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Special Article

Cardiac Rehabilitation Delivery Model for Low-Resource Settings: An International Council of Cardiovascular Prevention and Rehabilitation Consensus Statement

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ABSTRACT

Cardiovascular disease (CVD) is a global epidemic, which is largely preventable. Cardiac rehabilitation (CR) is demonstrated to be efficacious and cost-effective for secondary prevention in high-income countries. Given its affordability, CR should be more broadly implemented in middle-income countries as well. Hence, the International Council of Cardiovascular Prevention

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and Rehabilitation (ICCPR) convened a writing panel to recommend strategies to deliver all core CR components in low-resource settings, namely: (1) initial assessment, (2) lifestyle risk factor management (i.e., diet, tobacco, mental health), (3) medical risk factor management (lipids, blood pressure), (4) education for self-management; (5) return to work; and (6) outcome evaluation. Approaches to delivering these components in alternative, arguably lower-cost settings, such as the home, community and primary care, are provided. Recommendations on delivering each of these components where the most-responsible CR provider is a non-physician, such as an allied healthcare professional or community health care worker, are also provided.

Abbreviations and Acronyms

AHA = American Heart Association
BMI = Body mass index
BP = Blood pressure
CADE-Q = Coronary Artery Disease Education Questionnaire
CHD = Coronary heart disease
CR = Cardiac rehabilitation
CVD = Cardiovascular disease
DM = Diabetes mellitus
ECG = Electrocardiogram
HDL-C = High-density lipoprotein cholesterol
HF = Heart failure
HICs = High-income countries
HTN = Hypertension
ICCPR = International Council of Cardiovascular Prevention and Rehabilitation
LDL-C = Low-density lipoprotein cholesterol
LICs = Low-income countries
LMICs = Low-income and middle-income countries
MI = Myocardial infarction:
MICs = Middle-income countries
PA = Physical activity
PSS = Psychosocial stress
PURE = Prospective Urban Rural Epidemiology study
QoL = Quality of life
SMS = Short message service
TGs = Triglycerides
WC = Waist circumference
WHO = World Health Organization

Cardiovascular disease (CVD) is global epidemic, but is at its worst in the developing world. Cardiac rehabilitation (CR) is an established model of care proven to reduce mortality and morbidity in patients with this disease.[1–3] While professional CR societies in high-income countries have published guidelines and recommendations on how to best deliver CR in the developed world,[4–8] there is scant guidance on how to practically and affordably deliver these programs in lower-resource settings such as middle-income countries (MICs).[9] Low-resource settings were defined according to the World Bank classification of low-income and middle-income countries (LMICs) based on gross national income.[10]

Given the last international-scale guidance on CR delivery in low-resource settings was almost 25 years ago from the World Health Organization,[11] the International Council of Cardiovascular Prevention and Rehabilitation (ICCPR; www.globalcardiacrehab.com) endeavored to systematically develop practical, evidence-based recommendations on how to deliver each of the core components of CR, namely (1) initial assessment, (2) lifestyle risk factor management (i.e., physical activity (PA), diet, tobacco, and mental health), (3) medical risk factor management [e.g., lipid control, blood pressure (BP) control], (4) education for self-management; (5) return to work, and (6) outcome assessment.

The writing panel was comprised of CR practitioners and researchers from the MIC setting as possible, with expertise representing all the core components of CR. The methods for developing clinical practice recommendations, and the recommendations themselves, are published in a companion statement.[12] These were based on evidence from MICs where available, which was not often the case. We hope this consensus statement will incite more research in this area.

Adaptation of service provision by type of most-responsible healthcare provider is outlined subsequent to the model (Box 1). This is followed by recommendations and examples on how this model of CR can be delivered in more-accessible, less expensive settings, namely the community, home and primary care settings.

Low-resource CR model

Core components of CR

The core components of CR have been established by the major CR associations from high-income countries (HICs), namely the American,[4] Australian,[5] British,[6] Canadian,[7] and European associations.[13] These core components have also been agreed upon in the ICCPR Charter, which has also been endorsed by CR associations in LMICs.[14]Herein each of the following common core components has been adapted for the MIC setting: 1) initial assessment, 2) lifestyle risk factor management (i.e., diet, tobacco, and mental health), 3) medical risk factor management (e.g., lipid control, BP control), 4) education for self-management; 5) return to work and 6) outcome evaluation. Strategies to implement the PA recommendations are found in the companion article.[12]

Initial assessment

The CR program should commence with a comprehensive assessment. It is recommended that the style of the assessment be consistent with motivational interviewing.[15] Specifically, the assessment should be client-centered and goal-oriented. Each of the following elements should be considered in the intake