

# Global Charter on Cardiac Rehabilitation: A CALL FOR ACTION

## PROPOSED VERSION 6

Primary Writing Panel: J.A. Stone<sup>1,2</sup>; J.P. Buckley<sup>3,4</sup>; D.E.R. Warburton<sup>1,5</sup>; B. Sanderson<sup>6,7</sup>; S.L. Grace<sup>1,8</sup>  
On behalf of the Global Advocacy Panel on Cardiovascular Rehabilitation (GAP-CR)\*

## PREAMBLE

Cardiovascular disease remains the leading killer of adult women and men globally, and is a growing epidemic in low-income countries. However, as substantial gains in reducing acute cardiovascular mortality have been realized in the last few decades, the prevalence of persons living with cardiovascular disease has increased significantly. Without systematic access to formal and informal programs of chronic cardiovascular disease prevention such as cardiac rehabilitation, these individuals will suffer multiple recurrent acute care events and/or unnecessarily premature death.

## DEFINITION

The World Health Organization (1993) has defined cardiac rehabilitation as:

“The sum of activities required to influence favourably the underlying cause of the disease, as well as to provide the best possible physical, mental and social conditions, so that the patients may, by their own efforts, preserve or resume when lost as normal a place as possible in the community.”



## BENEFITS

Cardiac rehabilitation programs are shown to significantly reduce mortality and repeat hospitalizations (Clark et al., 2010; Davies et al., 2010; Heran et al., 2011). Of equivalent, and in some cases greater importance, is the significant improvement in the quality of life in persons with chronic cardiac disease (Davies et al., 2010). These benefits are demonstrated in patients with acute coronary syndromes, stable chronic angina, stable chronic heart failure, and post-percutaneous coronary intervention, coronary artery bypass surgery, cardiac valve surgery, cardiac transplantation and cardiac resynchronization therapy. There is a growing evidence base on the same benefits of cardiovascular prevention and rehabilitation principles being applied to individuals at high risk, yet not diagnosed with cardiovascular disease (Wood et al., 2008).

In addition to these improved clinical outcomes, cardiac rehabilitation is also highly cost effective, and in higher risk populations, may even be cost-saving (Brown et al., 2003; Papadakis et al., 2005). Furthermore, comprehensive programs of cardiac rehabilitation reach across the continuum of patient care between acute disease and chronic disease care, thus easing the transition of patients from life-threatening illness to lifelong productivity and well-being.

## ACCESS

The only proven chronic disease care process that significantly and substantially reduces the mortality and the morbidity (physical and psychological) associated with this disease is cardiac rehabilitation. Despite the proven clinical and economic benefits of cardiac rehabilitation, it remains a chronically-underutilized resource (Candido et al., 2011; Suaya et al., 2007).

The strong evidence base for cardiac rehabilitation is such that any person diagnosed with cardiovascular disease should be offered a comprehensive program, which is respected in equal importance to the medical or surgical interventions they receive following such a diagnosis. For these reasons, proven mechanisms to facilitate universal access for indicated and eligible patients across sexes, age, ethnocultural and socioeconomic diversity should be instituted, such as systematic referral strategies (Grace et al., 2011). Referral to cardiac rehabilitation as a performance measure provides a major step to help facilitate accountability for implementing this quality indicator within processes of care (Thomas et al., 2010).



## STRUCTURE

Cardiac rehabilitation programs facilitate chronic cardiovascular disease care by specifically targeting patients' cardio-metabolic health and psychosocial well-being. The core components of contemporary cardiac rehabilitation programs are therefore intended to mitigate the atherosclerotic disease processes that drive cardiovascular disease progression and the related effects this has on psychosocial health. These components include individualized programs of cardio-protective pharmacological therapies in conjunction with health behaviour and education interventions of physical activity and exercise, nutrition, weight management, psychological health, and smoking cessation that are sensitive to and reflective of the socio-economic and cultural mosaic in which they are offered (Stone et al., 2009; BACR, 2007; Balady et al., 2007). Likewise, defining the core competencies of professionals providing these core components help align health care providers, educators, students, and administrators with defined expectations for knowledge and skills in providing cardiac rehabilitation/secondary prevention services (Hamm et al., 2010). These parameters, if appropriate, can be applied to primary prevention.

Fully comprehensive CR service models may not be feasible in some middle and many low-income countries due to shortages of healthcare professionals and other resource constraints. Non-equipment based, modified service delivery models are also shown to be effective, and should be tailored to the local context. Chronic disease care programs, such as cardiac rehabilitation, may be offered and are equally effective in institution-based, community-based and home-based settings (Clark et al., 2010; Taylor et al., 2010; Dalal et al., 2010; Wood et al., 2008; Jolly et al., 2006). The Secondary Prevention of coronary heart disease for All in Need (SPAN) framework forwards a flexible model that can be adapted to diverse settings while ensuring a minimum care standard (Redfern et al., 2011).

## ACTIONS

Both government and private organizations responsible for the provision of patient care services can no longer deny patients with cardiovascular disease access to cardiac rehabilitation.

We call to action those responsible for administering patient care:

1. To establish cardiac rehabilitation as an obligatory, not optional service
2. To support both low-to-middle and high-income countries to establish and augment, respectively, programs of cardiac rehabilitation (adapted to local needs and conditions) to ensure broader access to these proven services

We call to action CR organizations and associations in high-income countries to partner and collaborate with those in low-to-middle income countries to support capacity-building and provide tangible toolkits for CR program development, initiation and maintenance.

We aim to maintain and grow this global consortium through partnership with international organizations, to consider and communicate on-going consensus on evidence-based standards for cardiac rehabilitation.



## ORIGINATING ADVISORY PANEL

\*T Briffa (AUS), S Bredin (CA), L Carlyle (CA), C Chessex (CA), A Clark (CA), A Contractor (India), P Doherty (UK), G Melo-Ghisi (Brazil), J Harris (CA), S Hinton (UK), A Jones (China), AC Kentner (CA), R Munoz-Sandoval (Mexico), N Oldridge (US), B O'Neill (CA), J Redfern (AUS), S Shanmugasegaram (CA), C Terzic (US) & R Thomas (US).

Primary Writing Panel: J.A. Stone<sup>1,2</sup>; J.P. Buckley<sup>3,4</sup>; D.E.R. Warburton<sup>1,5</sup>; B. Sanderson<sup>6,7</sup>; S.L. Grace<sup>1,8</sup>

1 Canadian Association for Cardiac Rehabilitation

2 Libin Cardiovascular Institute of Alberta & University of Calgary, Canada

3 British Association for Cardiovascular Prevention and Rehabilitation

4 Department of Clinical Sciences, University of Chester, United Kingdom

5 Physical Activity Promotion and Chronic Disease Prevention Unit, University of British Columbia, Canada

6 American Association of Cardiovascular and Pulmonary Rehabilitation

7 School of Nursing, Auburn University, United States

8 York University, University Health Network & York Central Hospital, Canada

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- American Association of Cardiovascular and Pulmonary Rehabilitation
- Canadian Association of Cardiac Rehabilitation
- Cardiac Rehabilitation Association of New Zealand
- Centre for East-meets-West in Rehabilitation Sciences, Department of Rehabilitation Sciences, Hong Kong Polytechnic University
- Irish Association of Cardiac Rehabilitation

## REFERENCES

Balady, G.J., Williams, M.A., Ades, P.A., Bittner, V., Comoss, P., Foody, A.M., Franklin, B., Sanderson, B., Southard, D. (2007). AHA/AACVPR Scientific Statement. Core components of cardiac rehabilitation/secondary prevention programs: 2007 update. *Journal of Cardiopulmonary Rehabilitation and Prevention (JCRP)*, 27:121-129.

British Association for Cardiac Rehabilitation (BACR). (2007). Standards and Core Components for Cardiac Rehabilitation. London, UK. Available at: [http://www.bacpr.com/resources/ZEF\\_BACR\\_Standards.pdf](http://www.bacpr.com/resources/ZEF_BACR_Standards.pdf)

Brown, A., Taylor, R., Noorani, H., Stone, J., & Skidmore, B. (2003). Exercise-based cardiac rehabilitation programs for coronary artery disease: A systematic clinical and economic review (Vol. Technology). Ottawa: Canadian Coordinating Office of Health Technology Assessment (CCOHTA).

Candido, E., Richards, J. A., Oh, P., Suskin, N., Arthur, H. M., Fair, T., et al. (2011). The relationship between need and capacity for multidisciplinary cardiovascular risk-reduction programs in Ontario. *The Canadian Journal of Cardiology*, 27(2), 200-207.

Clark, A. M., Haykowsky, M., Kryworuchko, J., MacClure, T., Scott, J., DesMeules, M., et al. (2010). A meta-analysis of randomized control trials of home-based secondary prevention programs for coronary artery disease. *European Journal of Cardiovascular Prevention and Rehabilitation : Official Journal of the European Society of Cardiology, Working Groups on Epidemiology & Prevention and Cardiac Rehabilitation and Exercise Physiology*, 17(3), 261-270.

Davies, E., Moxham, T.I., Rees, K., Singh, S., Coats, A.S., Ebrahim, S., et al. (2010). Exercise training for systolic heart failure: Cochrane systematic review and meta-analysis. *European Journal of Heart Failure*, 12(7), 706-715.

Dalal, H.M., Zawada, A., Jolly, K., Moxham, T., Taylor, R.S. (2010). Home-based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis. *British Medical Journal*, 340, b5631 doi:10.1136/bmj.b5631

Grace, S. L., Chessex, C., Arthur, H., Chan, S., Cyr, C., Dafoe, W., et al. (2011). Systematizing inpatient referral to cardiac rehabilitation 2010: Canadian Association of Cardiac Rehabilitation and Canadian Cardiovascular Society joint position paper endorsed by the Cardiac Care Network of Ontario. *The Canadian Journal of Cardiology*, 27(2), 192-199.

Hamm, L.F., Sanderson, B.K., Ades, P.A., Berra, K., Kaminsky, L.A., Roitman, J.L., Williams, M.A. (2011). Core competencies for cardiac rehabilitation/secondary prevention professionals: 2010 update, Position statement of the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR). *Journal of Cardiopulmonary Rehabilitation and Prevention*. 31:2-10.

Heran, B. S., Chen, J. M., Ebrahim, Shah, Moxham, Tiffany, Oldridge, N., Rees, Karen, et al. (2011). Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database of Systematic Reviews (Online)*, (7), CD001800. doi: 10.1002/14651858.CD001800.pub2.

Jolly, K., Taylor, R.S., Lip, G.Y.H., Stevens, A. (2006). Home-based cardiac rehabilitation compared with centre-based rehabilitation and usual care: a systematic review and meta-analysis. *International Journal of Cardiology*, 111(3): 343-351.

Papadakis, S., Oldridge, N. B., Coyle, D., Mayhew, A., Reid, R. D., Beaton, L., et al. (2005). Economic evaluation of cardiac rehabilitation: a systematic review. *European Journal of Cardiovascular Prevention and Rehabilitation : official journal of the European Society of Cardiology, Working Groups on Epidemiology & Prevention and Cardiac Rehabilitation and Exercise Physiology*, 12(6), 513-20.

Redfern, J., Maiorana, A., Neubeck, L., Clark, A.M., Briffa, T. (2011). Achieving coordinated secondary prevention of coronary heart disease for all in need (SPAN). *International Journal of Cardiology*, 146(1), 1-3.

Stone J.A., Arthur, H.M., Suskin, N. eds. (2009). *Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease. Prevention: Translating Knowledge Into Action*. 3rd ed. Winnipeg, MB: Canadian Association of Cardiac Rehabilitation. Available at: <http://www.cacr.ca/resources/guidelines.cfm>.

Suaya, J.A., Shepard, D. S., Normand, S. L., Ades, P.A., Prottas, J., Stason, W.B. (2007). Use of cardiac rehabilitation by Medicare beneficiaries after myocardial infarction or coronary bypass surgery. *Circulation*, 116(15), 1653-1662.

Taylor, R., Dalal, H., Jolly, K., Moxham, T.I., Zawada, A. (2010). Home-based versus centre-based cardiac rehabilitation. *Cochrane Database of Systematic Reviews (Online)*, 340(1), CD007130. doi: 10.1002/14651858.CD007130.pub2.

Thomas, R.J., King, M., Lui, K., Oldridge, N., Pina, I.L., Spertus, J. (2010) AACVPR/ACCF/AHA 2010 Update: Performance measures on cardiac rehabilitation for referral to cardiac rehabilitation/secondary prevention services. *Journal of Cardiopulmonary Rehabilitation and Prevention (JCRP)*. 30:279-288.

Wood, D.A., Kotseval, K., Connolly, S., Jennings, C., Mead, A., Jones, J., et al. (2008). Nurse-coordinated multidisciplinary, family-based cardiovascular disease prevention programme (EUROACTION) for patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease: a paired, cluster-randomised controlled trial. *Lancet*, 371, 1999-2012.

World Health Organization. (1993). Needs and Action Priorities in Cardiac Rehabilitation and Secondary Prevention in Patients with Coronary Heart Disease, WHO Regional Office for Europe, Geneva.

