated with improved prognosis in randomized trials and in observational studies: a meta-analysis of smoking cessation after a myocardial infarction showed a relative risk reduction for coronary mortality of 46%<sup>iv</sup> and a Cochrane meta-analysis reported a 36% reduction in all-cause mortality.<sup>v</sup>

#### Changes in risk factors controls: the bad

- The EUROASPIRE IV, conducted in 78 centres in 24 European countries, demonstrated a high prevalence of unhealthy lifestyles (smoking, little or no physical activity), uncontrolled modifiable risk factors (obesity, diabetes, high blood pressure, dyslipidaemia) and inadequate use of drug therapies to achieve blood pressure and lipid goals in CAD patients and people at high risk of developing cardiovascular disease. Of note, only 50.7% had been advised to participate in a cardiac rehabilitation or secondary prevention programme.

#### Changes in risk factors controls: the ugly

- The figures also show substantial regional differences.
- Cardiovascular mortality is now falling in most European countries. Over the 2003-2009 period, the rate of CAD deaths in Russian men dropped from 251 to 186 (per 100,000). Nevertheless, these figures are still huge in comparison with other areas in Europe.<sup>vi</sup> On the other hand, CAD is becoming a more common cause of death in the developing world.

### 2. SECONDARY PREVENTION AND CARDIOVASCULAR REHABILITATION

- Preventive cardiology concentrates on the long-term outcome, emphasising that the modifications of risk factors in CAD patients may have a greater impact on longevity than sophisticated interventions.

#### The evidences

- Contemporary cardiac rehabilitation/secondary prevention (CR/SP) programmes reduce cardiovascular risk and event rates, foster healthy behaviours, and promote active lifestyles. The benefits, such as improved survival, have been reported for all types of CAD patients, independently of intervention modality.

<sup>vii</sup> It compares favourably in terms of costs per year life saved with other well-established preventive and therapeutic interventions.

#### How it is structured

- Key preventive lifestyle recommendations for all post-MI patients are tobacco cessation, healthy diet (adhering to a Mediterranean-style or DASH eating) and dietary supplements (if needed), limitation of alcohol consumption, physical activity as recommended, weight management, maintain blood pressure within goal levels, and properly manage risk factors related to

Visit [www.escardio.org](http://www.escardio.org) for more information



# SECONDARY PREVENTION AFTER MYOCARDIAL INFARCTION:

## Key messages

- diabetes in coordination with the patient's primary care provider. Pharmacologic prevention options include the use of (high-intensity) statin therapy, utilise antiplatelet/ anticoagulant therapy as necessary to reduce risk, use Renin-Angiotensin-Aldosterone System Blockers as indicated per condition, utilise Beta Blockers if not contraindicated.
- Accordingly, CR/SP programmes take steps towards diagnosis, risk assessment and stratification, screening for co-morbidities, management of residual risk factors, education and follow up in a single approach. They have, in general, three phases: I) inpatient, II) out patient, III) long-term intervention.

### Where to perform

- CR/SP programmes are based on long-established models involving residential, ambulatory community, or home-based programmes, according to local and national traditions. Residential CR/SP programmes are specifically structured to provide more intensive and/or complex interventions, and start as soon as possible after the acute event (MI). Structured inpatient (residential) CR/SP programmes should be considered for high-risk patients.<sup>viii</sup>

### When to perform

- CR plays a major role as a bridge between the acute treatment and outpatient care. In-hospital phase I CR/SP is the first step in regaining physical independence and individual self-confidence.

### Lack of application of performance indicators

- Every CR programme should formally audit and evaluate their service: information from individual clinical outcome patient data and data on service performance together with patient satisfaction are necessary.

### 2. Patient related adherence to prevention therapy

#### Lack of adherence to control of risk factors and healthy life-style habits

- Non-adherence is multifactorial and is influenced by demographic and socioeconomic factors, lifestyle, habits, time since last healthcare provider visit, adverse effects of therapy, and complex medication regimens.

#### Lack of adherence to prevention pharmacological therapy

- Numerous studies have shown that adherence to medication in individuals at high risk and in patients with cardiovascular disease is low, resulting in worse outcomes and higher healthcare costs.

# SECONDARY PREVENTION AFTER MYOCARDIAL INFARCTION:

## Key messages

### 4. PROPOSALS ON HOW WE GO FURTHER

#### A. Facing current challenges

##### i. In-hospital (Cardiac rehabilitation, phase I)

In-hospital phase I, rehabilitation represents the earliest secondary prevention intervention, beginning immediately after the initial cardiac event during hospital stay.<sup>i</sup>

#### Future challenges are

- Systematic processes such as automatic referral and liaison systems to help connect the CR programme.
- Strength of physician endorsement for referring.
- Accountability measures, including CR referral related performance/quality indicators.
- Financial incentives.

##### ii. Early outpatient prevention programmes (Cardiac rehabilitation, phase II)

- Phase II CR is a comprehensive, multidisciplinary and therapeutic intervention, starting early after hospital discharge and focusing on multiple core components.

#### Future challenges are

- Innovations in telecommunication technologies in order to expand CR services capabilities and to address the broad and extensive range of CR participating barriers.
- Cardiac tele-rehabilitation is a programme devoted to telemonitoring, telecoaching, e-learning, social interaction, and two-way communication with the caregiver.
- Individualise exercise programmes based on patient stratification to maximize the clinical benefit and optimise safety.

##### iii. Long term prevention (Cardiac rehabilitation, phase III)

- Phase III of CR represents the long-term outpatient supervision of patient's adherence to prescribed lifestyle behaviour and constitutes a joint effort of patient, primary care physician and cardiologist.

#### Future challenges are

- The recognized rehabilitation centres (so-called "Central hubs") screen eligible patients for CR in- and/or exclusion criteria and provide them with initial centre-based CR. After phase II CR, when considered safe and feasible by the cardiologist's judgement, patients are offered enrolment in continued remote supervised CR by the Peripheral Centres ("Peripheral hubs"). The Peripheral hubs will be responsible for remote patient monitoring, follow-up and care by tele-centre(s).

#### B. Definition of key performance indicators

- Fundamental to the process of quality improvement is continuous review of plans and activities, and assessment of the degree to which anticipated outcomes have been achieved. Well-defined key performance indicators provide valuable measures for benchmarking care providing CR centres. The **European Society of Cardiology** has defined standardized long-term performance indicators and valid assessment criteria.<sup>viii</sup>

#### C. Need for further research

- Developing action plans to accelerate the implementation of accountability measures and automatic referral are eagerly needed.
- Cost-effectiveness evaluations of novel care delivery strategies, to provide policy makers charged with deciding how health care resources should be allocated, with suggestions for alternative care models.

### 3. IDENTIFICATION OF THE GAPS: IN KNOWLEDGE, IN IMPLEMENTATION STRATEGIES

Two areas of interventions have been identified to optimise CR/SP strategies.

#### I. Medical assistance and prevention strategies

##### Lack of risk stratification

- After acute treatment, it is important to identify patients at high risk of further events such as re-infarction or death, and hopefully to intervene in order to prevent these events.

##### Lack of implementation of structured secondary prevention intervention

- Lack of referral to CR
- Education about lifestyle modification and recognition of cardiac symptoms, physical activity recommendations, and a clear follow-up plan.
- Structured discharge processes to facilitate the transition from the hospital to the family physician's care.<sup>ix</sup>

##### Lack of awareness among the acute care physicians, GP

- The majority of physicians support the concept of preventive cardiology and guidelines use, however, only half are active in everyday practice and knowledge about target values is often insufficient.

Visit [www.escardio.org](http://www.escardio.org) for more information

The ESC Secondary Prevention after Myocardial Infarction programme is supported by AstraZeneca in the form of an unrestricted educational grant



Visit [www.escardio.org](http://www.escardio.org) for more information

