



**EAPC**  
European Association  
of Preventive Cardiology

# Overview of Cardiac Rehabilitation in ESC member countries (OCRE)

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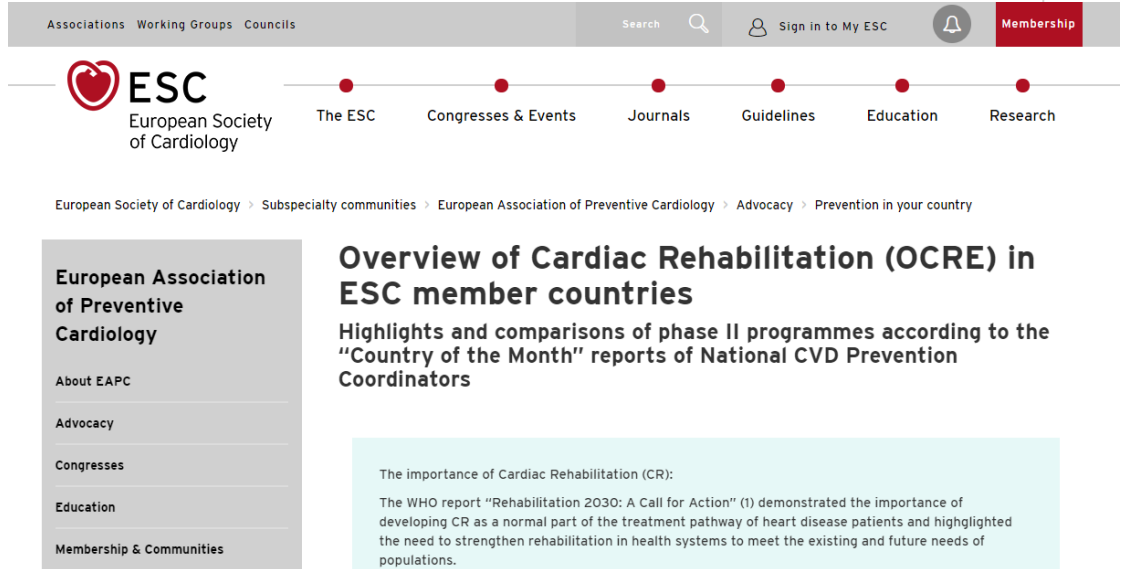
**ESC**  
European Society  
of Cardiology

# OCRE

**Objective:** to advance the knowledge about national cardiac rehabilitation (CR) settings in ESC member countries.

**Part 1 (2017):** synthesis of Country of the month reports

**Part 2 (2019):** direct inquiry of national CVD prevention coordinators

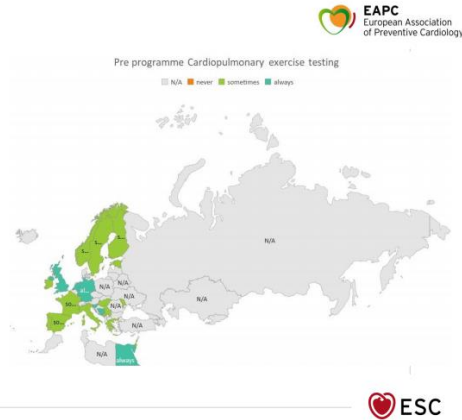


The screenshot shows the ESC website interface. At the top, there is a navigation bar with links for "Associations", "Working Groups", "Councils", "Search", "Sign in to My ESC", and "Membership". Below this is the ESC logo and a horizontal menu with items: "The ESC", "Congresses & Events", "Journals", "Guidelines", "Education", and "Research". A breadcrumb trail reads: "European Society of Cardiology > Subspecialty communities > European Association of Preventive Cardiology > Advocacy > Prevention in your country". On the left, a sidebar menu lists: "European Association of Preventive Cardiology", "About EAPC", "Advocacy", "Congresses", "Education", and "Membership & Communities". The main content area features the heading "Overview of Cardiac Rehabilitation (OCRE) in ESC member countries" followed by the sub-heading "Highlights and comparisons of phase II programmes according to the 'Country of the Month' reports of National CVD Prevention Coordinators". A light blue box contains the text: "The importance of Cardiac Rehabilitation (CR): The WHO report 'Rehabilitation 2030: A Call for Action' (1) demonstrated the importance of developing CR as a normal part of the treatment pathway of heart disease patients and highlighted the need to strengthen rehabilitation in health systems to meet the existing and future needs of populations."

# OCRE part 1

## Pre-exercise CPET/EST?

- The majority of countries only sometimes perform cardiopulmonary/exercise stress test (CPT/EST) before CT
- Only 7 countries report always performing CPT (Egypt, Slovenia, Germany, Luxembourg, Bosnia and Herzegovina, Netherlands, United Kingdom)
- Republic of Malta reports never performing CPTs



## Methodology:

The first part (2017) was derived from the synthesis of 28 "Country of the Month" reports. It describes extensively phase II programmes Europe-wide, but short-came to represent all countries in every topic, since the reporting style was not a closed format.

Results issued in 2017 can be found at [EAPC website](#)

\**Country of the month*: EAPC publishes CVD prevention reports, prepared by National CVD Prevention Coordinators (NCPCs), to facilitate the sharing of best practice and inspire health professionals in the field of preventive cardiology.

# OCRE part 2



## Methodology:

The second part (2019), which originated from the results of a pan-European online survey served to the National CVD Prevention coordinators, overcame the issue of missing data since valid participation required answering all 13 hot CR topics.

- Online survey
- 13 provision and quality indicators from the 6 components from part1
- All questions mandatory to allow submission
- NCPs reporting regarding 2018 based in published evidence (URL) or best estimate following national consensus
- results were combined with data from previous Part 1 for identical topics, when possible for the 51 countries
- If conflicting data, the most recent was preferred
- Outputs in graphs and map cards
- Results were validated by participating National Coordinators prior to publication

# OCRE part 2 Results



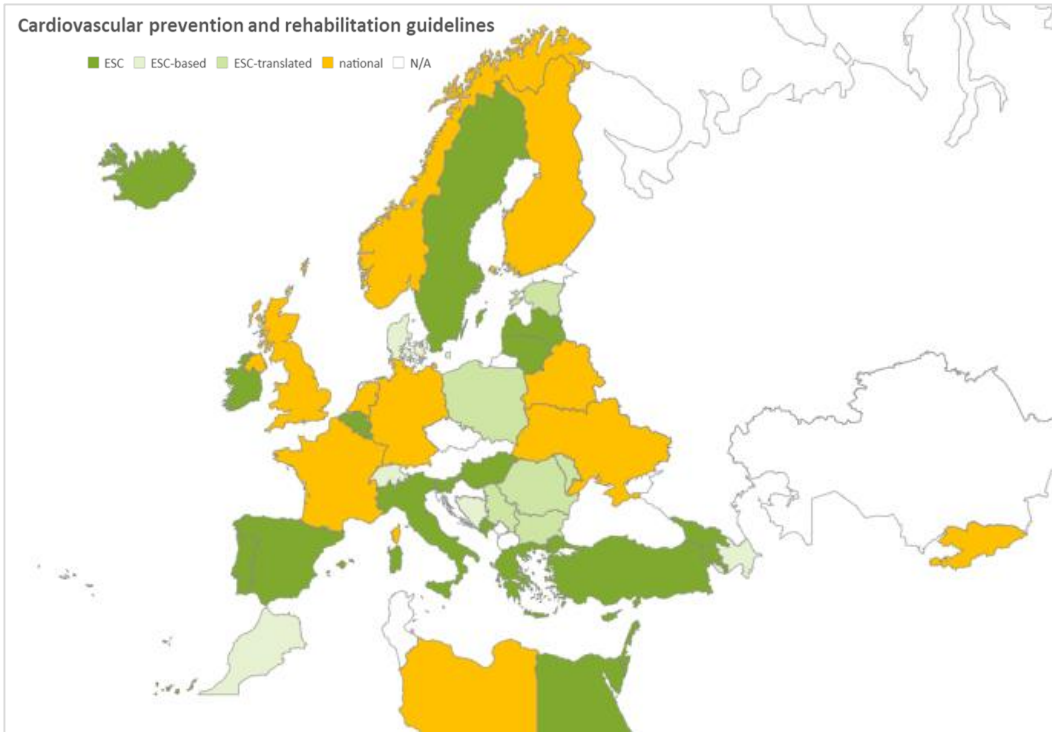
## Survey

51 ESC member countries  
with appointed NCPCs

**42 valid survey answers**

**82% participation rate**

# OCRE part 2 Results



## Cardiovascular prevention and rehabilitation guidelines

- 67% follow European guidelines (45% ESC, 10% ESC-based, 11% ESC translated)
- 19% follow national guidelines

# OCRE part 2 Results

ESC	ESC-based	ESC-translated	National
Armenia	Azerbaijan	Bulgaria	Belarus
Belgium	Bosnia and Herzegovina	Estonia	Finland
Cyprus	Denmark	Moldova (Republic of)	France
Egypt	Morocco	Poland	Germany
Georgia	Switzerland	Romania	Kyrgyzstan
Greece		Serbia	Libya
Hungary			Netherlands
Iceland			Norway
Ireland			UK*
Israel			Ukraine
Italy			
Latvia			
Lebanon			
Lithuania			
Luxembourg			
Malta			
Montenegro			
Portugal			
San Marino			
Slovenia			
Spain			
Sweden			
Turkey			

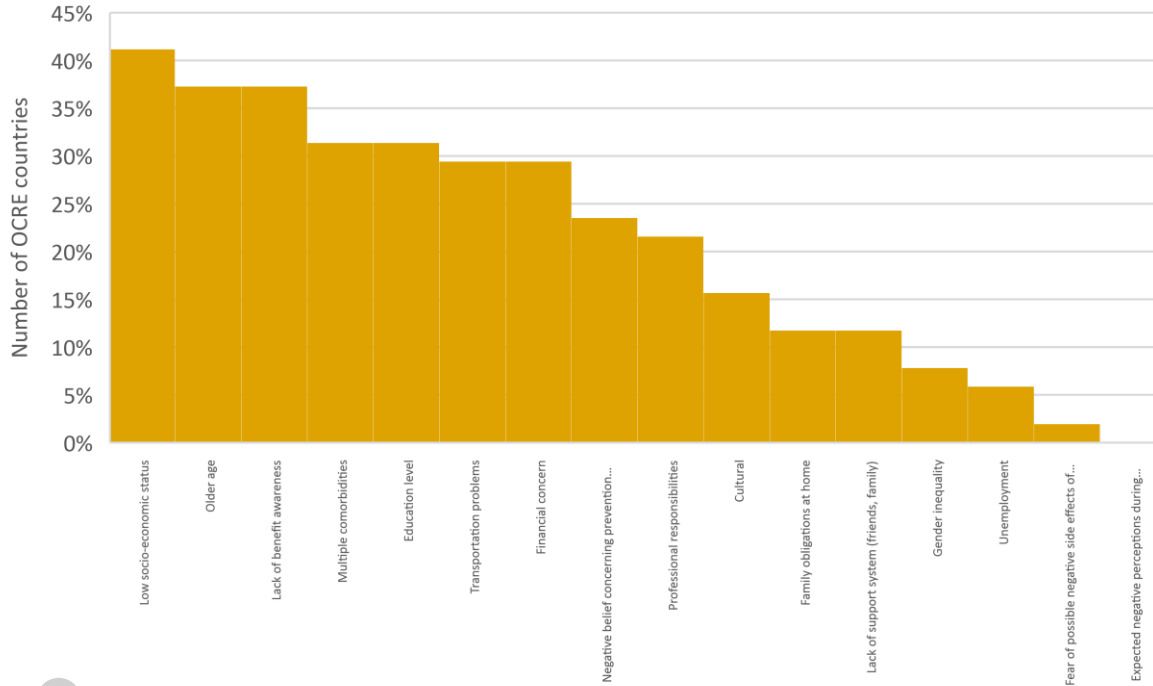
## Cardiovascular prevention and rehabilitation guidelines

5 evidence URL (Azerbaijan, Denmark, France, Germany, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results

## Major barriers to implementation of CVD guidelines PATIENT LEVEL



## Major PATIENT-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines

### Top 4 obstacles (% OCRE countries)

- low economic status, older age, lack of benefits awareness, multiple comorbidities



# OCRE part 2 Results

Low socio-economic status	Lack of benefits awareness	Older age	Multiple comorbidities
Armenia	Belgium	Armenia	Belgium
Belgium	Bulgaria	Belgium	Bosnia and Herzegovina
Bosnia and Herzegovina	Cyprus	Bosnia and Herzegovina	Cyprus
Bulgaria	Egypt	Bulgaria	Denmark
Denmark	Estonia	Cyprus	Egypt
Egypt	Iceland	Denmark	Hungary
Estonia	Israel	France	Ireland
Georgia	Latvia	Hungary	Italy
Hungary	Malta	Ireland	Latvia
Italy	Montenegro	Italy	Lithuania
Latvia	Morocco	Luxembourg	Luxembourg
Malta	Netherlands	Malta	Montenegro
Moldova (Republic of)	Poland	Netherlands	Netherlands
Netherlands	Romania	Norway	Romania
Norway	Serbia	Poland	Serbia
Poland	Slovenia	Romania	Spain
Portugal	Sweden	Slovenia	
Serbia	Turkey	Switzerland	
Sweden		UK*	
Turkey			
Ukraine			

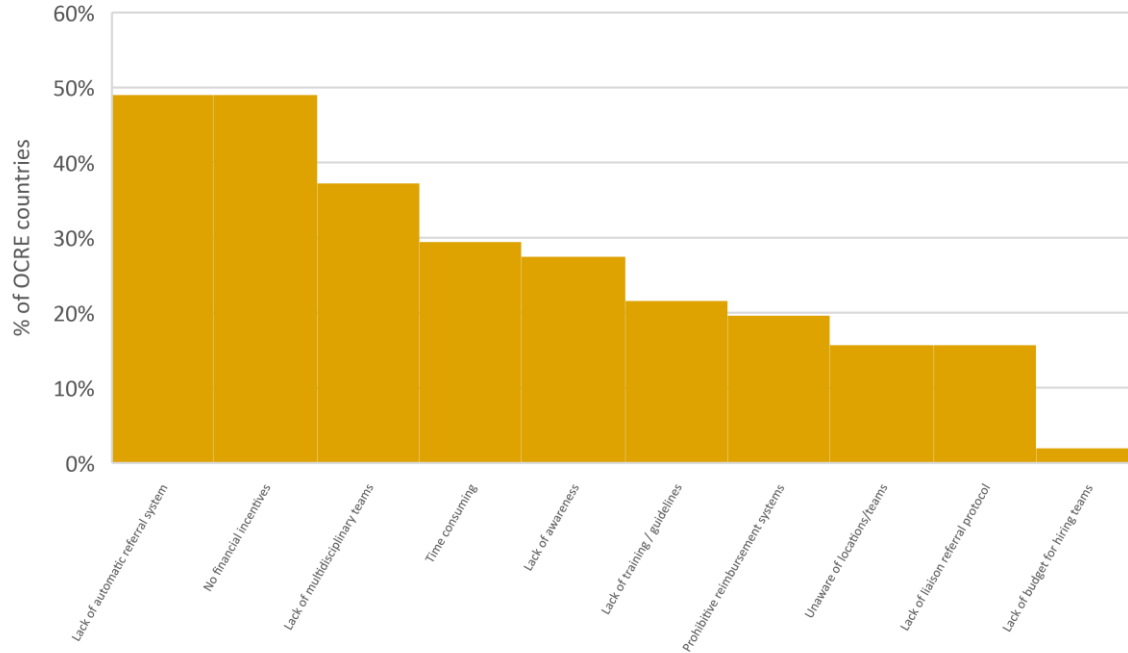
## Major PATIENT-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines

4 evidence URL out of 28 possible  
(Netherlands, Norway, Spain, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results

Major barriers to implementation of CVD guidelines  
STAFF LEVEL



## Major STAFF-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines

### Top 4 obstacles (% OCRE countries)

- Lack of automatic referral system
- No financial incentives
- Lack of multidisciplinary teams
- Time consuming

# OCRE part 2 Results

Lack of automatic referral system	No financial incentives	Lack of multidisciplinary teams	Time consuming
Azerbaijan	Armenia	Azerbaijan	Belarus
Belgium	Belarus	Cyprus	Bosnia and Herzegovina
Bosnia and Herzegovina	Bosnia and Herzegovina	Finland	Bulgaria
Bulgaria	Bulgaria	Hungary	Cyprus
Cyprus	Cyprus	Ireland	Denmark
Estonia	Estonia	Israel	Egypt
Germany	Finland	Latvia	Israel
Hungary	France	Libya	Lithuania
Ireland	Georgia	Lithuania	Malta
Israel	Hungary	Malta	Morocco
Latvia	Israel	Moldova (Republic of)	Poland
Lebanon	Italy	Montenegro	Portugal
Libya	Latvia	Romania	Serbia
Luxembourg	Lebanon	San Marino	Spain
Malta	Lithuania	Serbia	Sweden
Moldova (Republic of)	Luxembourg	Slovenia	
Netherlands	Malta	Spain	
Norway	Moldova (Republic of)	Sweden	
Poland	Norway	Ukraine	
Portugal	Poland		
Romania	Portugal		
Slovenia	Romania		
Spain	Spain		
Sweden	Turkey		
Turkey	Ukraine		

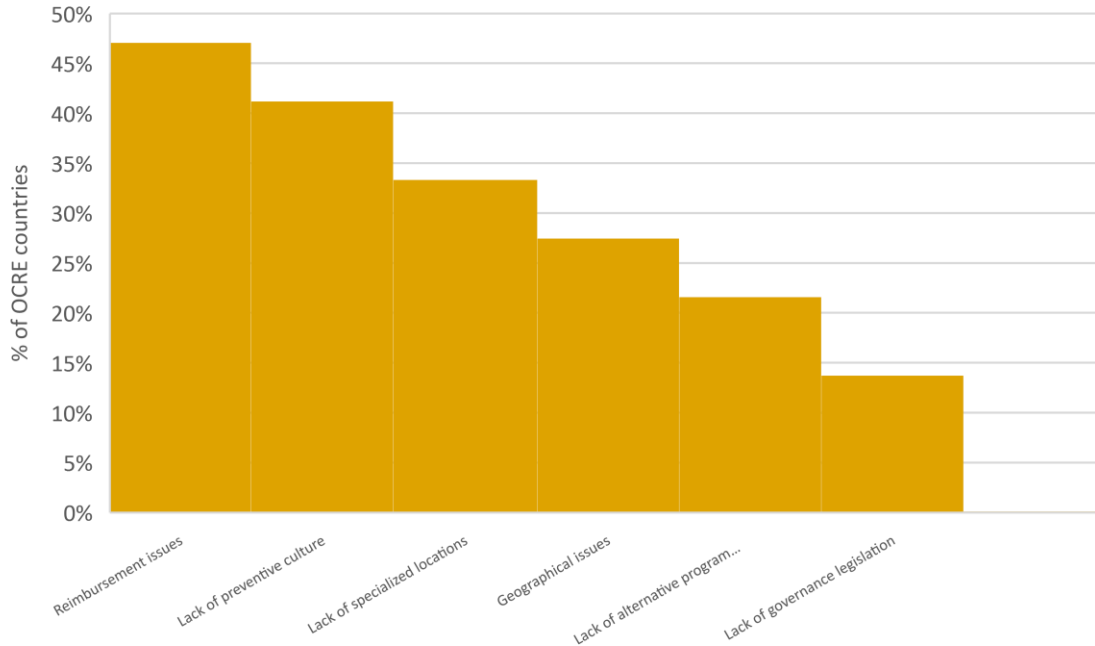
## Major STAFF-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines

4 evidence URL (Netherlands, Norway, Spain, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results

Major barriers to implementation of CVD guidelines  
HEALTHCARE LEVEL



**Major HEALTHCARE-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines**

Top 4 obstacles (% OCRE countries)

- Reimbursement issues
- Lack of preventive culture
- Lack of specialized locations
- Geographical issues

# OCRE part 2 Results

Reimbursement issues	Lack of preventive culture	Lack of specialized locations	Geographical issues
Armenia	Bulgaria	Azerbaijan	Azerbaijan
Azerbaijan	Cyprus	Belarus	Belgium
Belarus	Egypt	Cyprus	Denmark
Belgium	Estonia	Estonia	France
Bosnia and Herzegovina	France	France	Hungary
Bulgaria	Georgia	Georgia	Ireland
Egypt	Germany	Ireland	Libya
Estonia	Iceland	Israel	Luxembourg
Finland	Ireland	Latvia	Morocco
Greece	Israel	Moldova (Republic of)	Netherlands
Hungary	Italy	Morocco	Portugal
Iceland	Lebanon	Poland	Slovenia
Israel	Libya	Portugal	Spain
Latvia	Montenegro	Romania	Sweden
Lebanon	Portugal	Slovenia	
Lithuania	Romania	Spain	
Malta	San Marino	Turkey	
Moldova (Republic of)	Serbia		
Portugal	Sweden		
Romania	Switzerland		
Slovenia	UK*		
Sweden	Ukraine		
Turkey			
UK*			

## Major HEALTHCARE-LEVEL barriers to implementation and use of cardiovascular prevention and rehabilitation guidelines

4 evidence URL (Netherlands, Norway, Spain, UK\*)

\*United kingdom of Great Britain and Northern Ireland

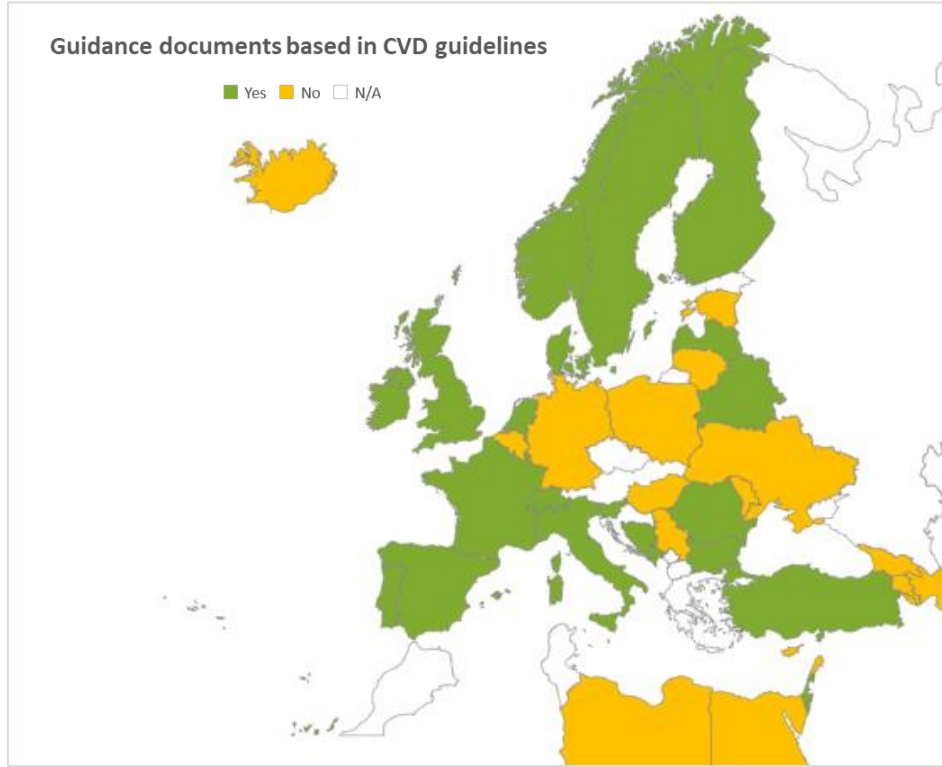
# OCRE part 2 Results

The use of CR delivery as an established national health system quality indicator (Israel)	referral of non-classical CR indications (Israel)	risk factor counselling reimbursement by insurance companies (Germany)
continued reinforced intervention up to 3 years after rehabilitation (Italy)	development of tele and web-based programs (The Netherlands, Slovenia)	establishment of individualized models of CR (Sweden)
Full establishment of appropriate registries (Slovenia)	Setup of local EAPC masterclasses for CR training (Georgia)	Payment by results (UK*)
Setup of an educational programme for pupils and their parents (Portugal)	centre certification to incorporate improvement in exercise capacity/risk reduction outcomes (UK*)	the support of lagging programmes by the top performing programmes (France)
	frailty tailored CR programs	

## Strategies for Secondary Prevention and CR

From Part 1 results

# OCRE part 2 Results



## Implementation of guidance documents

43% countries have guidance documents

# OCRE part 2 Results

Yes	No
Belarus	Armenia
Bosnia and Herzegovina	Azerbaijan
Bulgaria	Belgium
Denmark	Cyprus
Finland	Egypt
France	Estonia
Ireland	Georgia
Israel	Germany
Italy	Hungary
Latvia	Iceland
Luxembourg	Lebanon
Montenegro	Libya
Netherlands	Lithuania
Norway	Malta
Portugal	Moldova (Republic of)
Romania	Poland
Slovenia	San Marino
Spain	Serbia
Sweden	Ukraine
Switzerland	
Turkey	
UK*	

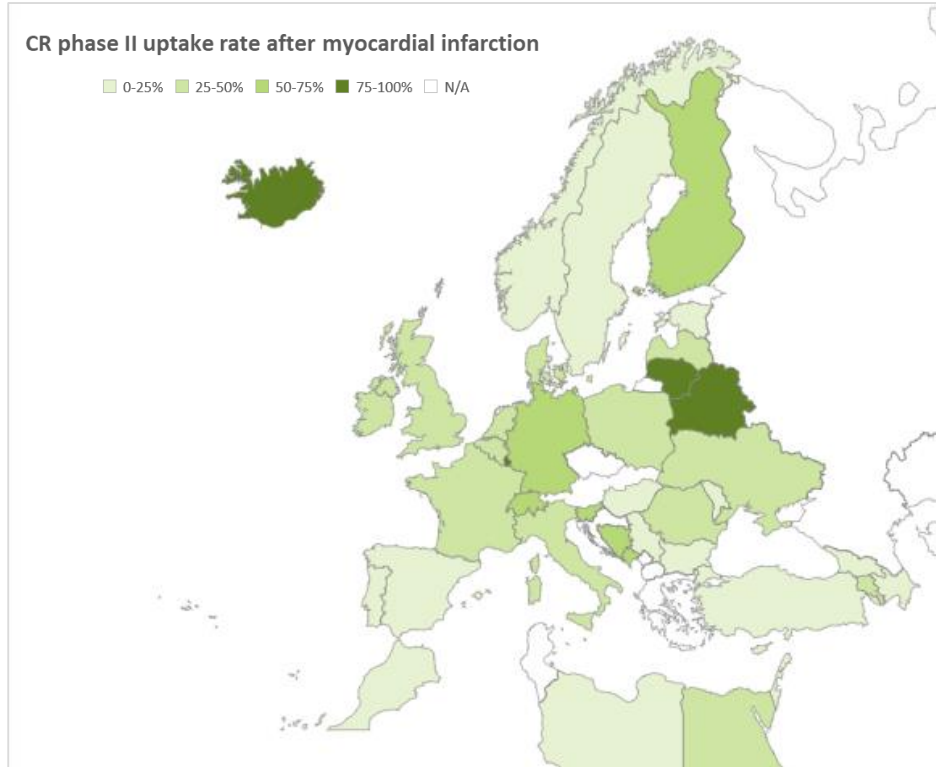
## Implementation of guidance documents

10 evidence URL (Israel, UK\*, Norway, France, Netherlands, Sweden, Spain, Bosnia and Herzegovina, Slovenia, Belarus)

\*United kingdom of Great Britain and Northern Ireland



# OCRE part 2 Results



## CR phase II uptake rate after myocardial infarction

17 countries: 0-25%

14 countries: 25-50%

7 countries: 50-75%

4 countries: 75-100%

# OCRE part 2 Results

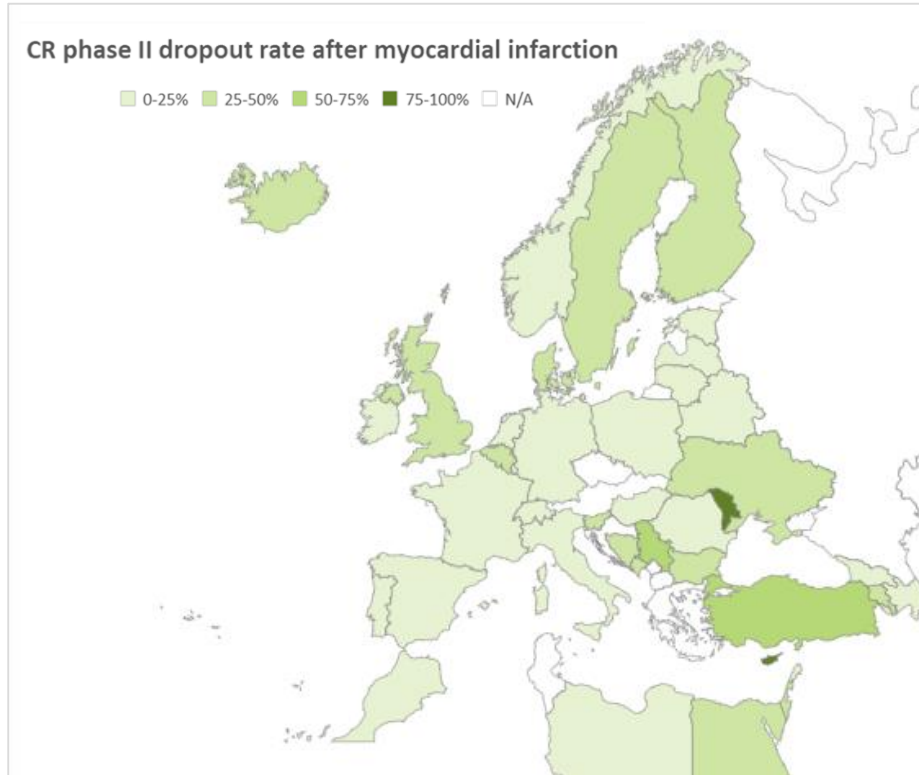
0-25%	25-50%	50-75%	75-100%
Azerbaijan	Armenia	Bosnia and Herzegovina	Belarus
Bulgaria	Belgium	Finland	Iceland
Cyprus	Denmark	Germany	Lithuania
Estonia	Egypt	Malta	Luxembourg
Georgia	France	Montenegro	
Hungary	Ireland	Slovenia	
Israel	Italy	Switzerland	
Lebanon	Latvia		
Libya	Netherlands		
Moldova (Republic of)	Poland		
Morocco	Romania		
Norway	San Marino		
Portugal	UK*		
Serbia	Ukraine		
Spain			
Sweden			
Turkey			

## CR phase II uptake rate after myocardial infarction

8 evidence URL (Belarus, Belgium, Netherlands, France, Norway, Poland, Sweden, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## CR phase II dropout rate after myocardial infarction

22 countries: 0-25%

16 countries: 25-50%

2 countries: 50-75%

2 countries: 75-100%

# OCRE part 2 Results

0-25%	25-50%	50-75%	75-100%
Azerbaijan	Armenia	Serbia	Cyprus
Belarus	Belgium	Turkey	Moldova (Republic of)
Estonia	Bosnia and Herzegovina		
France	Bulgaria		
Georgia	Denmark		
Germany	Egypt		
Hungary	Finland		
Ireland	Iceland		
Italy	Israel		
Latvia	Malta		
Lebanon	Montenegro		
Libya	San Marino		
Lithuania	Slovenia		
Luxembourg	Sweden		
Morocco	UK*		
Netherlands	Ukraine		
Norway			
Poland			
Portugal			
Romania			
Spain			
Switzerland			

## CR phase II dropout rate after myocardial infarction

3 evidence URL (Poland, Sweden, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## CR phase II average start time after myocardial infarction

12 countries: 0-2 weeks  
23 countries: 2-6 weeks  
5 countries: 6-12 weeks  
2 countries: >12 weeks

# OCRE part 2 Results

0-2 weeks	2-6 weeks	6-12 weeks	12+ weeks
Belarus	Armenia	Finland	Cyprus
Belgium	Azerbaijan	Ireland	Georgia
Estonia	Bosnia and Herzegovina	Montenegro	
Hungary	Bulgaria	Norway	
Italy	Denmark	Poland	
Lithuania	Egypt		
Luxembourg	France		
Republic of Moldova	Germany		
Romania	Iceland		
San Marino	Israel		
Switzerland	Latvia		
Ukraine	Lebanon		
	Libya		
	Malta		
	Morocco		
	Netherlands		
	Portugal		
	Serbia		
	Slovenia		
	Spain		
	Sweden		
	Turkey		
	UK*		

## CR phase II average start time after myocardial infarction

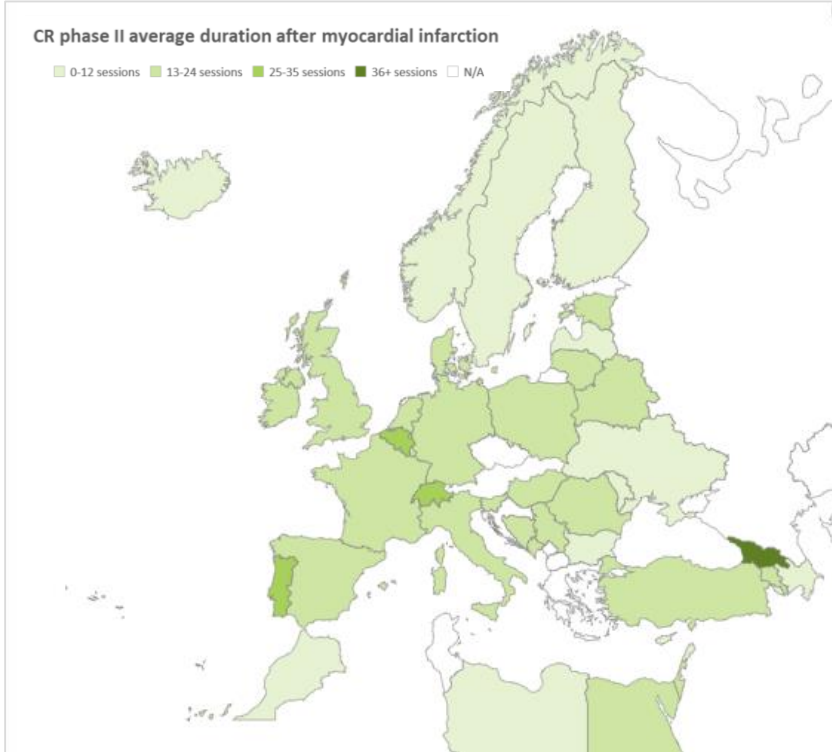
2 evidence URL (Poland, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results

## CR phase II average duration of program after myocardial infarction

- 14 countries: 0-12 sessions
- 23 countries: 13-24 sessions
- 4 countries: 25-35 sessions
- 1 country: 36 +sessions



# OCRE part 2 Results

0-12 sessions	13-24 sessions	25-35 sessions	36+ sessions
Azerbaijan	Armenia	Belgium	Georgia
Bulgaria	Belarus	Malta	
Cyprus	Bosnia and Herzegovina	Portugal	
Finland	Denmark	Switzerland	
Iceland	Egypt		
Latvia	Estonia		
Lebanon	France		
Libya	Germany		
Moldova (Republic of)	Hungary		
Morocco	Ireland		
Norway	Israel		
San Marino	Italy		
Sweden	Lithuania		
Ukraine	Luxembourg		
	Montenegro		
	Netherlands		
	Poland		
	Romania		
	Serbia		
	Slovenia		
	Spain		
	Turkey		
	UK*		

## CR phase II average duration of program after myocardial infarction

2 evidence URL (UK\*, Sweden)

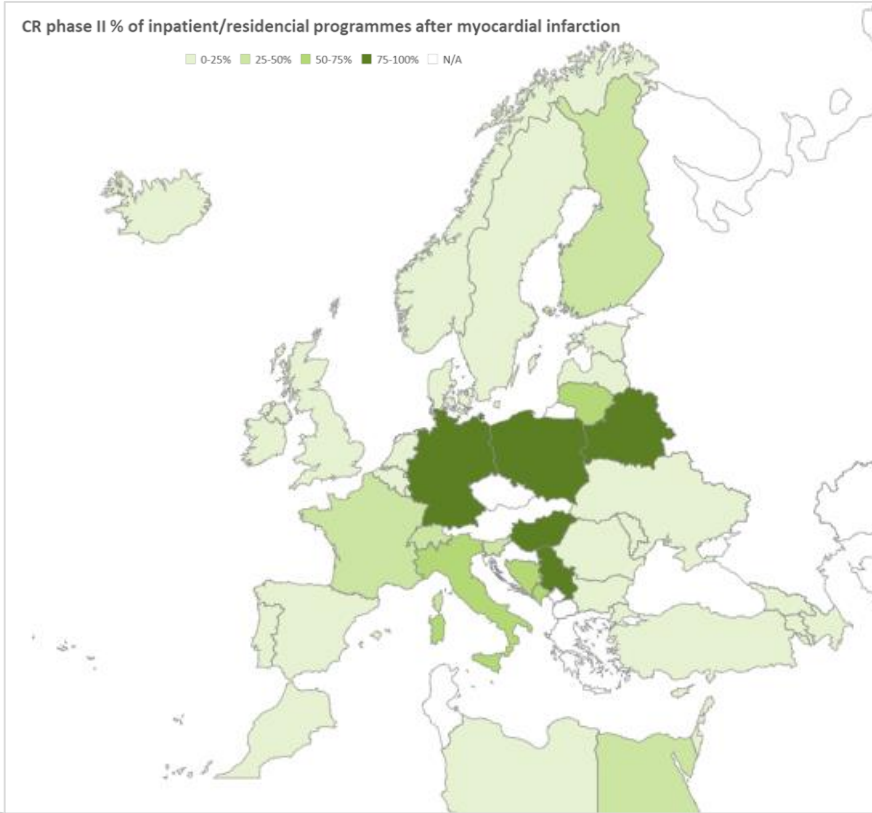
\*United kingdom of Great Britain and Northern Ireland



# OCRE part 2 Results

## Percentage of CR phase II national programmes which rely on inpatient/residential services after myocardial infarction

- 28 countries: 0-25%
- 5 countries: 25-50%
- 4 countries: 50-75%
- 5 countries: 75-100%



# OCRE part 2 Results

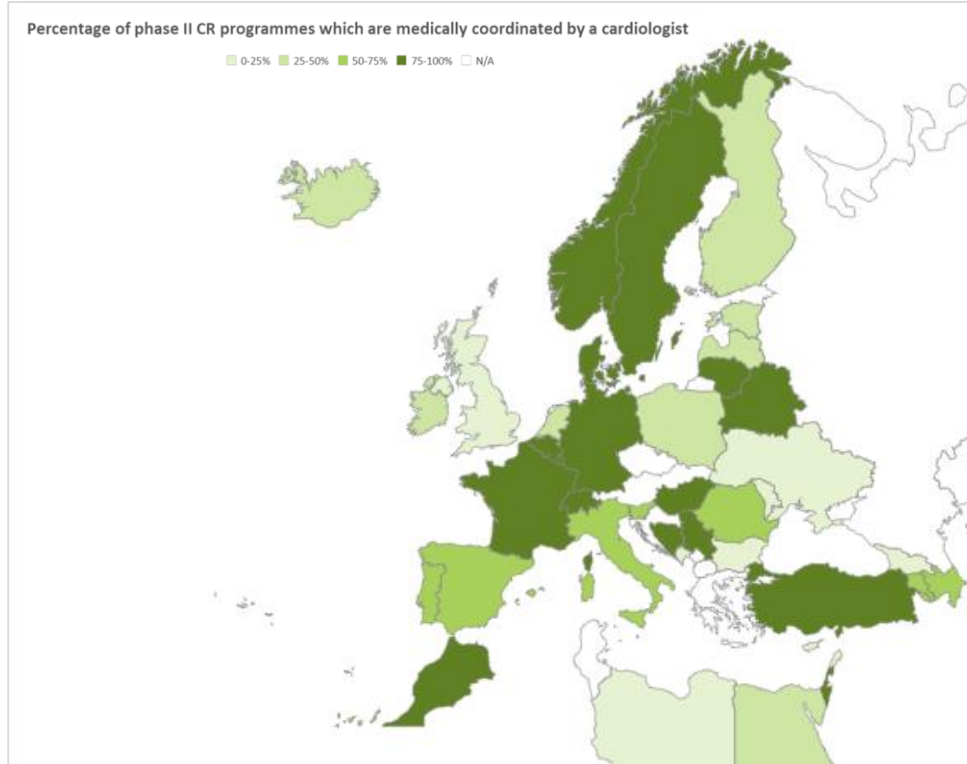
0-25%	25-50%	50-75%	75-100%
Armenia	Egypt	Bosnia and Herzegovina	Belarus
Azerbaijan	Finland	Italy	Hungary
Belgium	France	Lithuania	Germany
Bulgaria	Slovenia	Montenegro	Poland
Cyprus	Switzerland		Serbia
Denmark			
Estonia			
Georgia			
Iceland			
Ireland			
Israel			
Latvia			
Lebanon			
Libya			
Luxembourg			
Malta			
Moldova (Republic of)			
Morocco			
Netherlands			
Norway			
Portugal			
Romania			
San Marino			
Spain			
Sweden			
Turkey			
UK*			
Ukraine			

## Percentage of CR phase II national programmes which rely on inpatient/residential services after myocardial infarction

3 evidence URL (Belarus, Sweden, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## National percentage of phase II CR programmes which are medically coordinated by a cardiologist

9 countries: 0-25%

8 countries: 25-50%

8 countries: 50-75%

17 countries: 75-100%

# OCRE part 2 Results

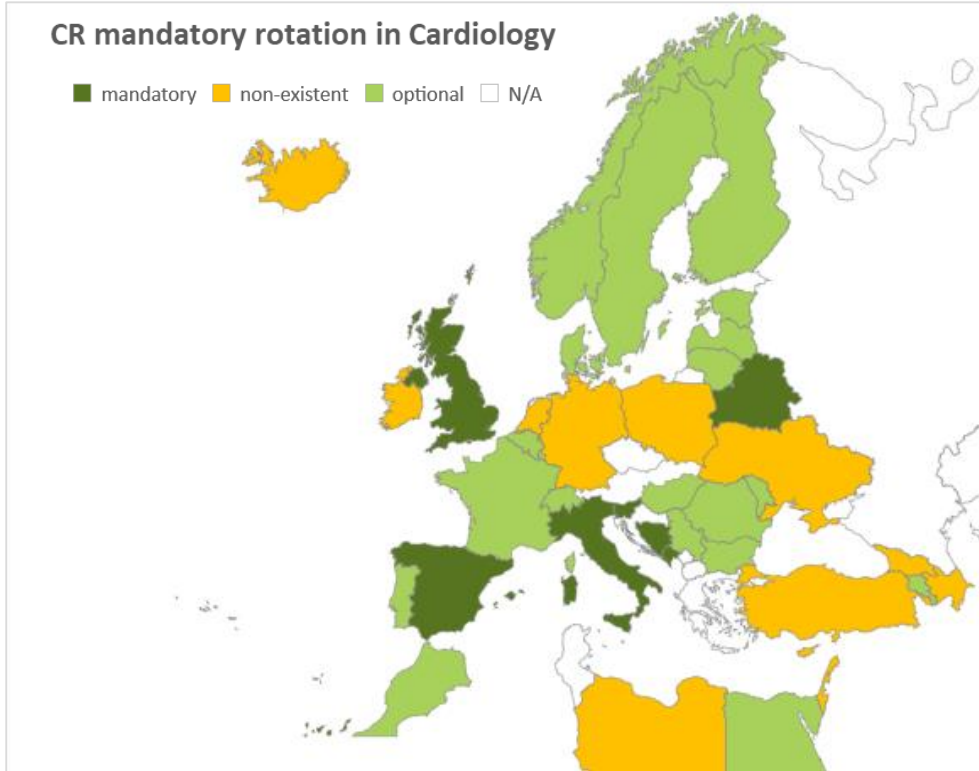
0-25%	25-50%	50-75%	75-100%
Bulgaria	Egypt	Armenia	Belarus
Cyprus	Estonia	Azerbaijan	Belgium
Georgia	Finland	Italy	Bosnia and Herzegovina
Lebanon	Iceland	Portugal	Denmark
Libya	Ireland	Romania	France
Moldova (Republic of)	Latvia	San Marino	Germany
Montenegro	Netherlands	Slovenia	Hungary
UK*	Poland	Spain	Israel
Ukraine			Lithuania
			Luxembourg
			Malta
			Morocco
			Norway
			Serbia
			Sweden
			Switzerland
			Turkey

## National percentage of phase II CR programmes which are medically coordinated by a cardiologist

4 evidence URL (Belarus, Spain, Sweden, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## CR mandatory rotation in Cardiology training

8 countries: mandatory  
13 countries: non-existent  
21 countries: optional

# OCRE part 2 Results

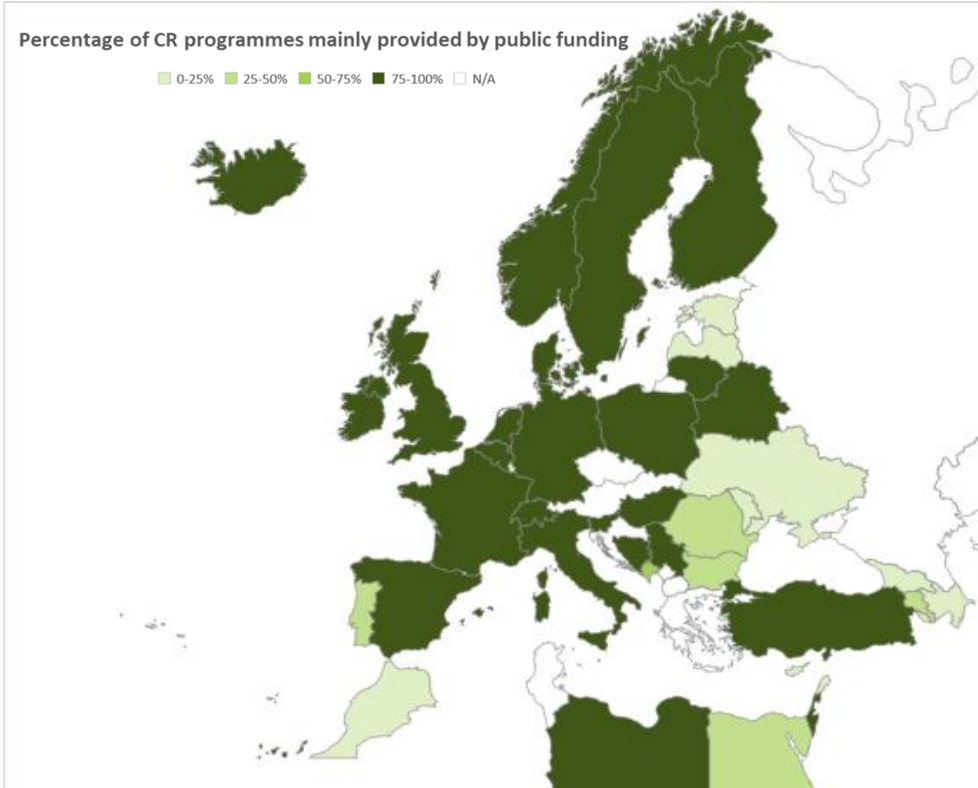
mandatory	non-existent	optional
Belarus	Azerbaijan	Armenia
Bosnia and Herzegovina	Cyprus	Belgium
Italy	Georgia	Bulgaria
Montenegro	Germnay	Denmark
San Marino	Iceland	Egypt
Slovenia	Ireland	Estonia
Spain	Israel	Finland
UK*	Lebanon	France
	Libya	Hungary
	Netherlands	Latvia
	Poland	Lithuania
	Turkey	Luxembourg
	Ukraine	Malta
		Moldova (Republic of)
		Morocco
		Norway
		Portugal
		Romania
		Serbia
		Sweden
		Switzerland

## CR mandatory rotation in Cardiology training

2 evidence URL (Belarus, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## Percentage of CR programmes mainly provided by public funding

10 countries: 0-25%

5 countries: 25-50%

1 country: 50-75%

26 countries: 75-100%

# OCRE part 2 Results

## Percentage of CR programmes mainly provided by public funding

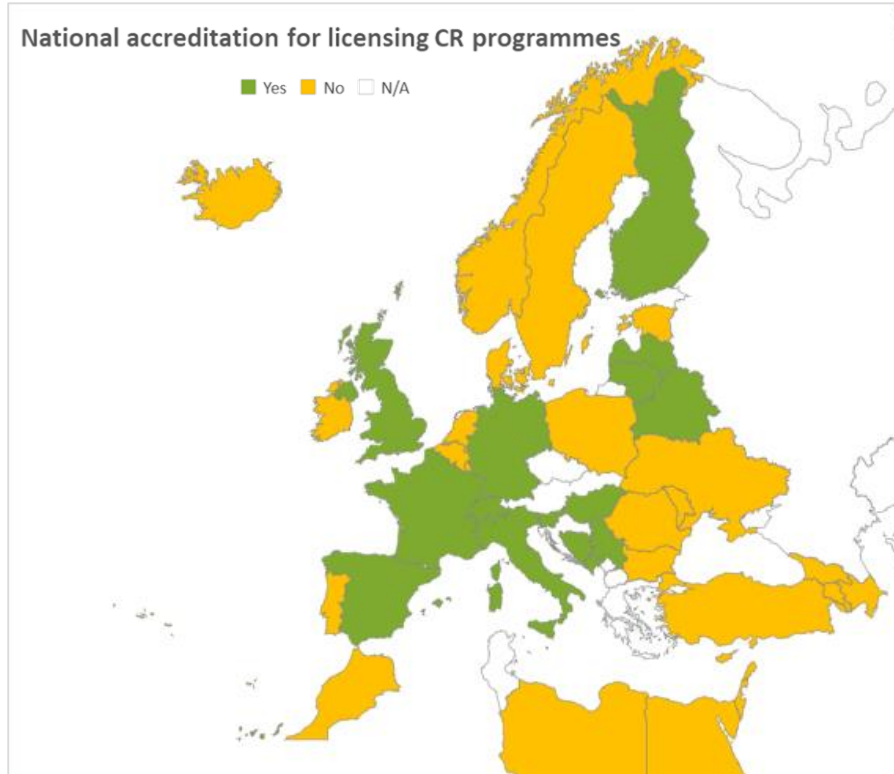
1 evidence URL (Belarus)

\*United kingdom of Great Britain and Northern Ireland

0-25%	25-50%	50-75%	75-100%
Azerbaijan	Armenia	Montenegro	Belarus
Cyprus	Bulgaria		Belgium
Estonia	Egypt		Bosnia and Herzegovina
Georgia	Portugal		Denmark
Latvia	Romania		Finland
Lebanon			France
Luxembourg			Germany
Moldova (Republic of)			Hungary
Morocco			Iceland
Ukraine			Ireland
			Israel
			Italy
			Libya
			Lithuania
			Malta
			Netherlands
			Norway
			Poland
			San Marino
			Serbia
			Slovenia
			Spain
			Sweden
			Switzerland
			Turkey
			UK*



# OCRE part 2 Results



## National accreditation program for licensing CR programs

15 countries

# OCRE part 2 Results

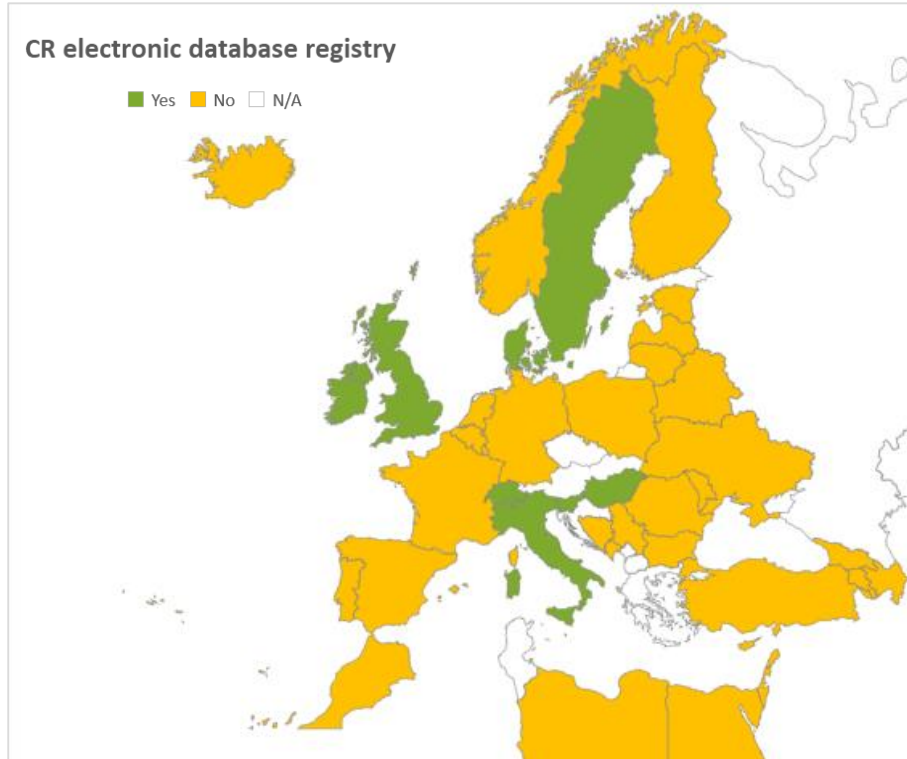
Yes	No
Belarus	Armenia
Bosnia and Herzegovina	Azerbaijan
Finland	Belgium
France	Bulgaria
Hungary	Cyprus
Italy	Denmark
Latvia	Egypt
Lithuania	Estonia
Montenegro	Georgia
Serbia	Germany
Slovenia	Iceland
Spain	Ireland
Switzerland	Israel
UK*	Lebanon
	Libya
	Luxembourg
	Malta
	Moldova (Republic of)
	Morocco
	Netherlands
	Norway
	Poland
	Portugal
	Romania
	San Marino
	Sweden
	Turkey
	Ukraine

## National accreditation for licensing CR programs

5 evidence URL (Belarus, Italy, France, Spain, UK\*)

\*United kingdom of Great Britain and Northern Ireland

# OCRE part 2 Results



## National CR electronic database registry

8 countries

# OCRE part 2 Results

Yes	No
Denmark	Armenia
Hungary	Azerbaijan
Ireland	Bosnia and Herzegovina
Italy	Egypt
Slovenia	Estonia
Sweden	Finland
Switzerland	France
UK*	Georgia
	Germany
	Israel
	Lebanon
	Lithuania
	Malta
	Netherlands
	Norway
	Poland
	Portugal
	Romania
	San Marino
	Serbia
	Spain
	Ukraine



## National CR electronic database registry

4 evidence URL (Denmark, Italy, Sweden, UK)

\*United kingdom of Great Britain and Northern Ireland