



# ICCPR: Cardiac Rehab Around the World

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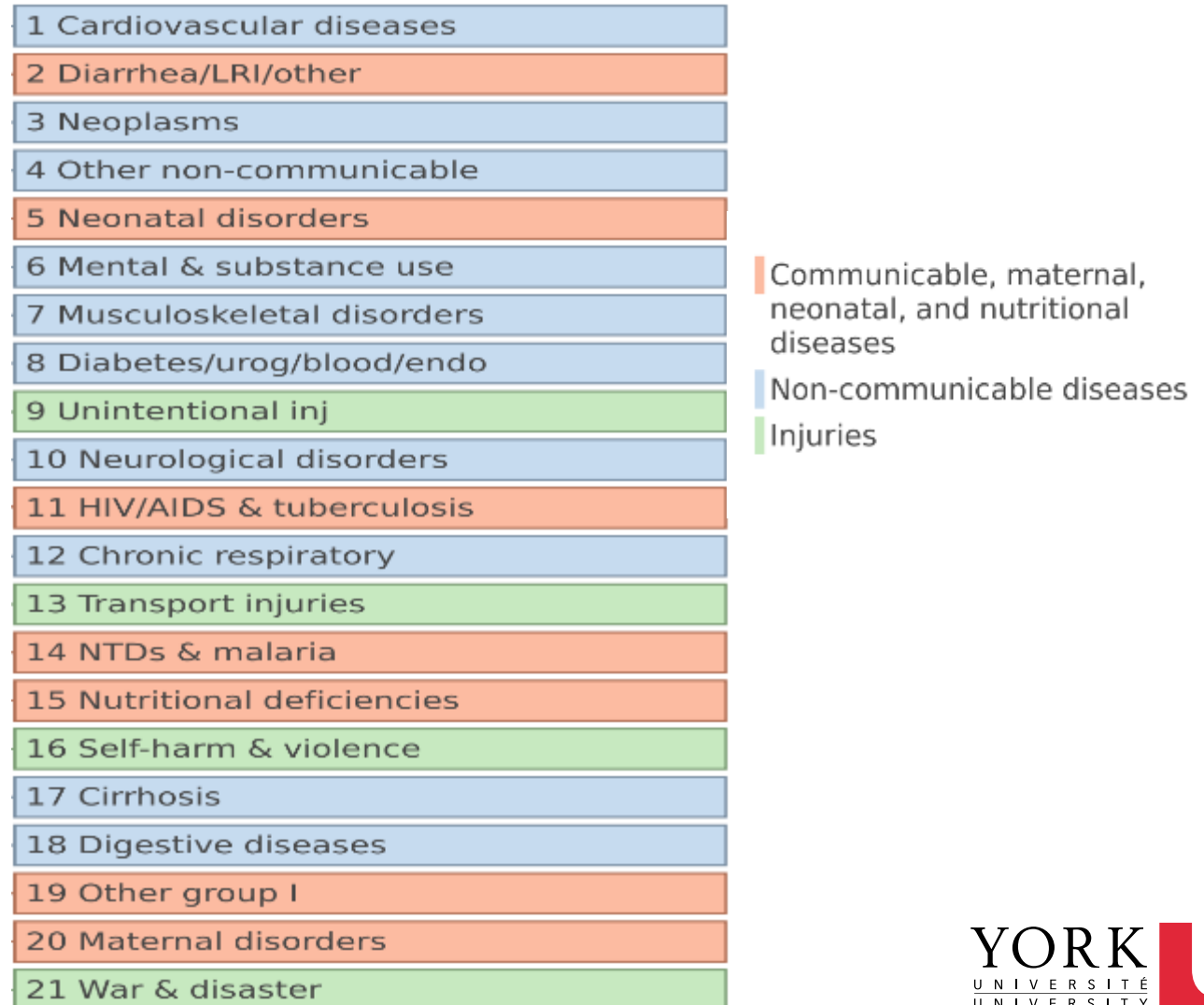


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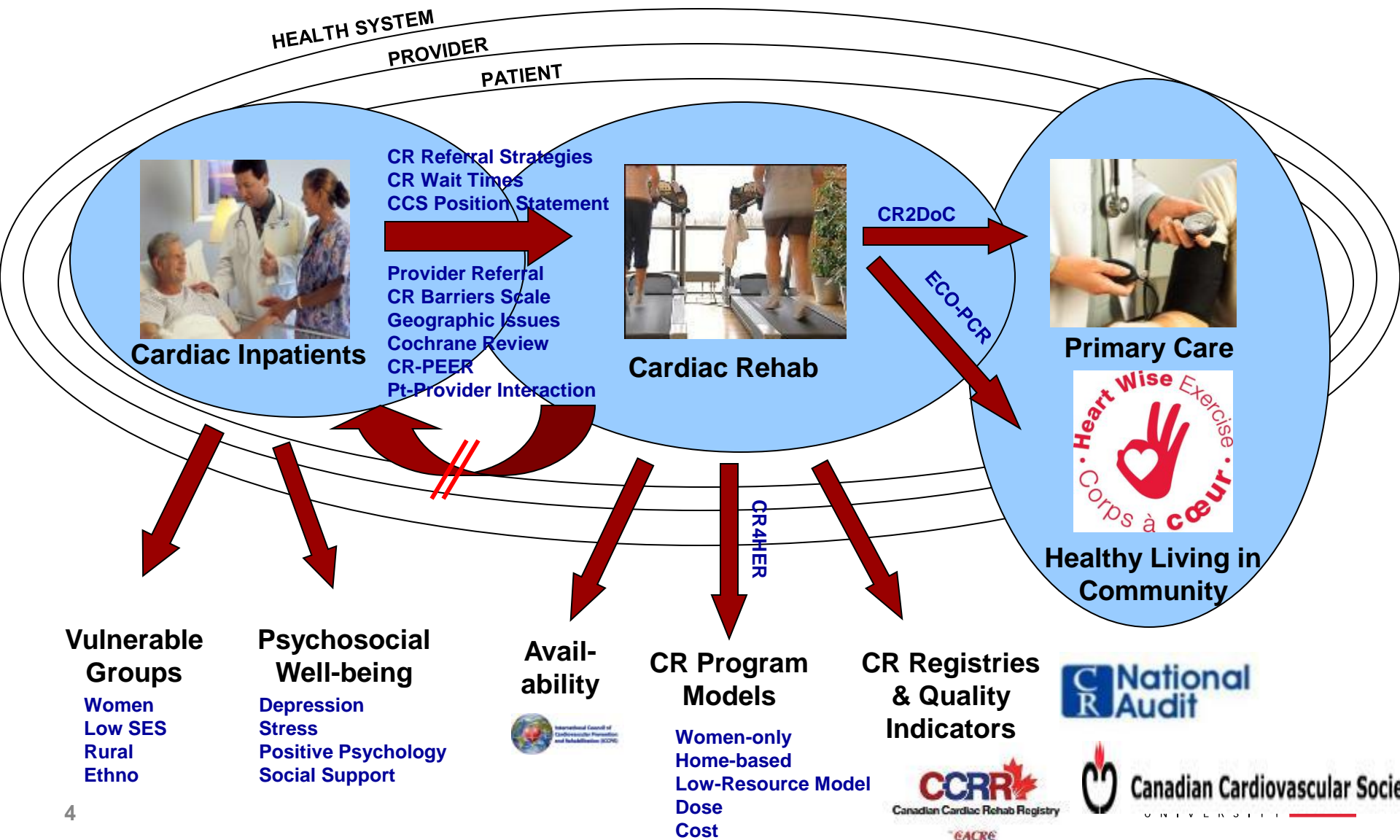


# Disability

Global  
Both sexes, All ages, DALYs

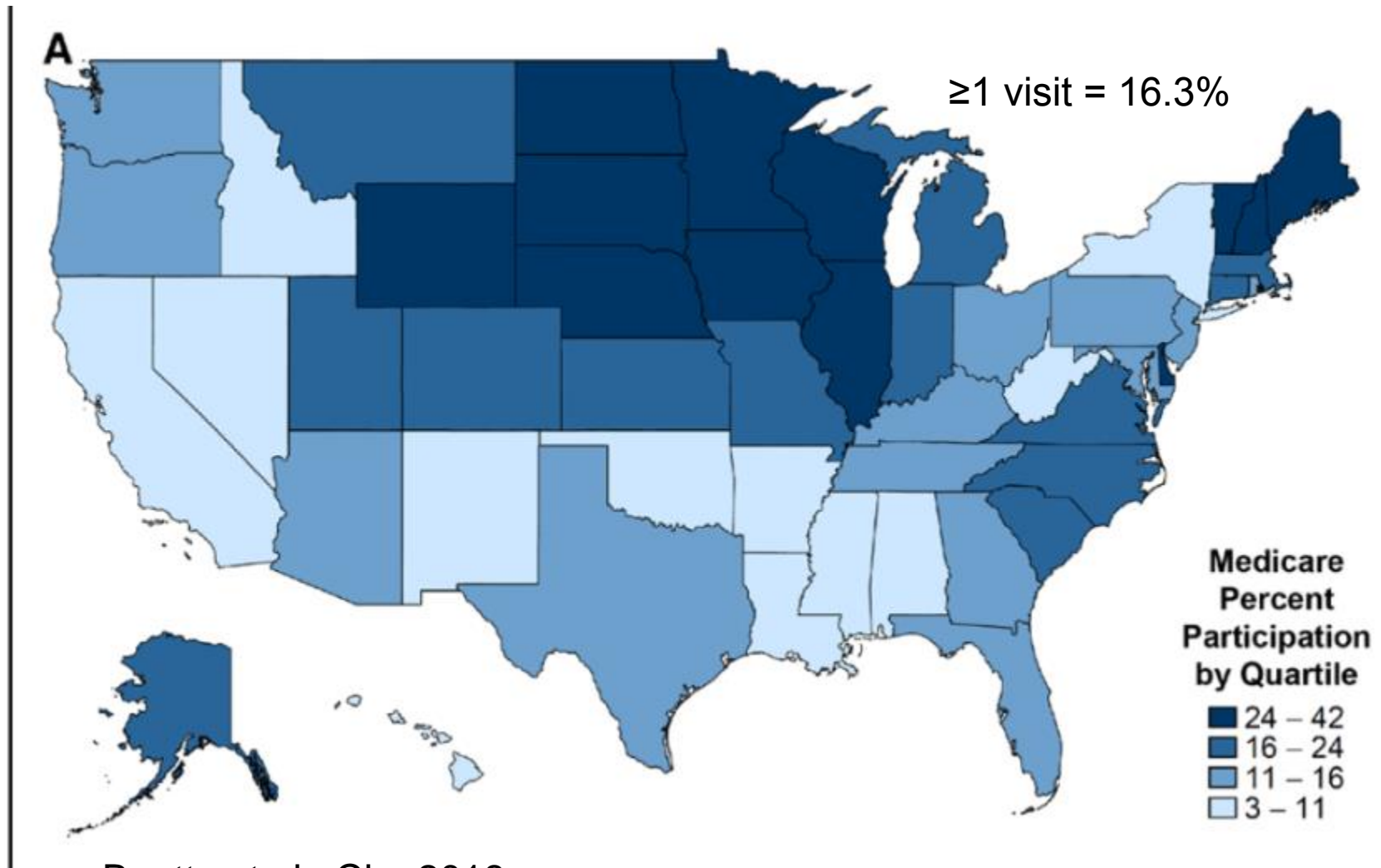


# Research Program: Understanding & Optimizing Post-Acute Cardiac Care & Outcomes





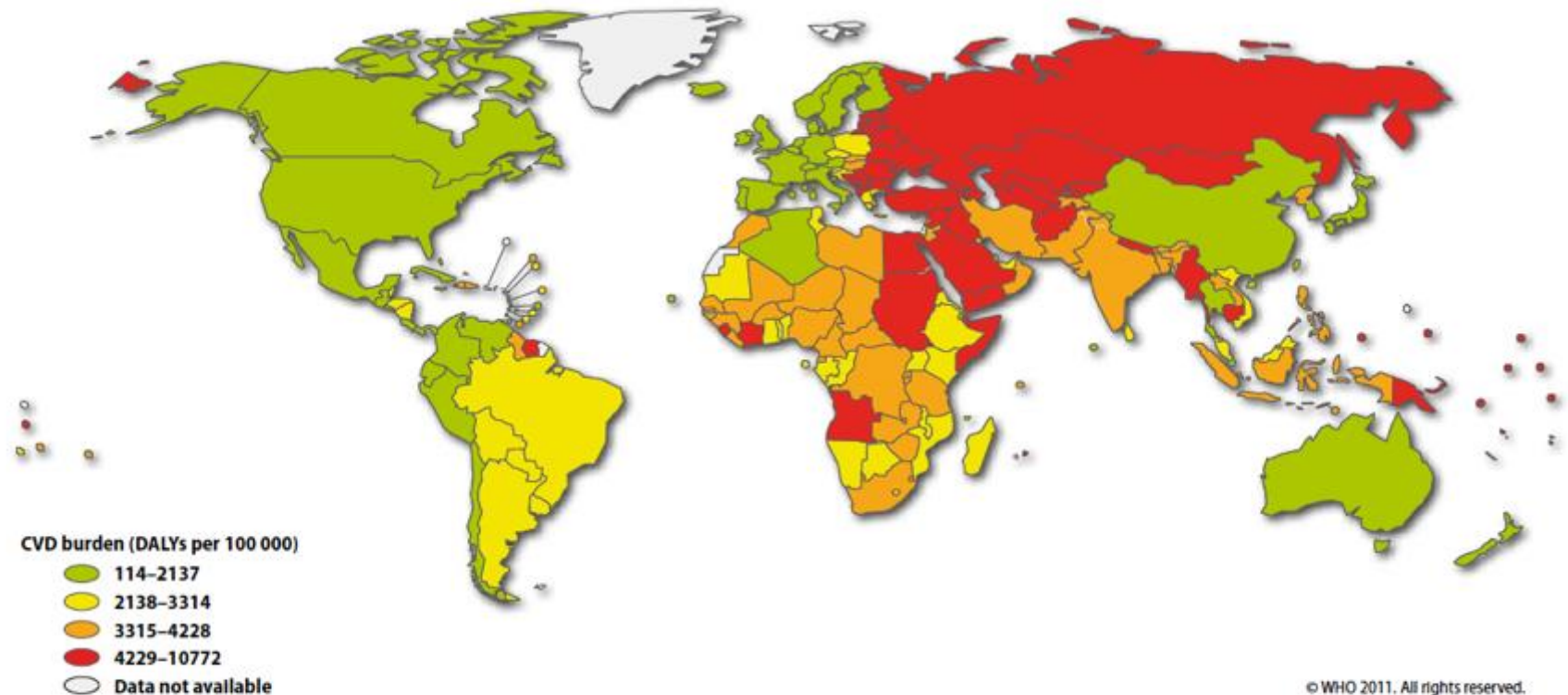
# CR Use in the US (2007-11)



— Beatty et al., Circ 2018;  
5% Medicare N=143,756

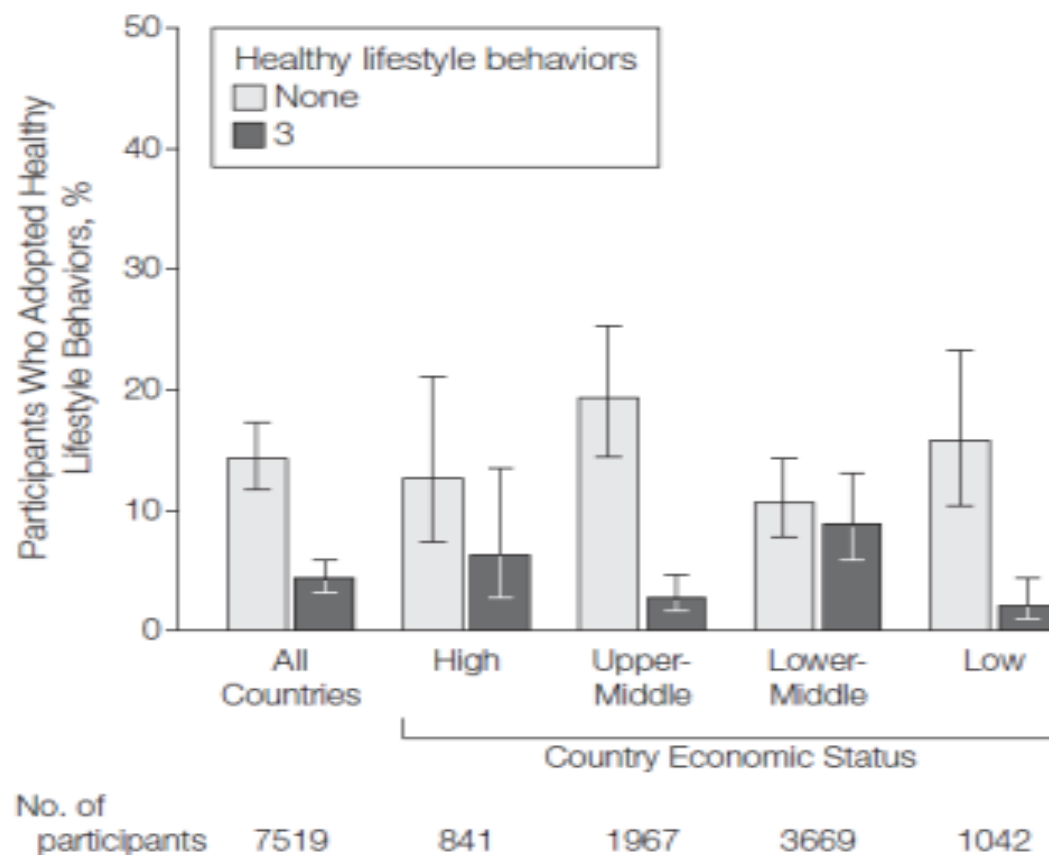
# CVD DALYs: Higher in Low and Middle-Income Countries (LMICs)

**Figure 8** World map showing the global distribution of the burden of CVDs (DALYs), in males (age standardized, per 100 000) (7).



**Figure 2.** Prevalence of Adoption of Combination of Healthy Lifestyle Behaviors by Coronary Heart Disease or Stroke Event

A Country economic status



Adjusted for age, sex, and country income status as appropriate base

# Availability, Use, and Barriers to Cardiac Rehabilitation in LMIC

Loheetha Ragupathi\*, Judy Stribling<sup>†</sup>, Yuliya Yakunina<sup>‡</sup>, Valentin Fuster<sup>‡§</sup>, Mary Ann McLaughlin<sup>‡</sup>, Rajesh Vedanthan<sup>‡</sup>

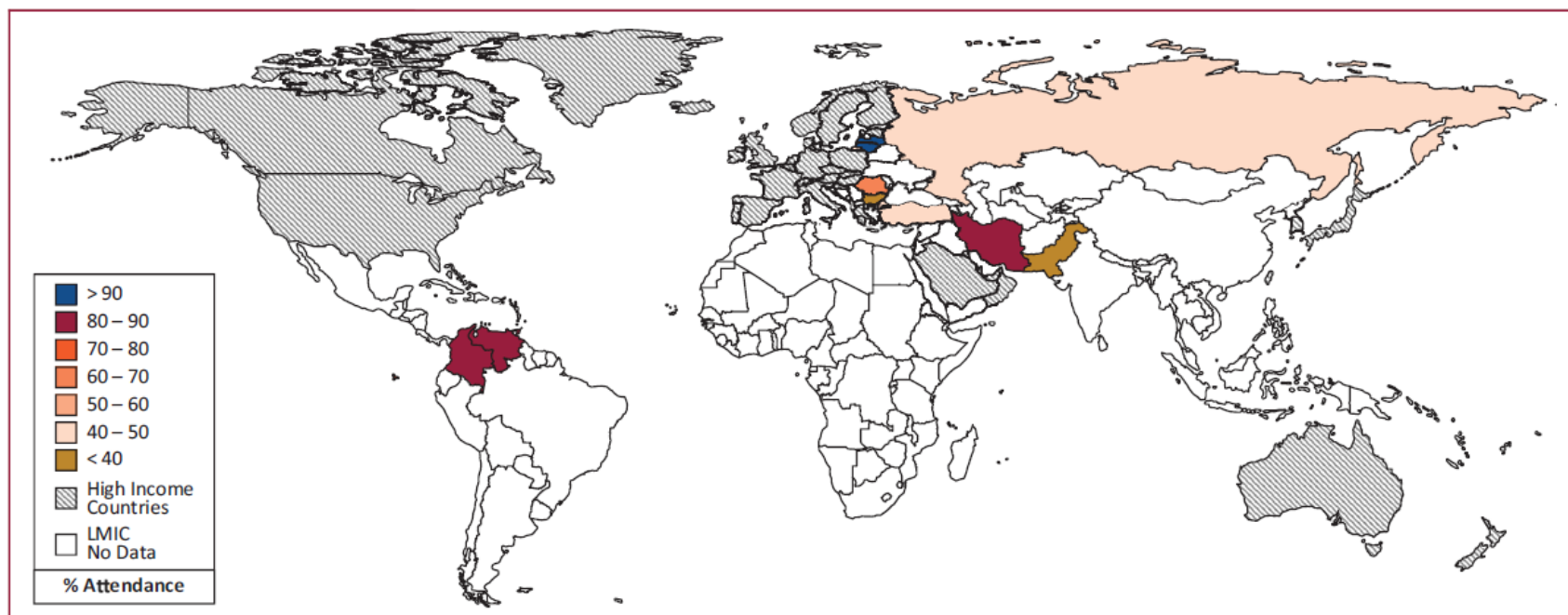


FIGURE 5. Cardiac rehabilitation program attendance rates in low- and middle-income countries (LMIC) among patients who were referred.



# History of Global CR Associations

- World Council of CR
  - Bi-annual conf
  - 8<sup>th</sup> & last one
  - Dublin 2004



- International Committee in AACVPR
  - Current chair: Francisco Lopez Jimenez
  - Reception at annual meeting (6-7pm this evening M100)
  - Scholarships too

# ICCPR Foundation



International Council of  
Cardiovascular Prevention  
and Rehabilitation (ICCPR)

- John Buckley, BACPR President attended CACPR meeting in 2010.
- In October 2011, with a grant from CIHR, an initial international workshop was hosted at the CACPR Congress in Vancouver.
  - 9 countries/associations represented
  - Goals, opportunities, vision, mission
- A result was the drafting of an International Charter on Cardiovascular Prevention and Rehabilitation.



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# ICCPR Charter & Call to Action

## International Charter on

Endorsed by the following organizations:

- American Association of Cardiovascular and Pulmonary Rehabilitation
- American Society for Preventive Cardiology
- Australian Cardiovascular Health and Rehabilitation Association
- The Brazilian Group of Cardiopulmonary and Metabolic Rehabilitation of the Brazilian Society of Cardiology
- British Association for Cardiovascular Prevention and Rehabilitation
- Canadian Association of Cardiac Rehabilitation
- Canadian Cardiovascular Society
- Cardiac Rehabilitation Association of New Zealand
- Centre for East-meets-West in Rehabilitation Sciences, Department of Rehabilitation Sciences, Hong Kong Polytechnic University
- Chinese Society of Cardiac Rehabilitation
- Iranian Heart Foundation
- Irish Association of Cardiac Rehabilitation
- National Society for the Prevention of Heart Disease and Rehabilitation (India)
- The Saudi Group for CardioVascular Prevention and Rehabilitation
- Sociedad Cubana de Cardiología

JCRP, 2013; 33:128-131

# ICCPR Goals

1. Bring together national CR associations
2. Work towards on-going consensus
3. Promote CR as an essential service
4. Support countries to establish and augment CR
5. Communicate the evidence base for CR



# ICCPR History, Cont'd



International Council of  
Cardiovascular Prevention  
and Rehabilitation (ICCPR)

- 2012: presented the Charter at the World Congress of Cardiology (WCC) in Dubai.
- Meeting of these 15 endorsing associations in Dubai, which was the first step towards forming an official group under the auspices of the World Heart Federation (WHF)
  - terms of reference
  - application
- In April, 2013, the ICCPR was successful in becoming an Associate International Member of the WHF.



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# 34 Associations of the



**International Council of  
Cardiovascular Prevention  
and Rehabilitation (ICCPR)**



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ASAKAR



# ICCPR Website

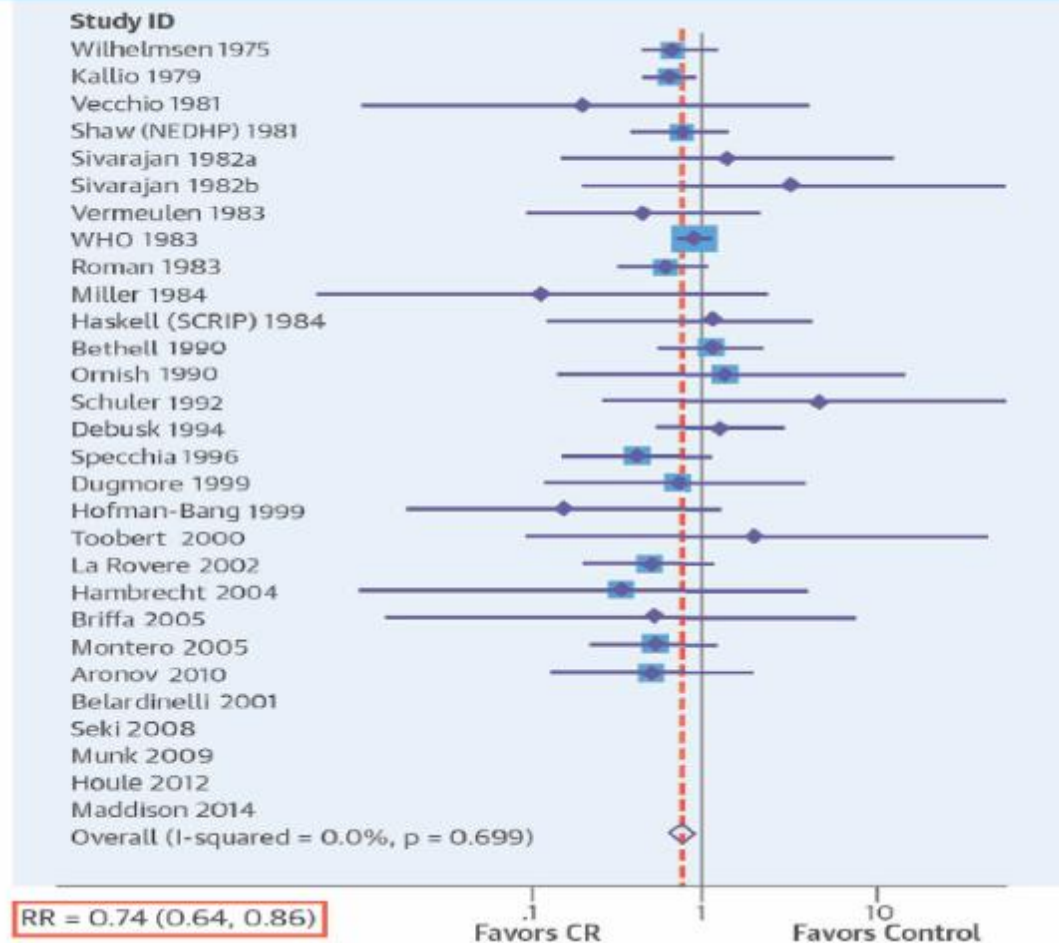
- [www.globalcardiacrehab.com](http://www.globalcardiacrehab.com)
- Collation of:
  - CR association newsletters
  - CR program directories
  - CR guidelines / position statements
  - CR core components / standards / QIs
  - CR training opportunities & competencies
  - CR registries
  - CR conferences
  - CR advocacy tools
  - Evidence-based resources for patients



Cochrane  
Library

Cochrane Database

### Exercise-based Rehabilitation Vs. Usual Care: Cardiovascular Mortality





# Example of ICCPR Collaboration at Work

**BMJ Open** Is exercise-based cardiac rehabilitation effective? A systematic review and meta-analysis to re-examine the

2018;8:e019656.

**Cardiac Rehabilitation Effectiveness? \*A commentary from the International Cardiac Rehabilitation Effectiveness? A response from the Canadian Association of Cardiovascular Prevention and Rehabilitation (CACPR)**

Sherry L Grace, Gabriela LM Ghisi and Caroline Chessex

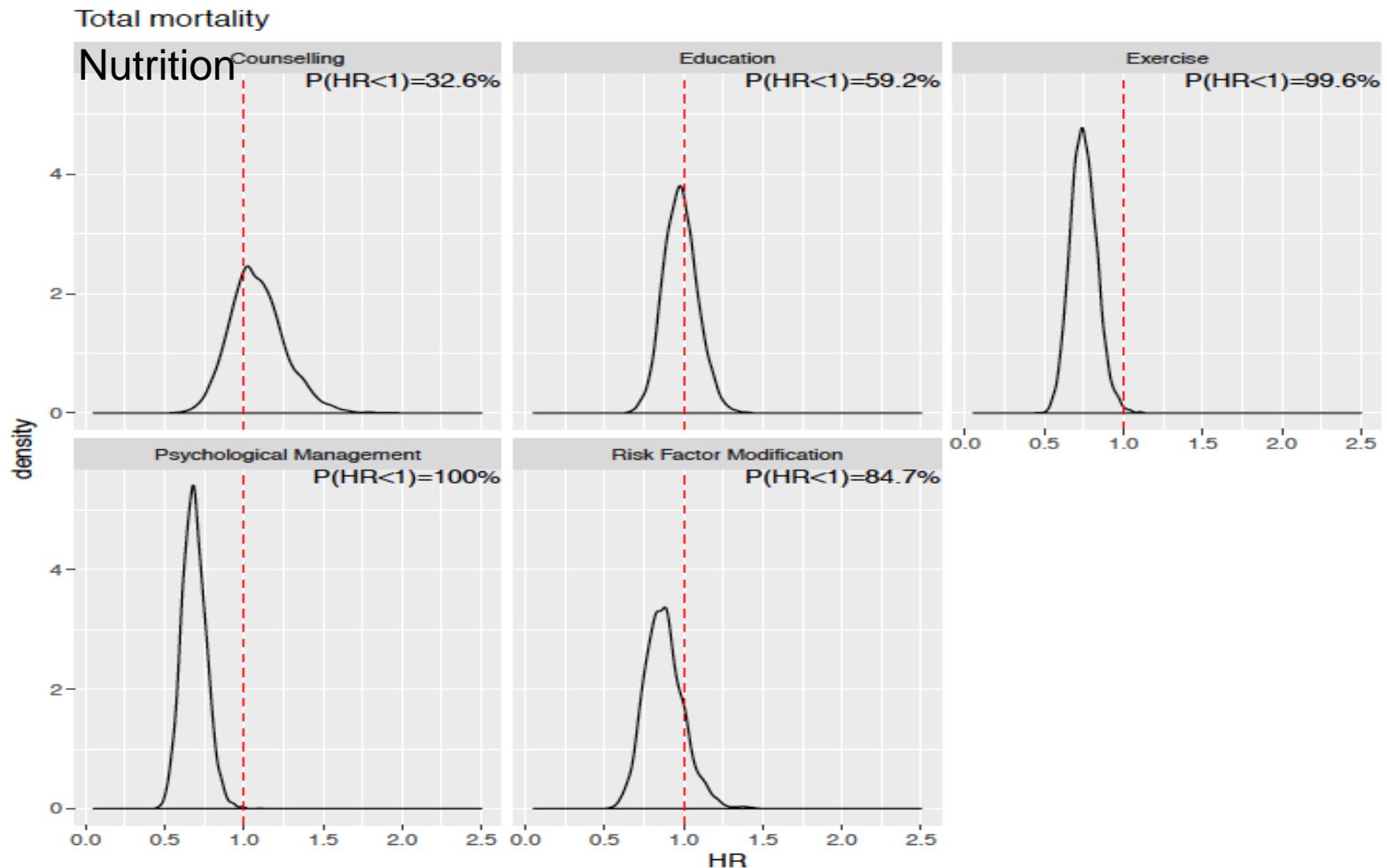
Published on: 3 April 2018

**Response from the British Association for Cardiovascular Prevention and Rehabilitation (BACPR) in collaboration with NACR, the Cochrane Heart Rehabilitation Review Coordination Centre and ACPICR**

Aynsley Cowie, Scott W Murray, Sally Hinton, Hasnain M Dalal, Simon J Nichols, Rod Taylor, Patrick Doherty and Laura Burgess

Published on: 29 March 2018

# Effects of Core CR Components: 1<sup>st</sup> network meta-analysis



# Quality of Life

# Review on Cost-Effectiveness

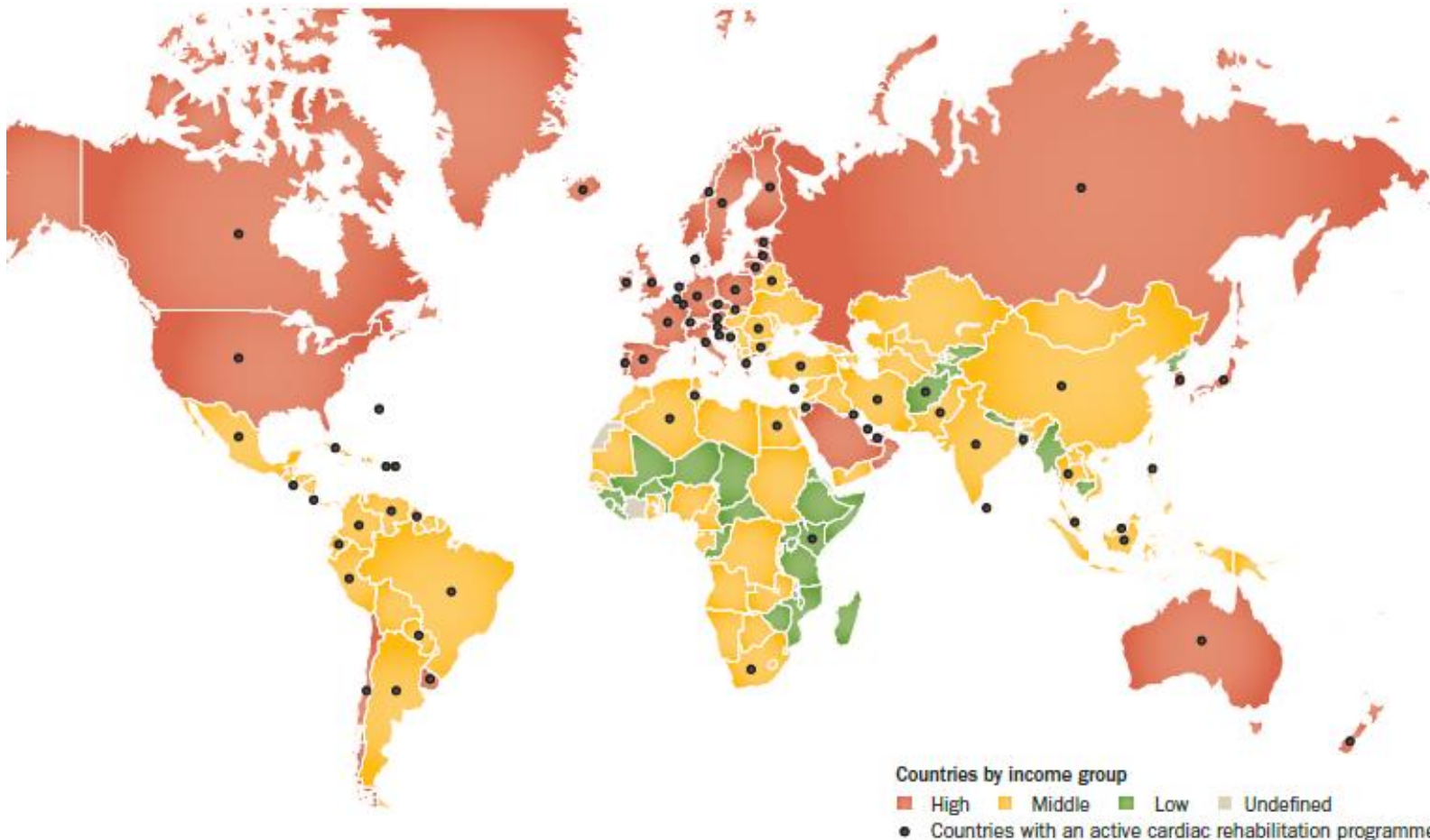
Study	Intervention and comparator	Net health benefits (per patient)	Net costs (per patient) Updated to common currency	Incremental cost-effectiveness ratio	Probability of cost-effectiveness
Comparing CR with no CR					
Georgiou <i>et al.</i> , 2001 <sup>21</sup>	Long-term moderate exercise training versus no exercise training	1.82 LYG	\$4650	\$2555/life-year saved	NR
Briffa <i>et al.</i> , 2005 <sup>30</sup>	Comprehensive CR plus UC versus no CR	0.009 QALYs	\$392	\$42 233/QALY	NR
Huang <i>et al.</i> , 2008 <sup>23</sup>	CR versus no CR	76 days life expectancy	\$4276	\$20 447/life-year saved	NR
Oldridge <i>et al.</i> , 2008 <sup>23</sup>	CR versus no CR	0.011 QWB-derived QALYs	\$789	\$71 755 per QALY (QWB derived QALYs)	58% (QWB-derived QALYs)
		0.040 TTO-derived QALYs		\$19 740 per QALY (patient TTO-derived QALYs)	83% (TTO-derived QALYs)
Leggett <i>et al.</i> , 2015 <sup>34</sup>	Centre-based outpatient CR programme versus no CR	0.07 QALYs	\$2147	\$30 943/QALY	NR
Rincón <i>et al.</i> , 2016 <sup>25</sup>	Exercise-based CR plus UC versus no CR programme	0.009 LYG	\$312	\$3367/LYG	76%
		0.29 QALYs		\$1065/QALY	
De Gruyter <i>et al.</i> , 2016 <sup>26</sup>	50% CR uptake (scenario 1) versus 30% uptake	NR	NR	BCR of 5.6	NR
	65% CR uptake (scenario 2) versus 30% uptake	NR	NR	BCR of 6.8	NR
Comparing exercise components of CR with education					
Yu <i>et al.</i> , 2004 <sup>21</sup>	CR and prevention programme (exercise and education) versus usual care (education only)	0.6 QALYs	–\$527	Dominant	NR
Reed <i>et al.</i> , 2010 <sup>24</sup>	Exercise training plus UC versus UC (education only)	0.03 QALYs	–\$2938 (adjusted for baseline characteristics) \$1294 (including patient time and out-of-pocket costs)	Varied between dominant and \$43 141/QALY	59%–74%
Köhr <i>et al.</i> , 2011 <sup>37</sup>	Supervised exercise therapy alongside standard care versus standard care	0.13 LYG	\$2911	\$23 598/LYG	55%
		0.10 QALYs		\$29 498/QALY	
Comparing telehealth interventions with CR based in a healthcare centre					
Cheng <i>et al.</i> , 2016 <sup>38</sup>	Healthy weight intervention (pedometer based) versus UC	0.04 QALYs (men)	\$1092 (men)	\$3287/QALY (men)	53%
		0.04 QALYs (women)	\$973 (women)	\$2630/QALY (women)	
	Physical activity intervention (pedometer based) versus UC	0.80 QALYs (men)	\$1789 (men)	\$2227/QALY (men)	46%
		0.88 QALYs (women)	\$1625 (women)	\$1854/QALY (women)	
Maddison <i>et al.</i> , 2015 <sup>25</sup>	Heart exercise and remote technologies mobile phone intervention plus UC versus UC (exercise and cardiac support group)	NR	\$2031	\$24 385/QALY	72%–90%
Frederix <i>et al.</i> , 2016 <sup>42</sup>	Cardiac telerehabilitation programme in addition to conventional centre-based CR versus centre-based CR programme	0.026 QALYs	–\$616	Dominant	NR
Kidholm <i>et al.</i> , 2016 <sup>26</sup>	ICT delivered individualised cardiac telerehabilitation programme versus traditional rehabilitation programme at the hospital or healthcare centre	0.004 QALYs	\$2029	\$588 734/QALY	NR
Comparing distribution of CR programmes					
Papadakis <i>et al.</i> , 2008 <sup>32</sup>	CR programme distributed over 12 months versus standard CR over 3 months	0.009 QALYs	–\$131	Dominant	63%–67%
Comparing care settings of CR programmes					
Taylor <i>et al.</i> , 2007 <sup>27</sup>	Home-based CR versus hospital-based rehabilitation	–0.06 QALYs	\$186	–\$3092/QALY	NR
Shields <i>et al.</i> , 2018 <sup>38</sup>	Outpatient CR versus hospital CR	0.048 QALYs	–\$4200	Dominant	NR
		NR	–\$32	Dominant	67%
Dehbarz <i>et al.</i> , 2015 <sup>29</sup>	Learning and coping education strategies versus US (standard CR)	0.005 QALYs	\$1131	\$226 128/QALY	29%

Shields et al., Heart; 2018



# Review of CR Availability Globally

- Available in <40% of countries worldwide



# Review of national surveys of CR programs, N=28

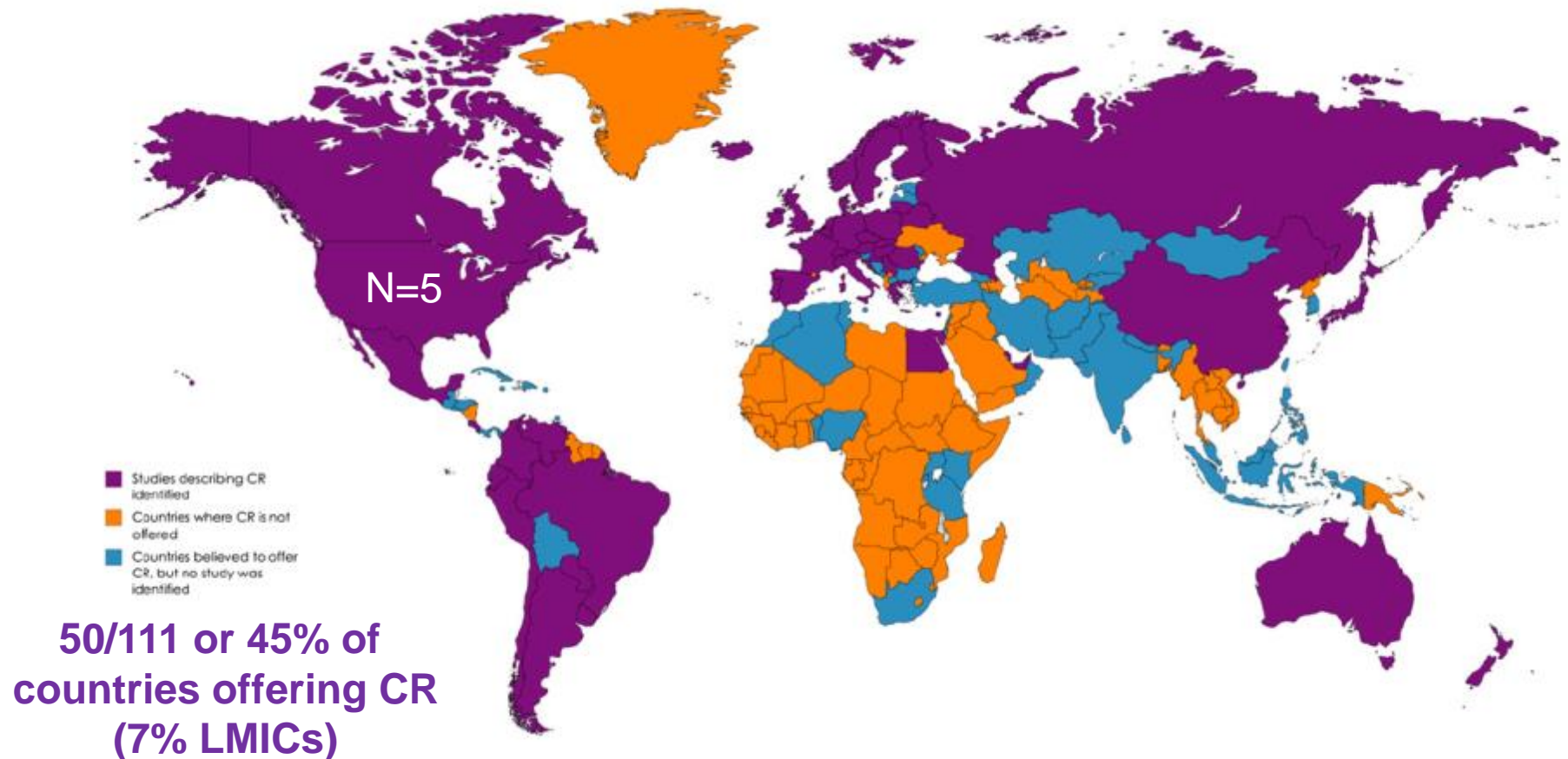
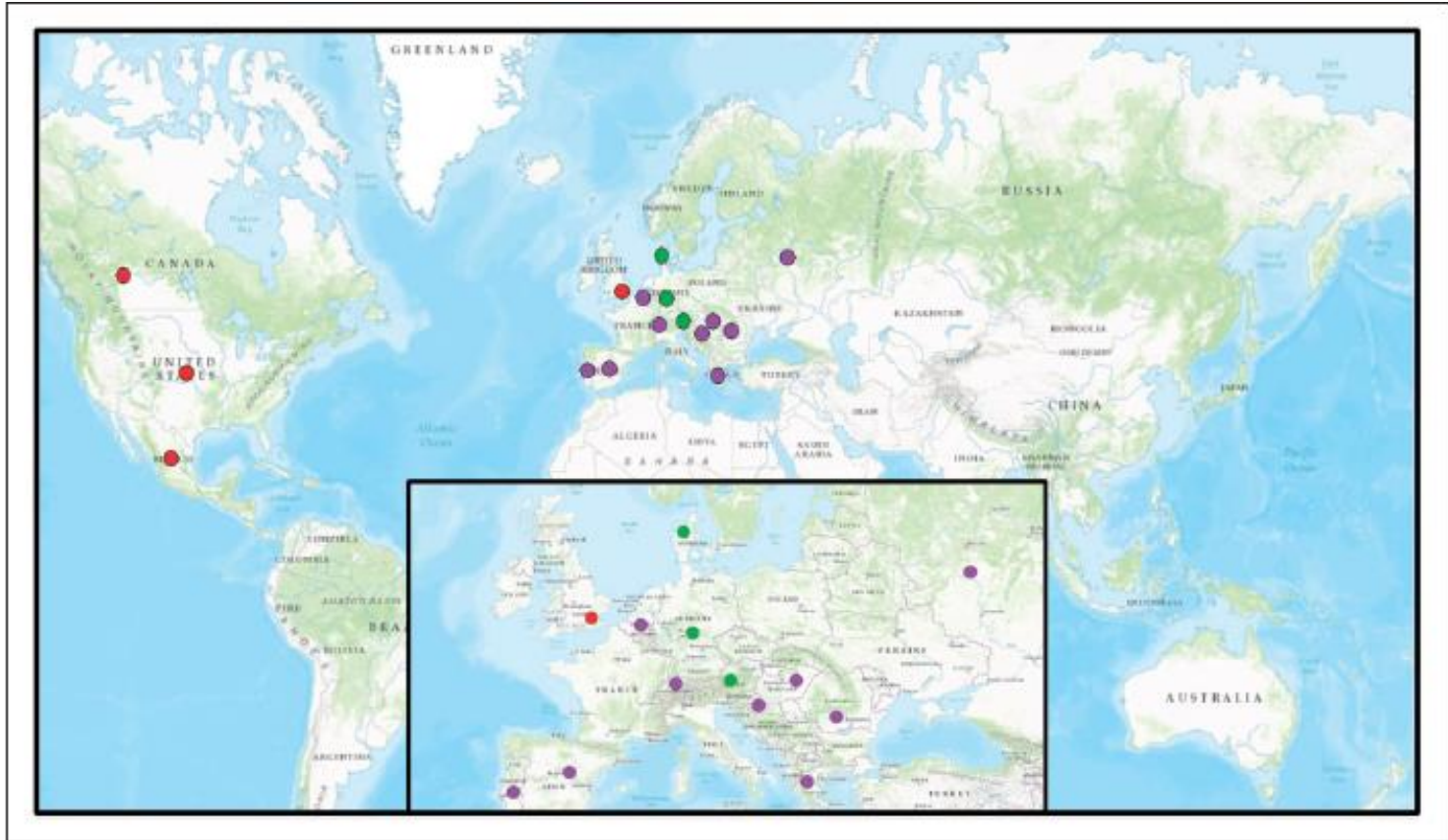


Fig 1 – World Map depicting countries where surveys of cardiac rehabilitation programs have been undertaken.

# Review of CR Registries Globally (8)



**Figure 2.** The location of included studies with national and international-level cardiac rehabilitation (CR) registries. Inset: Location of European CR registries. Red pin: identified national-level registries; purple pin: countries involved in the international-level EuroCaReD database; green pin: country has both a national-level CR registry and is involved in the EuroCaReD. Developed using ArcMap 10.5.

# CR Scales

- HACRA
  - PACRR
  - CRBS – 8 languages +
  - INCR
  - CADE-Q
  - CRPF-R (see review on pt satisfaction in CR – JCRP 2016 Taherzedehe ... Grace)
  - TERM
- Ghisi, G.



# Review: CR QIs (7)

Association (number of indicators)	AHA / ACCF / AACVPR (9)	ACRA (71)	BACPR (6)	CCS / CACPR (30)	EAPC* (1)	(13)	CSANZ SP WG (13)	Total (/6)
Country / Region	United States	Australia	England	Canada	Europe	Japan	New Zealand	
<u>Structure</u>								
Comprehensive program (all core components)			x					1
Medical director supervision				x	x			2
Emergency response strategy				x	x			2
Program duration			x					1
Multidisciplinary team with qualifications		x	x		x	x		4
CR offered to all indicated patients		x	x			x		3
Program model type documented (including reason & patient choice)		x						1
Audit / evaluation of program		x	x					2
<u>Process</u>								
Referral	x	x	x	x	x	x		6
Wait times	x		x	x				3
Enrollment	x	x		x				3
Under-served		x						1

Moghei, M.,\* Oh, P., Chessex, C., & **Grace, S.L.** (in press). Cardiac rehabilitation quality improvement: narrative review. JCRP.



**Table 4** Benefits of cardiac rehabilitation based on studies from low- and middle-income countries.

Author (country)	Study Design	Results
Ciftçi et al., 2005 (Turkey)	Pre and post 12-week CR	Significant increase in exercise capacity, oxygen consumption, anaerobic threshold, cardiac output and HDL ( $p < 0.05$ ). Significant decrease in BMI, total cholesterol, LDL and triglycerides ( $p < 0.001$ ).
Chakraborty et al., 2007 (India)	Exploratory study; pre-post assessment of 4-month comprehensive home-based	Significant improvements in work capacity, 6-minute walk distance, and all assessed domains of quality of life in both rural and urban patients ( $p < 0.001$ ) compared to baseline values, but no statistical difference between the groups
Jiang et al., 2007 (China)	Randomised controlled trial; nurse-led 6 month CR versus usual care	Intervention group had a significantly better performance in walking (with a net improvement of 8.61 scores, Jenkins Activity walking score, for CR participants vs. 6.29 scores for the control group, $p < 0.01$ ), diet adherence ( $p < 0.05$ ), medication adherence ( $p < 0.01$ ); significantly greater reductions in lipids including triglyceride ( $p < 0.01$ ), total cholesterol ( $p < 0.01$ ), LDL ( $p < 0.01$ ); and significantly better control of systolic and diastolic blood pressure ( $p < 0.05$ ) at three months.
Sarrafzadegan et al., 2008 (Iran)	Retrospective, observational study; before and after 24-session CR, some patients received lipid-lowering drugs	Significant decrease in systolic blood pressure (-2.9mmHg), TG (-25.5 mg/dl), cholesterol (-18.5 mg/dl), LDL (-16.7 mg/dl), weight (-1.6kg), BMI (-0.6 kg/m <sup>2</sup> ), waist circumference (-3.05cm), and FBS (3.5 mg/dl) ( $p < 0.05$ ). Significant increase in HDL (1.02mg/dl) and functional capacity (2.25Mets) ( $p < 0.001$ )
Avram et al., 2010 (Romania)	Prospective (16 months follow-up)	Significant decrease ( $p < 0.05$ ) in TG and cholesterol
Babu et al., 2011 (India)	Randomised controlled trial of pts who attended in-patient CR followed by 8-week home-based CR compared to usual care (with the treating physician advice on staying active)	Significant increase in 6-minute walk distance in the experimental group vs. the control group (514 m vs. 429 m; $p < 0.001$ ) following the eight week home-based program. Significantly higher scores ( $p < 0.05$ ) in the experimental group for mental and physical components of quality of life at the end of the 8-weeks of home-based CR, compared to controls
Intarakamhang & Intarakamhang, Thailand)	Quasi-experimental design; pre-test and post-test single group	Significant increase ( $p < 0.05$ ) in self-efficacy, self-regulation, quality of life, and self-care scores. Significant decrease ( $p < 0.05$ ) in BMI
i et al., ran)	Quasi-experimental before-after study	Significant improvement in quality of life domain scores of physical function, physical limitation, body pain, vitality, and general health ( $p < 0.05$ )

# Review of CR Guidelines / Statements –18 English (+ China...)

Country	Type of exercise	Intensity of exercise	Duration and frequency of sessions	Programme length
<b>South America</b> (South American Society of Cardiology, Inter-American Committee of Cardiovascular Prevention and Rehabilitation) <sup>25</sup>	<b>Aerobic endurance training</b>	60–80% HR <sub>max</sub> or 50–70% HRR (beginning at lower limit of range) At anaerobic threshold	30–60 minutes per session 2–5 sessions per week	1–5 months
	<b>Aerobic interval training</b>	Not specified		
	<b>Resistance training</b>	Load sufficient to cause fatigue for final 3 reps	6–15 reps per muscle group at an interval of 20–60 seconds 2–3 sessions per week	
	<b>Flexibility training</b>	Not specified	At end of each session	
<b>World Health Organization</b> (emphasis on developing countries) <sup>4</sup>	<b>Aerobic endurance training</b>	High intensity (60–75% peak work capacity or 70–85% HR <sub>peak</sub> )	20–30 minutes per session ≥3 sessions per week	≥6–8 weeks
	(e.g. stationary cycle, rowing, stepping as part of a circuit)	Low/moderate intensity	30–60 minutes including 15 minutes of	

# First International CR Guidelines

CONSENSUS STATEMENT

## Cardiac rehabilitation delivery model for low-resource settings

Sherry L Grace,<sup>1</sup> Karam I Turk-Adawi,<sup>2</sup> Aashish Contractor,<sup>3</sup> Alison Atrey,<sup>4</sup> Norm Campbell,<sup>5</sup> Wayne Derman,<sup>6</sup> Gabriela L Melo Ghisi,<sup>7</sup> Neil Oldridge,<sup>8</sup> Bidyut K Sarkar,<sup>9</sup> Tee Joo Yeo,<sup>10</sup> Francisco Lopez-Jimenez,<sup>11</sup> Shanthi Mendis,<sup>12</sup> Paul Oh,<sup>13</sup> Dayi Hu,<sup>14</sup> Nizal Sarrafzadegan<sup>15</sup>

Heart, vol 102; 2016 &  
Prog in CVD; vol 59

Endorsed by 10 national/international cardiac societies

<http://globalcardiacrehab.com/training-opportunities/certification/>



# GLOBAL SURVEY OF CR PROGRAMS

## Procedure





# Measures

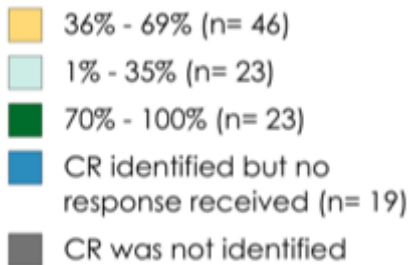
- (1) CR availability: existence  $\geq 1$  program (yes/no)
- (2) program volume: number of pts served by program/yr (reported in survey)
- (3) national capacity: median number of pts a program *could* serve annually among the responding programs in a given country, multiplied by the total number of programs in the country with CR (from champion)
- (4) national density: national capacity (#3; # spots) per annual incident IHD case in a country (from GBD; doesn't consider HF etc)
- (5) unmet need: IHD incidence minus national capacity (#3)

# Results: Response Rate

Data were  
collected in  
93/111 (83.8%)  
countries w CR

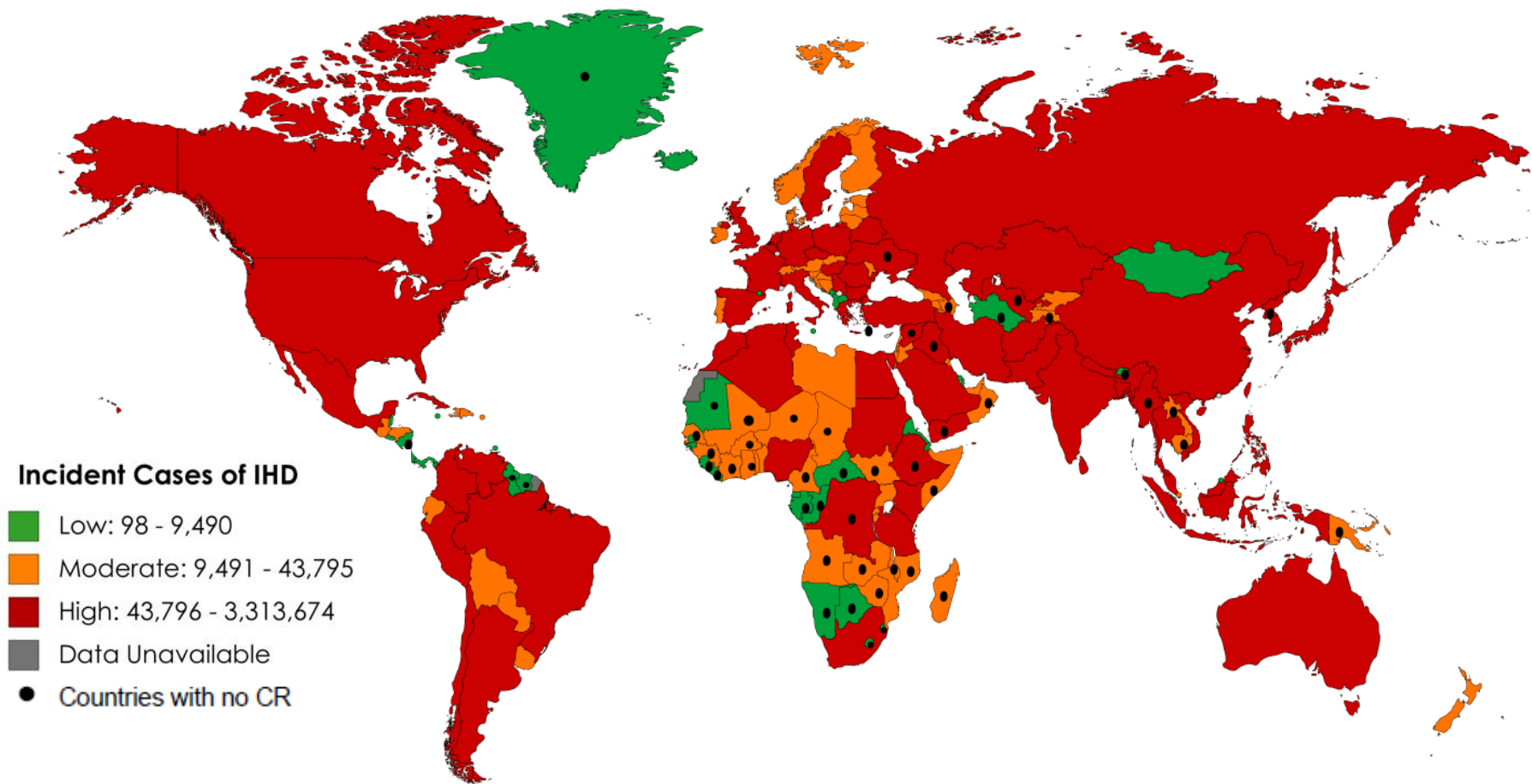
N=1082  
surveys,  
32.1%  
response rate

## Response Rate



Mean 9.7  
 $\pm 17.3$   
surveys /  
country

## Results: Availability of CR (111/203, 54.7%), by IHD Incidence Tertile



IHD incidence source: GBD

# Regional Density (also considering where unavailable)

WHO Region	1 spot per xx IHD patients
Africa	579
Americas	4
Eastern Mediterranean	89
Europe	8
South-East Asia	303
Western Pacific	17
Global	12

# Unmet CR Need for IHD Pts

WHO Region	# spots needed
Africa	1,345,915
Americas	2,206,166
Eastern Mediterranean	2,075,767
Europe	4,520,156
South-East Asia	4,268,368
Western Pacific	4,186,424
Global	18,600,466

\*All countries in region, so counts countries w/out CR as zero capacity



# Annual Median Program Volumes

WHO Region	
Africa	50
Americas (US=150)	80
Eastern Mediterranean	120
Europe	300
South-East Asia	160
Western Pacific	200
Global	157

# Some Volume Drivers

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1. Hybrid funding sources
2. Systematic inpatient referral
3. # pts served per session &
4. Alternative Models (e.g., home-based)

# ICCPR CR Reimbursement Advocacy Toolkit



Babu, Lopez Jimenez, Thomas, R., ... Grace; BMC HSR 2016  
<http://globalcardiacrehab.com/advocacy/>



CRCARE: Cardiac Rehab  
Care Continuity through Automatic Referral  
Evaluation

# Effect of Cardiac Rehabilitation Referral Strategies on Utilization Rates

## *A Prospective, Controlled Study*

Sherry L. Grace, PhD; Kelly L. Russell, MSc; Robert D. Reid, PhD, MBA; Paul Oh, MD, FRCPC;  
Sonia Anand, MD, PhD, FRCPC; James Rush, PhD; Karen Williamson, PhD; Milan Gupta, MD;  
David A. Alter, MD, PhD, FRCPC; Donna E. Stewart, MD, FRCPC; for the Cardiac Rehabilitation Care Continuity  
Through Automatic Referral Evaluation (CRCARE) Investigators

**Table 3. Cardiac Rehabilitation (CR) Referral, Enrollment, and Participation Rates by Referral Strategy**

Referral Strategy	Patients, No. (%)			Prescribed CR Sessions Attended of Those Referred, Mean (SD), %,
	Referred	Enrolled	No. Enrolled of Those Referred	
Usual (2 wards)	94 (32.2)	83 (29.1)	71 (78.0)	83.4 (28.1)
Liaison only (6 wards)	284 (59.0)	239 (50.9)	228 (83.2)	83.2 (27.2)
Automatic only (3 wards)	382 (70.1)	321 (60.7)	310 (84.2)	83.6 (27.0)
Combined automatic and liaison (5 wards)	396 (85.3)	335 (74.0)	329 (85.7)	81.9 (27.2)
<b>Total</b>	<b>1156 (64.9)<sup>a</sup></b>	<b>978 (56.3)<sup>a</sup></b>	<b>938 (84.0)</b>	<b>82.9 (27.2)</b>

<sup>a</sup> $P < .001$ .

## Society Position Statement

# Systematizing Inpatient Referral to Cardiac Rehabilitation 2010: Canadian Association of Cardiac Rehabilitation and Canadian Cardiovascular Society Joint Position Paper

Sherry L. Grace, PhD (Chair),<sup>a</sup> Caroline Chessex, MD, FRCPC (Co-Chair),<sup>b</sup>

Heather Arthur, PhD,<sup>c</sup> Sammy Chan, MD,<sup>d</sup> Cleo Cyr, RN, BN, MHS,<sup>e</sup> William Dafoc, MD,<sup>f</sup>

Martin Juneau, MD,<sup>g</sup> Paul Oh, MD,<sup>h</sup> and Neville Suskin, MBChB<sup>i</sup>

- Target = 85% CR referral
- Target= 70% CR enrolment



Canadian Cardiovascular Society



**CACPR**

Canadian Association of Cardiovascular  
Prevention and Rehabilitation



PROCESS INDICATOR NO: CR-1	
IN-PATIENTS REFERRED TO A CARDIAC REHABILITATION PROGRAM	
<b>Description</b>	The percentage of eligible in-patients referred to a Cardiac Rehabilitation (CR) Program.
<b>Numerator</b>	<p>A subset of the denominator representing a number of in-patients who were referred to a CR Program prior to hospital discharge.</p> <p>A referral is deemed being made if both of the following criteria are satisfied:</p> <ol style="list-style-type: none"> <li>1. There is an official written or electronic communication on behalf of the health care provider for referral to CR and</li> <li>2. The referral information has been received by the CR program.</li> </ol>
<b>Denominator</b>	The number of eligible in-patients in the reference period with any of the conditions or

**Table 1. ACC/AHA 2018 Clinical Performance and Quality Measures**

No.	Measure Title	Care Setting	Attribution
Performance Measures		Thomas et al., Circ: CQ&O 2018	
PM-1	CR Patient Referral From an Inpatient Setting	Inpatient	Facility Level
PM-2	Exercise Training Referral for HF From Inpatient Setting	Inpatient	Facility Level

<b>Sources of Data</b>	Electronic medical records, retrospective chart review, prospective flow sheets, Provincial and territorial hospital discharge abstract databases, CIHI hospital database, and/or cardiac registries.
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<b>Rationale</b>	CR participation significantly reduces mortality and morbidity. Inpatient referral prior to discharge facilitates timely, universal access to CR.
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<b>Clinical Recommendation(s)</b>	<ul style="list-style-type: none"> <li>All eligible CR patients should be referred to a CR program prior to hospital discharge. (Strong)</li> </ul>
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<http://www.ccs.ca/en/health-policy/programs-and-initiatives/quality-project>

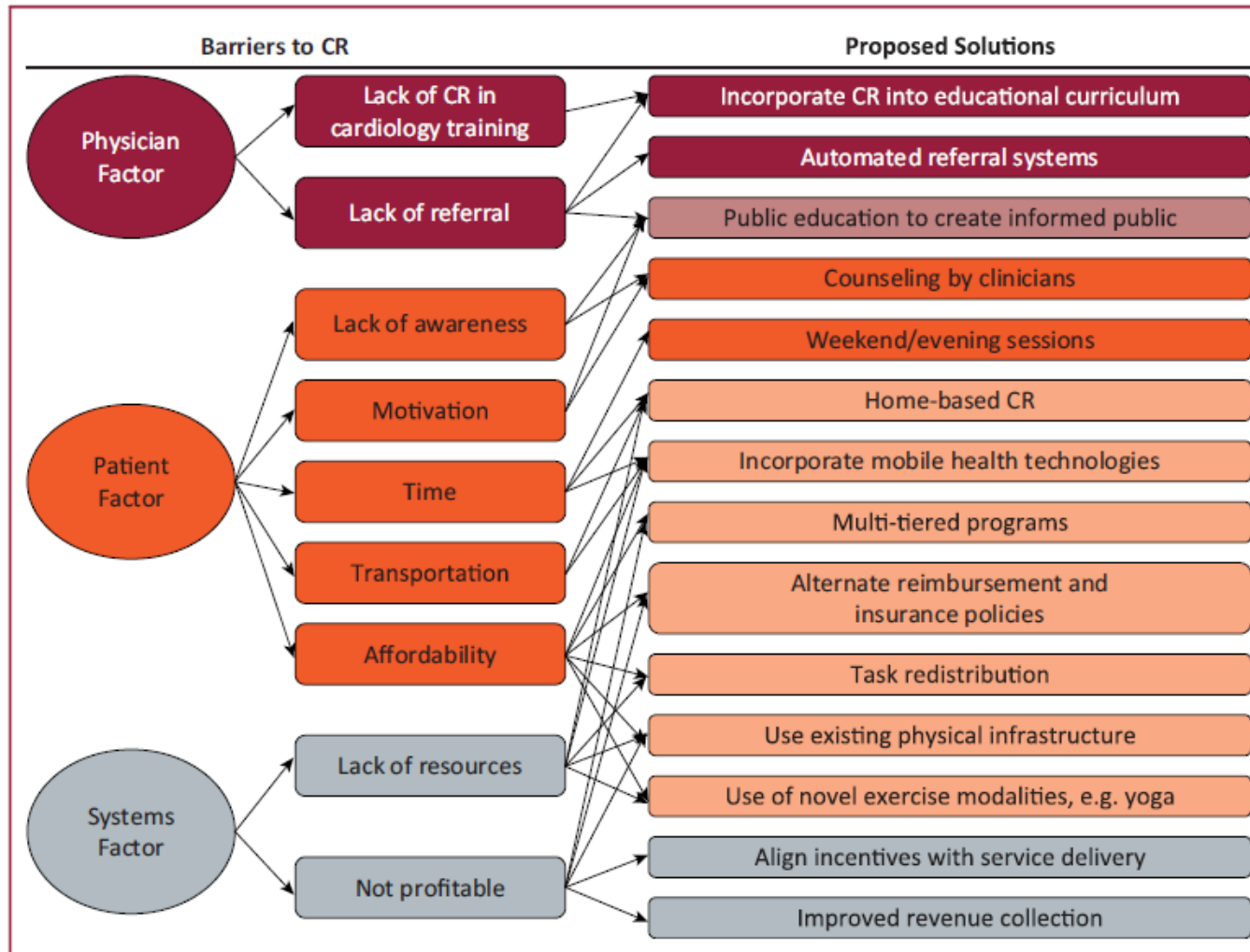
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Country / Region	United States	Australia	England	Canada	Europe	Japan	New Zealand	
<u>Structure</u>								
Comprehensive program (all core components)			x					1
Medical director supervision				x	x			2
Emergency response strategy				x	x			2
Program duration			x					1
Multidisciplinary team with qualifications		x	x		x	x		4
CR offered to all indicated patients		x	x			x		3
Program model type documented (including reason & patient choice)		x						1
Audit / evaluation of program		x	x					2
<u>Process</u>								
Referral	x	x	x	x	x	x		6
Wait times	x		x	x				3
Enrollment	x	x		x				3
Under-served		x						1

Moghei, M.,\* Oh, P., Chessex, C., & **Grace, S.L.** (in press). Cardiac rehabilitation quality improvement: narrative review. JCRP.



# How to Address CR Barriers in All Countries



# Conclusions

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- Despite overwhelming evidence of the clinical and economic benefit of CR, only 1/2 of countries have it available.
  - Of these 1/3 have only 1; and 1/2 have  $\leq 5$
  - Density in US 3<sup>rd</sup> best in world, but work to do
- SCALE UP:
  - unsupervised settings (exploit eCR, community spaces & primary care)
  - Reimbursement policy
  - Systematic referral

# Acknowledgements, etc

**Trainee:** Ella Pesah, MSc

**Funding:** The logo for York University, featuring the word "YORK" in a large serif font, with "UNIVERSITÉ" and "UNIVERSITY" in smaller sans-serif fonts below it, and a red stylized "U" to the right.

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**International Council of  
Cardiovascular Prevention  
and Rehabilitation (ICCPR)**

<http://globalcardiacrehab.com/>



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- Turk-Adawi, K., Supervia, M., Lopez, Jimenez, F., ....., & Grace, S.L. Global cardiac rehabilitation availability, volume, capacity and density. JAMA Cardio. (under review)

# For More Information

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# Summary of CR in US

- # CR programs: 2,632
  - CR spots: 547,456/year
- IHD burden: 1,344,974
  - Unmet need= 797,518 spots (but 3<sup>rd</sup> best density in world)
- Accepted indications: MI (98.2%), PCI (96.4%), CABG (96.4%), HF (96.4%), Stable CAD (60.0%); any non-CVD (23.6%)
- HCPs on team (median=4.5): nurses (93.0%), dietitians (86.0%), cardiologists (78.9%) and exercise specialists (71.9%)
- Median # sessions globally: 24 (vs US 36)
- Core components (median=9.5/11): need more R2W counselling (50.9%)
- Alt models / home-based: US=3.5% of programs vs global 31.1%



International Council of  
Cardiovascular Prevention  
and Rehabilitation (ICCPR)

# Cardiovascular Rehabilitation Foundations Certification (CRFC)

The CRFC educates **students and practitioners** on how to deliver all the core CR components, in accordance with ICCPR's consensus statement on CR delivery in low-resource settings.

## **Eligibility:**

Applicants require a minimum of 12 years of formal education, and 500 hours of healthcare experience (including volunteering).

**How To Apply:** <http://globalcardiacrehab.com/training-opportunities/>

The cost of the certification is \$100 USD.

**Requirements:** 8 online video modules, delivered by experts in the field and self-directed supplemental resource reading. There is a final exam consisting of 80 multiple choice questions.

## **For More Information**

Contact us: [iccprcrfc@gmail.com](mailto:iccprcrfc@gmail.com)

*good point -  
The definition of Rehab should include  
preventing further disease & disability*

## REHABILITATION 2030 a call for action

In February 2017, the participants of the Rehabilitation 2030 meeting will endorse the following ten areas for action to strengthen rehabilitation:

- Creating strong leadership and political support for rehabilitation at sub-national, national and global levels.
- Strengthening rehabilitation planning and implementation at national and sub-national levels.
- Improving integration of rehabilitation into the health sector to effectively and efficiently meet population needs.
- Incorporating rehabilitation in Universal Health Coverage.
- Building comprehensive rehabilitation service delivery models to progressively achieve equitable access to quality services, including assistive products, for all the population.
- Developing a strong multidisciplinary rehabilitation workforce that is suitable for country context, and promoting rehabilitation concepts across all health workforce education.
- Expanding financing for rehabilitation through appropriate mechanisms.
- Collecting information relevant to rehabilitation to enhance health information systems including system level rehabilitation data and information on functioning utilizing the International Classification of Functioning, Disability and Health (ICF).
- Building research capacity and expanding the availability of robust evidence for rehabilitation.
- Establishing and strengthening networks and partnerships in rehabilitation, particularly between low-, middle- and high-income countries.

In light of this, the WHO Rehabilitation Programme is focusing on three areas of work to support WHO Member States:

**Leadership and governance**  
**Planning and implementation**  
**Research and evidence**