

Cardiac Rehabilitation Audit Standards. Report completed on behalf of the European Society of Cardiology Working Group on Cardiac Rehabilitation and Exercise Physiology

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CARDIAC REHABILITATION AUDIT STANDARDS

Report completed on behalf of the European Society of Cardiology Working Group on Cardiac Rehabilitation and Exercise Physiology

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This report was completed on behalf of the Nucleus by Professor Hannah Mc Gee, Ms. Deirbhile Lavin and Dr. David Hevey (Dublin, Ireland). It developed from a consultation project to agree national data standards in Ireland. The work was conducted in parallel with a development project for data standards in acute cardiology which was underway at the Royal College of Surgeons (RCSI) as part of Ireland's EU Presidency in early 2004. Ms Deirbhile Lavin was the research officer on the project. Enquiries and copies of the report are available by contacting Professor Hannah Mc Gee (e-mail: hmcgee) or Health Services Research Centre, Royal College of Surgeons in Ireland, Mercer Street Lower, Dublin 2, Ireland.

PREFACE

Information on service provision is essential for quality assurance in cardiac rehabilitation. Such information is necessary at local, national and European level if high standards of care and continued service development are to be achieved. There is little systematic data collected within regions or countries in Europe at present. In a small number of countries standardised systems of data collection are at an early stage of implementation. This is an opportune time to extend these initiatives and to develop a common dataset of cardiac rehabilitation information that could be collected across European countries. The establishment of core data standards generic to all cardiac rehabilitation centres in Europe would enable comparison within and across countries and could be a powerful resource in the aim to provide cardiac rehabilitation to all European citizens who could benefit from this service.

This initiative undertaken by the Nucleus of the Working Group on Cardiac Rehabilitation and Exercise Physiology of the European Society of Cardiology (ESC), aims to promote the collection of a common core data set across centres and countries throughout Europe. In some countries, e.g. Ireland and the United Kingdom, national data collection systems will adopt this minimum data set. For others, we encourage individual centres or national cardiac rehabilitation associations to adopt or promote the use of the dataset. For those individual centres already collecting systematic data on patients, we do not ask that they abandon their existing system. It is completely possible to adapt existing systems to be compatible with the European core data set. To be compatible, the questions asked must be in the same format (use of words/answer options/ units of measurements) as the core data set. We have attempted to keep the data set to a minimum number of items – there are 83 variables including basic demographics and background clinical details. For individual centres, it is of course possible to add any number of additional variables of interest. Effectively a core data set provides a common “language” so that cardiac rehabilitation information can be properly compared and compiled across centres and countries.

This project has been developed in parallel with similar developments in other areas of cardiology. The European Union, during its 2004 presidency in Ireland, developed core data standards for acute coronary syndromes, percutaneous coronary interventions and electrophysiology – the Cardiology Audit and Registration Data Standards (CARDS). These have been agreed in conjunction with the ESC and are to be adopted across countries and registries in the coming years. This cardiac rehabilitation project has been developed alongside and is compatible with the core data sets for the acute cardiology services. It is encouraged that hospitals can run both datasets as one system. The cardiac rehabilitation database is established to collect information on all patients admitted to an acute cardiac setting who are eligible for cardiac rehabilitation. In this way, information will be available both on those who do and do not attend cardiac rehabilitation. Such information can greatly assist programme planners in terms of needs for service expansion and tailoring.

The Nucleus Working Group consulted with cardiac rehabilitation specialists in 30 European countries to identify existing databases and to develop a database compatible with what is already in use. We encourage you to use this data set in your centre and to promote it at regional and national level. Copies of this manual can be made available as necessary (see previous page for details). It is planned to collate the information from centres and countries in order to provide information on cardiac rehabilitation across Europe in the coming years. We look forward to your feedback and suggestions. Please support us to build knowledge on cardiac rehabilitation in the interests of cardiac patients throughout Europe.

August 2004

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* List derived from membership of the ESC Working Group on Cardiac Rehabilitation and Exercise Physiology

1.1 European data standards for cardiac rehabilitation

The following document outlines data standards for cardiac rehabilitation as a paper-based questionnaire.

Data standards are for routine collection on each individual patient in cardiac rehabilitation. Data standards represent a core data-set for cardiac rehabilitation. Additional information may be collected by individual centres. The use of these data standards will facilitate a coordinated approach to data collection in cardiac rehabilitation across Europe. This will allow the collation and comparison of data between cardiac rehabilitation centres.

Data standards can be used to support the following:

- Clinical audit: the use of data standards can monitor individual patient care and the achievement of secondary prevention targets.
- Health service planning: the use of data standards can establish benchmarks and support the comparison of individual service delivery systems.
- Epidemiological research: the use of data standards can monitor cardiac rehabilitation service coverage and population changes over time.

The widespread adoption of these data standards across Europe is encouraged. Similar initiatives across a number of areas in cardiology have been established through the Cardiology Audit and Registration Data Standards (CARDS) project. Core European data standards have been developed for acute coronary syndromes, percutaneous coronary intervention and electrophysiology.

1.2 Method of developing the cardiac rehabilitation data standards

The cardiac rehabilitation data standards were developed by a consensus method:

- Key representatives of cardiac rehabilitation in each European country were asked to identify national registers or data-sets in use in cardiac rehabilitation. These representatives were selected from the Nucleus and membership list of the European Society of Cardiology Working Group on Cardiac Rehabilitation and Exercise Physiology.
- Core items across registers and data-sets were identified and assembled into a core data-set.
- The core data-set was circulated to Nucleus members of the European Society of Cardiology Working Group on Cardiac Rehabilitation and Exercise Physiology and was refined based on feedback from nucleus members.

1.3 Cardiac rehabilitation data standards and registers used

The following datasets and registers were identified:

- European Database (EDB) - European Society of Cardiology Working Group for Cardiac Rehabilitation and Exercise Physiology
- Cardiac Rehabilitation Dataset - British Heart Foundation / British Association of Cardiac Rehabilitation (BHF/BACR)
- Cardiac Rehabilitation Information System (CRIS) - Irish Association of Cardiac Rehabilitation (IACR)
- Questionnaire to evaluate the quality of cardiac rehabilitation programme – Swiss Working Group for Cardiac Rehabilitation (SAKR/GSRC)

1.4 Structure of the cardiac rehabilitation data standards

The data standards are set out under the following headings (see table overleaf):

- 1. Field identification number (ID):** each data field has an identification number.

- 2. Field name/prompt:** this is a prompt or title for the field that could be used on a data entry form or screen, for example *date of birth*.

- 3 & 4 Short code and field content:** these contain a short numerical code for classification and a short string again for identifying a classification. For example the data field “sex” has the following options: (1) male, (2) female and (9) unknown. The numerical codes are (1), (2) and (9) and the short string options are male, female and unknown.

- 5. Definition of field:** this is a description or explanation of the field name.

- 6. Definition of field options:** this is a definition of the options that categorise the field content. (Where the field options correspond to the format used by CARDS this will be indicated).

1.5 Sub-sections of the cardiac rehabilitation data standards

The data standards are subdivided into the following sections:

- **Identification details:** includes patient unique identifier where appropriate to individual country.

- **Initiating event for cardiac rehabilitation:** includes data on patient’s present event, past medical history relevant to coronary heart disease and patient comorbidity.

- **Demographic details:** includes data such as date of birth, sex and age left full-time education.

- **Referral to cardiac rehabilitation:** includes data on referral to cardiac rehabilitation, patient attendance and reason for patient non-attendance.

- **Cardiac rehabilitation programme:** includes data on length of programme and sessions attended by patient.

- **Prophylactic drug treatment:** data is collected on patient medication before and after the cardiac rehabilitation programme.

- **Patient outcomes:** includes data on clinical, behavioural and psychological patient outcomes recorded before and after the cardiac rehabilitation programme.

- **Post-cardiac rehabilitation referral:** includes data on patient return to work and patient onward referral.

CARDIAC REHABILITATION DATA STANDARDS

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
Identification details					
CR 1.01	Patient unique identifier			Indicate the patient unique identifier	May not be relevant to all countries
CR 1.02	Patient hospital chart number			Indicate the patient hospital chart number	
CR 1.03	Cardiac rehabilitation centre number			Indicate the cardiac rehabilitation centre number	
Initiating event for cardiac rehabilitation					
CR 2.01	Initiating event for cardiac rehabilitation	1	STEMI/LBBB MI	Indicate the reason why the patient was seen by the cardiac rehabilitation team. Choose the most recent event e.g. if the patient had an MI followed by an angioplasty at the time that the patient was referred to cardiac rehabilitation, choose angioplasty.	<p>STEMI: There will normally be a history consistent with the diagnosis. The diagnosis requires the presence of cardiographic changes of ST elevation consistent with infarction of ≥ 2mm in contiguous chest leads and/or ST elevation of ≥ 1 mm ST elevation in 2 or more standard leads. (New LBBB is included; although ST elevation is usually apparent in the presence of LBBB)</p> <p>CARDS ACS (2004)</p>

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		2	NSTEMI		<p>NSTEMI: After early reperfusion treatment there may be rapid resolution of existing ST elevation associated with a CK rise less than twice the upper limit of normal or a small troponin release. If only troponin has been measured and is elevated; it is a local decision whether this is recorded as definite infarction or threatened infarction. In practice analysis of the use of thrombolytic treatment will be based on the admission diagnosis rather than the final diagnosis.</p> <p>CARDS ACS (2004)</p>
		3	Unstable angina		<p>Unstable angina is defined as angina pectoris (or equivalent type of ischaemic discomfort) with any 1 of the 3 following features:</p> <p>a. Angina occurring at rest and prolonged, usually greater than 20 minutes</p> <p>b. New-onset angina of at least CCS classification III severity</p> <p>c. Recent acceleration of angina reflected by an increase in severity of at least 1 CCS class to at least CCS class III The patient must also not have any biochemical evidence of necrosis</p> <p>CARDS ACS (2004)</p>
		4	Coronary artery bypass surgery		
		5	Percutaneous coronary intervention		
		6	Cardiac arrest		
		7	Angina		
		8	Other surgery		
		9	Heart failure		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		10	Pacemaker		
		11	ICD		
		12	Congenital heart disease		
		13	Cardiac transplant		
		14	LV assist		
		15	Other		
		99	Unknown		Information missing
CR 2.02	Date of the initial event			Indicate the date of the initiating event for cardiac rehabilitation. If the initiating event was heart failure or angina record the date that the patient presented to hospital during this admission. If the patient was not admitted to hospital, record the date that the patient was identified by the cardiac rehabilitation team.	
CR 2.03	Date of referral to cardiac rehabilitation			Indicate the date that the patient was referred to cardiac rehabilitation or when you first became aware of the patient. This may be the same as the date of initiating event.	
CR 2.04	Previous cardiac events prior to initiating event	1	STEMI/LBBB MI	Indicate if the patient had any previous cardiac events prior to the initial event which led to referral to cardiac rehabilitation	
		2	NSTEMI		
		3	Unstable angina		
		4	Coronary artery bypass surgery		
		5	Percutaneous coronary intervention		
		6	Cardiac arrest		
		7	Stable angina		
		8	Other cardiac surgery		
		9	Heart failure		
		10	Pacemaker		
		11	ICD		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		12	Congenital heart disease		
		13	Cardiac transplant		
		14	LV assist device		
		15	None		
		16	Other		
		99	Unknown		Information missing
CR 2.05	Comorbidity	1	Angina	Indicate patient comorbidity as recorded in the patient's case notes	
		2	Arthritis (osteoarthritis)		
		3	Cancer		
		4	Diabetes		
		5	Rheumatism (rheumatoid arthritis)		
		6	Stroke		
		7	Osteoporosis		
		8	Chronic obstructive pulmonary disease (COPD)		
		9	AIDS		
		10	Claudication		
		11	Chronic back problems		
		12	Other comorbid complaints		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
Demographic details					
CR 3.01	Date of birth				
CR 3.02	Gender	1	Male		
		2	Female		
		99	Unknown		
CR 3.03	Marital status	1	Single		
		2	Married/partner		
		3	Divorced/separated		
		4	Widowed		
		9	Unknown		Information missing
CR 3.04	Age left education (years)			Indicate the age that the patient completed full-time education including third level education	
Referral to cardiac rehabilitation					
CR 4.01	Invited to cardiac rehabilitation	1	No	Indicate if the patient was referred to cardiac rehabilitation. If the patient was referred to cardiac rehabilitation in another hospital, record this as referred to another hospital.	
		2	Yes		
		3	Referred to another hospital		
		99	Unknown		Information missing
CR 4.02	Date of invitation to cardiac rehabilitation			Indicate the date that the patient was invited to cardiac rehabilitation	
CR 4.03	Reason why the patient was not invited to attend cardiac rehabilitation	1	Exclusion criteria	Indicate why the patient was not invited to cardiac rehabilitation.	
		2	Lack of programme resources		
		3	Ongoing investigations		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		4	Died		
		5	Other		Specify other reason
CR 4.04	Agreed to attend cardiac rehabilitation	1	No	Indicate if the patient agreed to attend cardiac rehabilitation	
		2	Yes		
		99	Unknown		Information missing

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options	
CR 4.05	Reason why the patient did not agree to attend cardiac rehabilitation	1	Patient not interested	Indicate the main reason why the patient did not agree to attend cardiac rehabilitation		
		2	Ongoing investigation			
		3	Too far to travel			
		4	Physical incapacity			
		5	Returned to work			
		6	Exclusion criteria			
		7	Language barrier			
		8	Holidaymaker			
		9	Mental incapacity			
		10	No transport			
		11	Died			
			12	Not referred		
			13	Too ill		
			14	Other		
			99	Unknown		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
Cardiac rehabilitation programme					
CR 5.01	Programme start date				
CR 5.02	Programme completion date				

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 5.03	Number of sessions attended			Indicate the number of sessions the patient attended during the cardiac rehabilitation programme	
CR 5.04	Total number of programme sessions			Indicate the total number of sessions run by the cardiac rehabilitation programme	
CR 5.05	Reason for non-attendance	1	Did not attend - unknown reason	Indicate the reason why the patient did not attend cardiac rehabilitation sessions	
		2	Returned to work		
		3	Left this area		
		4	Achieved aims		
		5	Planned/emergency intervention		
		6	Too ill		
		7	Died		
		8	Other		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 5.06	Sessions the patient attended	1	Group exercise class	Indicate the education sessions the patient attended during the cardiac rehabilitation programme	Note that individual datasets are not required to include all these options. Datasets may select from the list provided or add additional data categories to the list. Coding for each item must remain the same across datasets.
		2	Individual exercise programme		
		3	Home exercise plan		
		4	Lifestyle education - written		
		5	Lifestyle education - talks/video		
		6	Dietary - group class		
		7	Dietary - individual		
		8	Stress management - relaxation training		
		9	Psychological advice - group session		
		10	Psychologist - individual session		
		12	Occupational therapist - group session		
		13	Occupational therapist - individual session		
		14	Vocational assessment		
		15	Heart Manual		
		16	Papworth Manual		
		17	Angina Plan		
		18	Other home-based programme		
		19	Home visits		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		21	Medication advice		
		20	Other		
		99	Unknown		Information missing
CR 5.07	Aspirin	1	No	Indicate if the patient was prescribed aspirin at discharge from hospital	
		2	Yes		
		99	Unknown		Information missing

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 5.08	Anti-platelet	1	No	Indicate if the patient was prescribed an anti-platelet agent at discharge from hospital	
		2	Ticlopidine/Clopidogrel		
		3	Other anti-platelet		
		99	Unknown		Information missing
CR 5.09	Anti-coagulant	1	No	Indicate if the patient was prescribed an anti-coagulant agent at discharge from hospital	
		2	Vit K antagonists		
		3	Oral thrombin inhibitors		
		4	Other		
CR 5.10	Beta-blocker	1	No	Indicate if the patient was prescribed a beta-blocker agent at discharge from hospital	
		2	Yes		
		99	Unknown		Information missing
CR 5.11	Ace-inhibitor	1	No	Indicate if the patient was prescribed an ace-inhibitor at discharge from hospital	
		2	Yes		
		99	Unknown		Information missing
CR 5.12	Angiotensin II receptor blockers	1	No	Indicate if the patient was prescribed an angiotensin II receptor blocker at discharge from hospital	
		2	Yes		
		99	Unknown		Information missing
CR 5.13	Diabetic control	1	None	Indicate the main method of diabetic treatment the patient has been receiving	

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
		2	Insulin and oral agent		
		3	Insulin		
		4	Oral agent		
		5	Diet only		
CR 5.14	Statins	1	No	Indicate if the patient was prescribed statins at discharge from hospital	
		2	Yes		
		99	Unknown		Information missing
CR 5.15	Non-statin lipid lowering agents	1	None	Indicate if the patient was prescribed non-statin lipid lowering agents at discharge from hospital	
		2	Ezetimbe		
		3	Fibrates		
		4	Other non-statin		Information missing

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
Pre- cardiac rehabilitation (as measured before or on the first day of cardiac rehabilitation)					
CR 6.01	Work status three months prior to cardiac event	1	Full-time employed	Indicate the patient work status three months prior to the cardiac event	
		2	Part-time employed		
		3	Self-employed full time		
		4	Self-employed part-time		
		5	Unemployed - looking for work		
		6	Government training scheme		
		7	Looking after family/home		
		8	Retired		
		9	Permanently sick/disabled		
		10	Temporarily sick/injured		
		11	Student		
		12	Other		
		99	Unknown		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 6.02	Hypertension	1	No	Indicate if the patient has been diagnosed with hypertension	<p>Hypertension is documented by</p> <ol style="list-style-type: none"> 1. History of hypertension diagnosed and treated with medication, diet, and/or exercise 2. Blood pressure greater than 140 mm Hg systolic and 90 mm Hg diastolic on at least 2 occasions 3. Current use of antihypertensive pharmacological therapy <p>CARDS ACS 2004</p>
		2	Yes		
		99	Unknown		
CR 6.03	Hypercholesterolemia	1	No	Indicate if the patient has been diagnosed with hypercholesterolemia	<p>History of dyslipidemia diagnosed and/or treated by a physician. National cholesterol education program criteria include documentation of the following:</p> <ol style="list-style-type: none"> 1. Total cholesterol greater than 200 mg/dl (5.18mmol/l) 2. LDL greater than or equal to 130 mg/dl (3.37 mmol/l) 3. HDL less than 40 mg/dl (1.04 mmol/l) <p>Treatment is also initiated if LDL is greater than 100 mg/dl (2.59 mmol/l) in patients with known coronary artery disease, and this would qualify as hypercholesterolemia</p> <p>CARDS ACS 2004</p>
		2	Yes		
		99	Unknown		
CR 6.04	History of depression	1	No	Indicate if the patient has been diagnosed with depression as recorded in the patient's case notes	
		2	Yes		
		99	Unknown		Information missing
CR 6.05	Total cholesterol (mmol/l)				

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 6.06	HDL cholesterol (mmol/l)				
CR 6.07	LDL cholesterol (mmol/l)				
CR 6.08	Triglycerides (mmol/l)				
CR 6.09	Blood pressure - systolic			Indicate the patient systolic blood pressure as measured on the first day of the cardiac rehabilitation programme	
CR 6.10	Blood pressure - diastolic			Indicate the patient diastolic blood pressure as measured on the first day of the cardiac rehabilitation programme	
CR 6.11	Height			Indicate the patient height (cm) as measured before or on the first day of the cardiac rehabilitation programme	
CR 6.12	Weight			Indicate the patient weight (kg) as measured before or on the first day of the cardiac rehabilitation programme	
CR 6.13	Waist circumference			Indicate the patient waist circumference (cm) as measured before or on the first day of the cardiac rehabilitation programme	
CR 6.14	Physical activity prior to initiating event	1	Active	Indicate the patient physical activity level pre-event or procedure	Active is defined as patients engaging in physical activity 30-45 mins, 4 to 5 times weekly at 60-75% of average maximum heart rate. <i>ESC European guidelines on cardiovascular disease prevention in clinical practice (2003)</i>
		2	Inactive		
		99	Unknown		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 6.15	Smoking prior to initiating event	1	Current	Indicate the smoking status of the patient pre-event or procedure Current: smoking cigarettes within thirty days of this admission Recent: Stopped smoking cigarettes between 1 month and 1 year before this admission Former: Stopped smoking cigarettes greater than 1 year before this admission Never: never smoked cigarette <i>CARDS ACS 2004</i>	
		2	Former		
		3	Never		
		99	Unknown		Information missing

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 6.16	Exercise stress test	1	No	Indicate if the patient had an exercise stress test before the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		Information missing
CR 6.17	METS			Indicate the number of METS the patient achieved	
CR 6.18	Number of shuttles			If the patient underwent a shuttle test indicate the number of shuttles the patient achieved	
CR 6.19	Distance			If the patient underwent a shuttle test indicate the distance achieved	
CR 6.20	Hospital Anxiety and Depression Scale	1	No	Indicate if the patient completed the Hospital Anxiety and Depression Scale before or on the first day of the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		Information missing
CR 6.21	Depression			Indicate the patient depression score	
CR 6.22	Anxiety			Indicate the patient anxiety score	

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
Post-cardiac rehabilitation (as measured on the last day of phase III or within two weeks of the cardiac rehabilitation programme)					
CR 7.01	Total cholesterol (mmol/l)			Indicate the patient total cholesterol level as measured on last day or within two weeks of the cardiac rehabilitation programme	
CR 7.02	HDL cholesterol (mmol/l)			Indicate the patient HDL cholesterol level as measured on last day or within two weeks of the cardiac rehabilitation programme	
CR 7.03	LDL cholesterol (mmol/l)			Indicate the patient LDL cholesterol level as measured on last day or within two weeks of the cardiac rehabilitation programme	
CR 7.04	Triglycerides (mmol/l)			Indicate the patient triglycerides level as measured on last day or within two weeks of the cardiac rehabilitation programme	
CR 7.05	Blood pressure - systolic			Indicate the patient systolic blood pressure as measured on the last day of the cardiac rehabilitation programme	
CR 7.06	Blood pressure - diastolic			Indicate the patient diastolic blood pressure as measured on the last day of the cardiac rehabilitation programme	
CR 7.07	Weight (kg)			Indicate the patient weight (kg) as measured on the last day or within two weeks of the cardiac rehabilitation programme	
CR 7.08	Waist circumference (cm)			Indicate the patient waist circumference (cm) as measured on the last day or within two weeks of the cardiac rehabilitation programme.	
CR 7.09	Physical activity - number of times per week			Indicate the frequency of physical activity the patient engaged in during the cardiac rehabilitation programme and any additional activity the patient engaged in outside the programme	
CR 7.10	Physical activity - number of minutes each time				

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 7.11	Smoking	1	Current	Indicate the patient smoking status as measured on the last day of the cardiac rehabilitation programme Current: smoking cigarettes within thirty days of this admission Recent: Stopped smoking cigarettes between 1 month and 1 year before this admission Former: Stopped smoking cigarettes greater than 1 year before this admission Never: never smoked cigarette <i>CARDS ACS (2004)</i>	
		2	Former		
		3	Never		
		99	Unknown		Information missing
CR 7.12	Post-exercise stress test			Indicate if the patient underwent an exercise stress test after the cardiac rehabilitation programme	
CR 7.13	METS			Indicate the number of METS the patient achieved	
CR 7.14	Number of shuttles			If the patient underwent a shuttle test indicate the number of shuttles the patient achieved	
CR 7.15	Distance			If the patient underwent a shuttle test indicate the distance achieved	
CR 7.16	Hospital Anxiety and Depression Scale	1	No	Indicate if the patient completed the Hospital Anxiety and Depression Scale as measured on the last day or within two weeks of the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		Information missing
CR 7.17	Depression score			Indicate the patient depression score	
CR 7.18	Anxiety score			Indicate the patient anxiety score	
CR 7.19	Aspirin	1	No	Indicate if the patient was taking aspirin after the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 7.20	Anti-platelet	1	No	Indicate if the patient was taking an anti-platelet agent on the last day of the cardiac rehabilitation programme	
		2	Ticlopidine/Clopidogrel		
		3	Other anti-platelet		
		99	Unknown		
CR 7.21	Anti-coagulant	1	No	Indicate if the patient was taking an anti-coagulant agent on the last day of the cardiac rehabilitation programme	
		2	Vit K antagonists		
		3	Oral thrombin inhibitors		
		4	Other		
CR 7.22	Beta-blocker	1	No	Indicate if the patient was taking a beta-blocker agent on the last day of the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		
CR 7.23	Ace-inhibitor	1	No	Indicate if the patient was taking an Ace-inhibitor on the last day of the cardiac rehabilitation programme	
		2	Yes		
CR 7.24	Angiotensin II receptor blockers	1	No	Indicate if the patient was taking an angiotensin II receptor blocker on the last day of the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 7.25	Diabetic control	1	None	Indicate the main method of diabetic treatment the patient has been receiving on the last day of the cardiac rehabilitation programme	
		2	Insulin and oral agent		
		3	Insulin		
		4	Oral agent		
		5	Diet only		
CR 7.26	Statins	1	No	Indicate if the patient was taking statins on the last day of the cardiac rehabilitation programme	
		2	Yes		
		99	Unknown		
CR 7.27	Non-statin lipid lowering agents	1	None	Indicate if the patient was taking non-statin lipid lowering agents on the last day of the cardiac rehabilitation programme	
		2	Ezetimbe		
		3	Fibrates		
		4	Other non-statin		
CR 7.28	Return to work after cardiac rehabilitation	1	No	Indicate if the patient returned to work or is intending to return to work after the cardiac rehabilitation programme	
		2	Yes		
		3	Other		
		99	Unknown		Information missing

ID	Field name/prompt	Short Code	Field content	Definition	Definition of field options
CR 7.29	Onward referral	1	Phase IV community exercise	Indicate if the patient was referred onwards after the cardiac rehabilitation programme	
		2	Primary care CHD Clinic Nurse		
		3	General practitioner		
		4	Medical speciality -medical treatment		
		5	Patient support group		
		6	Smoking clinic		
		7	Social services		
		8	Sexual problems		
		9	Community programme		
		10	Voluntary body		
		11	Phase IV hospital session		
		12	Heartwatch		
		13	Other		

Appendix 1: List of European countries consulted

Austria
Belgium
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Italy
Latvia
Lithuania
Republic of Moldova
Netherlands
Norway
Poland
Portugal
Republic of Georgia
Romania
Russian Federation
Serbia and Montenegro
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
United Kingdom

Appendix 2: Acknowledgements

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