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# The EHRA White Book 2010

The Current Status of Cardiac Electrophysiology  
in ESC Member Countries

P. Vardas, A. Auricchio, C. Wolpert



[www.escardio.org/EHRA](http://www.escardio.org/EHRA)

### **Acknowledgments**

**EHRA would like to express its appreciation to BIOTRONIK SE & Co. KG for their support of this book.**

## **Preface – The European White Book of Electrophysiology: The third edition**

In 2008, the first EHRA White Book of Cardiac Electrophysiology in ESC was published. The project had been launched in an attempt to assess the status quo of treatment of arrhythmias in all ESC member countries and in order to have a platform for a progressive harmonisation of access to arrhythmia treatment in all ESC countries. The cooperation of the national societies was so enthusiastic, that we were able to report 37 countries in the first edition. With the two most recent editions the number of contributing countries has even increased.

With information from the White Book on insurance and reimbursement systems, the number of centres performing different interventions and implantations and other data, we were able to enjoy very interesting discussions on “**Health Care Disparities in Europe: the case of arrhythmias**” during our annual EHRA Summit last year. The book serves also as a continuous reference for all our initiatives and efforts in education and training.

As stated in the previous editions, data has been collected from various sources that are cited in the White Book and most importantly, all data from third parties have been confirmed and authorised by each chairman of the national society or working group, respectively. Due to the continuous update we always present the most recent data for each year. This is why data for 2008 may differ slightly from one edition to another. In addition, the **online version** of the White Book is updated each time the country reports new data.

It is part of the task and privilege of EHRA to foster scientific discussion, create standards for education and training and offer help wherever necessary to harmonize treatment and access to the treatment of arrhythmias within its hemisphere. We are grateful to each of you who have worked so hard to accomplish this third edition and now we are very confident that with this new White Book we have set the ground for a continuous EHRA annual book.

We would like to express our appreciation to the European Heart House staff and to the representatives of each of the national arrhythmia societies or working groups who made this project possible.

It is our sincere hope that all the different parties involved in patient care in the field of arrhythmias will find this book both helpful and interesting. Should you have any recommendations or feedback concerning the White Book, please do not hesitate to contact us.

We look forward to working with you again in 2011.

Panos Vardas, EHRA President (2009-2011)  
Angelo Auricchio, EHRA President Elect  
Christian Wolpert, Chairman National Societies

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## **1. Scope and Methodology**

The EHRA White Book is in its third edition and this year it presents again the status of the cardiac rhythm management sector per country separated in eleven sections.

The book contains only countries which are members of the European Society of Cardiology.

The book is divided in eleven sections as follows:

- 1. Statistics and demographic information**
- 2. Country**
- 3. Healthcare system**
- 4. Education**
- 5. Pacemakers**
- 6. Cardiac resynchronization therapy devices**
- 7. Implantable cardiac defibrillator**
- 8. Loop recorders**
- 9. Device specifics**
- 10. Interventional electrophysiology**
- 11. Guidelines**

Following similar methodology of the EHRA White Book 2008 and 2009, a primary research was conducted within national cardiology societies and working groups of cardiac pacing and electrophysiology of each country.

Each chairman of the societies and/or working groups was asked to compile information about their country based on a questionnaire. In order to gather the data, the societies and working groups used a number of national sources, but mainly national registries and national health institutions.

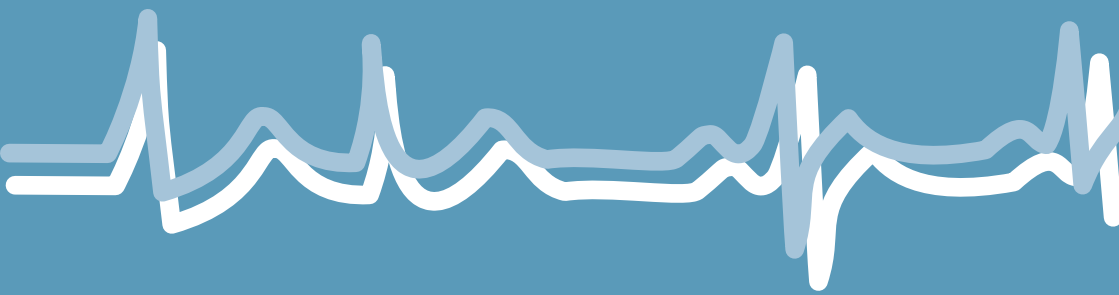
Simultaneously, a secondary research was conducted to cross verify and build the quantitative and qualitative information contained in the book.

Some countries, however, did not have available data for all of the sections of the book.

The primary and secondary research was undertaken from February 2010 until middle of May 2010.

All data is for the latest available year, at the time of the publication.

## 2. ESC Countries Overview







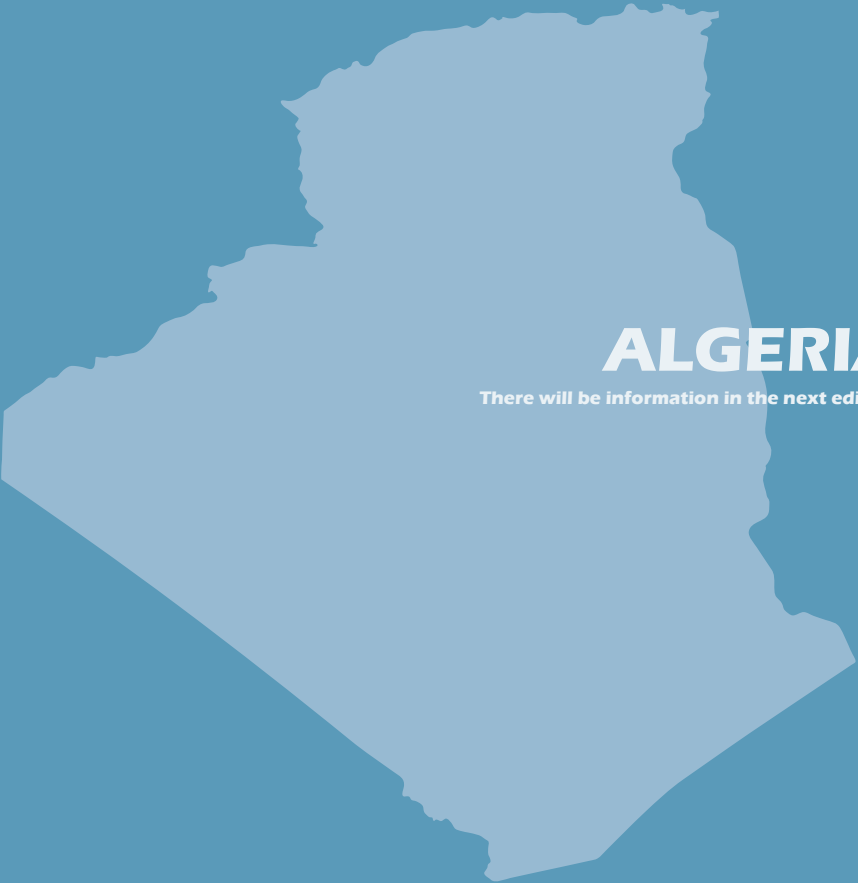


# ALBANIA

There will be information in the next edition.

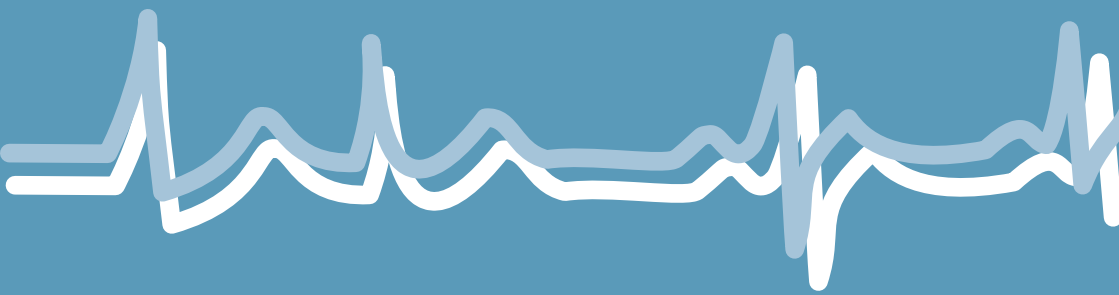






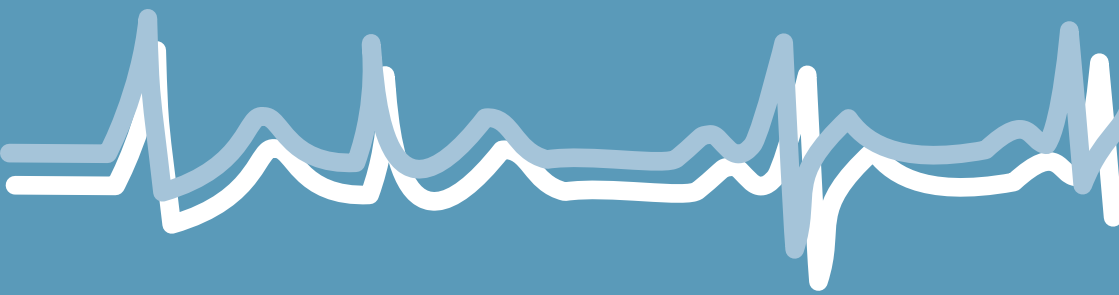
# ALGERIA

There will be information in the next edition.



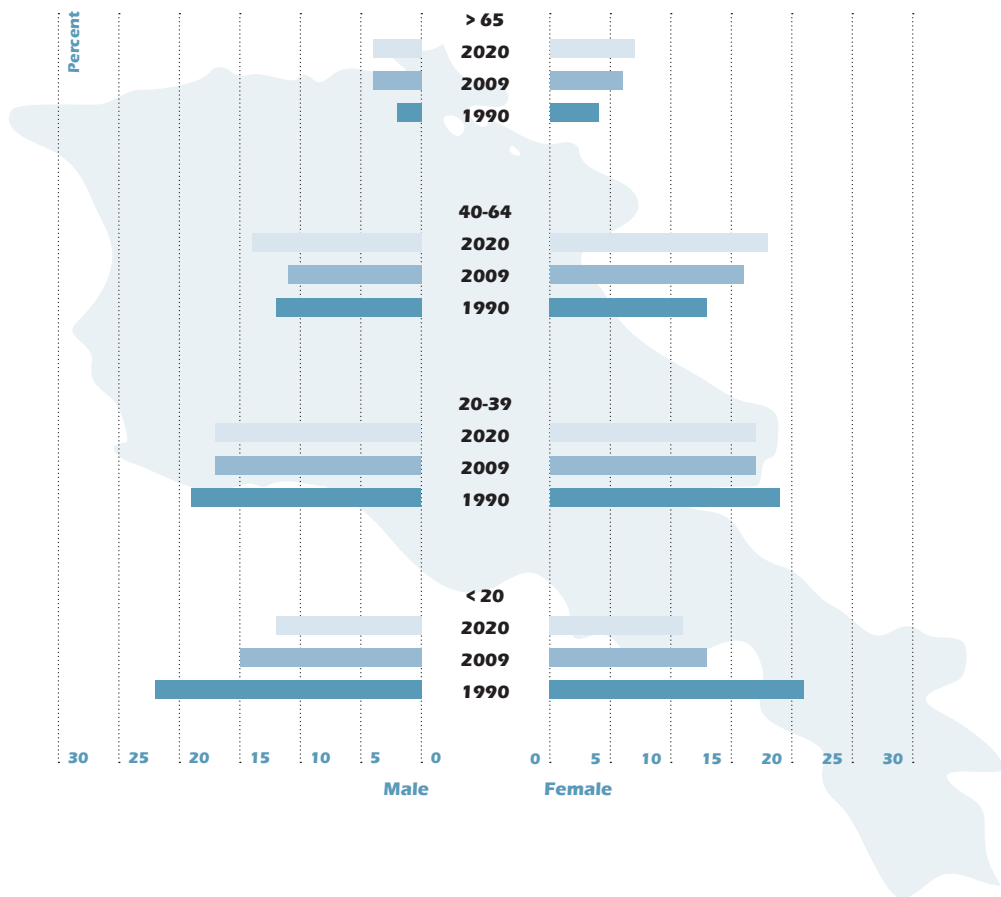


# ARMENIA



# 1. Statistics

## Age pyramid for Armenia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,18</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>406,82</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,44</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>4,13</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>73,08</b>	<b>2003</b>
<b>Death rate (per 1.000 population)</b>	<b>8,42</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>12,42</b>	<b>2006</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>8,68*</b>	<b>2008</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>2.658,05*</b>	<b>2008</b>
<b>Total expenditure on health as % of GDP</b>	<b>4,7</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>41,2</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>58,8</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

2008	42.404 per 100.000 citizens
2009	not available

### Proportion cardiac mortality over total mortality of the country



2008	49,9%
2009	not available

## 3. Healthcare System




In Armenia, the National Health System fund covers all emergencies and children under seven years old and maternity care. The fund rises every year by average 10 to 12%. Unfortunately, the NHS fund does not cover any kind of heart rhythm management for children or adults, including pacemaker implants nor ablations for life threatening arrhythmias.

Basic insurance availability No

### Percentage of insured and uninsured citizens

Insured citizens	35%	
Uninsured citizens	65%	
		0 50 100

### Distribution of insurance modality

Public insurance company	33%	
Private insurance company	2%	
Private co-payment	65%	
		0 50 100

Possibility of subscribing to private health insurance plans Yes





### Co-payment necessary for the following therapy

ICD devices	<input checked="" type="checkbox"/>
Pacemakers	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>

**Patients and families are forced to pay for all hospital costs and for the devices if they do not have a private insurance.**

### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

## 4. Education

### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

**There is a course of arrhythmology in the general cardiology course.**

**National accreditation for physicians** **No**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **No**

**Specialty required for ICD or pacemaker implants** **No**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**No**

**Required period of training to perform implantations**

**No**

**Training centres availability**

<b>Pacemaker</b>	<b>3</b>
<b>ICD implantation</b>	<b>1</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>1</b>
<b>CRT implantation</b>	<b>1</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties**

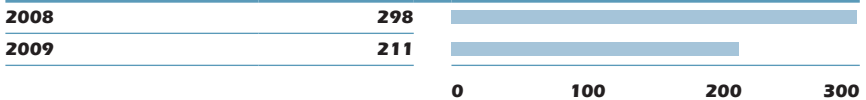
**5**

**Percentage of academic facilities among practicing EP and implant centres**

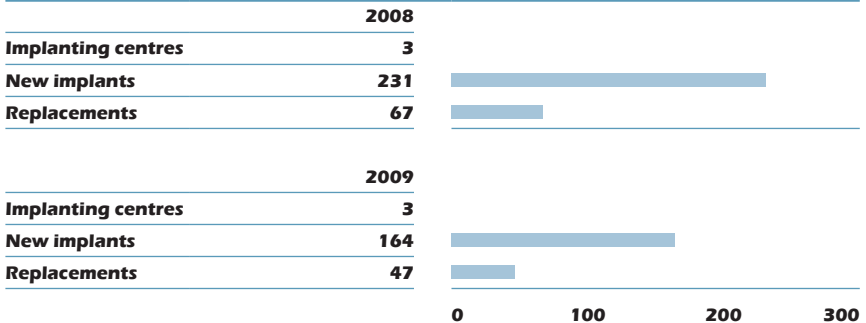
**100%**

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**



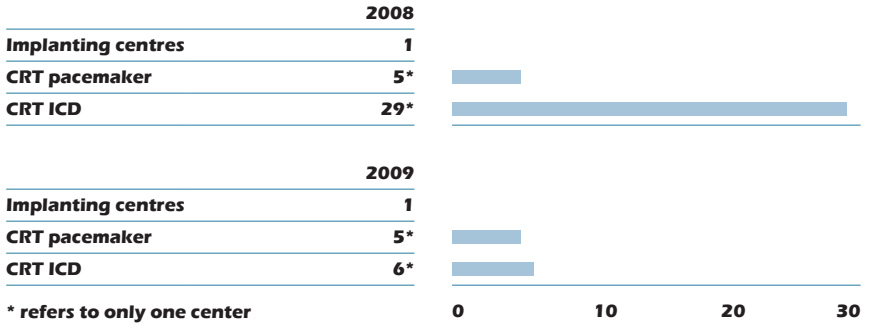


**Specialty performing implants**

<b>Cardiologists</b>	<b>97%</b>
<b>Surgeons</b>	<b>3%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

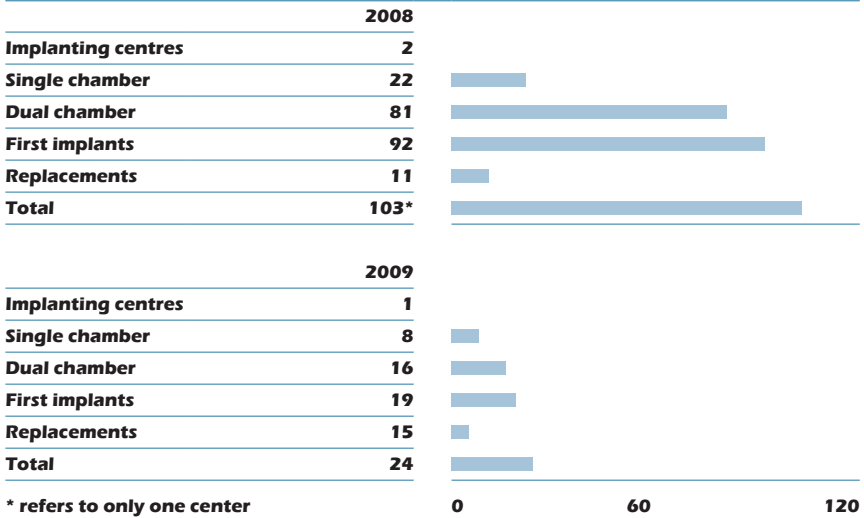


**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	2008
Implanting centres	0
Loop recorders	0
	2009
Implanting centres	0
Loop recorders	0

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 1

	2008	2009
<b>Number of ablations performed</b>	<b>179</b>	<b>146</b>
<b>Mean number (ablations/centres)</b>	<b>179</b>	<b>146</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>1</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language Yes

Obstacles to guideline implementation

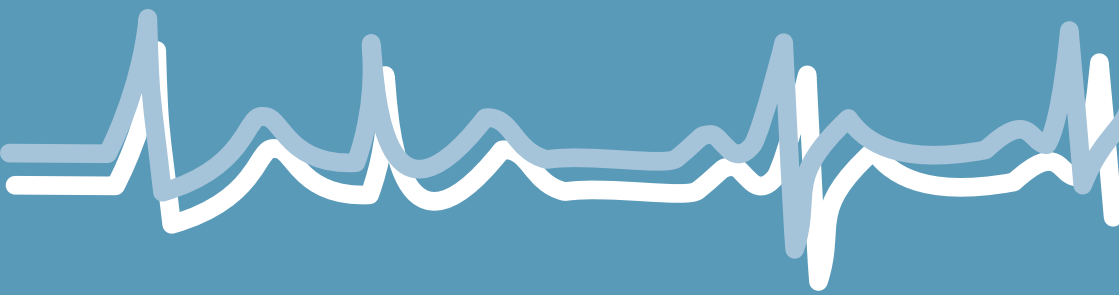
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

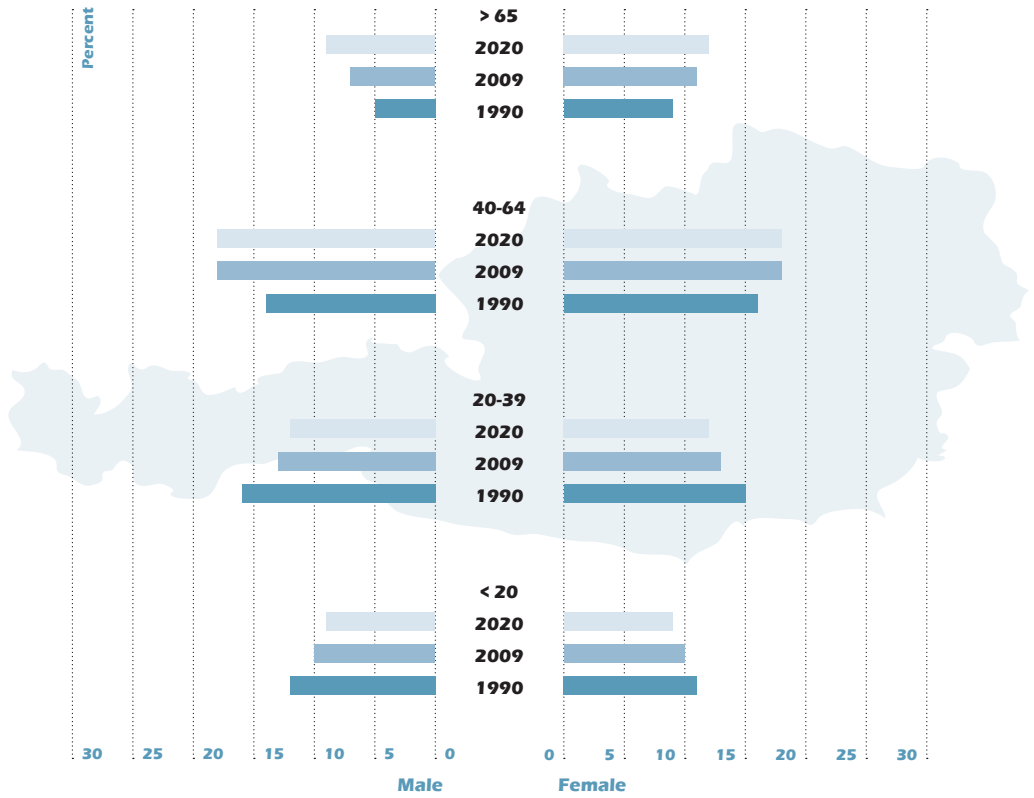
Sources: Armenian Working Group of Arrhythmology – Chairman: Prof. Svetlana Grigoryan and Armenian Working Group on Cardiac Pacing and Electrophysiology – Chairman: Dr. Smbat Jamalyan

# AUSTRIA



# 1. Statistics

## Age pyramid for Austria







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>3,25</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>776,34</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,75</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>6,35</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,74</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>9,01</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>9,33</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>374,41*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>45.090,49*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9,9</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>77</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>23</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>400,7 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>44%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The Austrian Health System is organised by statutory health insurance. It covers about 95% of the population on a mandatory basis and about 2% on a voluntary basis. There are 26 statutory health insurance funds organised in the Federation of Austrian Social Security Institutions. These funds do not compete with each other since the membership is mandatory and based on occupation or place of residence. The Federal Ministry of Health and Women is the main policy maker in health care and is responsible of supervising the statutory health insurance funds. (Source: Highlights on Health in Austria, WHO 2004)

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>97,6%</b>	
<b>Uninsured citizens</b>	<b>2,4%</b>	
		<b>0                      50                      100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>80-85%</b>	
<b>Private insurance company</b>	<b>15-20%</b>	
<b>Private co-payment</b>	<b>0%</b>	
		<b>0                      50                      100</b>

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

#### National accreditation for physicians

Yes

Subspecialty Diploma Cardiologist („Facharzt für Kardiologie“)

#### National accreditation for centres

No

#### National Society supporting EHRA accreditation system

Yes

#### Specialty required for catheter ablation

Yes

Mostly cardiologists (EP doctors), few surgeons

#### Specialty required for ICD or pacemaker implants

Yes

Cardiologist, surgeon

Official national competency guidelines for electrophysiological studies or catheter ablation

No

Required period of training to perform implantations

No

**Training centres availability\***

<b>Pacemaker</b>	<b>not available</b>
<b>ICD implantation</b>	<b>not available</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>not available</b>
<b>CRT implantation</b>	<b>not available</b>
<b>Atrial fibrillation ablation</b>	<b>not available</b>

\* Training centres are available in the country, but the numbers are unknown.

Number of medical faculties

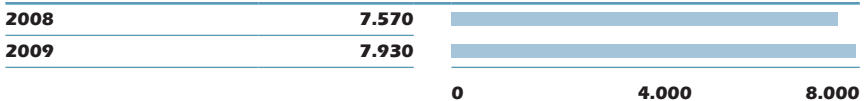
4

Percentage of academic facilities among practicing EP and implant centres

not available

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>65</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>
		<b>2009</b>
<b>Implanting centres</b>		<b>65</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>

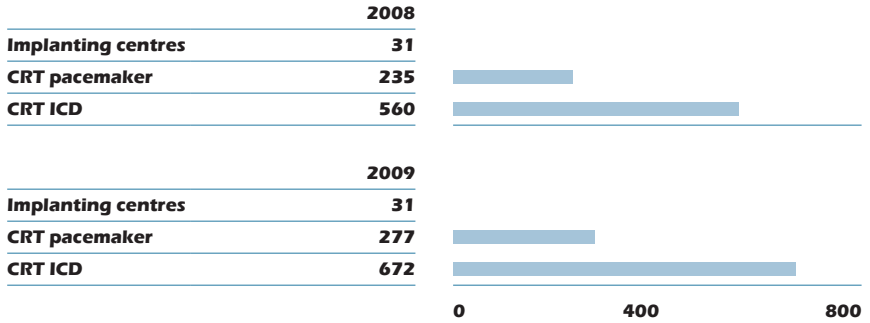


### Specialty performing implants

<b>Cardiologists</b>	<b>30%</b>
<b>Surgeons</b>	<b>70%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

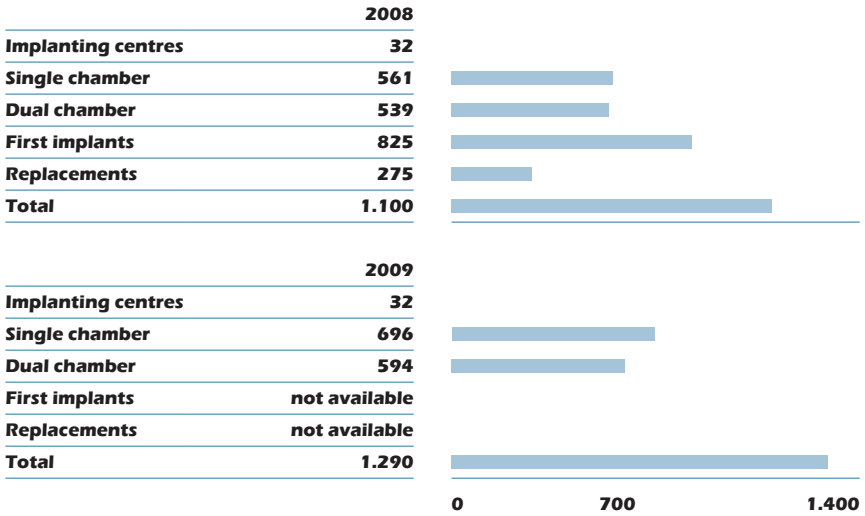


### Specialty performing implants

<b>Cardiologists</b>	<b>35%</b>
<b>Surgeons</b>	<b>65%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres




### Specialty performing implants

Cardiologists	25%
Surgeons	75%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008				
Implanting centres	not available			
Loop recorders	320			
2009				
Implanting centres	not available			
Loop recorders	not available			
		0	200	400

### Specialty performing implants

Cardiologists	90%
Surgeons	10%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing**	<input checked="" type="checkbox"/>
Electrophysiology***	<input checked="" type="checkbox"/>

\* In preparation (ÖBIG)

\*\* Austrian PM Registry

\*\*\* National Ablation Registry

Availability of a national quality insurance system or complication registry **Yes**

In preparation (BIQG)

Availability of a national institution coordinating and guiding device recalls **Yes**

GÖG, ÖBIG, BMGFJ (Ministry of Health)

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

15

	2008	2009
<b>Number of ablations performed</b>	<b>1.362</b>	<b>1.400*</b>
<b>Mean number (ablations/centres)</b>	<b>97</b>	<b>100</b>
<b>Number of AF ablations</b>	<b>293</b>	<b>&gt;300*</b>

\* approx.

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

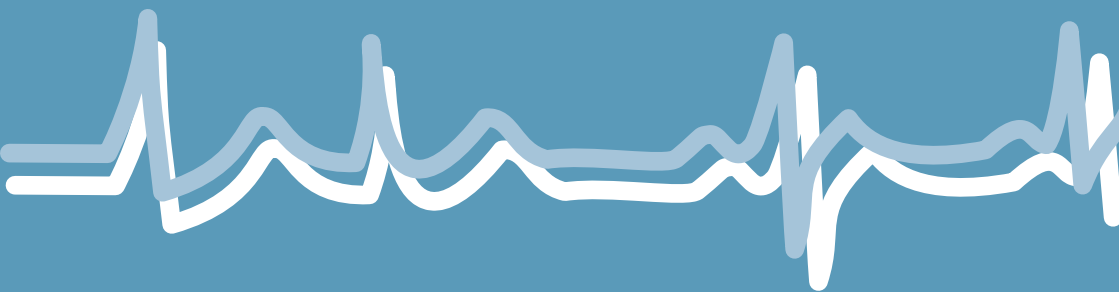
1 = no obstacle

5 = great obstacle

Sources: Austrian Working Group of Electrophysiology – Chairman: Dr. Bernhard Strohmer, Statistics Austria and National Ablation Registry

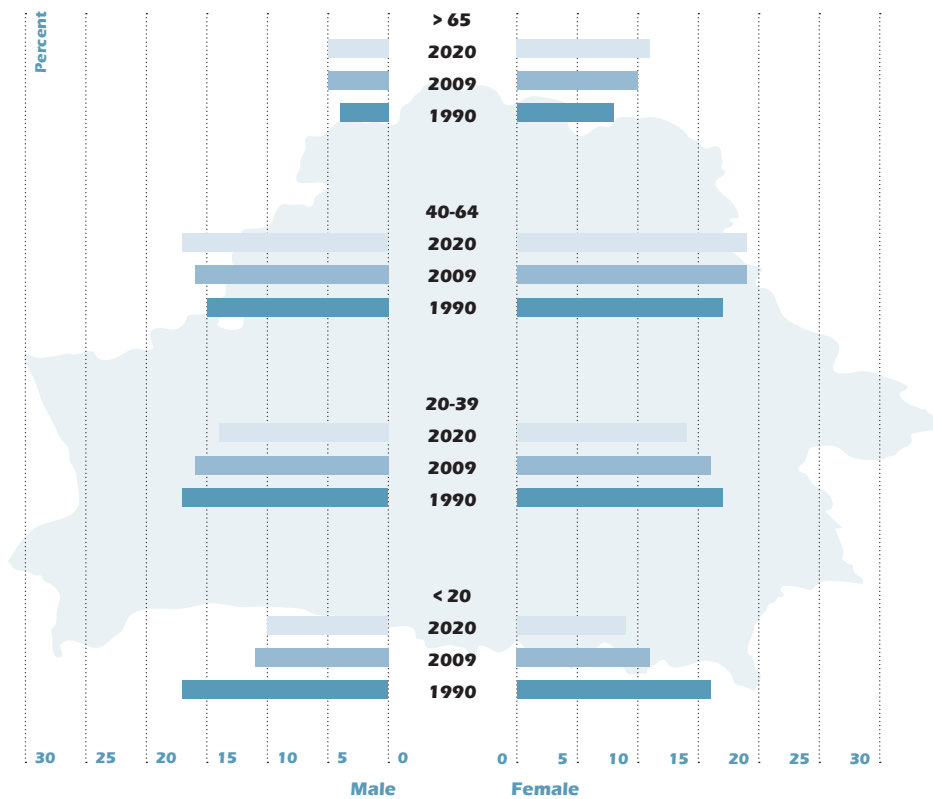


# BELARUS



# 1. Statistics

## Age pyramid for Belarus





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>7,24</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>1.122,87</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>4,84</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>11,98</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,4</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>70,37</b>	<b>2007</b>
<b>Death rate (per 1,000 population)</b>	<b>13,71</b>	<b>2007</b>
<b>Live births (per 1,000 population)</b>	<b>11,14</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>49,04*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>5.121,79*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,4</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>74,9</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>25,1</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>732 per 100.000 citizens</b>
<b>2009</b>	<b>760,9 per 100.000 citizens</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>52,6%</b>
<b>2009</b>	<b>54%</b>

## 3. Healthcare System




The Healthcare system in Belarus is organised through a National Health system.

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>			
<b>Uninsured citizens</b>	<b>0%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>			
<b>Private insurance company</b>	<b>1%</b>			
<b>Private co-payment</b>	<b>3%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

Possibility of subscribing to private health insurance plans Yes

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>
<b>There is a limited number of procedures per year, but everything is for free.</b>	

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Roentgen-endovascular surgery</b>	

**National accreditation for physicians** **Yes**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **No**

**Specialty required for catheter ablation** **Yes**

**Rentgen-endovascular surgeon**

**Specialty required for ICD or pacemaker implants** **Yes**

**Roentgen-endovascular surgeon, cardiac surgeon**

**Official national competency guidelines for electrophysiological studies or catheter ablation** **No**

**Required period of training to perform implantations** **2 years**

### Training centres availability

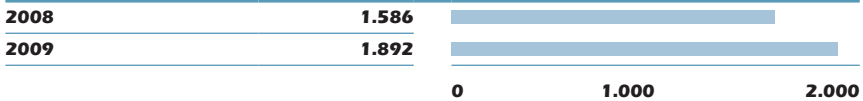
<b>Pacemaker</b>	<b>1</b>
<b>ICD implantation</b>	<b>1</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>1</b>
<b>CRT implantation</b>	<b>1</b>
<b>Atrial fibrillation ablation</b>	<b>1</b>

**Number of medical faculties** **4**

**Percentage of academic facilities among practicing EP and implant centres** **75%**

## 5. Pacemakers

### Pacemaker units implanted



### Pacemaker units implanted and number of implanting centres

		<b>2008</b>
<b>Implanting centres</b>		<b>8</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>
		<b>2009</b>
<b>Implanting centres</b>		<b>8</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>

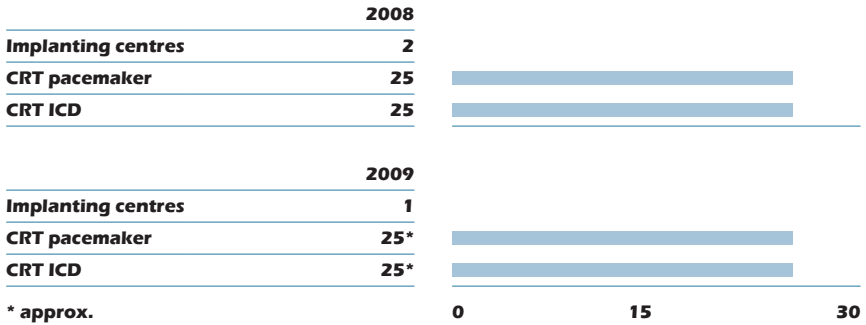
### Specialty performing implants

<b>Cardiologists</b>	<b>0%</b>
<b>Surgeons</b>	<b>100%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

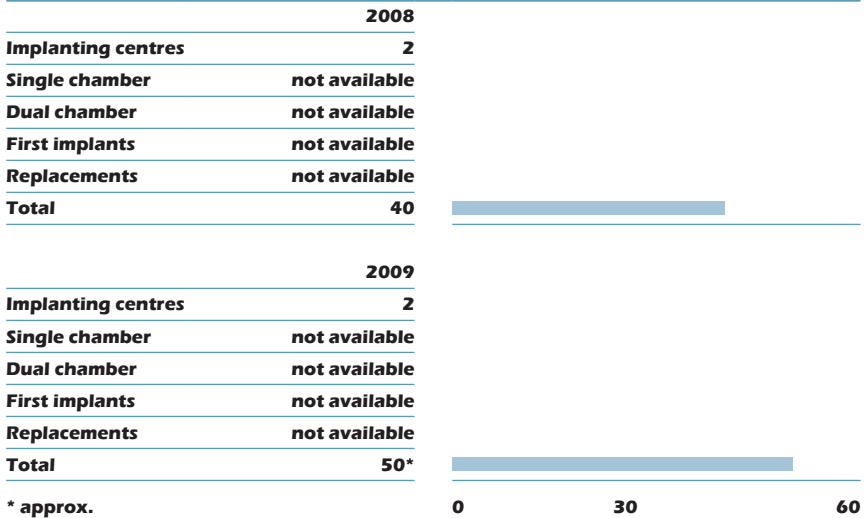


### Specialty performing implants

Cardiologists	0%
Surgeons	100%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>99%</b>
<b>Surgeons</b>	<b>1%</b>

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	2008	
<b>Implanting centres</b>	<b>2</b>	
<b>Loop recorders</b>	<b>10</b>	
	2009	
<b>Implanting centres</b>	<b>2</b>	
<b>Loop recorders</b>	<b>10*</b>	
<b>* approx.</b>	<b>0</b>	<b>6</b> <b>12</b>

### Specialty performing implants

<b>Cardiologists</b>	<b>0%</b>
<b>Surgeons</b>	<b>100%</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing*</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

\* IPG-Registry

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **Yes**  
Republican Scientific and Practical Center of Cardiology and Ministry of Health





## 10. Interventional electrophysiology

**Number of performing catheter ablation centres** **3**

	<b>2008</b>	<b>2009</b>
<b>Number of ablations performed</b>	<b>170</b>	<b>419</b>
<b>Mean number (ablations/centres)</b>	<b>85</b>	<b>140</b>
<b>Number of AF ablations</b>	<b>14</b>	<b>33</b>

## 11. Guidelines

### Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

**Necessity of guideline translation to national language** **Yes**

### Obstacles to guideline implementation

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

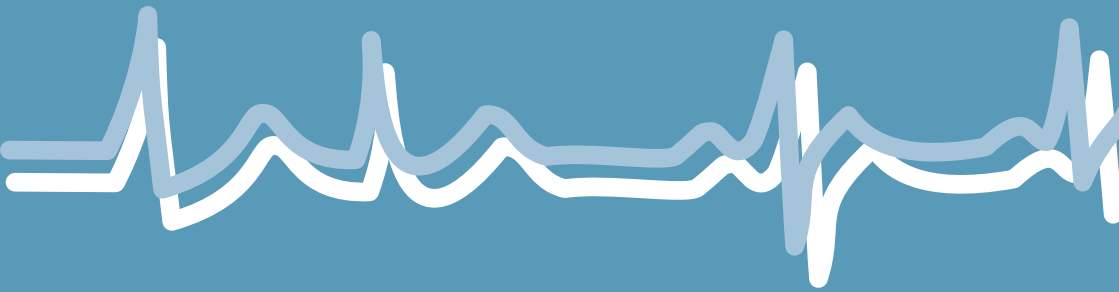
**1 = no obstacle**

**5 = great obstacle**

**Sources: Scientific laboratory of heart arrhythmias – Chief: Prof. Alexander Mrochek**

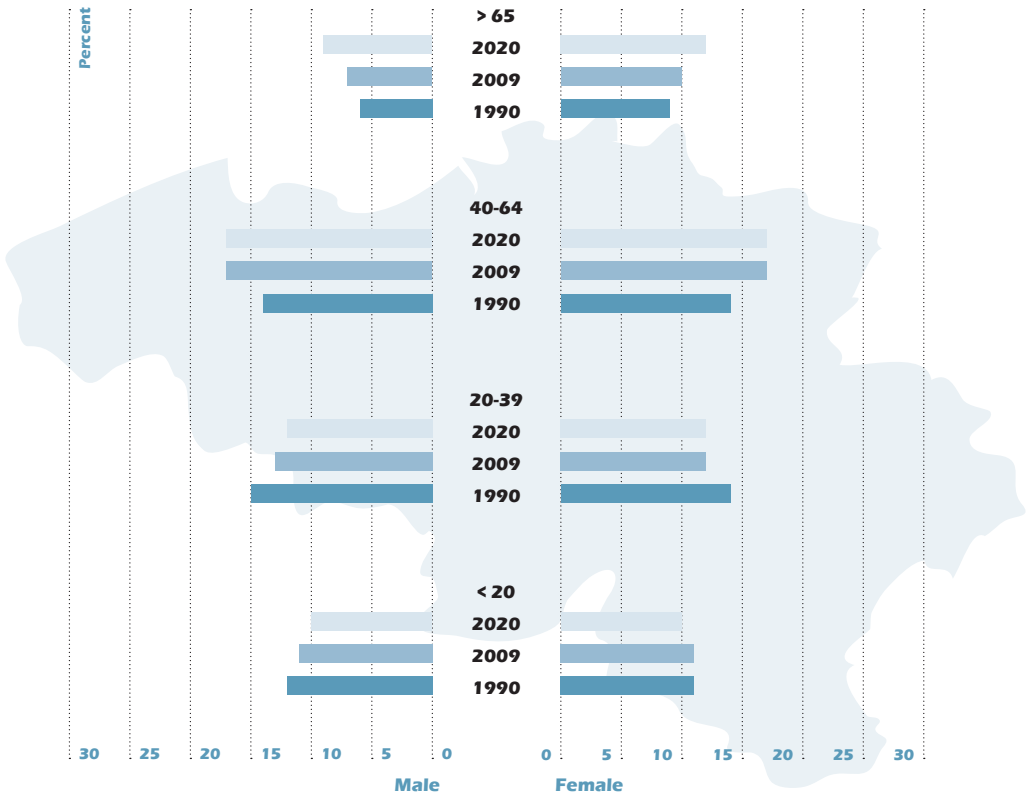


# BELGIUM



# 1. Statistics

## Age pyramid for Belgium





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,98</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>522,93</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>4,18</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>13,41</b>	<b>2004</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>79,0</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>10,23</b>	<b>1999</b>
<b>Live births (per 1.000 population)</b>	<b>11,36</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>461,48*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>42.964,68*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9,5</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>71,1</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>28,9</b>	<b>2006</b>

\* IMF estimative





### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input checked="" type="checkbox"/>
<b>Pacemakers</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Minimal co-payment for pharmacy costs.</b>	

### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>
<b>Primary prevention with ICDs is limited to maximal 40% of all new ICD implants.</b>	

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** Yes

**National accreditation for centres to perform EP** No

**Accreditation is on a voluntary basis; different systems**

**National Society supporting EHRA accreditation system** No

**Specialty required for catheter ablation** Yes

**Cardiologist**

**Specialty required for ICD or pacemaker implants** Yes

**Cardiologist or surgeon**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**Yes**

**BeHRA guidelines**

**Required period of training to perform implantations**

**No**

**Training centres availability**

<b>Pacemaker</b>	<b>50</b>
<b>ICD implantation</b>	<b>27</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>42</b>
<b>CRT implantation</b>	<b>40</b>
<b>Atrial fibrillation ablation</b>	<b>25</b>

\* approx.

**Number of medical faculties**



**7**

**Percentage of academic facilities among practicing EP and implant centres**

**20%**

## 5. Pacemakers

**Pacemaker units implanted**

<b>2008</b>	<b>9.000*</b>	
<b>2009</b>	<b>9.249</b>	
<b>* approx.</b>		<b>0                      5.000                      10.000</b>

**Pacemaker units implanted and number of implanting centres**

	<b>2008</b>
<b>Implanting centres</b>	<b>110</b>
<b>New implants</b>	<b>not available</b>
<b>Replacements</b>	<b>not available</b>
	<b>2009</b>
<b>Implanting centres</b>	<b>106</b>
<b>New implants</b>	<b>not available</b>
<b>Replacements</b>	<b>not available</b>



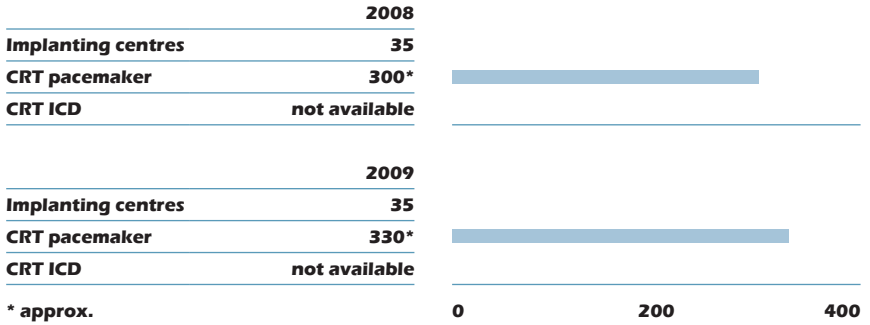


### Specialty performing implants

<b>Cardiologists</b>	<b>65%</b>
<b>Surgeons</b>	<b>35%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

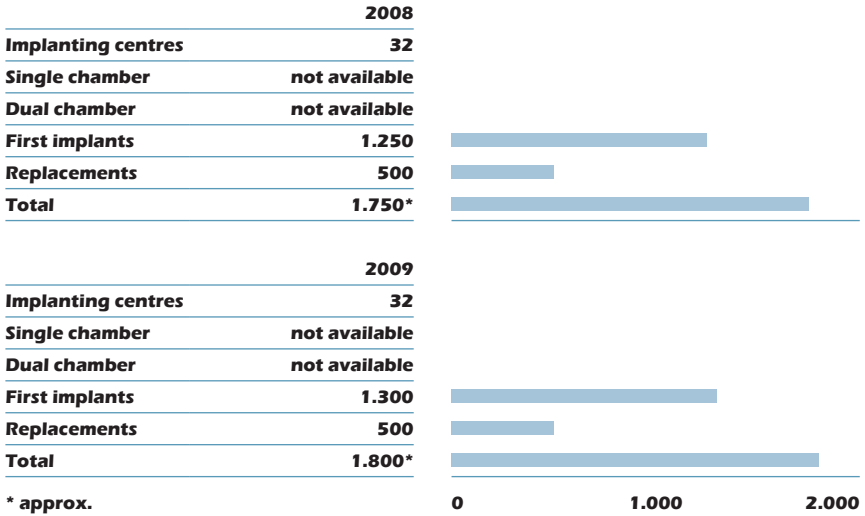


### Specialty performing implants

<b>Cardiologists</b>	<b>85%</b>
<b>Surgeons</b>	<b>15%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

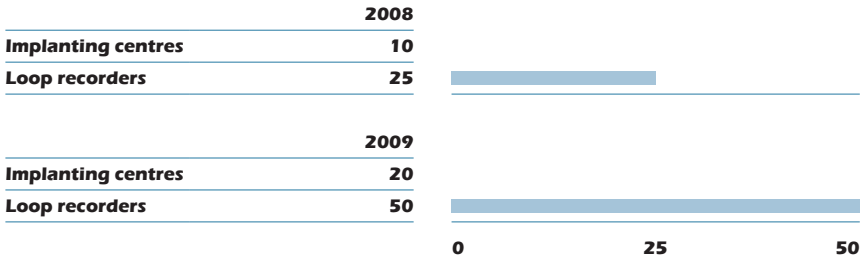


### Specialty performing implants

Cardiologists	70%
Surgeons	30%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing**</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology**</b>	<input checked="" type="checkbox"/>

\* Riziv database

\*\* BeHRA database

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**FAGG**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

42

	2008	2009
<b>Number of ablations performed</b>	<b>4.283</b>	<b>4.932</b>
<b>Mean number (ablations/centres)</b>	<b>101</b>	<b>117</b>
<b>Number of AF ablations</b>	<b>912</b>	<b>1.322</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

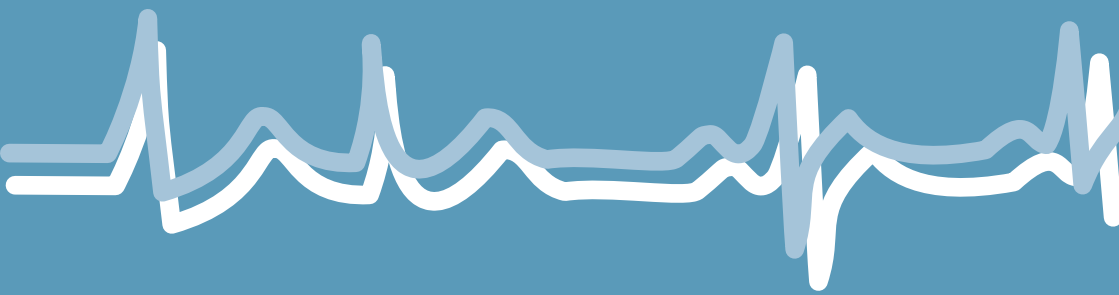
5 = great obstacle

Sources: Belgian Heart Rhythm Association (BeHRA)



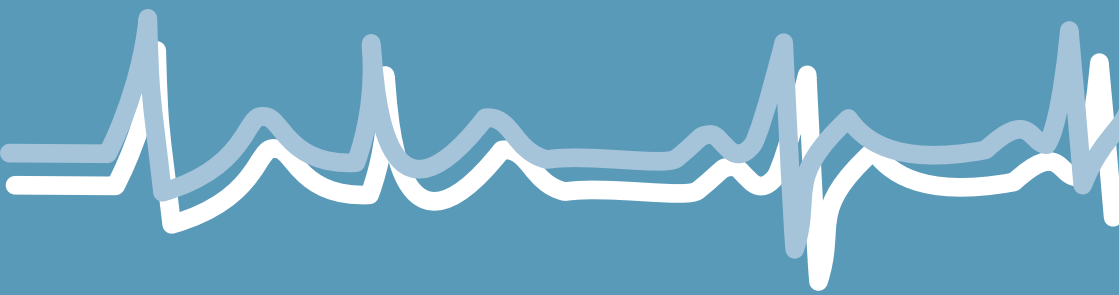
# BOSNIA & HERZEGOVINA

There will be information in the next edition.



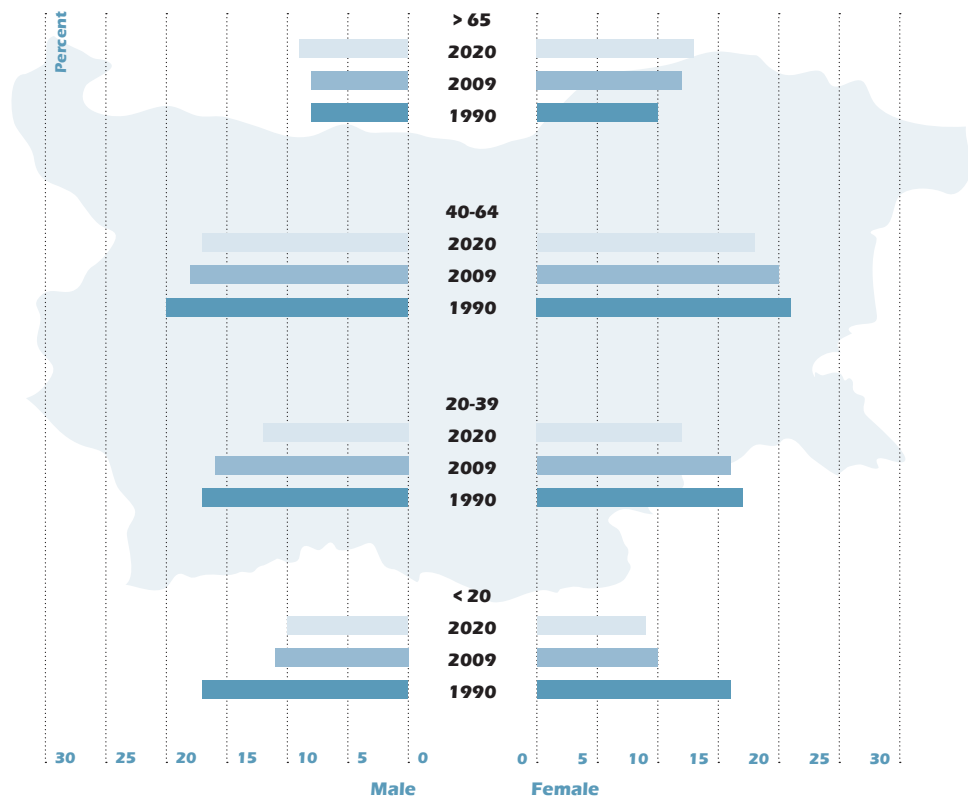


# BULGARIA



# 1. Statistics

## Age pyramid for Bulgaria







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,44</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>636,43</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,64</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>4,21</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,8</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>72,77</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>14,73</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>9,61</b>	<b>2006</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>44,77*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>5.916,22*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,9</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>59,8</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>40,2</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>988 per 100.000 citizens</b>
<b>2009</b>	<b>945 per 100.000 citizens</b>

### Proportion cardiac mortality over total mortality of the country

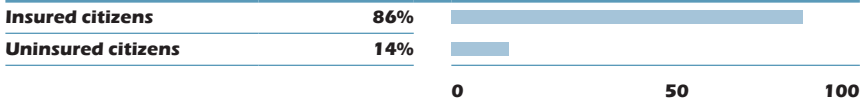
<b>2008</b>	<b>68%</b>
<b>2009</b>	<b>66%</b>

## 3. Healthcare System

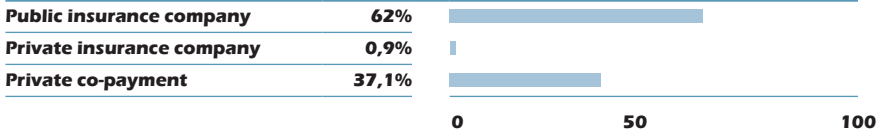
The National Health system includes National Health System Fund and fourteen private insurance funds.

Basic insurance availability Yes

### Percentage of insured and uninsured citizens



### Distribution of insurance modality



Possibility of subscribing to private health insurance plans Yes



#### Co-payment necessary for the following therapy

ICD devices	<input checked="" type="checkbox"/>
Pacemakers	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>

Co-payment is necessary for all pacemakers except VVI type which is covered by the NHS Fund.

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

The NHS Fund does not cover ablation of atrial fibrillation.

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

The National standards for device therapy and invasive electrophysiology are in process of regulation

#### National accreditation for physicians

No

The National accreditation for physicians is in process of regulation.

#### National accreditation for centres

No

The National accreditation for physicians is in process of regulation.

#### National Society supporting EHRA accreditation system

Yes

#### Specialty required for catheter ablation

Yes

Cardiology

#### Specialty required for ICD or pacemaker implants

Yes

Cardiology, surgery

Required period of training to perform implantations

2 years

Training centres availability

<b>Pacemaker</b>	<b>2</b>
<b>ICD implantation</b>	<b>2</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>1</b>
<b>CRT implantation</b>	<b>1</b>
<b>Atrial fibrillation ablation</b>	<b>1</b>

Number of medical faculties



5

Percentage of academic facilities among practicing EP and implant centres

71,4%





## 5. Pacemakers

Pacemaker units implanted

<b>2008</b>	<b>2.437</b>	
<b>2009</b>	<b>2.734</b>	

0                      1.000                      2.000                      3.000

Pacemaker units implanted and number of implanting centres

	2008	
<b>Implanting centres</b>	<b>14</b>	
<b>New implants</b>	<b>2.159</b>	
<b>Replacements</b>	<b>278</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>14</b>	
<b>New implants</b>	<b>2.323</b>	
<b>Replacements</b>	<b>411</b>	

0                      800                      1.600                      2.400

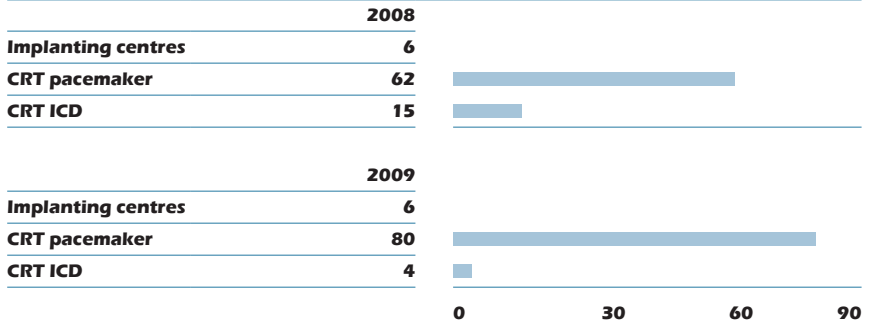


### Specialty performing implants

<b>Cardiologists</b>	<b>82,4%</b>
<b>Surgeons</b>	<b>17,6%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

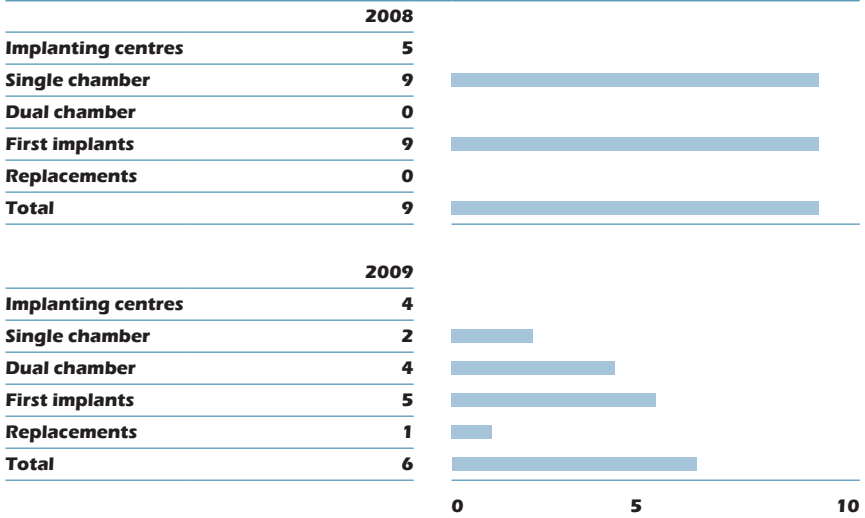


### Specialty performing implants

<b>Cardiologists</b>	<b>99%</b>
<b>Surgeons</b>	<b>1%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



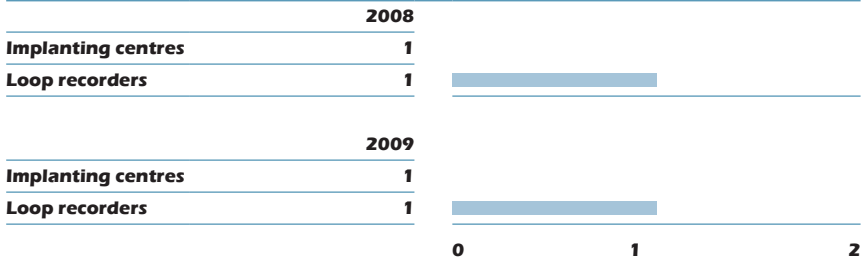
### Specialty performing implants

Cardiologists	99%
Surgeons	1%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices



### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology*	<input checked="" type="checkbox"/>

\* Ablation Registry National Heart Hospital

Availability of a national quality insurance system or complication registry

No

Availability of a national institution coordinating and guiding device recalls

No

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 1

	2008	2009
<b>Number of ablations performed</b>	<b>290</b>	<b>309</b>
<b>Mean number (ablations/centres)</b>	<b>290</b>	<b>309</b>
<b>Number of AF ablations</b>	<b>15</b>	<b>28</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language Yes

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

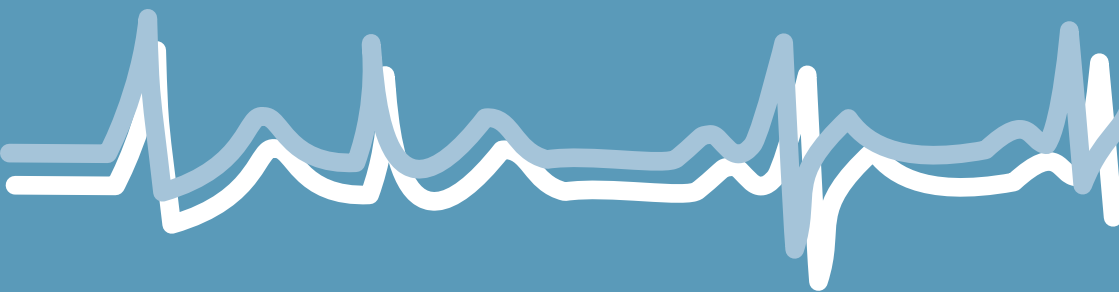
1 = no obstacle

5 = great obstacle

Sources: Bulgarian Working Group on Arrhythmias – Chairman: Dr. Svetoslav Iovchev and National Statistical Institute

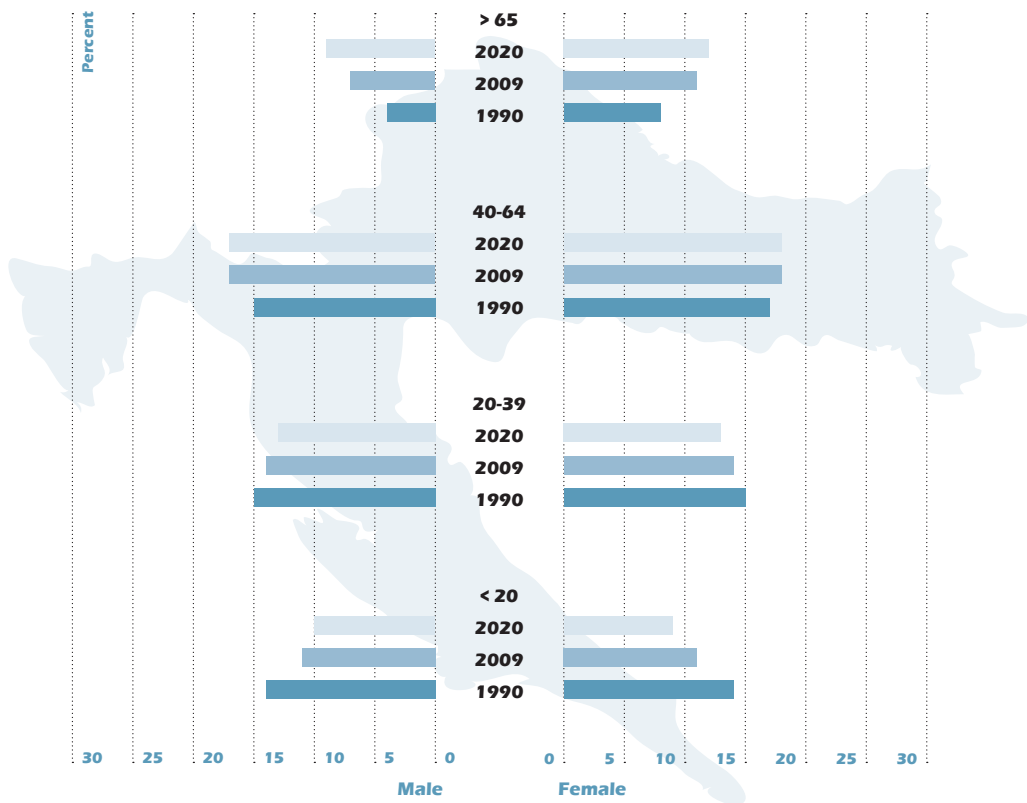


# CROATIA



# 1. Statistics

## Age pyramid for Croatia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,73</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>534,6</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,59</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>5,24</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>76,14</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>11,76</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>9,87</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>61,72*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>13.913,10*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,5</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>80,1</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>19,9</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country

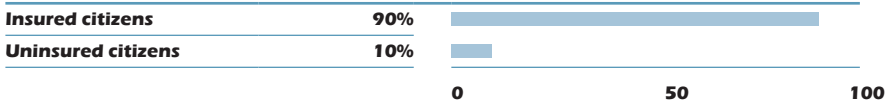
<b>2008</b>	<b>50%</b>
<b>2009</b>	<b>50%</b>

## 3. Healthcare System

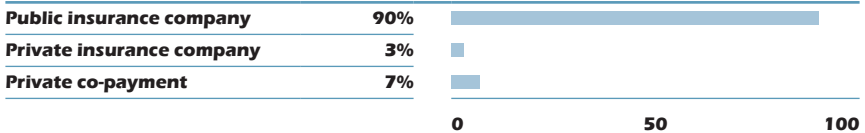
The Croatian healthcare system is based on the Health Insurance Institute in addition to private insurances.

Basic insurance availability Yes

### Percentage of insured and uninsured citizens



### Distribution of insurance modality



Possibility of subscribing to private health insurance plans Yes

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>
<b>Number of implantations and of ablations is limited by budget.</b>	

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** Yes

**National accreditation for centres** Yes

**National Society supporting EHRA accreditation system** Yes

**Specialty required for catheter ablation** Yes

**Cardiologist**

**Specialty required for ICD or pacemaker implants** Yes

**Cardiologist, surgeon**

**Official national competency guidelines for electrophysiological studies or catheter ablation** No

**Required period of training to perform implantations** No

### Training centres availability

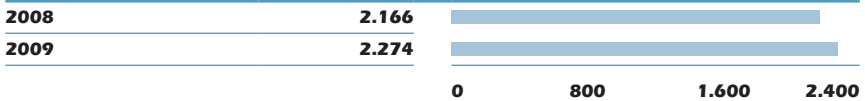
<b>Pacemaker</b>	<b>4</b>
<b>ICD implantation</b>	<b>4</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>2</b>
<b>CRT implantation</b>	<b>4</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties** **4**

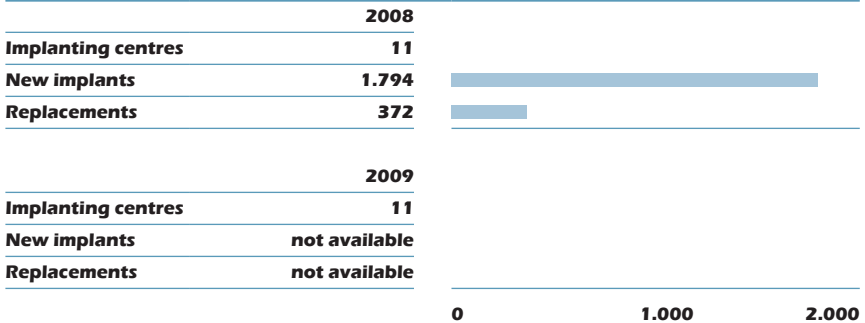
**Percentage of academic facilities among practicing EP and implant centres** **60%**

## 5. Pacemakers

### Pacemaker units implanted



### Pacemaker units implanted and number of implanting centres



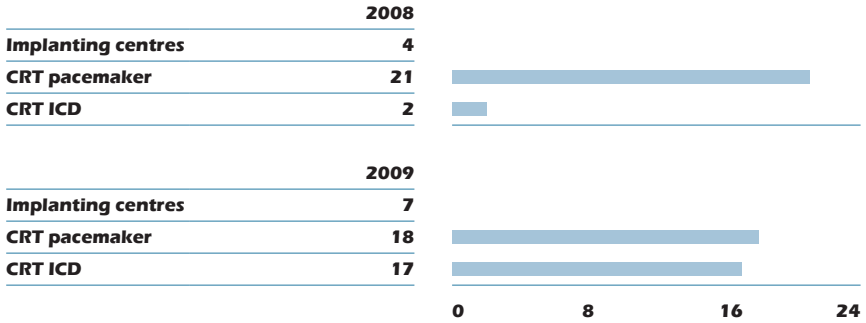
### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>30%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

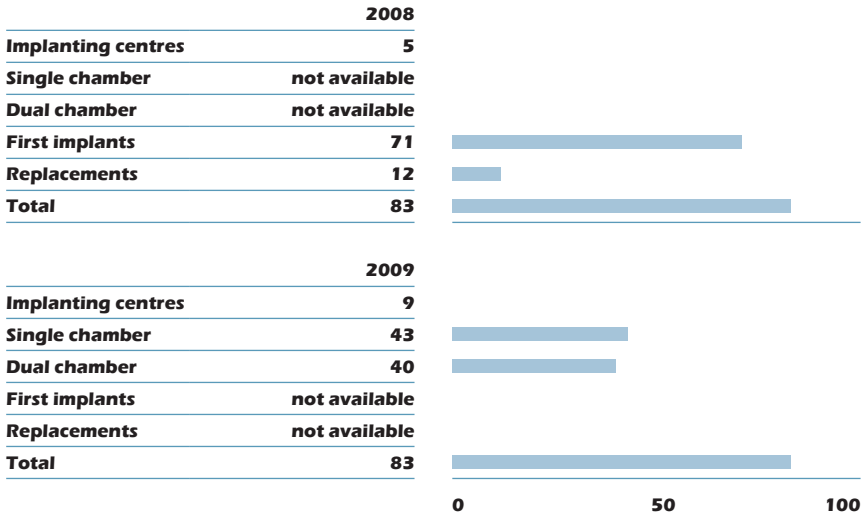


### Specialty performing implants

Cardiologists	30%
Surgeons	70%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>30%</b>

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	<b>2008</b>
<b>Implanting centres</b>	<b>0</b>
<b>Loop recorders</b>	<b>0</b>
	<b>2009</b>
<b>Implanting centres</b>	<b>0</b>
<b>Loop recorders</b>	<b>0</b>

### Specialty performing implants

<b>Cardiologists</b>	<b>not available</b>
<b>Surgeons</b>	<b>not available</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input checked="" type="checkbox"/>

### Croatian Registry on Cardiac Pacing, ICD and Electrophysiology

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **Yes**

Croatian Ministry of Health



## 10. Interventional electrophysiology

Number of performing catheter ablation centres

4

	2008	2009
Number of ablations performed	264	not available
Mean number (ablations/centres)	68	not available
Number of AF ablations	0	not available

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

National	<input type="checkbox"/>
U.S.	<input type="checkbox"/>
European	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

	1	2	3	4	5
Lack of centres	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

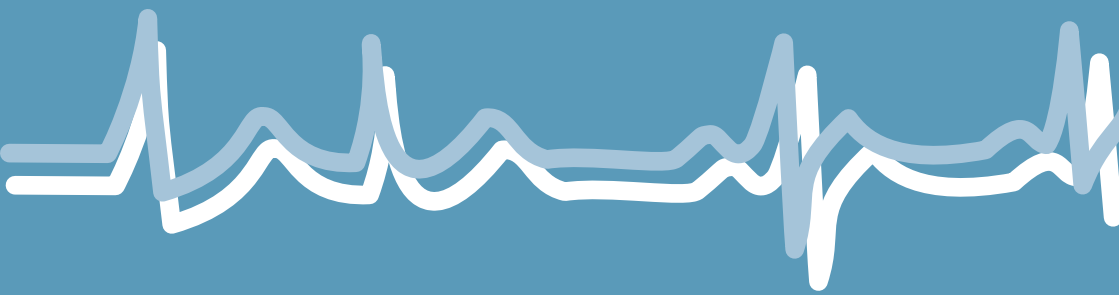
1 = no obstacle

5 = great obstacle

Sources: Working Group on Arrhythmias and Cardiac Pacing of the Croatian Cardiac Society – Chairman: Prof. Dubravko Petrac, Croatian Registry on Cardiac Pacing, ICD and Electrophysiology

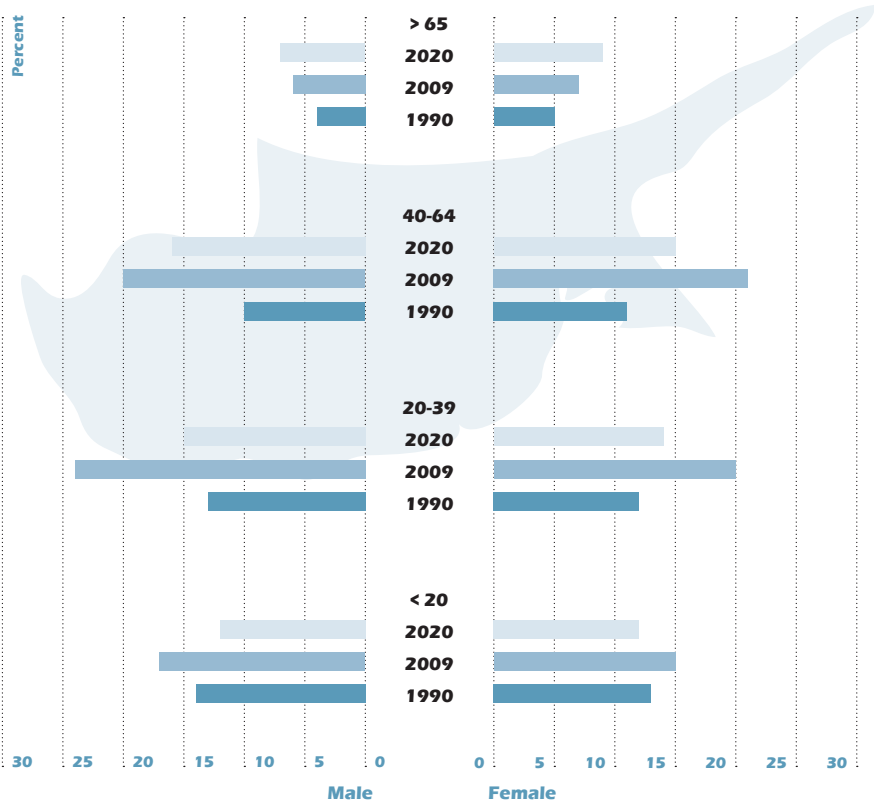


# CYPRUS



# 1. Statistics

## Age pyramid for Cyprus





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,3</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>300</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,53</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>4,36</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>1,7</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,44</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>6,39</b>	<b>2007</b>
<b>Live births (per 1.000 population)</b>	<b>10,19</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>23,22*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>30.238,56*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>44,8</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>55,2</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>720 per 100.000 citizens</b>
<b>2009</b>	<b>720 per 100.000 citizens</b>

### Proportion cardiac mortality over total mortality of the country

<b>2008</b>	<b>29%</b>
<b>2009</b>	<b>29%</b>

## 3. Healthcare System

In Cyprus, free medical care is provided based on income criteria to above 85% of the population.



Private care is also available in the country.

Basic insurance availability No

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>not available</b>
<b>Uninsured citizens</b>	<b>not available</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>70%</b>		
<b>Private insurance company</b>	<b>30%</b>		
<b>Private co-payment</b>	<b>not available</b>		
	<b>0</b>	<b>50</b>	<b>100</b>

Possibility of subscribing to private health insurance plans Yes



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
<b>Income criteria apply</b>	

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>
<b>Income criteria apply</b>	

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**Training centres availability**

<b>Pacemaker</b>	<b>2</b>
<b>ICD implantation</b>	<b>1</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>1</b>
<b>CRT implantation</b>	<b>1</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties\***

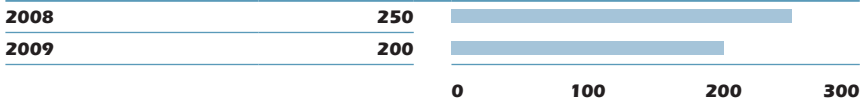
\* Medical school to be established in 2012

**Percentage of academic facilities among practicing EP and implant centres**

0%

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>4</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	

---

		<b>2009</b>
<b>Implanting centres</b>		<b>5</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	



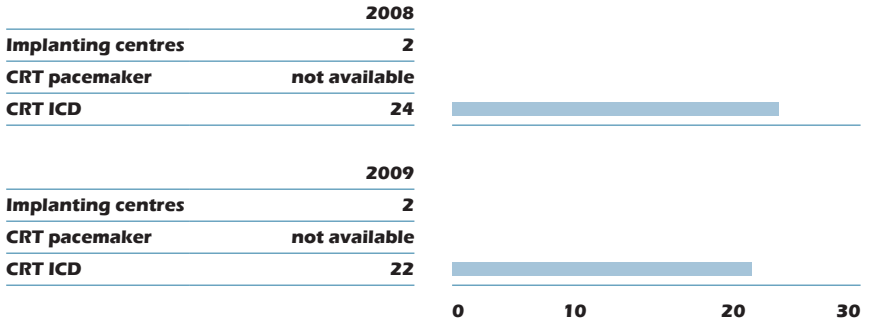


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

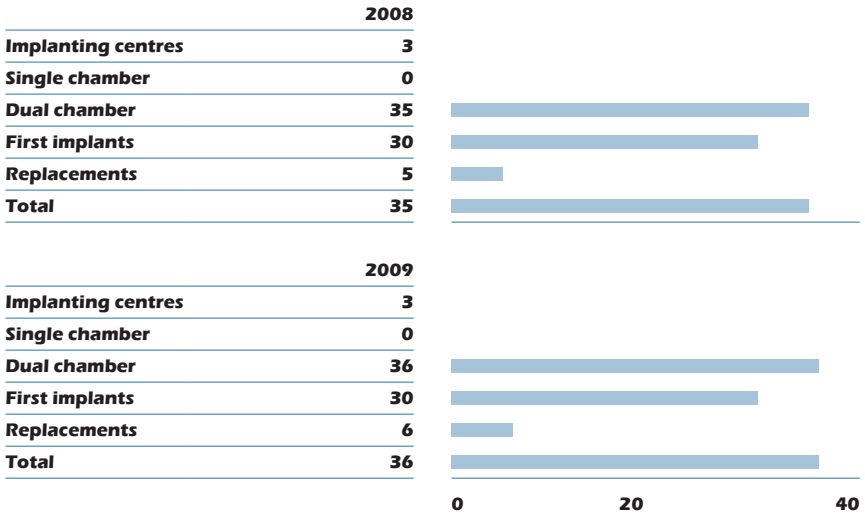


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



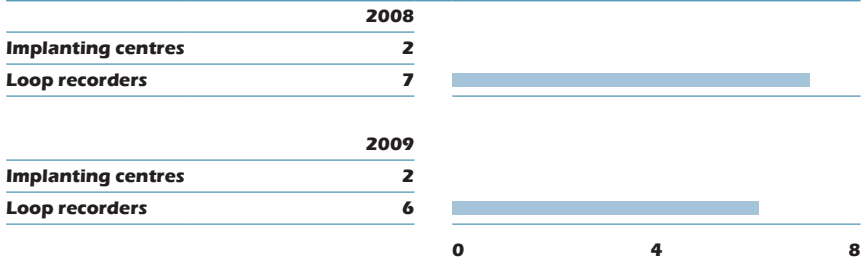
### Specialty performing implants

Cardiologists	100%
Surgeons	0%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

2

	2008	2009
<b>Number of ablations performed</b>	<b>12</b>	<b>20</b>
<b>Mean number (ablations/centres)</b>	<b>6</b>	<b>10</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>0</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

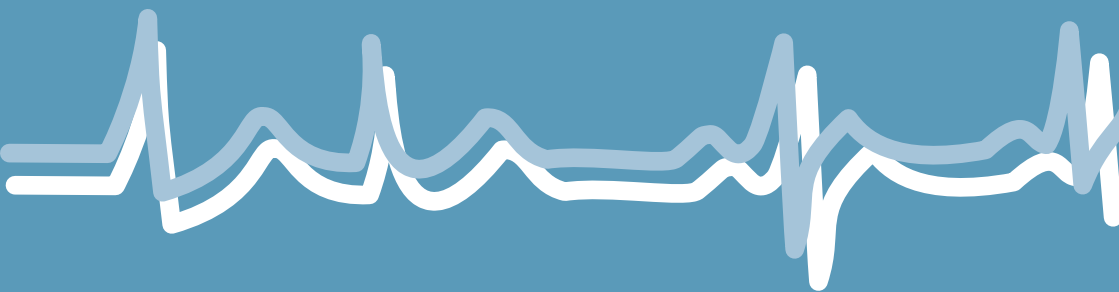
	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

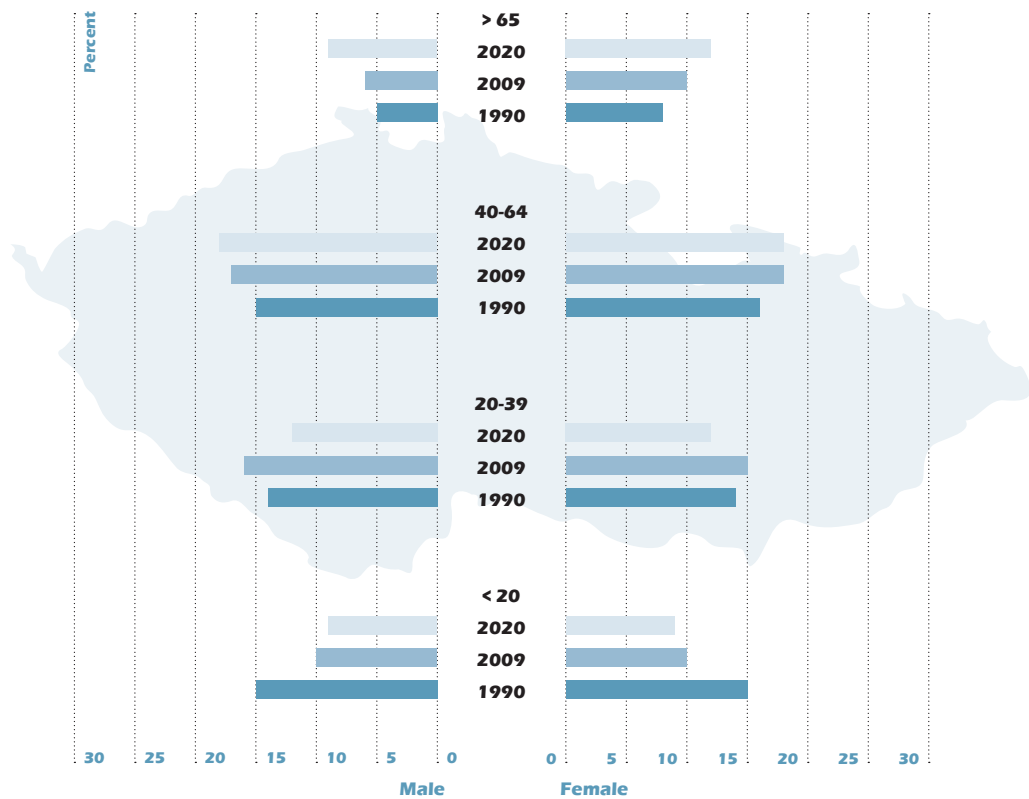
Sources: Cyprus Working Group in Arrhythmia and Cyprus Society of Cardiology –  
President: Loizos Antoniadis MD PhD FESC FACC

# CZECH REPUBLIC



# 1. Statistics

## Age pyramid for Czech Republic





### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>3,34</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>810,52</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,57</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>8,43</b>	<b>2007</b>

### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>77,42</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>10,06</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>11,46</b>	<b>2008</b>

### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>189,66*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>18.193,65*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,8</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>87,9</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>12,1</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

2008	511,1 per 100.000 citizens
2009	515,7 per 100.000 citizens*

\* approx.

### Proportion cardiac mortality over total mortality of the country

2008	49,8%
2009	50,3%*


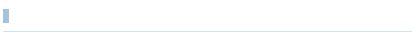
\* approx.

## 3. Healthcare System




In Czech Republic the healthcare is provided primarily on the basis of a national statutory health insurance. There is almost no demand for supplementary private healthcare insurance, reimbursement is available through twelve State insurance companies. A limited number of services are not covered through the statutory healthcare system and require co-payment. (Source: Health Care System in Transition: Czech Republic. European Observatory on Health Systems and Policies, 2005)

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

Insured citizens	99,9%			
Uninsured citizens	0,1%			
		0	50	100

### Distribution of insurance modality

Public insurance company	99,8%			
Private insurance company	0,1%			
Private co-payment	0,1%			
		0	50	100

Possibility of subscribing to private health insurance plans No





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy*	<input checked="" type="checkbox"/>
Invasive electrophysiology**	<input checked="" type="checkbox"/>

\* ICD and PM Accreditation

\*\* EP Accreditation

National accreditation for physicians Yes

National accreditation for centres Yes

National Society supporting EHRA accreditation system not available

Specialty required for catheter ablation Yes

Cardiologist, licence for EP diagnostics, licence for ablations

Specialty required for ICD or pacemaker implants Yes

Cardiologist, surgeon, licence for implantation, follow-up

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Czech Society of Cardiology – Working Group on Arrhythmias and Cardiac Pacing

Required period of training to perform implantations

No\*

\* Requires certain number of implantations

#### Training centres availability

Pacemaker	15
ICD implantation	15
Electrophysiological studies and catheter ablation	15
CRT implantation	15
Atrial fibrillation ablation	7

Number of medical faculties



7

Percentage of academic facilities among practicing EP and implant centres





57%

## 5. Pacemakers

#### Pacemaker units implanted

2008	8.401	
2009	9.012	
		0                      5.000                      10.000

#### Pacemaker units implanted and number of implanting centres

	2008	
Implanting centres	39	
New implants	6.440	
Replacements	1.961	
	2009	
Implanting centres	39	
New implants	6.774	
Replacements	2.238	
		0                      4.000                      8.000

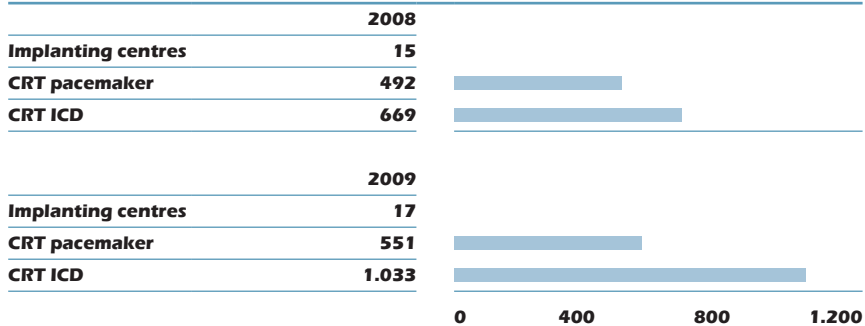


### Specialty performing implants

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>10%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>98%</b>
<b>Surgeons</b>	<b>2%</b>





## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008		
Implanting centres	15	
Loop recorders	310	
2009		
Implanting centres	not available	
Loop recorders	170*	
* approx.		0                      180                      360

### Specialty performing implants

Cardiologists	90%
Surgeons	10%

## 9. Device specific

### Availability of remote monitoring of devices



### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing**	<input checked="" type="checkbox"/>
Electrophysiology***	<input checked="" type="checkbox"/>

\* ICD registry

\*\* PM registry

\*\*\* Ablation registry

### Availability of a national quality insurance system or complication registry

Yes

State institute for drug control

### Availability of a national institution coordinating and guiding device recalls

Yes

State institute for drug control

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

18

	2008	2009
<b>Number of ablations performed</b>	<b>3.470</b>	<b>3.980</b>
<b>Mean number (ablations/centres)</b>	<b>204</b>	<b>221</b>
<b>Number of AF ablations</b>	<b>902</b>	<b>1.215</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

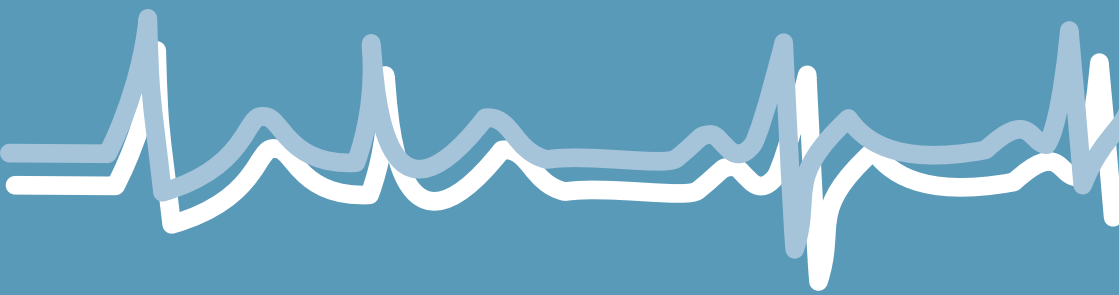
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

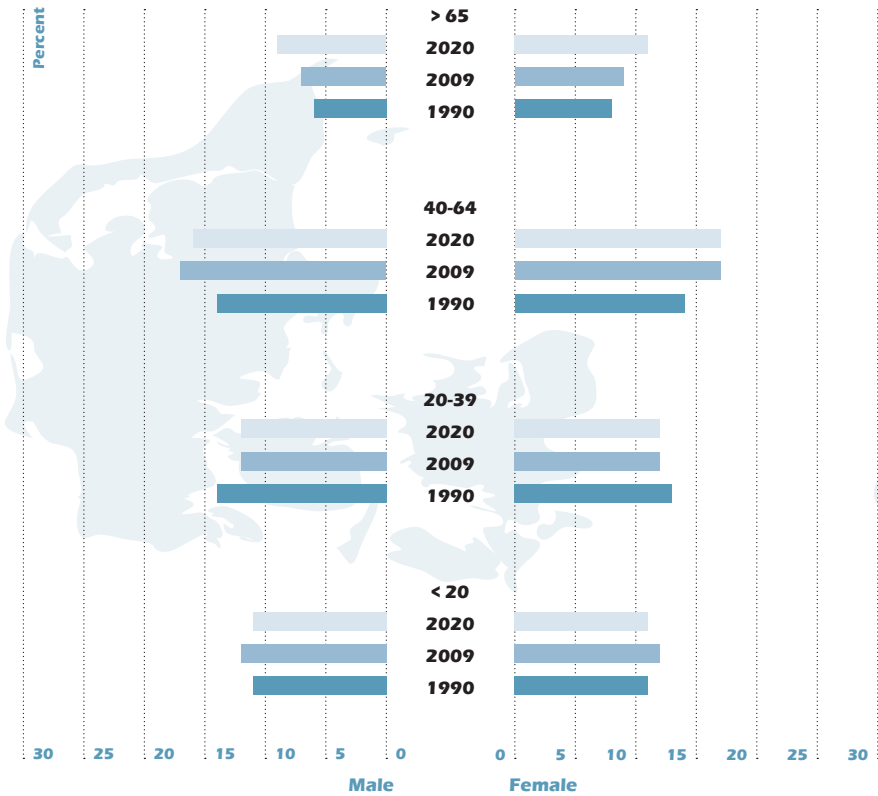
Sources: National Working Group on Arrhythmias and Cardiac Pacing, Czech Republic –  
Chairman: Cihák Robert, MD, PhD

# DENMARK



# 1. Statistics

## Age pyramid for Denmark







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,09</b>	<b>2005</b>
<b>Beds (per 100.000 population)</b>	<b>349,48</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,2</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>9,61</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>78,51</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>10,25</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>11,96</b>	<b>2006</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>308,32*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>55.942,17*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9,5</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>84</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>16</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




Denmark has a National healthcare system which provides universal coverage for all residents. Hospital care, general practitioner services and healthcare services are free at the point of use. The private healthcare section is also a growing section in the country. (Highlights on health in Denmark, WHO, 2004)

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>			
<b>Uninsured citizens</b>	<b>0%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>			
<b>Private insurance company</b>	<b>not available</b>			
<b>Private co-payment</b>	<b>not available</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

Possibility of subscribing to private health insurance plans Yes



#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>
<b>The Danish National Board of Health</b>	

**National accreditation for physicians** Yes

**National accreditation for centres** Yes

**National Society supporting EHRA accreditation system** No

**Specialty required for catheter ablation** Yes

**Cardiologist with special electrophysiology training**

**Specialty required for ICD or pacemaker implants** Yes

**Cardiologist with special electrophysiology training**

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Danish Society of Cardiology

Required period of training to perform implantations

5 years

#### Training centres availability

Pacemaker	5
ICD implantation	5
Electrophysiological studies and catheter ablation	6
CRT implantation	5
Atrial fibrillation ablation	6

Number of medical faculties

3



Percentage of academic facilities among practicing EP and implant centres

83%/40%\*





\* 83% for EP and 40% for implantations

## 5. Pacemakers

#### Pacemaker units implanted

2008	4.047	
2009	4.016	
		0                      1.400                      2.800                      4.200

#### Pacemaker units implanted and number of implanting centres

	2008	
Implanting centres	14	
New implants	2.984	
Replacements	1.063	
	2009	
Implanting centres	14	
New implants	2.955	
Replacements	982	
		0                      1.500                      3.000

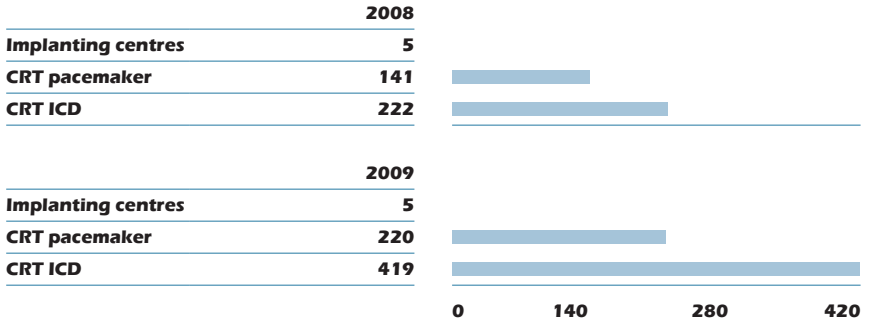


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

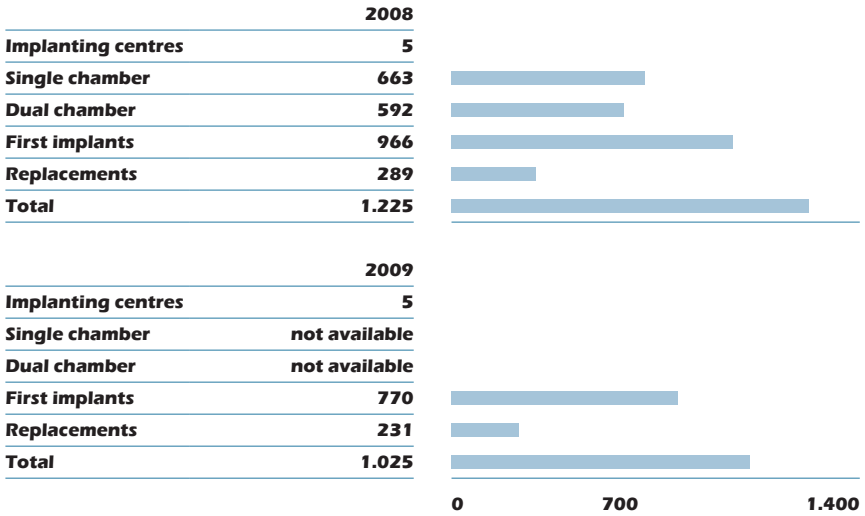


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

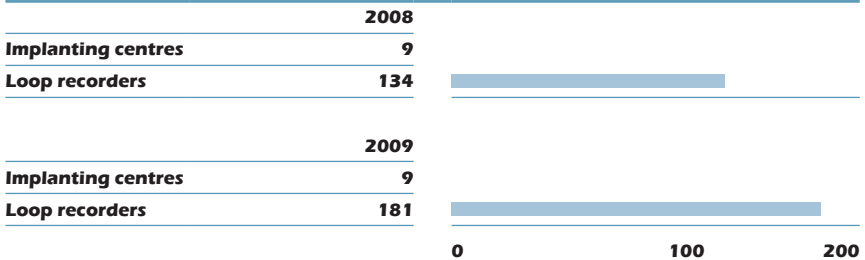


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing**</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology***</b>	<input checked="" type="checkbox"/>

\* Danish ICD register

\*\* Danish Pacemaker register

\*\*\* Ablation.dk since 2010

**Availability of a national quality insurance system or complication registry** **Yes**

**Danish ICD and pacemaker register**  
**Infection, lead displacement, reoperation**

**Availability of a national institution coordinating and guiding device recalls** **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

6

	2008	2009
<b>Number of ablations performed</b>	<b>2.315</b>	<b>2.684</b>
<b>Mean number (ablations/centres)</b>	<b>385</b>	<b>447</b>
<b>Number of AF ablations</b>	<b>1.100</b>	<b>1.237</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

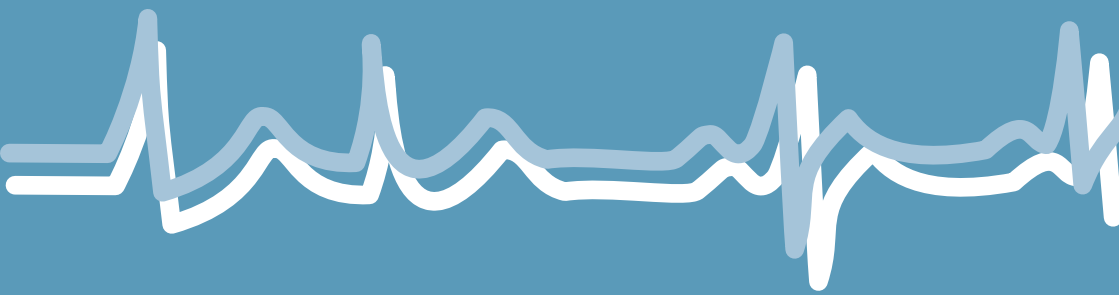
1 = no obstacle

5 = great obstacle

Sources: Danish Working group for Electrophysiology – President: Prof. Sam Riahi,  
Department of Cardiology, Aalborg Hospital, Århus University Hospital

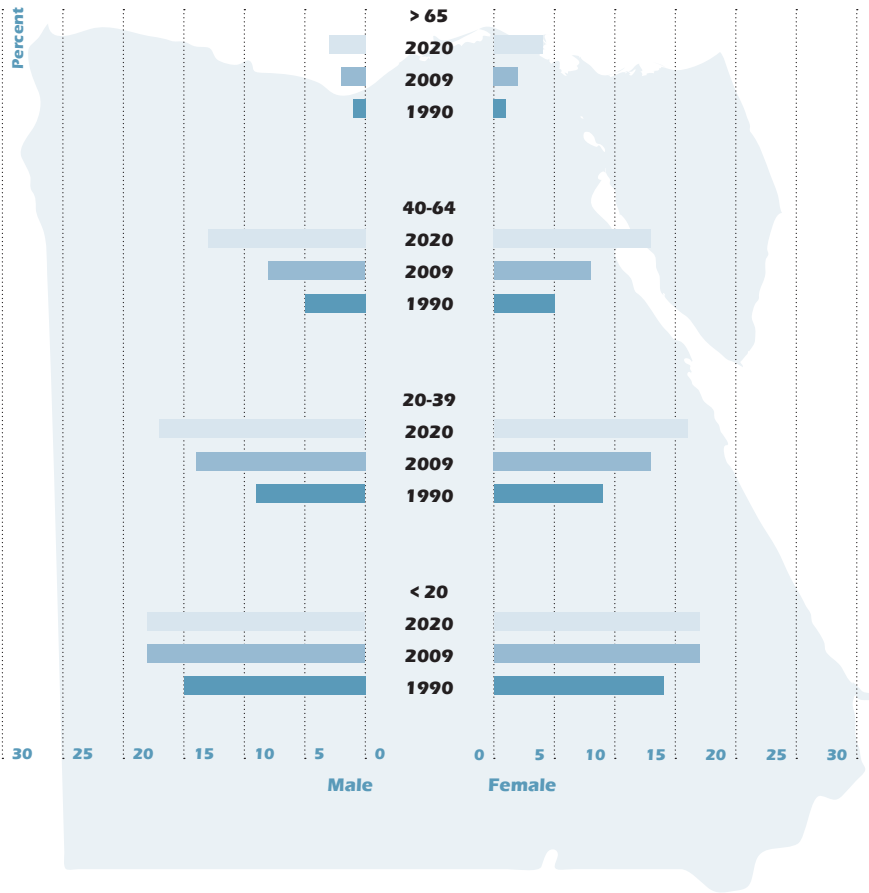


# EGYPT



# 1. Statistics

## Age pyramid for Egypt



**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>not available</b>	<b>2005</b>
<b>Beds (per 100.000 population)</b>	<b>220</b>	<b>2005</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,4</b>	<b>2005</b>
<b>Density of nurses (per 1.000 population)</b>	<b>3,4</b>	<b>2005</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>2</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>68</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>5,6</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>24</b>	<b>2007</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>187,95*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>2.450,41*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>40,7</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>59,3</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>1.100 per 1.000.000 citizens</b>
<b>2009</b>	<b>1.100 per 1.000.000 citizens</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




Egypt has a segmented health system. There are different public and private providers and financing agents. The main agents are: the government sector, the public sector which is known as Health Insurance Organisation (HIO), the Curative Care Organisations (CCO) and private organisations. Healthcare providers in the government sector are the Ministry of Health (MOH), teaching and university hospitals and Military and Police Hospitals.

**Basic insurance availability** **No**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>54%</b>	
<b>Uninsured citizens</b>	<b>46%</b>	
		<b>0                      50                      100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>54%</b>	
<b>Private insurance company</b>	<b>1%</b>	
<b>Private co-payment</b>	<b>60-65%</b>	
		<b>0                      50                      100</b>

**Possibility of subscribing to private health insurance plans** **Yes**



**Co-payment necessary for the following therapy**

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>
<b>Co-payments for DDI and others</b>	

**Reimbursement availability**

<b>Internal loop recorders</b>	<input type="checkbox"/>
<b>ICD primary prevention</b>	<input type="checkbox"/>
<b>ICD secondary prevention</b>	<input type="checkbox"/>
<b>CRT devices</b>	<input type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

**4. Education**

**National accreditation availability**

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist, subspecialty electrophysiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist, subspecialty electrophysiologist**

Required period of training to perform implantations

4 years

Training centres availability

<b>Pacemaker</b>	<b>12</b>
<b>ICD implantation</b>	<b>8</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>6</b>
<b>CRT implantation</b>	<b>8</b>
<b>Atrial fibrillation ablation</b>	<b>4</b>

Number of medical faculties

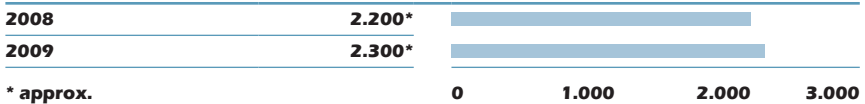
22

Percentage of academic facilities among practicing EP and implant centres

60%

## 5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

		2008
<b>Implanting centres</b>		<b>5</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	
		2009
<b>Implanting centres</b>		<b>15</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	





**Specialty performing implants**

<b>Cardiologists</b>	<b>80%</b>
<b>Surgeons</b>	<b>0%</b>
<b>Other: Critical care physicians</b>	<b>20%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

	2008	
<b>Implanting centres</b>	<b>6</b>	
<b>CRT pacemaker</b>	<b>75*</b>	
<b>CRT ICD</b>	<b>33*</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>6</b>	
<b>CRT pacemaker</b>	<b>45*</b>	
<b>CRT ICD</b>	<b>not available</b>	





\* Refers to a critical care center only      0      40      80      120

**Specialty performing implants**

<b>Cardiologists</b>	<b>80%</b>
<b>Surgeons</b>	<b>0%</b>
<b>Other: Critical care physicians</b>	<b>20%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

2008		
Implanting centres	8	
Single chamber	12	
Dual chamber	7	
First implants	not available	
Replacements	not available	
Total	19*	
2009		
Implanting centres	8	
Single chamber	not available	
Dual chamber	not available	
First implants	not available	
Replacements	not available	
Total	14 *	
* approx.		0                      15                      30

### Specialty performing implants

Cardiologists	80%
Surgeons	0%
Other: Critical care physicians	20%





## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008			
Implanting centres	2		
Loop recorders	2	<div style="width: 25%;"></div>	
2009			
Implanting centres	2		
Loop recorders	not available		
		0	2
			4

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices No

### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry No

Availability of a national institution coordinating and guiding device recalls No

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

6

	2008	2009
<b>Number of ablations performed</b>	<b>850*</b>	<b>859*</b>
<b>Mean number (ablations/centres)</b>	<b>141</b>	<b>143</b>
<b>Number of AF ablations</b>	<b>not available</b>	<b>not available</b>

\* approx.

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

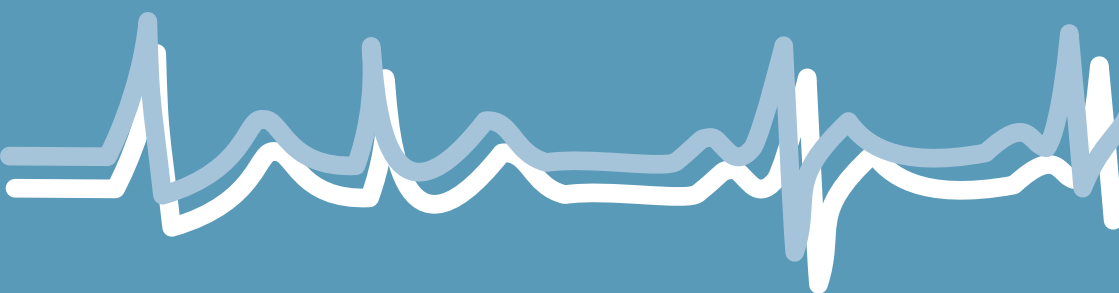
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

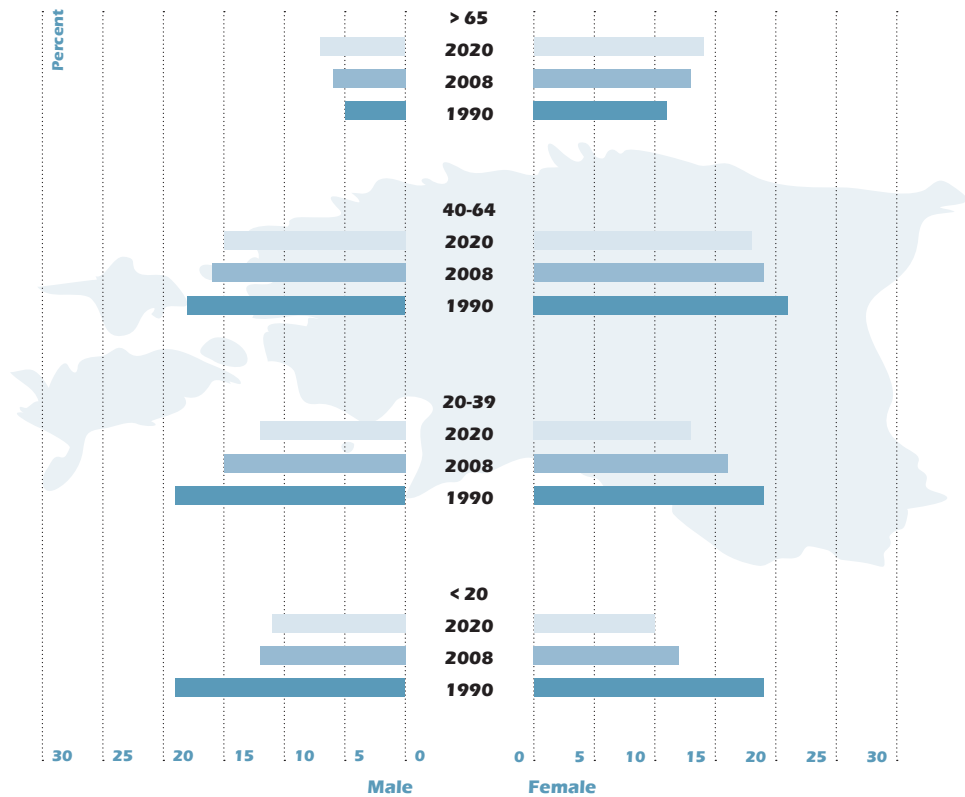
Sources: Egyptian Cardiac Rhythm Association (ECRA) – Chairman: Prof. Sherif M. Mokhtar and Egyptian Society of Cardiology – Vice President: Dr. Khairy Abdel Dayem, FRCP, PhD, FACC

# ESTONIA



# 1. Statistics

## Age pyramid for Estonia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,25</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>556,99</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,29</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>6,55</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,6</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>74,34</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>12,44</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>11,96</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>18,05*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>13.509,10*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>5,0</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>74,2</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>25,8</b>	<b>2006</b>

\* IMF estimative





#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist or cardiac surgeon**

Required period of training to perform implantations

1 year

Training centres availability

Pacemaker	2
ICD implantation	2
Electrophysiological studies and catheter ablation	2
CRT implantation	2
Atrial fibrillation ablation	1

Number of medical faculties

1



Percentage of academic facilities among practicing EP and implant centres

50%/20%\*





\* 50% from EP centers, 20% from implanting centers

## 5. Pacemakers

Pacemaker units implanted

2008	1.113	
2009	1.032	
		0                      600                      1.200

Pacemaker units implanted and number of implanting centres

	2008	
Implanting centres	5	
New implants	964	
Replacements	149	
	2009	
Implanting centres	5	
New implants	933	
Replacements	99	
		0                      500                      1.000



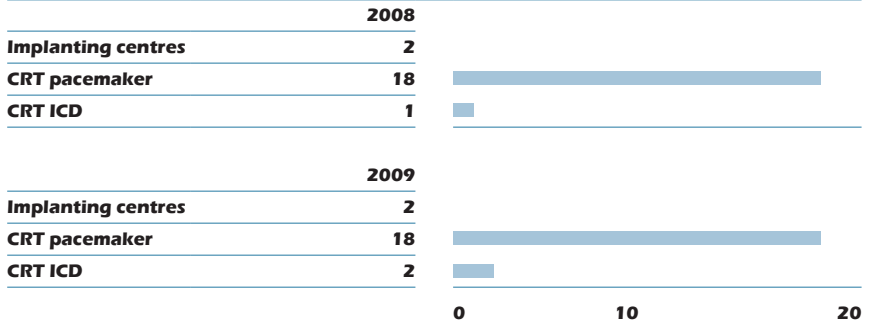


### Specialty performing implants

<b>Cardiologists</b>	<b>53,4%</b>
<b>Surgeons</b>	<b>36,6%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

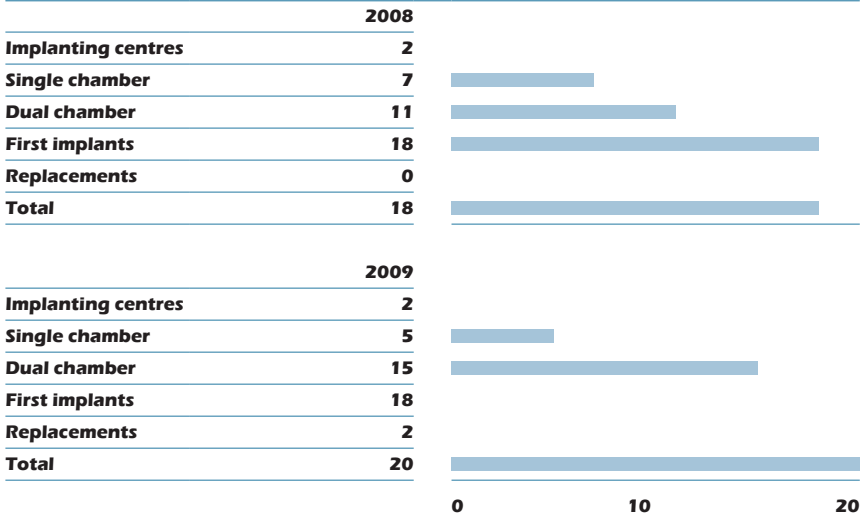


### Specialty performing implants

<b>Cardiologists</b>	<b>83,3%</b>
<b>Surgeons</b>	<b>16,7%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



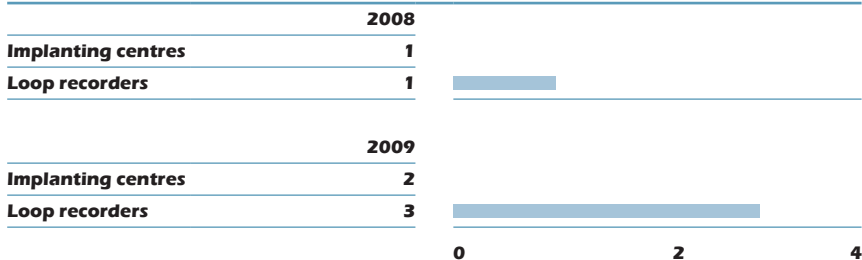
### Specialty performing implants

Cardiologists	75%
Surgeons	25%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	67%
Surgeons	33%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing*	<input checked="" type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

\* Estonian Pacemaker and ICD implantation registry

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **Yes**

„Ravimiamet“, function of the State Agency of Medicines

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

2

	2008	2009
<b>Number of ablations performed</b>	<b>497</b>	<b>420</b>
<b>Mean number (ablations/centres)</b>	<b>248</b>	<b>210</b>
<b>Number of AF ablations</b>	<b>93</b>	<b>97</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

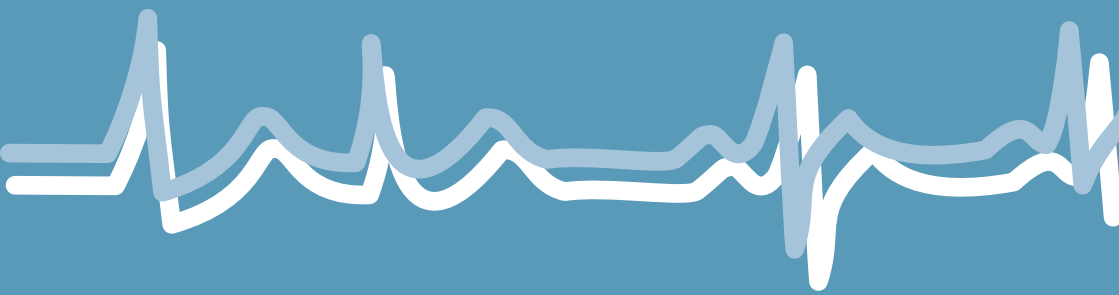
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

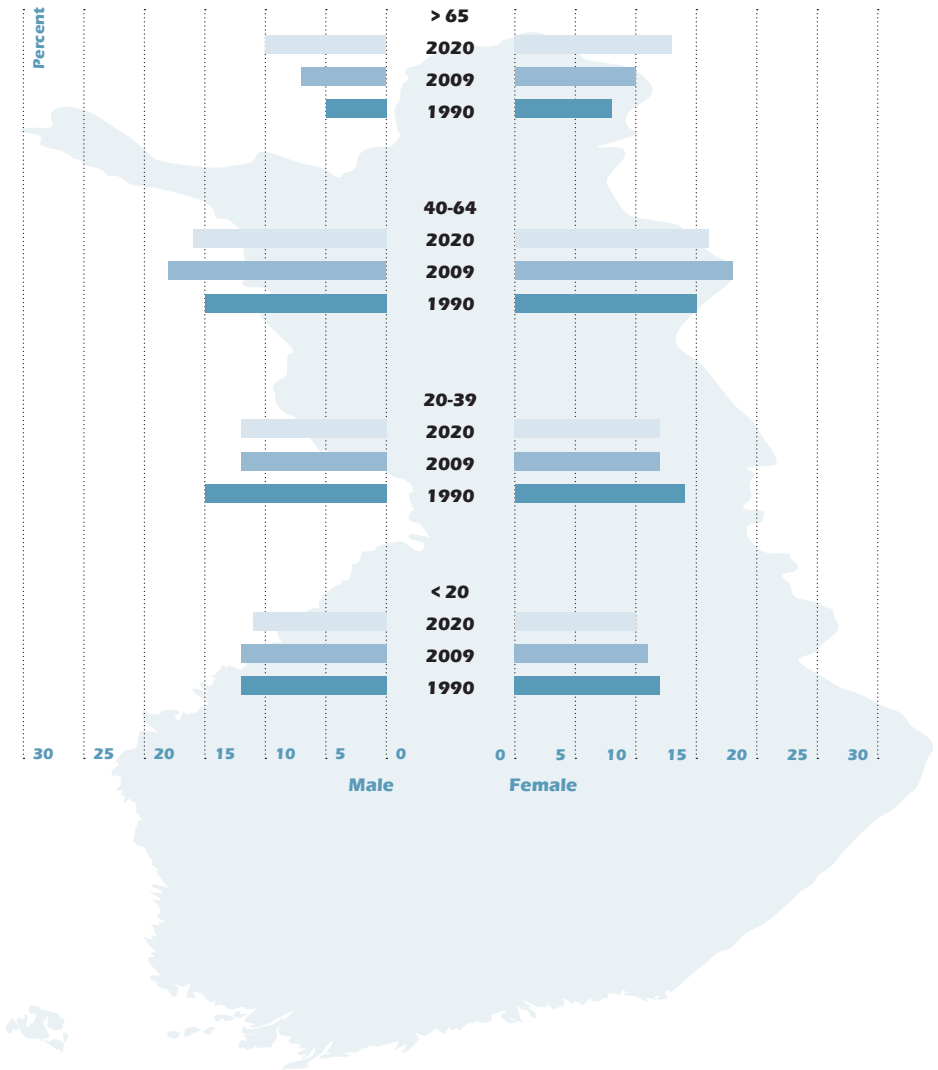
Sources: Estonian National Working Group of Arrhythmias – Chairman: Dr. Hasso Uetoa and Estonian Pacemaker and ICD implantation registry

# FINLAND



# 1. Statistics

## Age pyramid for Finland





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>6,45</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>682,49</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,31</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>8,55</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,04</b>	<b>2008</b>
<b>Death rate (per 1,000 population)</b>	<b>9,24</b>	<b>2008</b>
<b>Live births (per 1,000 population)</b>	<b>11,2</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>242,32*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>45.876,38*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,6</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>78,5</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>21,5</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>20,7%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




Finland has a compulsory health care system which is tax based. It provides comprehensive coverage for the entire population. The Ministry of Social Affairs and Health issues the legislation on health and social care policies and monitors the implementation. At local level, the municipal health committee and council make decisions on the planning and organization of healthcare. (Highlights on health in Finland, WHO, 2004)

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>	
<b>Uninsured citizens</b>	<b>0%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>76%</b>	
<b>Private insurance company</b>	<b>5,3%</b>	
<b>Private co-payment</b>	<b>18,7%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **Yes**





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

National accreditation for physicians **Yes**

National accreditation for centres **No**

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **No**

There is no official specialty requirement, but in practice it is performed only by cardiologists or pediatric cardiologist.

Specialty required for ICD or pacemaker implants **No**

There is no official specialty requirement, but in practice it is performed by cardiologists, pediatric cardiologist and occasionally also by surgeons or specialists of internal medicine.

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**Training centres availability**

<b>Pacemaker</b>	<b>25</b>
<b>ICD implantation</b>	<b>16</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>7</b>
<b>CRT implantation</b>	<b>8</b>
<b>Atrial fibrillation ablation</b>	<b>5</b>

**Number of medical faculties**

5



**Percentage of academic facilities among practicing EP and implant centres**

**71%/20%\***





**\* 71% of the EP and 20% of the implanting centers**

**5. Pacemakers**

**Pacemaker units implanted**

<b>2008</b>	<b>4.214</b>	
<b>2009</b>	<b>4.248</b>	
		<b>0      1.500      3.000      4.500</b>

**Pacemaker units implanted and number of implanting centres**

	<b>2008</b>	
<b>Implanting centres</b>	<b>25</b>	
<b>New implants</b>	<b>3.161</b>	
<b>Replacements</b>	<b>1.053</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>25</b>	
<b>New implants</b>	<b>3.133</b>	
<b>Replacements</b>	<b>1.115</b>	
		<b>0      1.600      3.200</b>

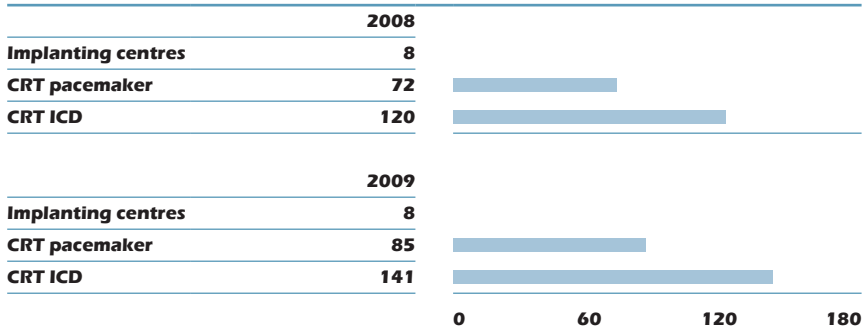


**Specialty performing implants**

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other: Internal medicine</b>	<b>5%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

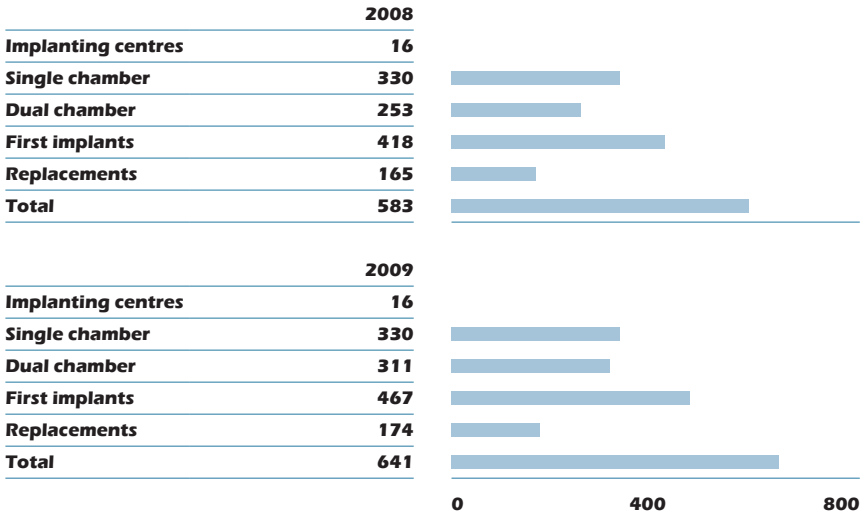


**Specialty performing implants**

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

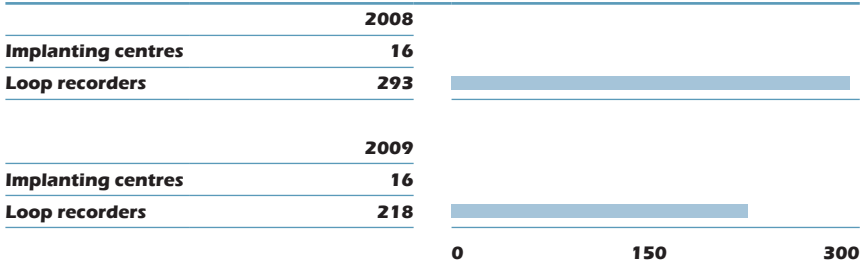


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



**Specialty performing implants**

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

**9. Device specific**

**Availability of remote monitoring of devices**

**National registry for**

<b>ICD</b>	<input type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

**Availability of a national quality insurance system or complication registry** **Yes**

**National Agency for Medicines and Medical Devices Department**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**National Agency for Medicines and Medical Devices Department**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

7

	2008	2009
<b>Number of ablations performed</b>	<b>1.205</b>	<b>1.307</b>
<b>Mean number (ablations/centres)</b>	<b>172</b>	<b>186</b>
<b>Number of AF ablations</b>	<b>252</b>	<b>345</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

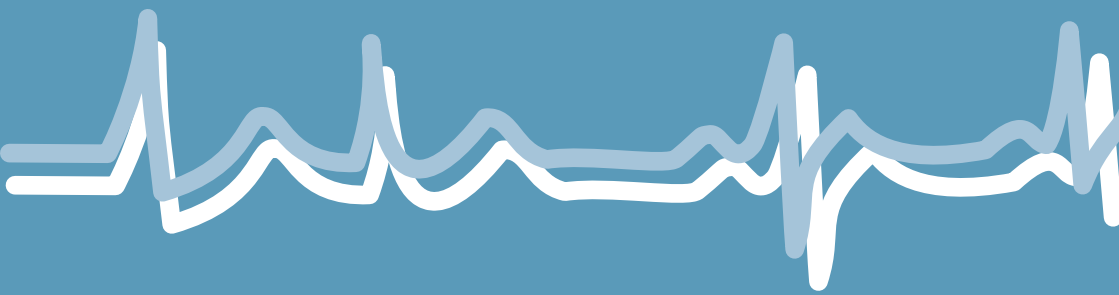
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

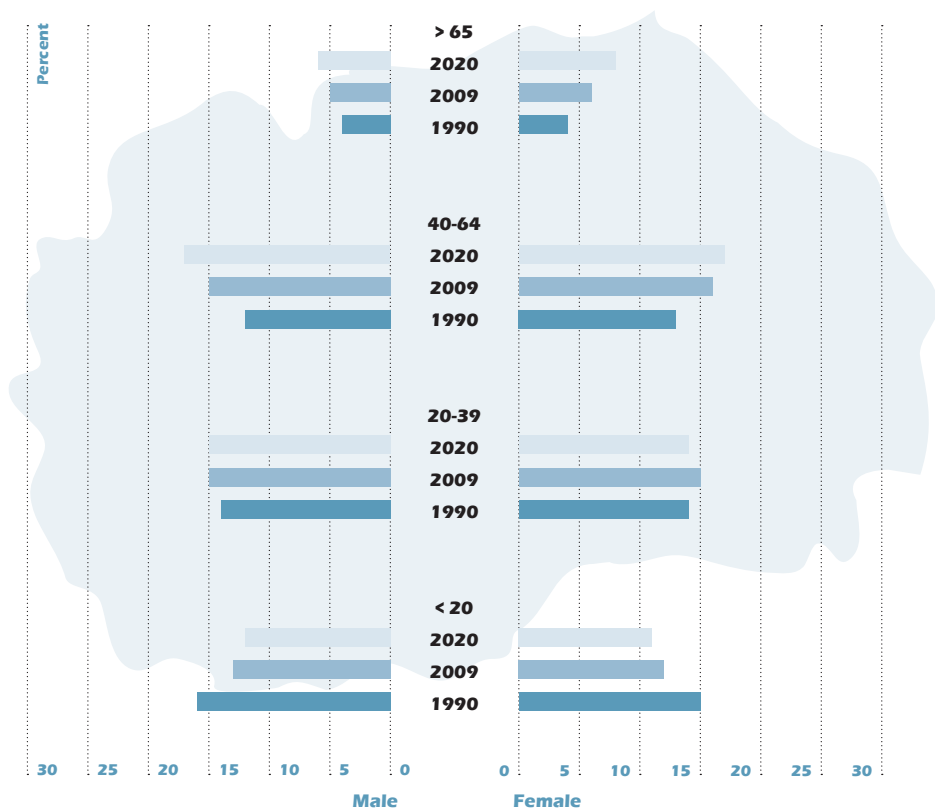
Sources: Finnish Working Group on Arrhythmias and Cardiac Pacing – Dr. Antti Hedman and Dr. Pekka Raatikainen

# MACEDONIA FYR



# 1. Statistics

## Age pyramid for Macedonia FYR







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>2,69</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>462,69</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,54</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>2,54</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>73</b>	<b>2006</b>
<b>Death rate (per 1,000 population)</b>	<b>8,88</b>	<b>2003</b>
<b>Live births (per 1,000 population)</b>	<b>11,04</b>	<b>2005</b>

#### Economic information

<b>Gross domestic product (U,S dollar-billions)</b>	<b>8,82*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>4.281,46*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,2</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>71,6</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>28,4</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The healthcare system in the former Yugoslav Republic of Macedonia is based on a National Health system which is administrated by the Ministry of Health. A system of compulsory health insurance was established to coordinate health insurance for the population and to oversee health services. Private healthcare system is also available. (Healthcare systems in transition, 2000)

**Basic insurance availability** Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>90%</b>	
<b>Uninsured citizens</b>	<b>10%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>90%</b>	
<b>Private insurance company</b>	<b>10%</b>	
<b>Private co-payment</b>	<b>0%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** Yes



### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
<b>Private medical sector requires payment which in major part is refunded by the Healthcare System.</b>	

### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

## 4. Education

### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**No**

**Required period of training to perform implantations**

**No**

**Training centres availability**

<b>Pacemaker</b>	<b>2</b>
<b>ICD implantation</b>	<b>2</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>2</b>
<b>CRT implantation</b>	<b>2</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties**

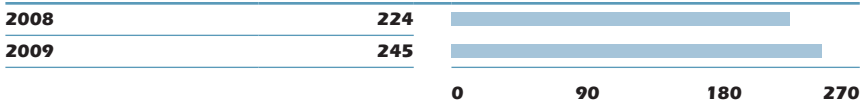
**2**

**Percentage of academic facilities among practicing EP and implant centres**

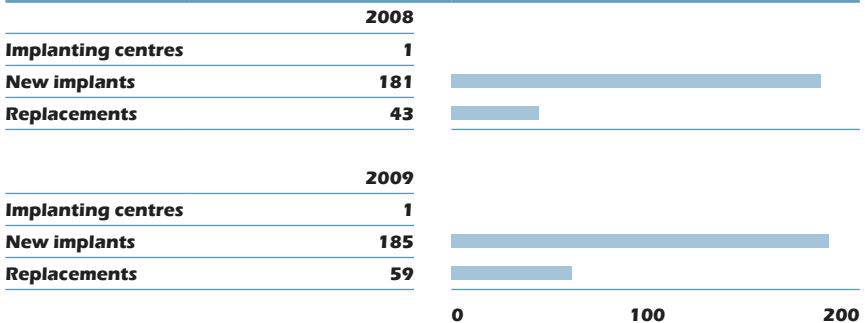
**50%**

**5. Pacemakers**

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**



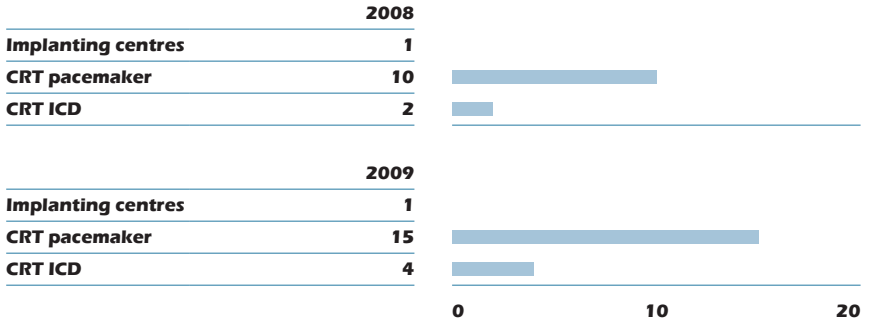


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

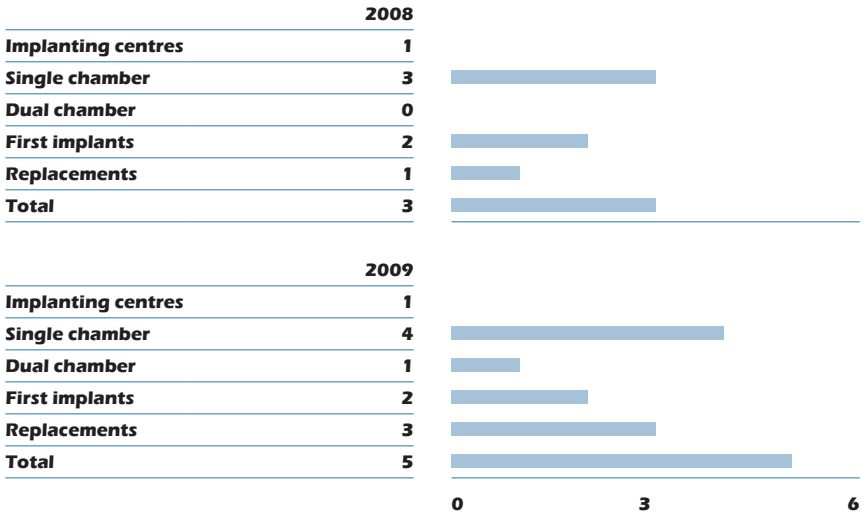


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008	
Implanting centres	1
Loop recorders	0

2009	
Implanting centres	1
Loop recorders	0



### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

Availability of remote monitoring of devices

In very few centers

### National registry for

ICD

Pacing

Electrophysiology

APAPE National Registry

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 1

	2008	2009
<b>Number of ablations performed</b>	<b>51</b>	<b>69</b>
<b>Mean number (ablations/centres)</b>	<b>51</b>	<b>69</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>0</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

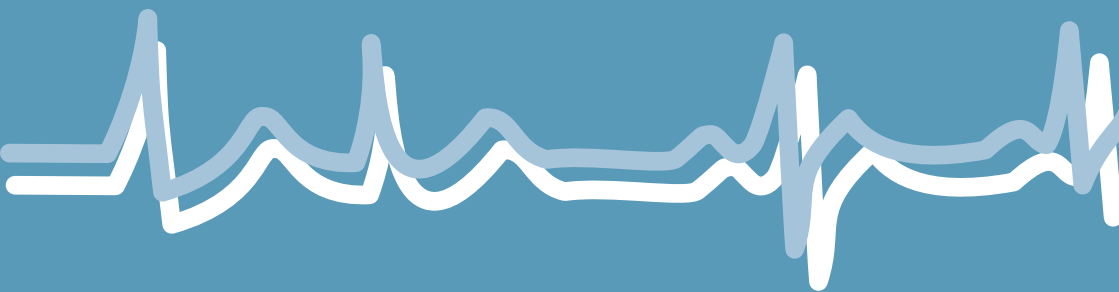
1 = no obstacle

5 = great obstacle

**Working Group on Electrophysiology and Cardiac Pacing – Former Yugoslav Republic of Macedonia – President: Assist. Prof. Nikola Gjorgov**

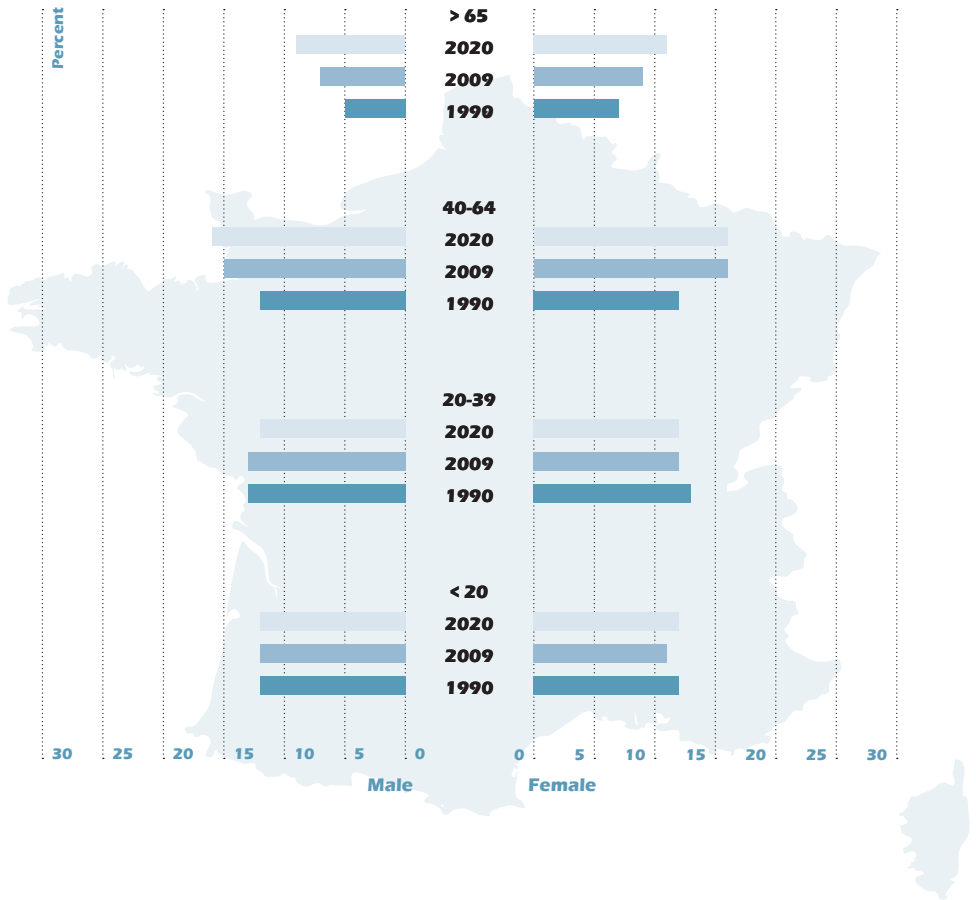


# FRANCE



# 1. Statistics

## Age pyramid for France



**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>4,68</b>	<b>2005</b>
<b>Beds (per 100.000 population)</b>	<b>716,78</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,42</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,8</b>	<b>2007</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>0,5</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>81,48</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>8,4</b>	<b>2007</b>
<b>Live births (per 1.000 population)</b>	<b>12,69</b>	<b>2007</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>2.634,81*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>42.091,32*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>11,1</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>79,7</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>20,3</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




France's healthcare system is public based and completed by private healthcare insurances.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>	
<b>Uninsured citizens</b>	<b>0%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>0%</b>	
<b>Private co-payment</b>	<b>40%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **No**

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **No**

**National accreditation for centres to perform EP  
For CRT and ICD** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**  
**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**  
**Cardiologist**

**Official national competency guidelines for  
electrophysiological studies or catheter ablation** **Yes**  
**Recommandations de la Société Française de Cardiologie**

Required period of training to perform implantations

2 years

National DIU

Training centres availability

<b>Pacemaker</b>	<b>120</b>
<b>ICD implantation</b>	<b>50</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>50</b>
<b>CRT implantation</b>	<b>50</b>
<b>Atrial fibrillation ablation</b>	<b>20</b>

Number of medical faculties




not available

Percentage of academic facilities among practicing EP and implant centres




50%

## 5. Pacemakers

Pacemaker units implanted

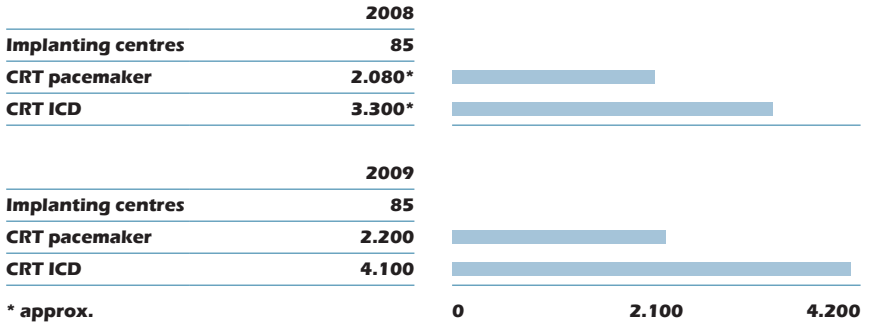
<b>2008</b>	<b>63.000*</b>	
<b>2009</b>	<b>63.400</b>	
<b>* approx.</b>		

Pacemaker units implanted and number of implanting centres

	<b>2008</b>	
<b>Implanting centres</b>	<b>520</b>	
<b>New implants</b>	<b>54.400</b>	
<b>Replacements</b>	<b>12.600</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>520</b>	
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	
		

**Specialty performing implants**

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

**6. Cardiac resynchronization therapy devices****CRT units implanted and number of implanting centres****Specialty performing implants**





<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

Number of implanting centres

80

### ICD units implanted and number of implanting centres


2008		
Implanting centres	80	
Single chamber	2.500*	
Dual chamber	2.300*	
First implants	not available	
Replacements	not available	
Total	4.800*	
* approx.		
2009		
Implanting centres	80	
Single chamber	not available	
Dual chamber	not available	
First implants	not available	
Replacements	not available	
Total	5.470	
* approx.		0                      3.000                      6.000

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008		
Implanting centres	not available	
Loop recorders	not available	
2009		
Implanting centres	not available	
Loop recorders	1.350	
		0                      700                      1.400



**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

**9. Device specific**

**Availability of remote monitoring of devices**

**National registry for**

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>
<b>Stidefix</b>	

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**AFSSAPS**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres not available

	2008	2009
Number of ablations performed	not available	not available
Mean number (ablations/centres)	not available	not available
Number of AF ablations	not available	not available

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

National	<input checked="" type="checkbox"/>
U.S.	<input checked="" type="checkbox"/>
European	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language Yes

Obstacles to guideline implementation

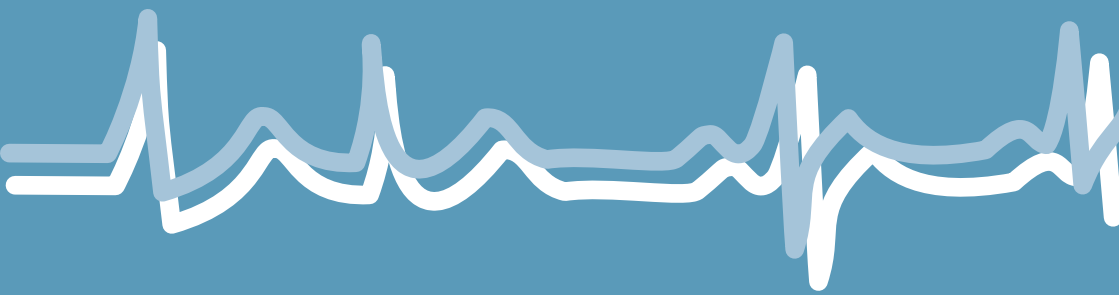
	1	2	3	4	5
Lack of centres	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

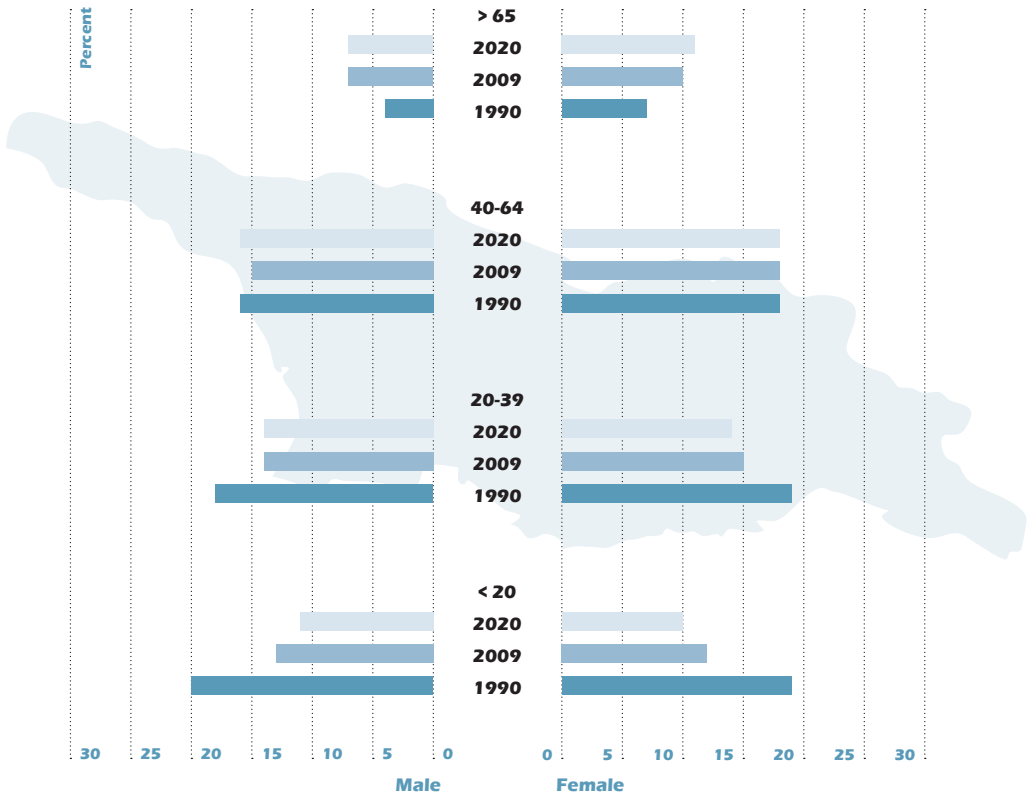
Source: Groupe de travail de Rythmologie et stimulation cardiaque – Chairman: Dr. Philippe Mabo

# GEORGIA



# 1. Statistics

## Age pyramid of Georgia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>6,04</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>331,9</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>4,55</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>3,63</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>73,1</b>	<b>2005</b>
<b>Death rate (per 1.000 population)</b>	<b>11,8</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>10,66</b>	<b>2005</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>10,98*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>2.495,62*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,4</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>21,5</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>78,5</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>332 per 100.000 citizens</b>
<b>2009</b>	<b>367 per 100.000 citizens</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>35%</b>
<b>2009</b>	<b>38%</b>

## 3. Healthcare System




In Georgia, the healthcare system is organised through the NHS Fund, private insurance companies and private payments.

### Basic insurance availability No

#### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>40%</b>	
<b>Uninsured citizens</b>	<b>60%</b>	
		<b>0                      50                      100</b>

#### Distribution of insurance modality

<b>Public insurance company</b>	<b>15%</b>	
<b>Private insurance company</b>	<b>35%</b>	
<b>Private co-payment</b>	<b>50%</b>	
		<b>0                      50                      100</b>

### Possibility of subscribing to private health insurance plans Yes



**Co-payment necessary for the following therapy**

<b>ICD devices</b>	<input checked="" type="checkbox"/>
<b>Pacemakers</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>

**Reimbursement availability**

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

**4. Education**

**National accreditation availability**

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist, surgeon**

**Official national competency guidelines for electrophysiological studies or catheter ablation** **No**

**Required period of training to perform implantations** **No**

---

**Training centres availability**

<b>Pacemaker</b>	<b>0</b>
<b>ICD implantation</b>	<b>0</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>0</b>
<b>CRT implantation</b>	<b>0</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties** **6**

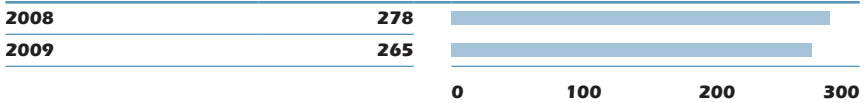
---

**Percentage of academic facilities among practicing EP and implant centres** **40%**

---

**5. Pacemakers**

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>5</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	
		<b>2009</b>
<b>Implanting centres</b>		<b>5</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	

**Specialty performing implants**

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>10%</b>





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	<b>2008</b>
<b>Implanting centres</b>	<b>0</b>
<b>Loop recorders</b>	<b>0</b>

	<b>2009</b>
<b>Implanting centres</b>	<b>0</b>
<b>Loop recorders</b>	<b>0</b>

### Specialty performing implants

<b>Cardiologists</b>	<b>not available</b>
<b>Surgeons</b>	<b>not available</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD</b>	<input type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **No**

## 10. Interventional electrophysiology

**Number of performing catheter ablation centres** **4**

	<b>2008</b>	<b>2009</b>
<b>Number of ablations performed</b>	<b>108</b>	<b>150</b>
<b>Mean number (ablations/centres)</b>	<b>35</b>	<b>37</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>4</b>

## 11. Guidelines

**Guidelines adhered to ICD implants and pacemaker implants**

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

**Necessity of guideline translation to national language** **Yes**

**Obstacles to guideline implementation**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

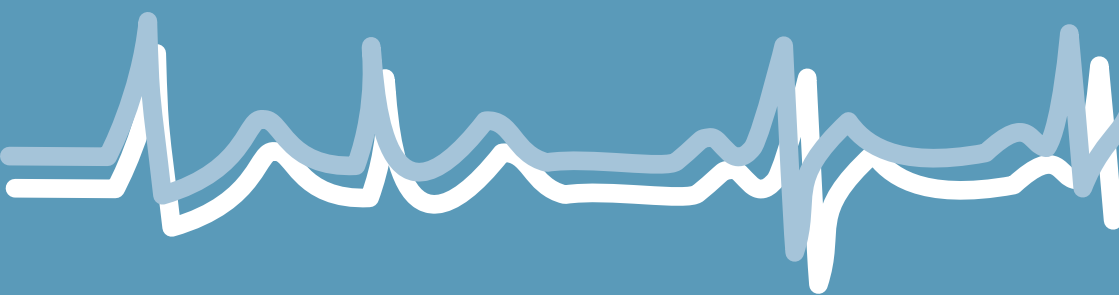
**1 = no obstacle**

**5 = great obstacle**

**Sources: Working Group on Arrhythmias of the Georgian College of Cardiology –  
Chairman: Giorgi Papiashvili, EP practicing centers and the Ministry of Labour, Health and  
Social Affairs of Georgia**

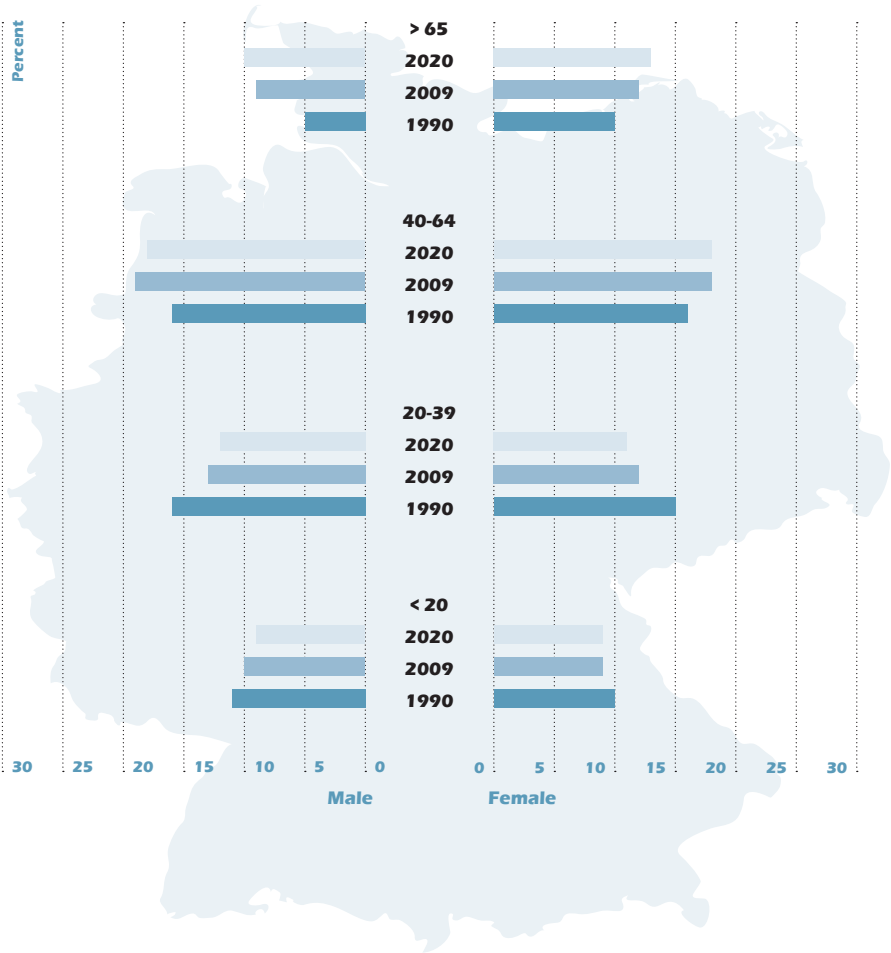


# GERMANY



# 1. Statistics

## Age pyramid for Germany



**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>4,07</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>829,09</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,48</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,81</b>	<b>2006</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>-0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>79,86</b>	<b>2006</b>
<b>Death rate (per 1,000 population)</b>	<b>9,97</b>	<b>2006</b>
<b>Live births (per 1,000 population)</b>	<b>8,16</b>	<b>2006</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>3.235,46*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>39.442,44*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>10,4</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>76,6</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>23,4</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>434 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country


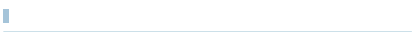
<b>2008</b>	<b>43,4%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System



Germany has a universal multi-payer system with two main types of health insurance. Currently, 85% of the population is covered by a basic health insurance plan provided by statute, which provides a standard level of coverage. The remaining opt for private health insurance, which frequently offers additional benefits.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>99,88%</b>	
<b>Uninsured citizens</b>	<b>0,12%</b>	
		<b>0                      50                      100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>89,5%</b>	
<b>Private insurance company</b>	<b>10,5%</b>	
<b>Private co-payment</b>	<b>not available</b>	
		<b>0                      50                      100</b>

**Possibility of subscribing to private health insurance plans** **Yes**





### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

Patients with public insurance do not have to pay co-payments. Deductibles in private insured patients depends on the contract.

### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

National accreditation for physicians **Yes**

National accreditation for centres **No**

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **Yes**

Cardiologist

Specialty required for ICD or pacemaker implants **Yes**

Cardiologist, Surgeon

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**Yes**

**German Cardiac Society (Deutsche Gesellschaft für Kardiologie- Herz- und Kreislaufforschung e.V.), Leitlinien zur elektrophysiologischen Untersuchung, Leitlinien zur Katheterablation**

**Required period of training to perform implantations**

**5-7 years\***

**\* 5-6 years as a surgeon, 5 years as a cardiologist or 7 years through global internal medicine. A prespecified number of implants is needed to receive the level of competency.**

**Training centres availability**

<b>Pacemaker</b>	<b>1.048</b>
<b>ICD implantation</b>	<b>561</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>300*</b>
<b>CRT implantation</b>	<b>371</b>
<b>Atrial fibrillation ablation</b>	<b>30*</b>

**\* approx.**

**Number of medical faculties**

**36**

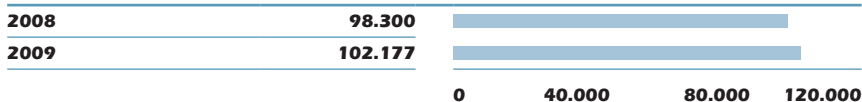
**Percentage of academic facilities among practicing EP and implant centres**

**20%\***

**\* approx.**

## 5. Pacemakers

### Pacemaker units implanted



### Pacemaker units implanted and number of implanting centres

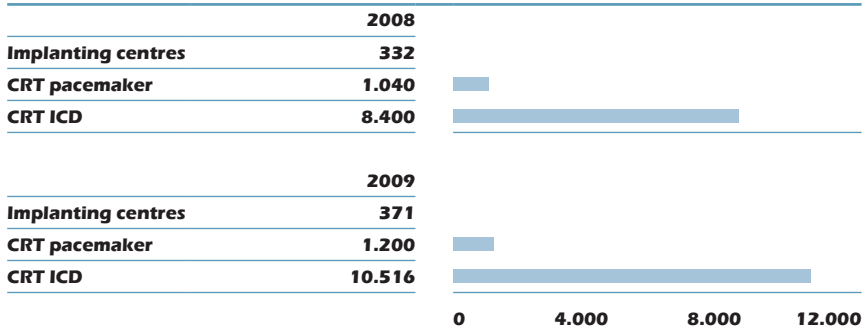
2008	
Implanting centres	1.035
New implants	not available
Replacements	not available
2009	
Implanting centres	1.048
New implants	not available
Replacements	not available

### Specialty performing implants

Cardiologists	58%
Surgeons	30%
Other: Cardiac surgeons, pediatric surgeons, pediatric cardiologists	12%

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

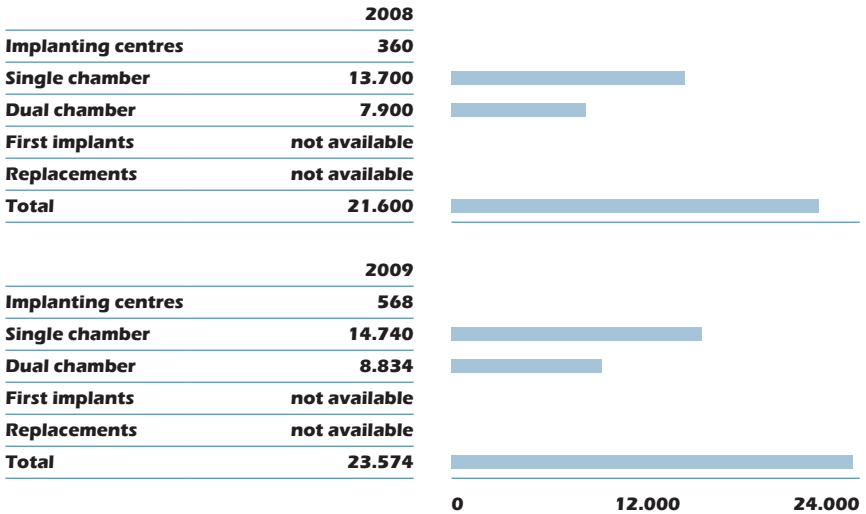


### Specialty performing implants

<b>Cardiologists</b>	<b>45%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other: Both together</b>	<b>50%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>30%</b>
<b>Surgeons</b>	<b>50%</b>
<b>Other: Both speciality together</b>	<b>20%</b>



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008	
Implanting centres	not available
Loop recorders	not available
2009	
Implanting centres	not available
Loop recorders	not available

### Specialty performing implants

Cardiologists	not available
Surgeons	not available

## 9. Device specific

### Availability of remote monitoring of devices



### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing*	<input checked="" type="checkbox"/>
Electrophysiology*	<input checked="" type="checkbox"/>

\* Pacemaker and Ablation Registry

### Availability of a national quality insurance system or complication registry

Yes

#### BQS Registry

It is compulsory for pacemaker implantation and currently introduced for ICD-Implantation

### Availability of a national institution coordinating and guiding device recalls

Yes

#### Federal Institute for Drugs and Medical Devices, Bonn

The Federal Institute for Drugs and Medical Devices (Bundesinstitut für Arzneimittel und Medizinprodukte – BfArM) is a medical regulatory body in Germany that operates under the Federal Ministry of Health.

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

191

	2008	2009
<b>Number of ablations performed</b>	<b>39.500</b>	<b>not available</b>
<b>Mean number (ablations/centres)</b>	<b>207</b>	<b>not available</b>
<b>Number of AF ablations</b>	<b>10.000</b>	<b>not available</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

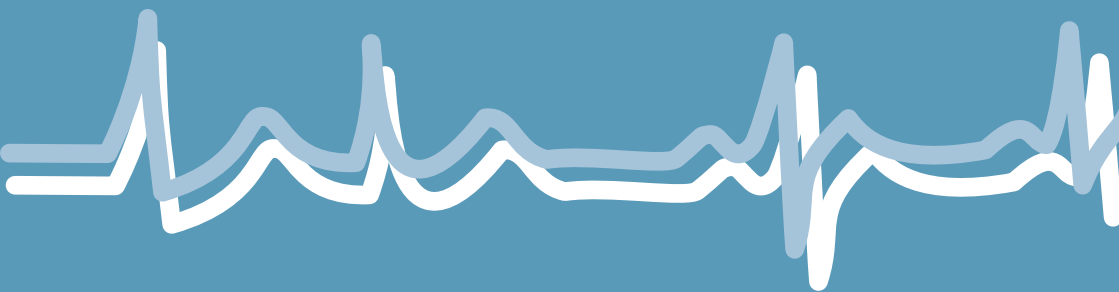
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

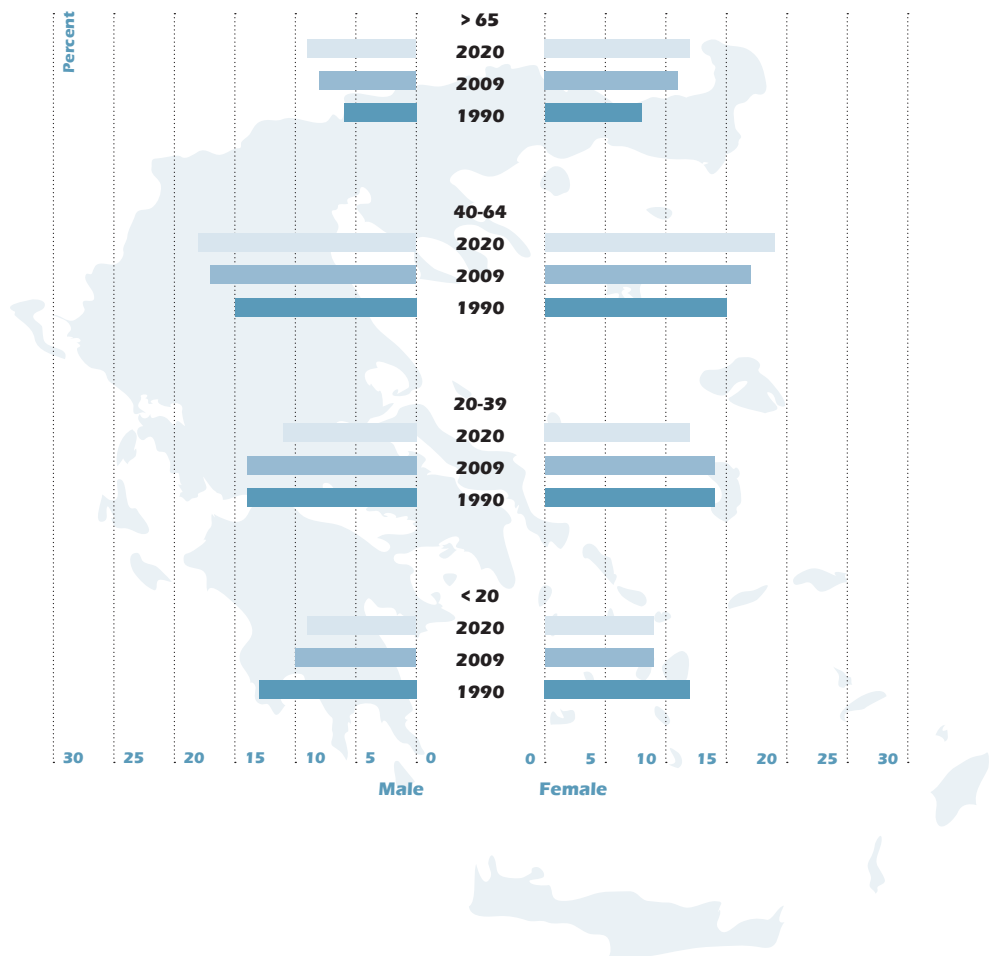
Sources: German Working Group on Cardiac Pacing and Arrhythmia – Chairman:  
Prof. Dr. Stephan Willems and MMF (Interventional Electrophysiology)

# GREECE



# 1. Statistics

## Age pyramid for Greece







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>2,84</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>481,69</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>5,35</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>3,27</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,13</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>9,61</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>10,53</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>338,25*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>30.304,74*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9,9</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>42,5</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>57,5</b>	<b>2006</b>

\* IMF estimative





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

Devices and ablation catheters are covered by insurance.

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

Most of the private insurances cover 100% of the devices and catheters. There is no reimbursement for medical services through the public system. There are some private insurances that include a fee for the participating physician.

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

Only for pacemakers, there is the requirement of minimum one year of training at an implanting center.

#### National accreditation for physicians

Yes

Board for Cardiology, but not for subspecialties

#### National accreditation for centres

Yes

For pacing and ICD implanting centers

#### National Society supporting EHRA accreditation system

Yes

In principle yes, although most centers do not qualify as training centers according to EHRA's requirements, especially for AF ablation.

**Specialty required for catheter ablation** **Yes**

---

**Cardiology**

**Specialty required for ICD or pacemaker implants** **Yes**

---

**Cardiology**

**Official national competency guidelines for electrophysiological studies or catheter ablation** **No**

---

**Required period of training to perform implantations** **1 year**

---

**Training centres availability**

---

**Pacemaker** **15**

---

**ICD implantation** **6**

---

**Electrophysiological studies and catheter ablation** **8**

---

**CRT implantation** **8**

---

**Atrial fibrillation ablation** **6**

---

**Number of medical faculties** **7**

---

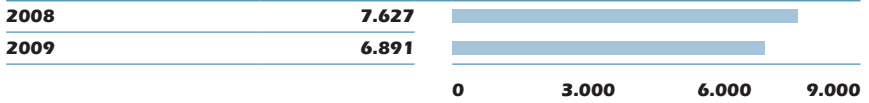
**Percentage of academic facilities among practicing EP and implant centres** **35%**

---

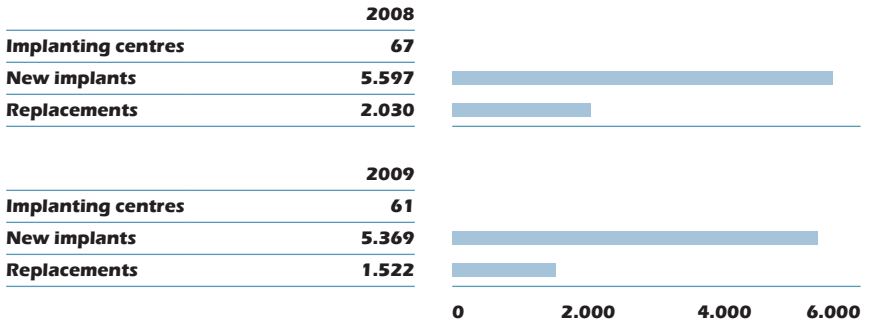


## 5. Pacemakers

### Pacemaker units implanted



### Pacemaker units implanted and number of implanting centres

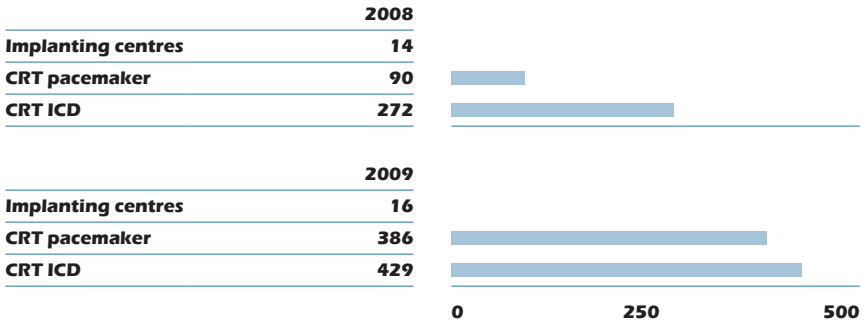


### Specialty performing implants

Cardiologists	95%
Surgeons	5%

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

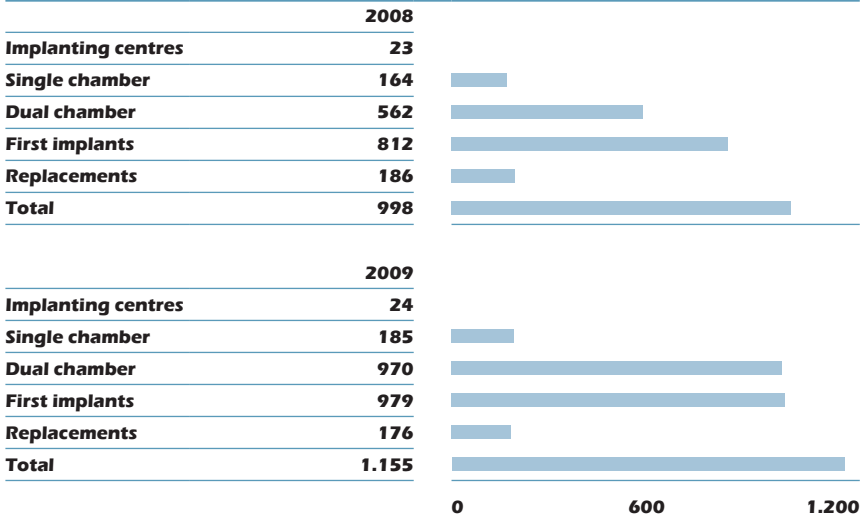


### Specialty performing implants

Cardiologists	98%
Surgeons	2%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres





## 10. Interventional electrophysiology

Number of performing catheter ablation centres

23

	2008	2009
<b>Number of ablations performed</b>	<b>1.213</b>	<b>1.192</b>
<b>Mean number (ablations/centres)</b>	<b>53</b>	<b>52</b>
<b>Number of AF ablations</b>	<b>164</b>	<b>204</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

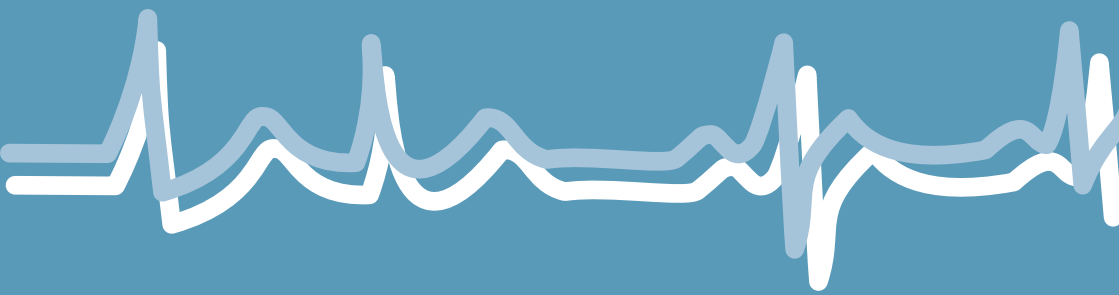
1 = no obstacle

5 = great obstacle

Sources: Hellenic Working Group on Electrophysiology and Pacing – Chairman: Dr. M. Manios and Former Chairman: Dr. V. Vassilikos

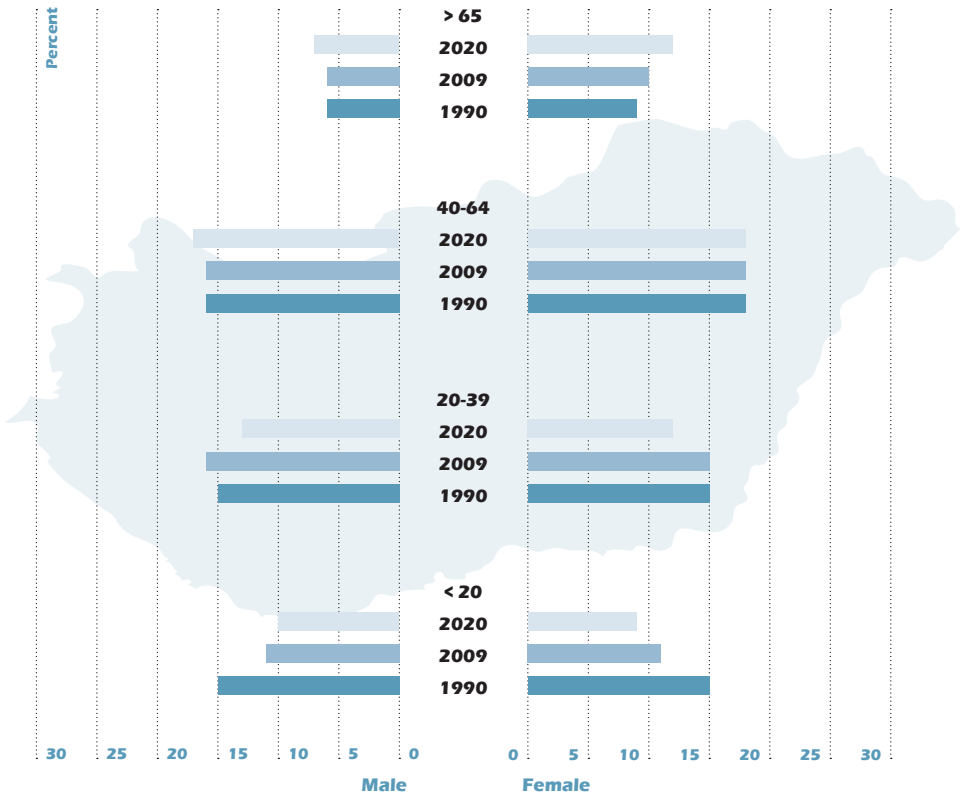


# HUNGARY



# 1. Statistics

## Age pyramid for Hungary





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,76</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>712,55</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,78</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>9,04</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>74,23</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>12,95</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>9,88</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>124,24*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>12.385,73*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,6</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>70,8</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>29,2</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>350 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>49,8%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The Hungarian healthcare system is organised through a National Health Insurance Fund which is available for all citizens registered at the Fund.

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>98%</b>	
<b>Uninsured citizens</b>	<b>2%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>99%</b>	
<b>Private insurance company</b>	<b>0%</b>	
<b>Private co-payment</b>	<b>1%</b>	
		0                      50                      100

Possibility of subscribing to private health insurance plans Yes

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

**There is a total volume limit for each tender-year of National Health Insurance Fund**

## 4. Education

### National accreditation availability

<b>Device therapy*</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology**</b>	<input checked="" type="checkbox"/>

\* Arrhythmologist Licence for Pacemaker/ICD/CRT (Device Therapy)

\*\* Arrhythmologist Licence for Electrophysiology and Ablation

EHRA accreditation is welcome, endorsed

### National accreditation for physicians

**Yes**

**In internal medicine, cardiology, an amount of 250 credit points are to be collected during 5 years period by CME; EHRA accreditation is endorsed**

### National accreditation for centres

**No**

**It is planned and is under establishment by the Hungarian Ministry of Healthcare and WG of Arrhythmias and Cardiac Pacing, Hungarian Society of Cardiology**

### National Society supporting EHRA accreditation system

**Yes**

### Specialty required for catheter ablation

**Yes**

**Cardiologist / cardiologist fellow**

### Specialty required for ICD or pacemaker implants

**Yes**

**Cardiologist / cardiologist fellow, heart surgeon, anesthesiologist**

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Hungarian Society of Cardiology

Required period of training to perform implantations

2 years

Training centres availability

Pacemaker	8
ICD implantation	6
Electrophysiological studies and catheter ablation	6
CRT implantation	6
Atrial fibrillation ablation	6

Number of medical faculties

4



Percentage of academic facilities among practicing EP and implant centres\*

25%/26%\*

\* 25% of the EP and 26% of the implanting centers

## 5. Pacemakers

Pacemaker units implanted\*

2008	4.674	
2009	5.328	

\* Pacemakers for bradycardia indication, excluding CRT. 0 3.000 6.000

Pacemaker units implanted and number of implanting centres

		2008
Implanting centres		15
New implants		not available
Replacements		not available
		2009
Implanting centres		15
New implants		not available
Replacements		not available

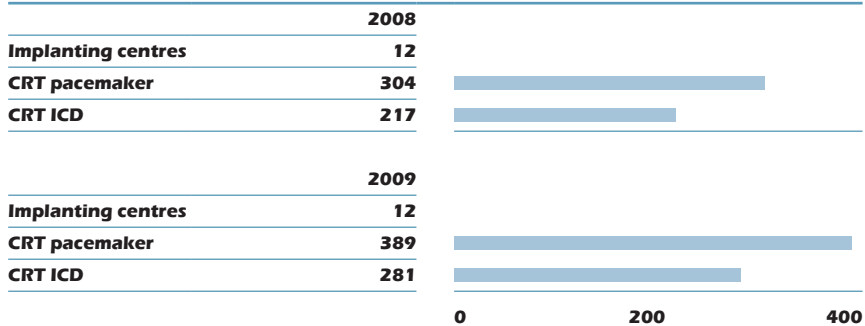


### Specialty performing implants

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other: Anesthesiologist</b>	<b>5%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

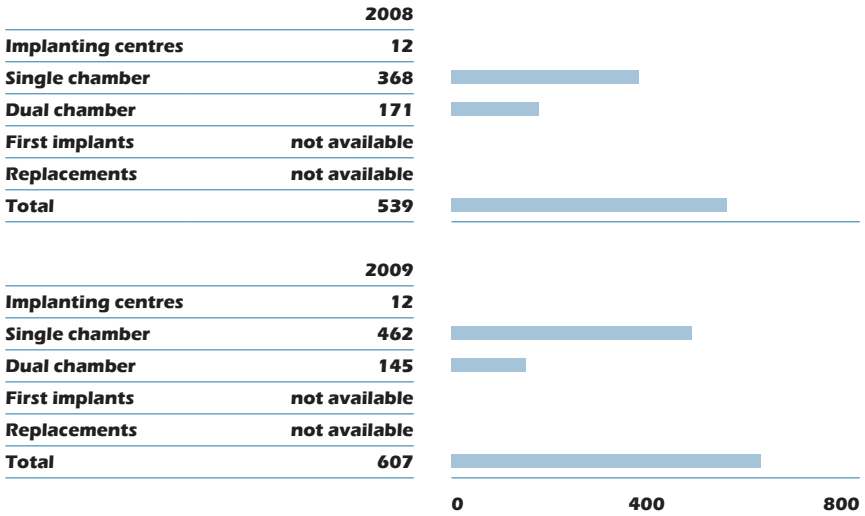


### Specialty performing implants

<b>Cardiologists</b>	<b>93%</b>
<b>Surgeons</b>	<b>2%</b>
<b>Other: Anesthesiologist</b>	<b>3%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other: Anesthesiologist</b>	<b>5%</b>





## 8. Loop recorders

### Loop recorders implanted and number of implanting centres\*

	2008			
Implanting centres	2			
Loop recorders	1			
	2009			
Implanting centres	4			
Loop recorders	2			
* Loop recorders are not covered by insurance in Hungary.		0	1	2

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

### Availability of remote monitoring of devices



### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing*	<input checked="" type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

\* Hungarian Online Pacemaker Registry

### Availability of a national quality insurance system or complication registry

Yes

Hungarian Online Pacemaker Registry and individual paper based data collection from centers

### Availability of a national institution coordinating and guiding device recalls

Yes

National Health Insurance Fund

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 10

	2008	2009
<b>Number of ablations performed</b>	<b>2.190</b>	<b>2.498</b>
<b>Mean number (ablations/centres)</b>	<b>219</b>	<b>249</b>
<b>Number of AF ablations</b>	<b>309</b>	<b>502*</b>

\* RFA + CRYO

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

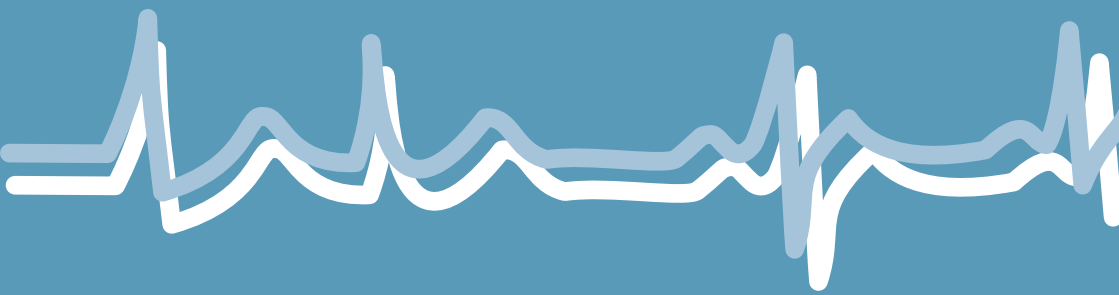
5 = great obstacle

Sources: Hungarian Working Group of Arrhythmia and Cardiac Pacing, Hungarian Society of Cardiology – President: Zoltan Csanadi MD, PhD, FESC and National Health Insurance Fund



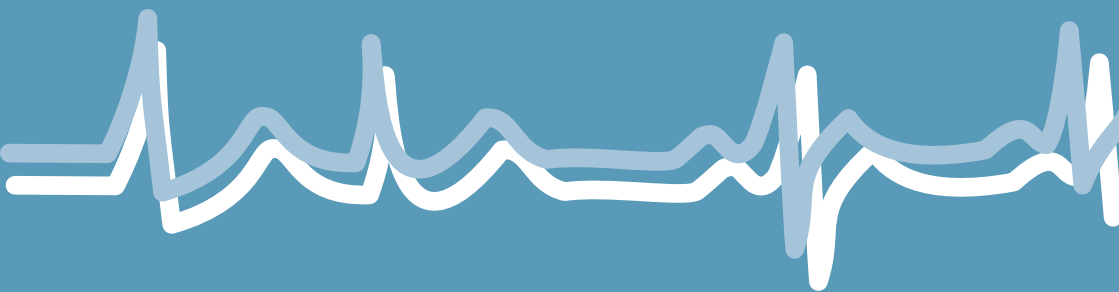
# ICELAND

There will be information in the next edition.





# IRELAND



# 1. Statistics

## Age pyramid for Ireland



**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>4,06</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>533,91</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,03</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>15,5</b>	<b>2007</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>1,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,4</b>	<b>2008</b>
<b>Death rate (per 1,000 population)</b>	<b>6,14</b>	<b>2008</b>
<b>Live births (per 1,000 population)</b>	<b>16,98</b>	<b>2008</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>226,77*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>51.128,49*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,5</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>78,3</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>21,7</b>	<b>2006</b>

\* IMF estimative







#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

#### National accreditation for physicians

Yes

CST – RCPI

#### National accreditation for centres

Yes

RCPI and JCI

#### National Society supporting EHRA accreditation system

No

All Irish EP doctors are trained in the United States

#### Specialty required for catheter ablation

Yes

Cardiac electrophysiologist

All EP doctors in Ireland have completed EP fellowship programs in the United States.

#### Specialty required for ICD or pacemaker implants

No

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**But all cardiologists have completed more than 6 years training.**

**Training centres availability**

<b>Pacemaker</b>	<b>10</b>
<b>ICD implantation</b>	<b>10</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>6</b>
<b>CRT implantation</b>	<b>10</b>
<b>Atrial fibrillation ablation</b>	<b>6</b>

**Number of medical faculties**

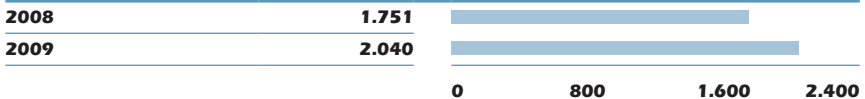
5

**Percentage of academic facilities among practicing EP and implant centres**

62,5%

## 5. Pacemakers

**Pacemaker units implanted**





**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>16</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>
		<b>2009</b>
<b>Implanting centres</b>		<b>16</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>



## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

2008		
Implanting centres	13	
Single chamber	not available	
Dual chamber	not available	
First implants	not available	
Replacements	not available	
<b>Total</b>	<b>772</b>	
2009		
Implanting centres	16	
Single chamber	not available	
Dual chamber	not available	
First implants	not available	
Replacements	not available	
<b>Total</b>	<b>644</b>	

0                      400                      800

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008		
Implanting centres	12	
Loop recorders	not available	
2009		
Implanting centres	16	
Loop recorders	not available	

**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

**9. Device specific**

**Availability of remote monitoring of devices**

**National registry for**

<b>ICD</b>	<input type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

**EP Ireland is being rolled out.**

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**Irish Medicines Board**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

11

	2008	2009
<b>Number of ablations performed</b>	<b>700</b>	<b>800</b>
<b>Mean number (ablations/centres)</b>	<b>63,6</b>	<b>72,7</b>
<b>Number of AF ablations</b>	<b>300</b>	<b>350</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

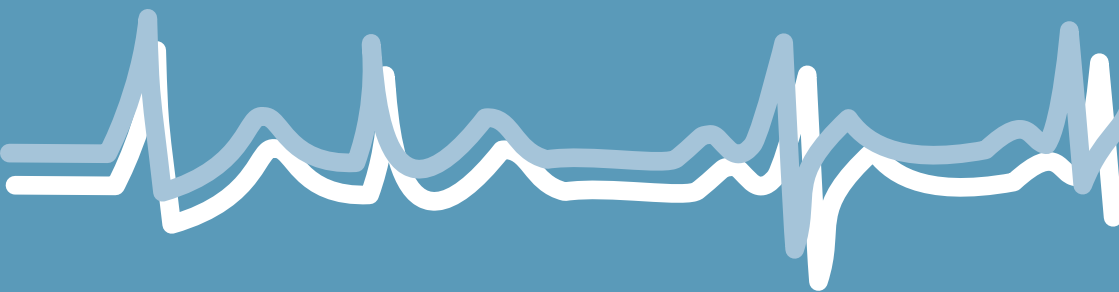
	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

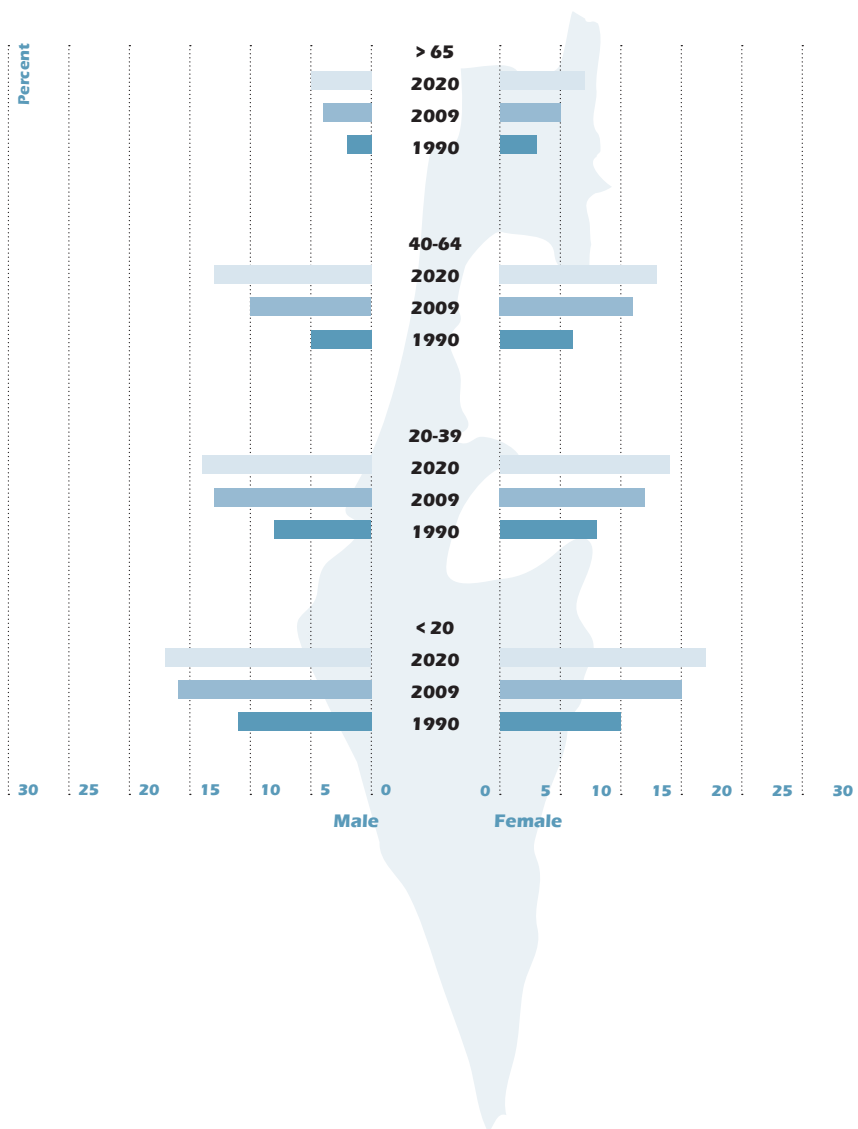
Sources: Electrophysiology Subgroup of ICS – Chairman: David Keane

# ISRAEL



# 1. Statistics

## Age pyramid for Israel







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>5,25</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>583,15</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,53</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>5,79</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>1,7</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,7</b>	<b>2007</b>
<b>Death rate (per 1,000 population)</b>	<b>5,56</b>	<b>2007</b>
<b>Live births (per 1,000 population)</b>	<b>21,12</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>215,20*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>2.967,58*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,8</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>65,3</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>34,8</b>	<b>2006</b>

\* IMF estimative





### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

All the public Health Insurance Companies will authorize payment for ICD used for primary prevention but, some will require to meet the MADIT-I criteria and will not cover ICD implantations based on MADIT-II/SCD-HeFT criteria.

### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

The largest Public Health Fund Insurance will cover ICD for patients fulfilling MADIT I criteria but not for patients fulfilling MADIT-II criteria (i.e., positive EPS is required for ICD coverage for primary prevention indications). Similarly, in order to implant a CRT-D instead of CRT-P, a positive EPS may be required.

## 4. Education

### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

National accreditation for physicians Yes

National accreditation for centres No

National Society supporting EHRA accreditation system Yes

EHRA Accreditation is encouraged but not mandatory.

Specialty required for catheter ablation No

Specialty required for ICD or pacemaker implants No

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**No**

**Required period of training to perform implantations**

**No**

**Training centres availability**

<b>Pacemaker</b>	<b>17</b>
<b>ICD implantation</b>	<b>17</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>12</b>
<b>CRT implantation</b>	<b>12</b>
<b>Atrial fibrillation ablation</b>	<b>7</b>

**Number of medical faculties**

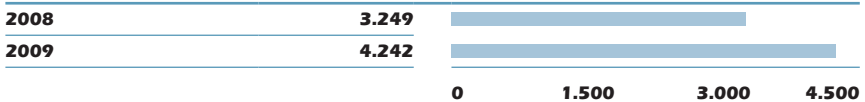
**4**

**Percentage of academic facilities among practicing EP and implant centres**

**90%**

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>17</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	
		<b>2009</b>
<b>Implanting centres</b>		<b>17</b>
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	

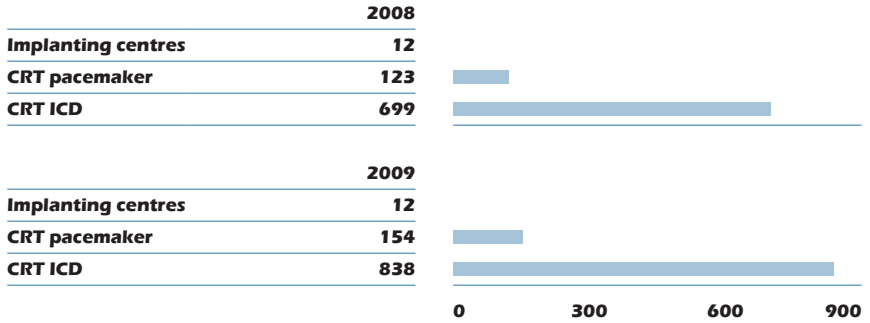


### Specialty performing implants

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>10%</b>





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

\* Israel National ICD Registry

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

12

	2008	2009
<b>Number of ablations performed</b>	<b>1.900</b>	<b>not available</b>
<b>Mean number (ablations/centres)</b>	<b>158</b>	<b>not available</b>
<b>Number of AF ablations</b>	<b>200</b>	<b>not available</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

Sources: Israel Working Group of Cardiac Pacing and Electrophysiology – Secretary:  
Prof. Sami Viskin

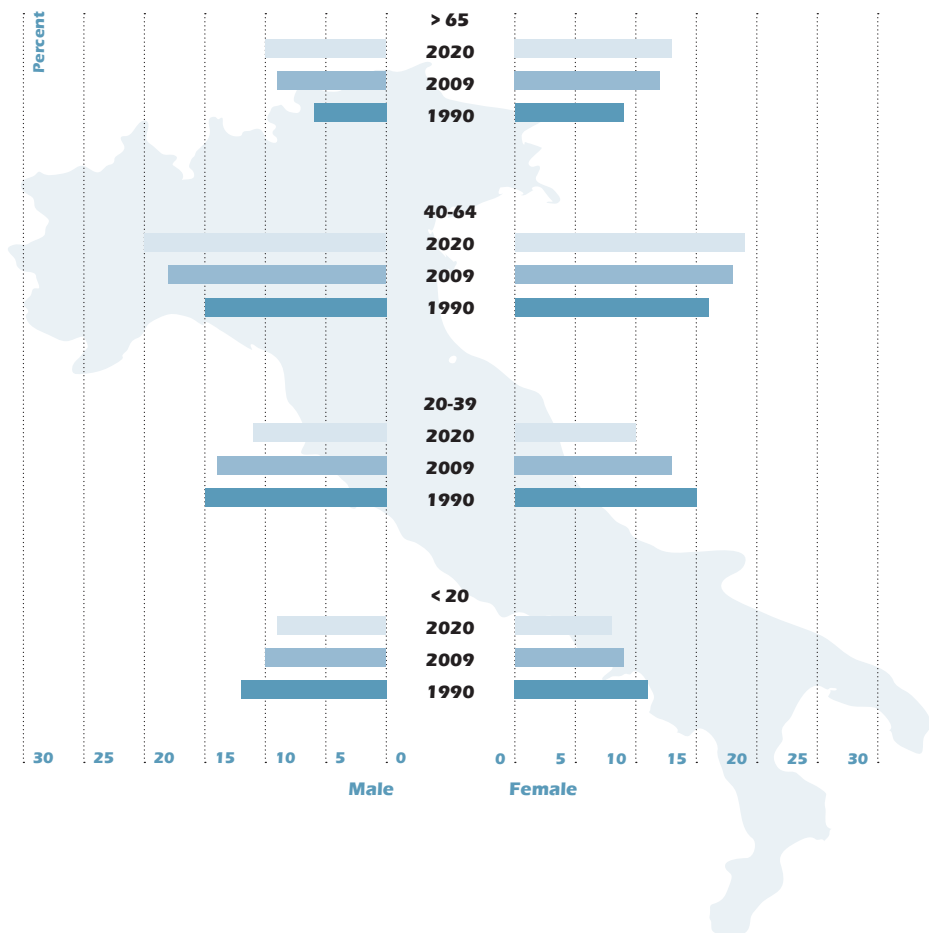


# ITALY



# 1. Statistics

## Age pyramid for Italy





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>2,18</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>393,9</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,65</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,01</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>81,7</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>9,65</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>9,51</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>2.089,55*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>34.954,89*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>77,1</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>22,9</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




### National Health System

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>			
<b>Uninsured citizens</b>	<b>0%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>			
<b>Private insurance company</b>	<b>0%</b>			
<b>Private co-payment</b>	<b>0%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

Possibility of subscribing to private health insurance plans Yes

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

**Reimbursement is possible at private hospitals and at private insurances.**

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **No**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **No**

**Specialty required for ICD or pacemaker implants** **No**

**Official national competency guidelines for electrophysiological studies or catheter ablation** **Yes**

**AIAC – FIC (National Association Arrhythmology & Pacing – Italian Federation Cardiology)**

**Required period of training to perform implantations** **No**

### Training centres availability



<b>Pacemaker</b>	<b>not available</b>
<b>ICD implantation</b>	<b>not available</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>not available</b>
<b>CRT implantation</b>	<b>not available</b>
<b>Atrial fibrillation ablation</b>	<b>not available</b>

**Number of medical faculties** 24

**Percentage of academic facilities among practicing EP and implant centres** 5%

## 5. Pacemakers

### Pacemaker units implanted

<b>2008</b>	<b>61.300</b>	
<b>2009</b>	<b>66.000*</b>	
<b>* approx.</b>		<b>0                      40.000                      80.000</b>

### Pacemaker units implanted and number of implanting centres

	<b>2008</b>
<b>Implanting centres</b>	<b>470</b>
<b>New implants</b>	<b>not available</b>
<b>Replacements</b>	<b>not available</b>

	<b>2009</b>
<b>Implanting centres</b>	<b>470</b>
<b>New implants</b>	<b>not available</b>
<b>Replacements</b>	<b>not available</b>

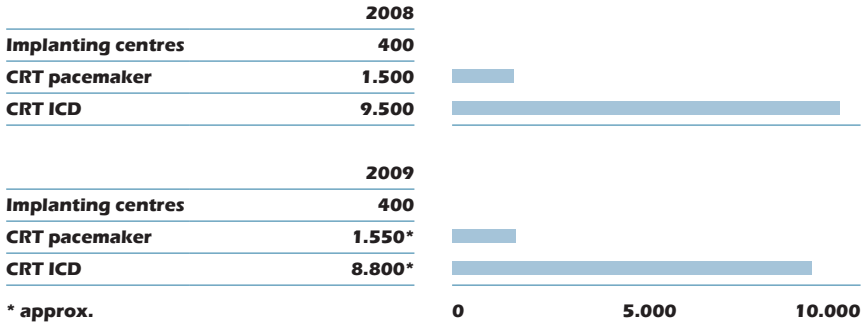
### Specialty performing implants

<b>Cardiologists</b>	<b>99%</b>
<b>Surgeons</b>	<b>1%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

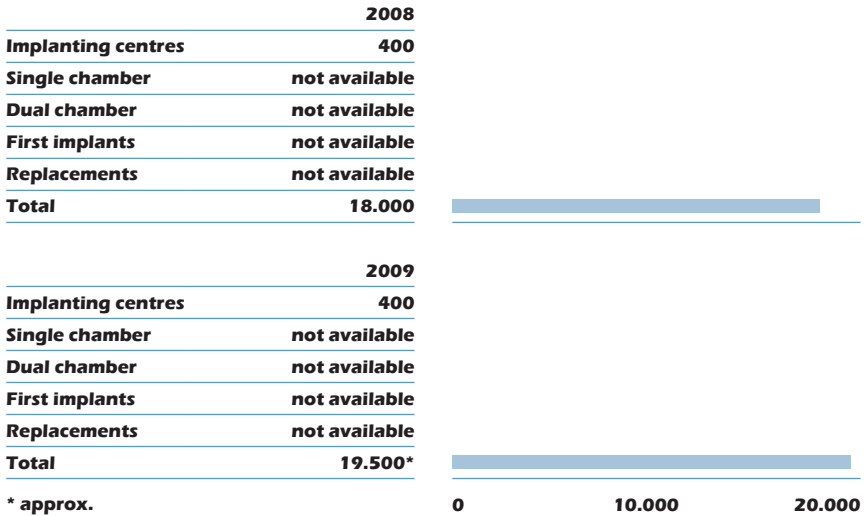


### Specialty performing implants

Cardiologists	99%
Surgeons	1%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres







## 10. Interventional electrophysiology

Number of performing catheter ablation centres

95

	2008	2009
Number of ablations performed	not available	not available
Mean number (ablations/centres)	not available	not available
Number of AF ablations	not available	not available

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

National	<input checked="" type="checkbox"/>
U.S.	<input checked="" type="checkbox"/>
European	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
Lack of centres	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

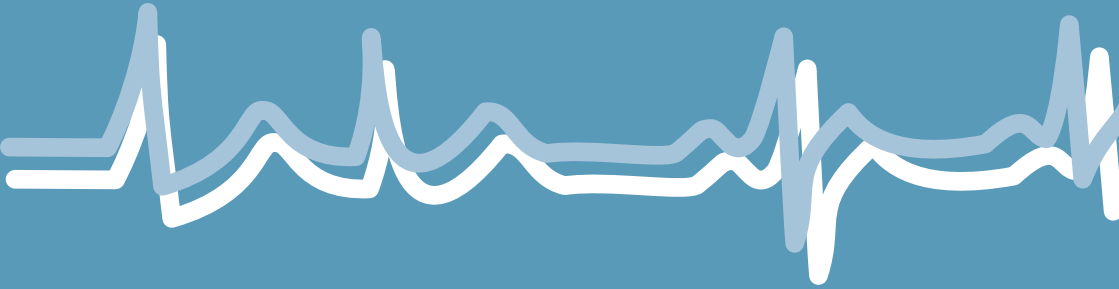
Sources: Italian association of Arrhythmias and Cardiac Pacing (AIAC) – President: Dr Michele Gulizia





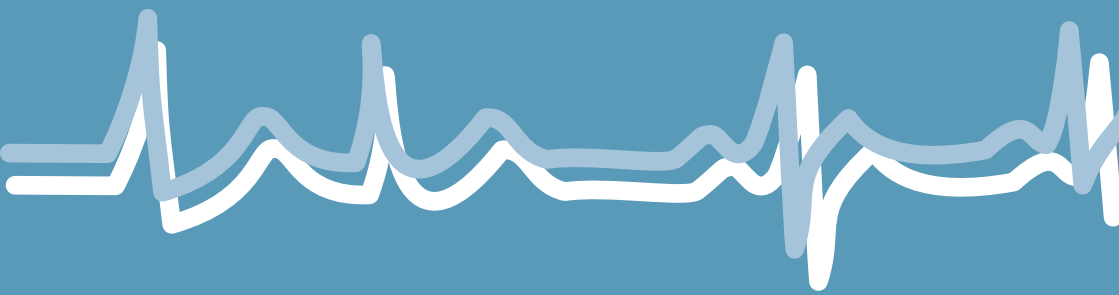
# KOSOVO

There will be information in the next edition.



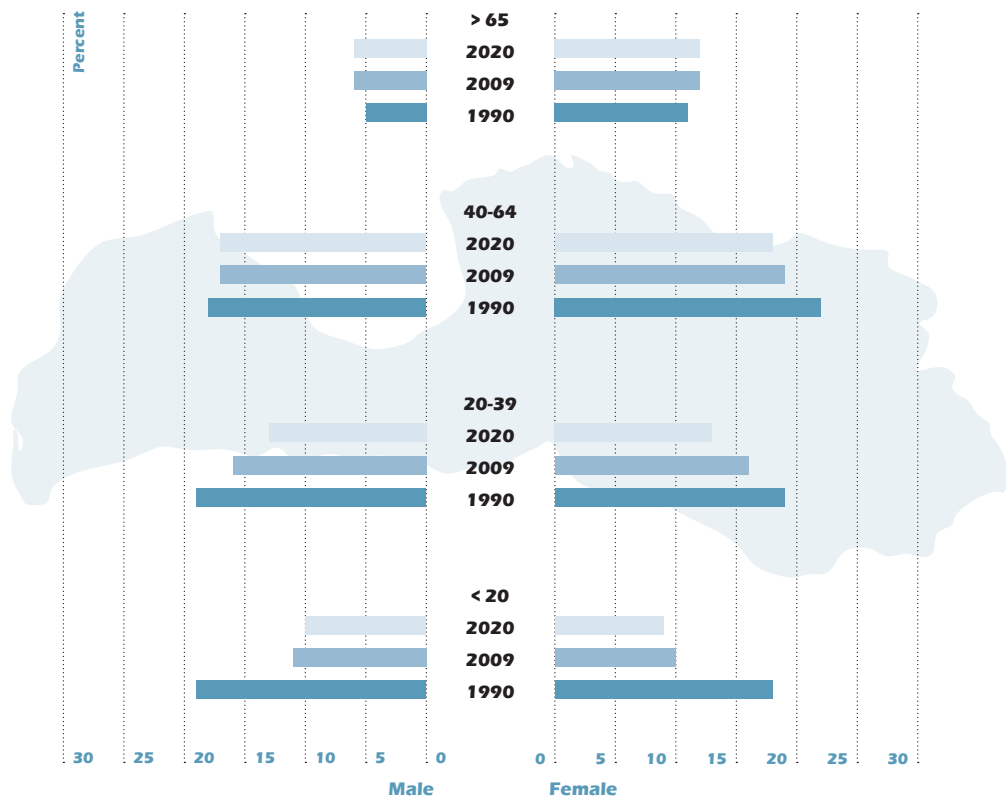


# LATVIA



# 1. Statistics

## Age pyramid for Latvia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,13</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>757,13</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,05</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>5,48</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,6</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>71,2</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>14,52</b>	<b>2007</b>
<b>Live births (per 1.000 population)</b>	<b>10,23</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>24,20*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>10,700,91*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>63,2</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>36,8</b>	<b>2006</b>

\* IMF estimative







#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Method certificates</b>	

**National accreditation for physicians** **Yes**

**National accreditation for centres** **Yes**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist, cardiac surgeon**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist, cardiac surgeon**

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

National Society of Cardiology, Guidelines of Competency

Required period of training to perform implantations

2 years

Training centres availability

Pacemaker	1
ICD implantation	1
Electrophysiological studies and catheter ablation	1
CRT implantation	1
Atrial fibrillation ablation	1

Number of medical faculties



2

Percentage of academic facilities among practicing EP and implant centres





100%

## 5. Pacemakers

Pacemaker units implanted

2008	1.094	
2009	1.015	
		0                      600                      1.200

Pacemaker units implanted and number of implanting centres

	2008	
Implanting centres	3	
New implants	829	
Replacements	265	
	2009	
Implanting centres	3	
New implants	795	
Replacements	220	
		0                      500                      1.000

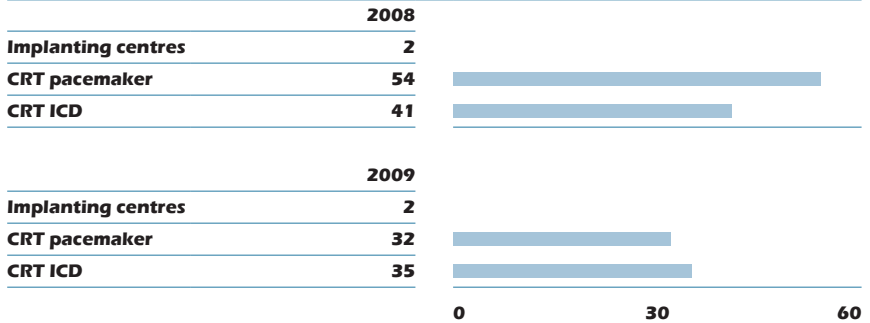


### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>30%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

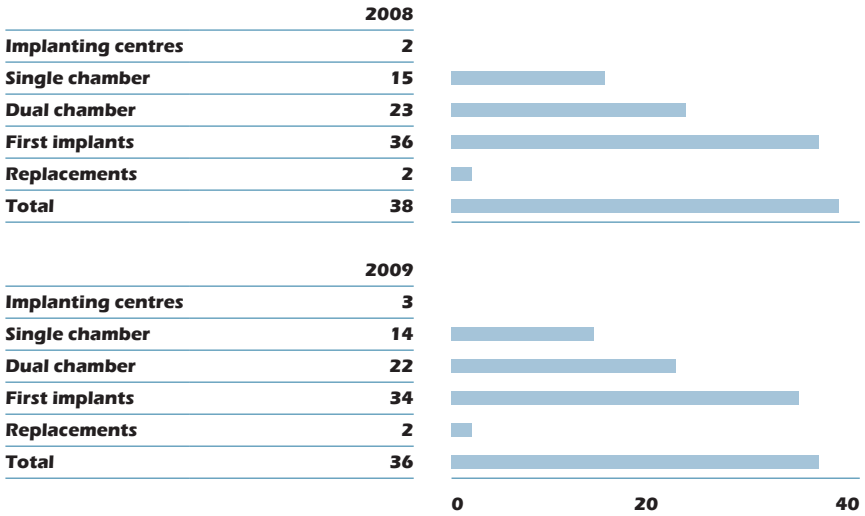


### Specialty performing implants

<b>Cardiologists</b>	<b>60%</b>
<b>Surgeons</b>	<b>40%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	60%
Surgeons	40%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008		
Implanting centres	2	
Loop recorders	28	
2009		
Implanting centres	2	
Loop recorders	28	
		0                      15                      30

### Specialty performing implants

Cardiologists	70%
Surgeons	30%

## 9. Device specific

### Availability of remote monitoring of devices



### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing**	<input checked="" type="checkbox"/>
Electrophysiology***	<input checked="" type="checkbox"/>

\* National Register of ICD

\*\* National Register of Pacing

\*\*\* National Register of Electrophysiology

### Availability of a national quality insurance system or complication registry

Yes

Health Statistics and Medical Technologies State Agency in collaboration with National Working Group of Arrhythmology and Board of National Society of Cardiology

### Availability of a national institution coordinating and guiding device recalls

Yes

Health Statistics and Medical Technologies State Agency

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

2

	2008	2009
<b>Number of ablations performed</b>	<b>304</b>	<b>315</b>
<b>Mean number (ablations/centres)</b>	<b>152</b>	<b>157,5</b>
<b>Number of AF ablations</b>	<b>42</b>	<b>28</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

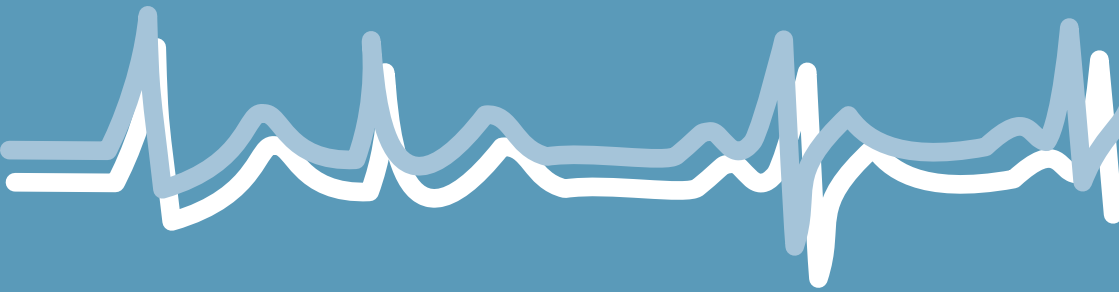
5 = great obstacle

Sources: Latvia Working Group on Arrhythmology and Cardiac Pacing – Chairman: Ass. Prof. Oskars Kalejs



# LEBANON

There will be information in the next edition.



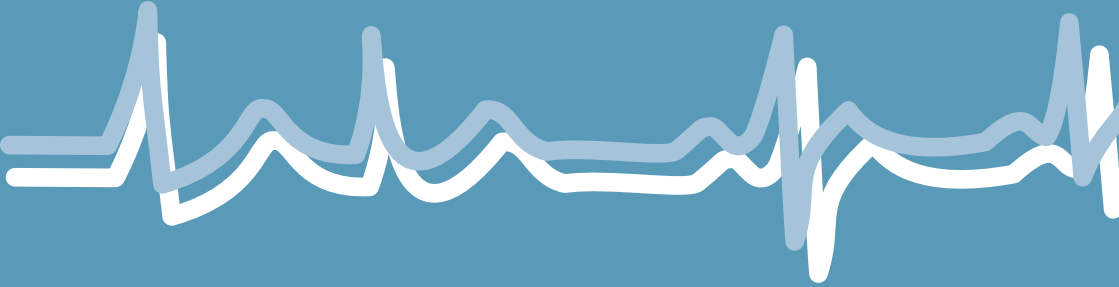






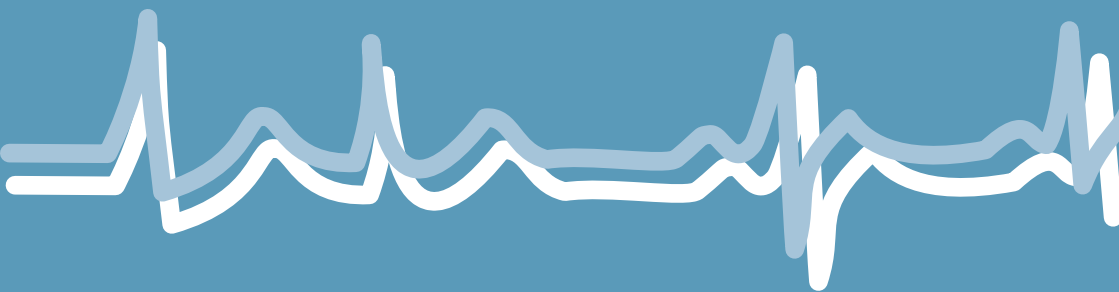
# LIBYA

There will be information in the next edition.



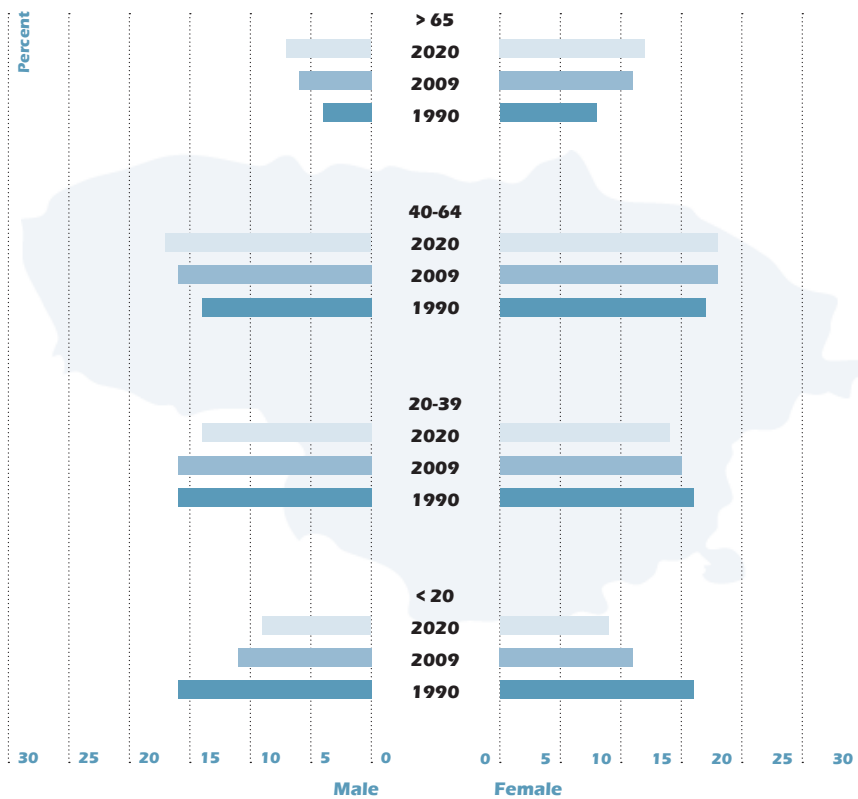


# LITHUANIA



# 1. Statistics

## Age pyramid for Lithuania





#### Healthcare data

<b>Hospitals (per 100,000 population)</b>	<b>4,89</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>813,95</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>4,07</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,35</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>72,05</b>	<b>2008</b>
<b>Death rate (per 1,000 population)</b>	<b>13,05</b>	<b>2008</b>
<b>Live births (per 1,000 population)</b>	<b>10,44</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U,S dollar-billions)</b>	<b>35,96*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>10.774,61*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,2</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>70</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>30</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>704 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>53,3%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The Healthcare system in Lithuania is based on a compulsory health insurance. The State Fund finances near 100% of the services and there are only few private medicine services.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>98%</b>	
<b>Uninsured citizens</b>	<b>2%</b>	
		<b>0                      50                      100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>0%</b>	
<b>Private co-payment</b>	<b>7%</b>	
		<b>0                      50                      100</b>

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

**Some indications for ICD primary prevention are reimbursed.**

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** Yes

**National accreditation for centres** Yes

**National Society supporting EHRA accreditation system** Yes

**Specialty required for catheter ablation** Yes

**Cardiologist**

**Specialty required for ICD or pacemaker implants** Yes

**Cardiologist, cardiac surgeon**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**Training centres availability**

<b>Pacemaker</b>	<b>2</b>
<b>ICD implantation</b>	<b>2</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>2</b>
<b>CRT implantation</b>	<b>2</b>
<b>Atrial fibrillation ablation</b>	<b>2</b>

**Number of medical faculties**

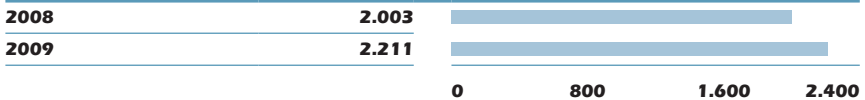
2

**Percentage of academic facilities among practicing EP and implant centres**

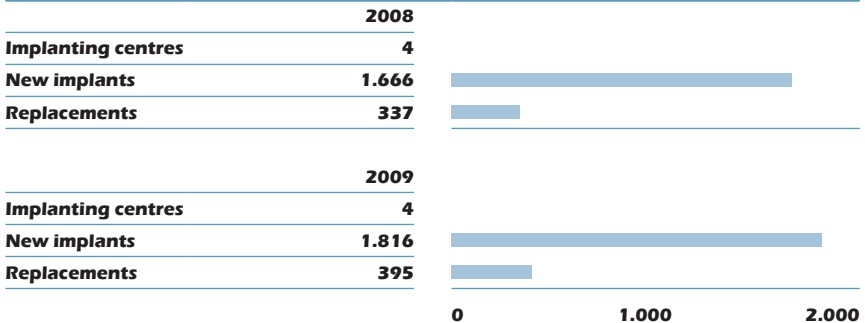
50%

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**





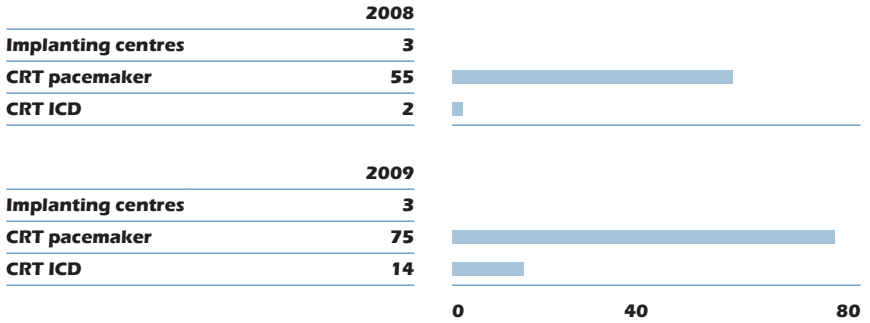


### Specialty performing implants

<b>Cardiologists</b>	<b>97%</b>
<b>Surgeons</b>	<b>3%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

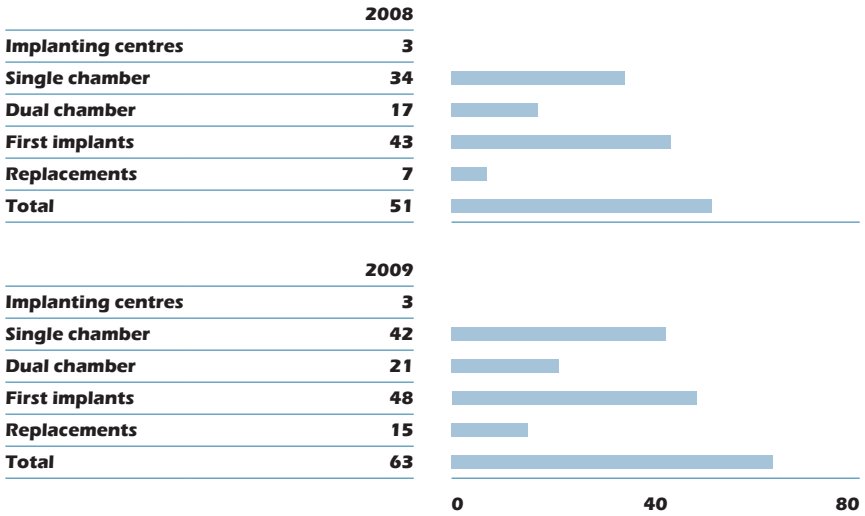


### Specialty performing implants

<b>Cardiologists</b>	<b>98%</b>
<b>Surgeons</b>	<b>2%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

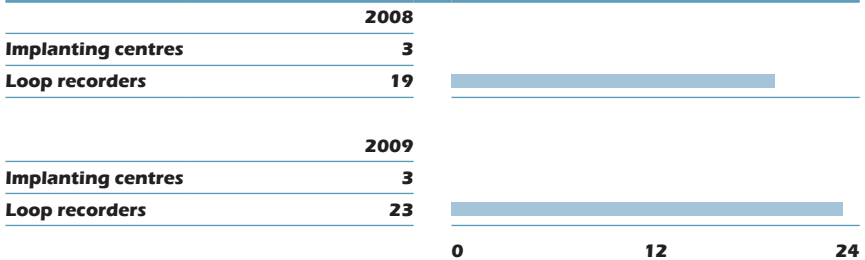


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD</b>	<input type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

**Availability of a national quality insurance system or complication registry** **Yes**  
**State Health Care Accreditation Agency**

**Availability of a national institution coordinating and guiding device recalls** **Yes**  
**State Health Care Accreditation Agency**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

3

	2008	2009
<b>Number of ablations performed</b>	<b>797</b>	<b>785</b>
<b>Mean number (ablations/centres)</b>	<b>266</b>	<b>262</b>
<b>Number of AF ablations</b>	<b>38</b>	<b>65</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

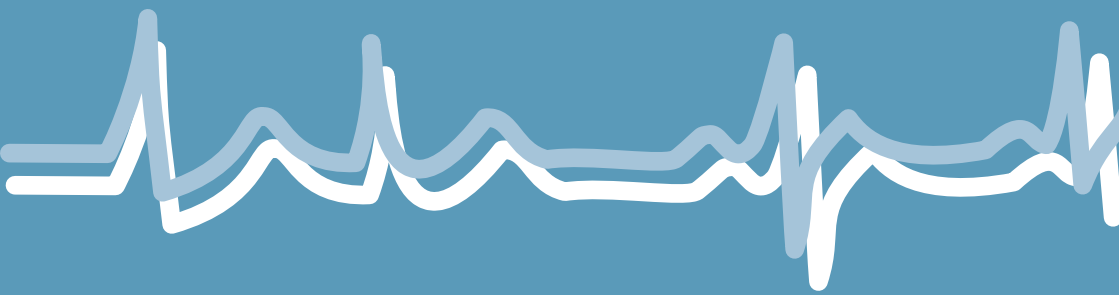
	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

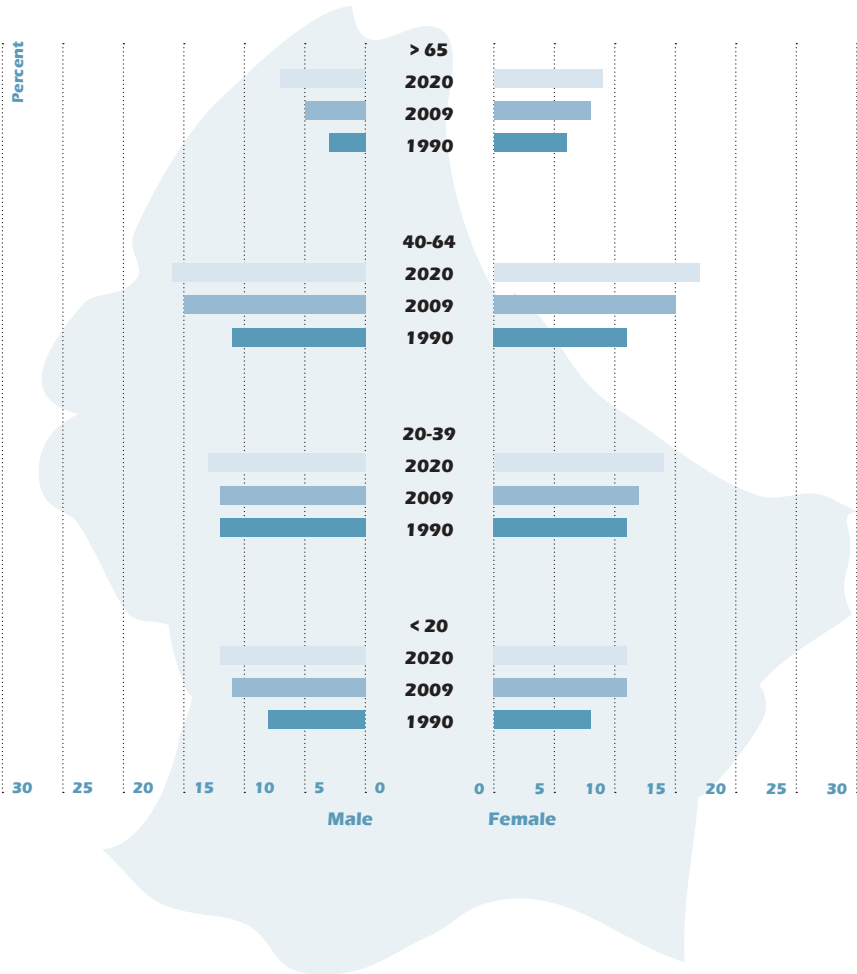
Sources: Working Group on Arrhythmias Pacing and Electrophysiology – Lithuania –  
Chairman: Prof. Audrius Aidietis.

# LUXEMBOURG



# 1. Statistics

## Age pyramid for Luxembourg





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>3,96</b>	<b>2004</b>
<b>Beds (per 100.000 population)</b>	<b>633,36</b>	<b>2004</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,9</b>	<b>2005</b>
<b>Density of nurses (per 1.000 population)</b>	<b>10,23</b>	<b>2005</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>1,2</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>79,69</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>7,86</b>	<b>2005</b>
<b>Live births (per 1.000 population)</b>	<b>11,41</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>46,51*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>94.417,72*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,2</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>90,6</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>9,4</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>



## 3. Healthcare System

Luxembourg's healthcare system is based on three principles: compulsory health insurance, free choice of provider for patients and compulsory provider compliance with the fixed set of fees for services.




(Highlights on health, WHO, 2004)

Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>	
<b>Uninsured citizens</b>	<b>0%</b>	
		<div style="display: flex; justify-content: space-between; width: 100%;"> <span>0</span> <span>50</span> <span>100</span> </div>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>58%</b>	
<b>Private co-payment</b>	<b>not available</b>	
		<div style="display: flex; justify-content: space-between; width: 100%;"> <span>0</span> <span>50</span> <span>100</span> </div>

Possibility of subscribing to private health insurance plans Yes





#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **No**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist, surgeon**



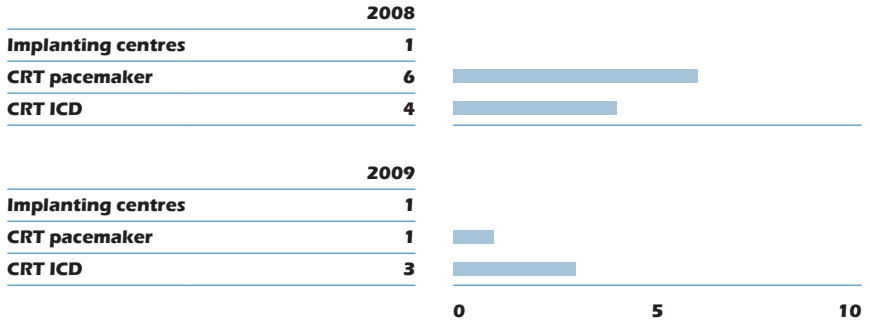


### Specialty performing implants

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

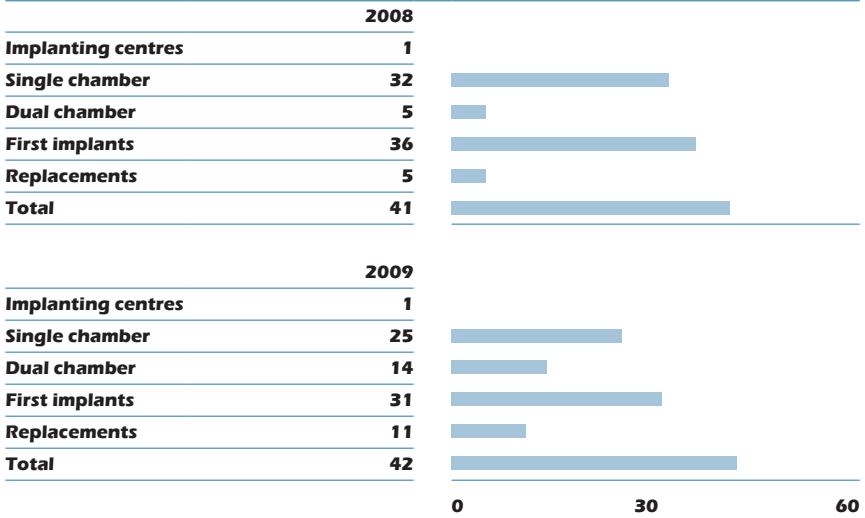


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

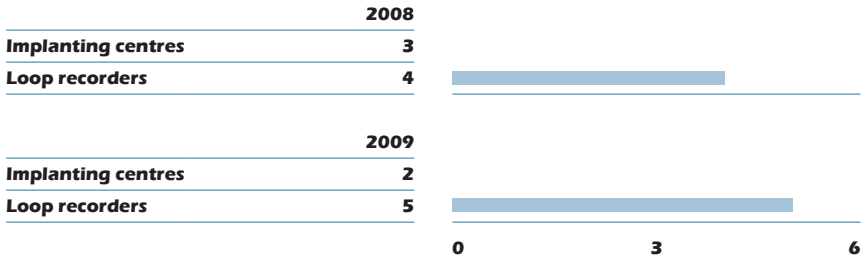


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology*	<input checked="" type="checkbox"/>

\* INCCI

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **Yes**

Ministry of health: Direction de la santé

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 1

	2008	2009
<b>Number of ablations performed</b>	<b>99</b>	<b>107</b>
<b>Mean number (ablations/centres)</b>	<b>99</b>	<b>107</b>
<b>Number of AF ablations</b>	<b>9</b>	<b>20</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

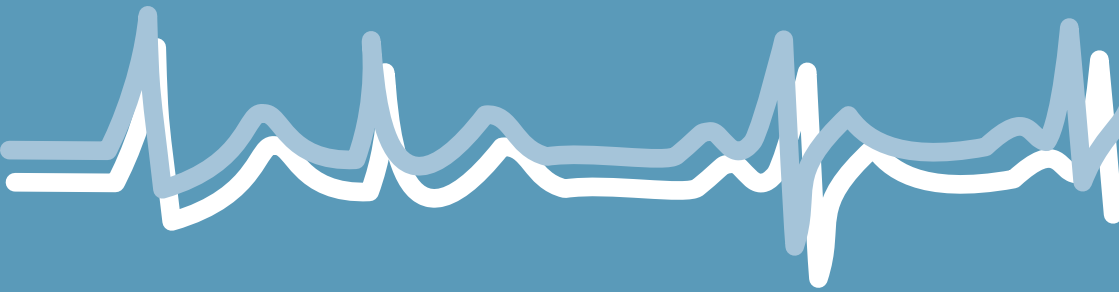
5 = great obstacle

Sources: National Working Group on Arrhythmias – Chairmain: Dr. Camille Pesch



# MALTA

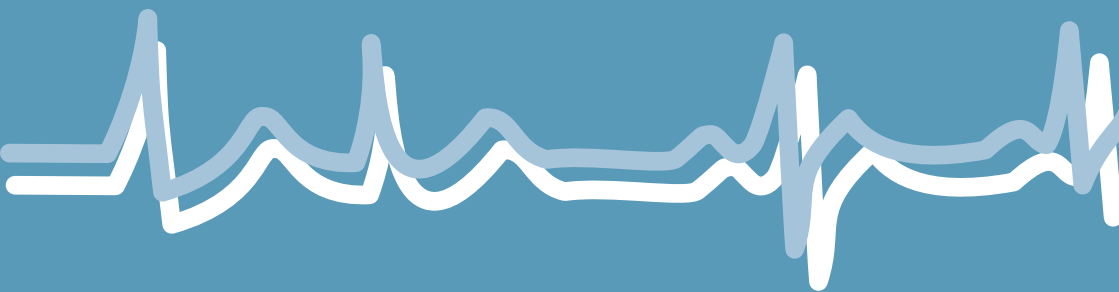
There will be information in the next edition.





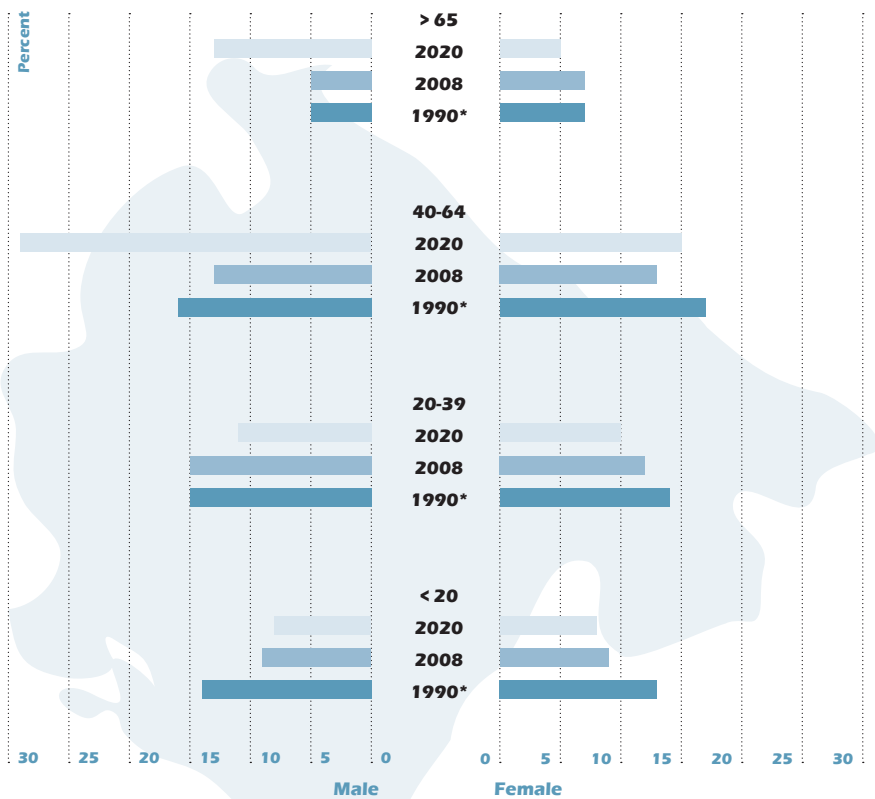


# MONTENEGRO



# 1. Statistics

## Age pyramid for Montenegro



\* Refers to Serbia and Montenegro



#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>41</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>0,04</b>	<b>2008</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>not available</b>	<b>not available</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-1,1</b>	<b>2006</b>
<b>Life expectancy at birth</b>	<b>74</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>9,1</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>13,1</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>4,5</b>	<b>2008</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>2.648</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,8</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>79,5</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>20,5</b>	<b>2006</b>

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>490,6 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>54%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The healthcare system in Montenegro is organised through the House of Health. There is a primary healthcare system and family doctors and a total of 6 general hospitals, 3 specialised clinics and 1 clinical center of Montenegro.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>90%</b>	
<b>Uninsured citizens</b>	<b>10%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>0%</b>	
<b>Private co-payment</b>	<b>0%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **No**



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

At the moment, Montenegro is going through a health reform which will give the population the possibility of private and public health insurance.

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

All these procedures and devices are paid by public health insurance.

## 4. Education

#### National accreditation availability

Device therapy*	<input checked="" type="checkbox"/>
Invasive electrophysiology**	<input checked="" type="checkbox"/>

\* Center for pacemakers and electrophysiology Clinical center of Montenegro

\*\* In 2010 we plan to start with invasive electrophysiology

National accreditation for physicians Yes

National accreditation for centres Yes

National Society supporting EHRA accreditation system Yes

Specialty required for catheter ablation Yes

Cardiologist

Specialty required for ICD or pacemaker implants Yes

Cardiologist or vascular surgeon



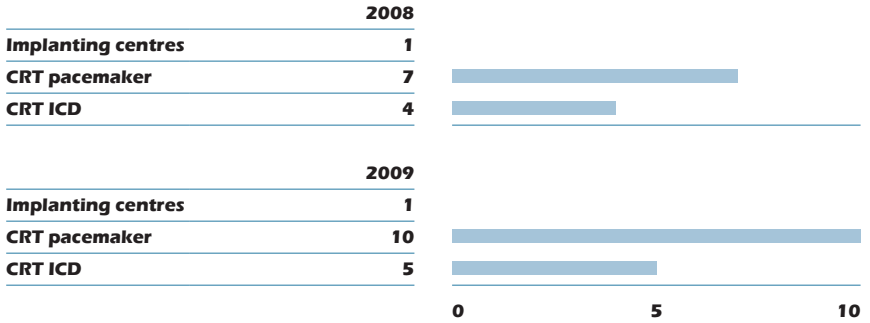


**Specialty performing implants**

<b>Cardiologists</b>	<b>1%</b>
<b>Surgeons</b>	<b>99%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**



**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>
<b>Other*</b>	

**There is technical support from cardiologists from Serbia for CRT implanations.**







## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	2008
Implanting centres	0
Loop recorders	0

	2009
Implanting centres	0
Loop recorders	0

### Specialty performing implants

Cardiologists	not available
Surgeons	not available

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry **No**

The EHRA invitation will be a great inspiration to start developing a quality insurance system.

Availability of a national institution coordinating and guiding device recalls **Yes**

National Agency for controlling drugs and devices

## 10. Interventional electrophysiology

Number of performing catheter ablation centres 0

	2008	2009
<b>Number of ablations performed</b>	<b>0</b>	<b>0</b>
<b>Mean number (ablations/centres)</b>	<b>0</b>	<b>0</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>0</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language Yes

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

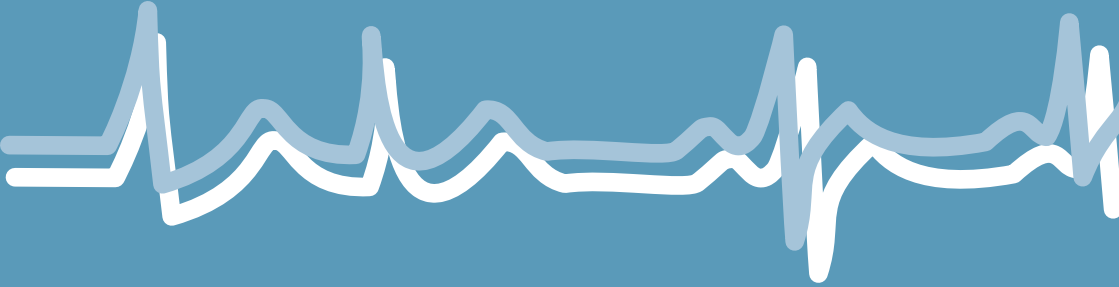
5 = great obstacle

**Pacemaker Center Montenegro – Chief: Ljilja Music, MD, PhD,, Institute for Public Health and Protocols from Clinical Center Montenegro**



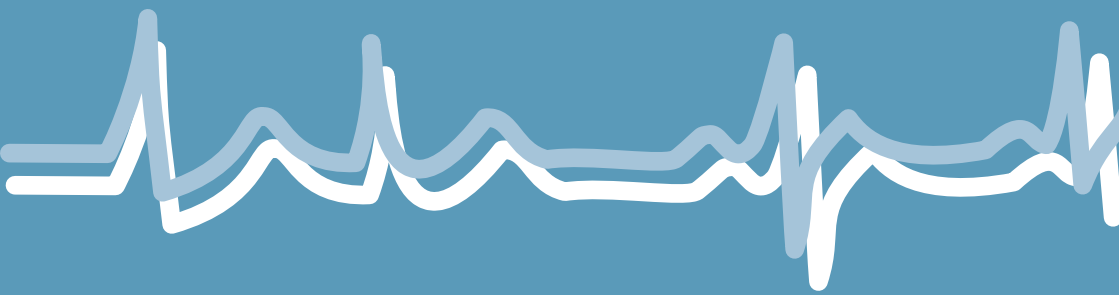
# MOROCCO

There will be information in the next edition.





# NETHERLANDS



# 1. Statistics

## Age pyramid for Netherlands





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,16</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>480,8</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,93</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>15,05</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,4</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>81,53</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>8,18</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>11,17</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>789,67*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>47.041,60*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>9,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>81,8</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>18,2</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>30%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




In the Netherlands, as of 2006, there is a new health insurance act. The system offers basic health insurance for all citizens.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>90%</b>	
<b>Uninsured citizens</b>	<b>10%</b>	
		<b>0                      50                      100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>90%</b>	
<b>Private insurance company</b>	<b>10%</b>	
<b>Private co-payment</b>	<b>0%</b>	
		<b>0                      50                      100</b>

**Possibility of subscribing to private health insurance plans** **Yes**





#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology*</b>	<input checked="" type="checkbox"/>

\* Netherlands Heart Rhythm Association

**National accreditation for physicians** **Yes**

**National accreditation for centres to perform EP** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Electrophysiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**ICD Cardiologist**

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

NVVC Praktijkrichtlijnen voor ICD centra

Required period of training to perform implantations

2 years

Training centres availability

Pacemaker	17
ICD implantation	19
Electrophysiological studies and catheter ablation	15
CRT implantation	19
Atrial fibrillation ablation	9

Number of medical faculties



7

Percentage of academic facilities among practicing EP and implant centres

50%

## 5. Pacemakers

Pacemaker units implanted

2008	10.400*			
2009	not available			
* approx.		0	6.000	12.000

Pacemaker units implanted and number of implanting centres

	2008
Implanting centres	100
New implants	not available
Replacements	not available
	2009
Implanting centres	100
New implants	not available
Replacements	not available





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

	2008	
<b>Implanting centres</b>	<b>17</b>	
<b>CRT pacemaker</b>	<b>156</b>	
<b>CRT ICD</b>	<b>1.319</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>19</b>	
<b>CRT pacemaker</b>	<b>not available</b>	
<b>CRT ICD</b>	<b>not available</b>	




0                      700                      1.400

### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

2008			
Implanting centres	17		
Single chamber	not available		
Dual chamber	not available		
First implants	2.644		
Replacements	639		
Total	3.238		
2009			
Implanting centres	19		
Single chamber	not available		
Dual chamber	not available		
First implants	not available		
Replacements	not available		
Total	not available		
		0	1.700
			3.400

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008			
Implanting centres	not available		
Loop recorders	not available		
2009			
Implanting centres	not available		
Loop recorders	not available		



### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing*</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>
<b>* Dutch ICD/Pacemaker Registration (DIPR)</b>	

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**  
**Device Committee NHRA**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

14

	2008	2009
<b>Number of ablations performed</b>	<b>4.368</b>	<b>not available</b>
<b>Mean number (ablations/centres)</b>	<b>336</b>	<b>not available</b>
<b>Number of AF ablations</b>	<b>1.536</b>	<b>not available</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

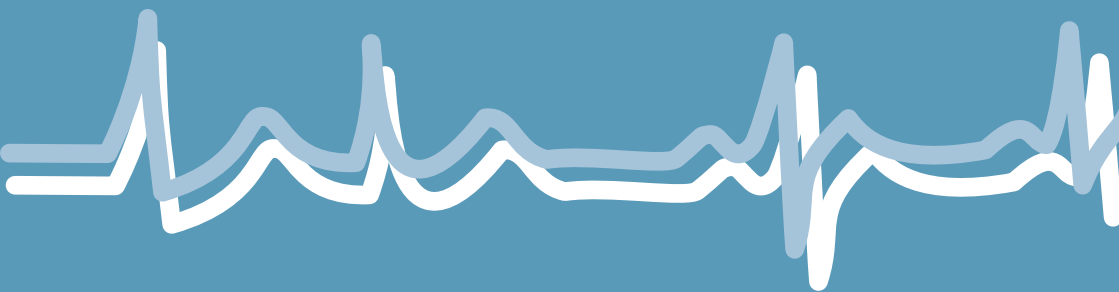
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

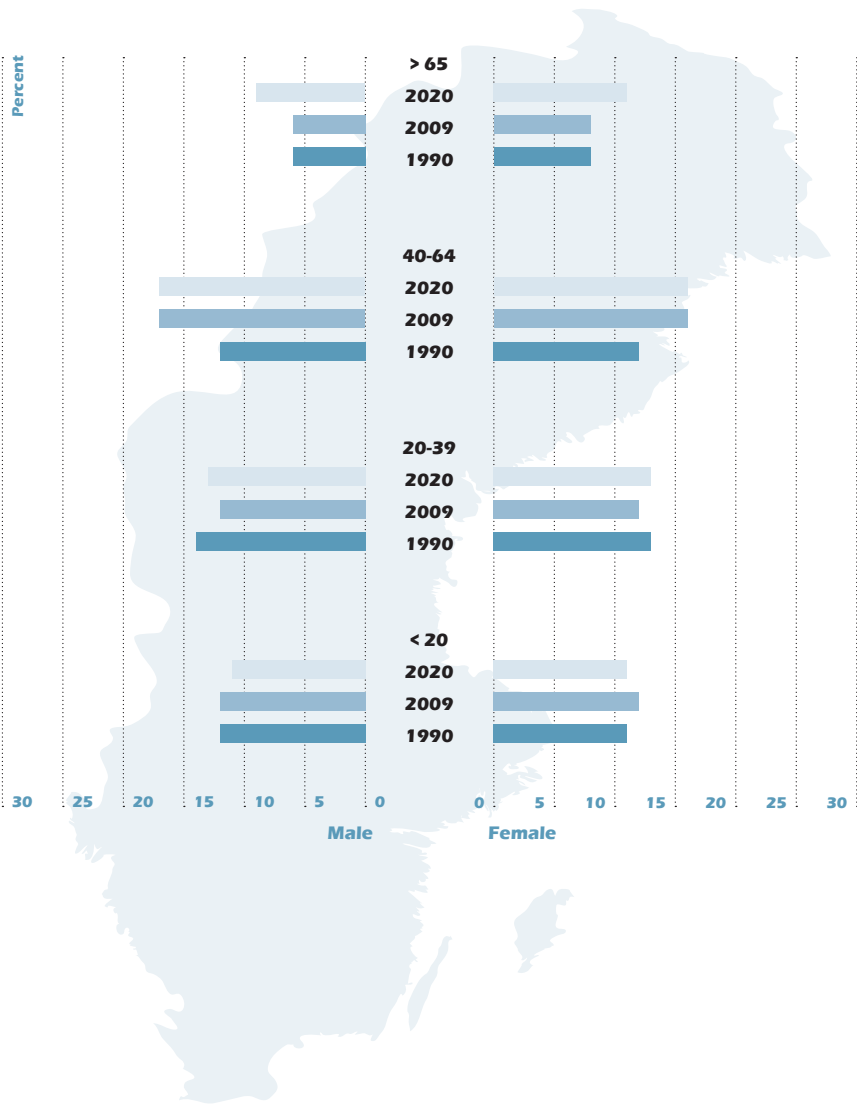
Sources: Netherlands Heart Rhythm Association (NHRA) – Chairman: Associate Professor. C. C. de Cock

# NORWAY



# 1. Statistics

## Age pyramid for Norway





**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>1,5</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>396,16</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,8</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>15,47</b>	<b>2007</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>0,4</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,7</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>8,91</b>	<b>2007</b>
<b>Live births (per 1.000 population)</b>	<b>12,41</b>	<b>2007</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>368,96*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>76.692,08*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,7</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>83,6</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>16,4</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>290 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>39%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




In Norway, the healthcare system is nationally organised. The hospitals have free admission.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>	
<b>Uninsured citizens</b>	<b>0%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>0%</b>	
<b>Private co-payment</b>	<b>3%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

National accreditation for physicians **Yes**

National accreditation for centres **No**

National Society supporting EHRA accreditation system **No**

Specialty required for catheter ablation **Yes**

Cardiologist

Specialty required for ICD or pacemaker implants **Yes**

Cardiologist

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**Training centres availability**

<b>Pacemaker</b>	<b>5</b>
<b>ICD implantation</b>	<b>5</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>4</b>
<b>CRT implantation</b>	<b>5</b>
<b>Atrial fibrillation ablation</b>	<b>4</b>

**Number of medical faculties**

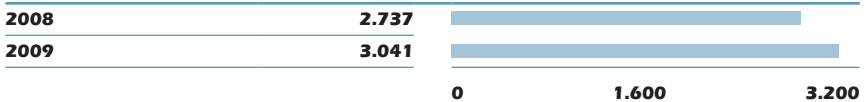
5

**Percentage of academic facilities among practicing EP and implant centres**

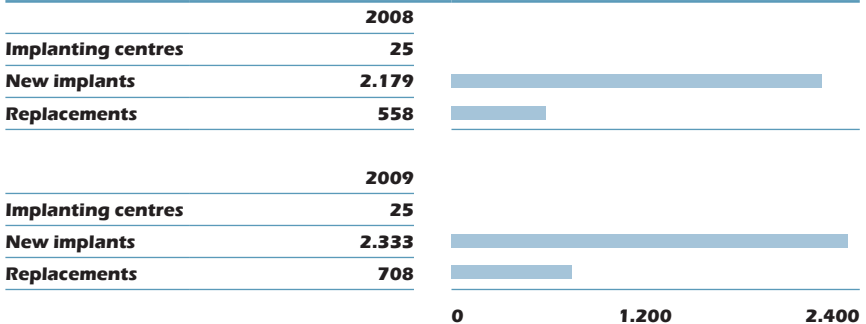
80%

## 5. Pacemakers

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**



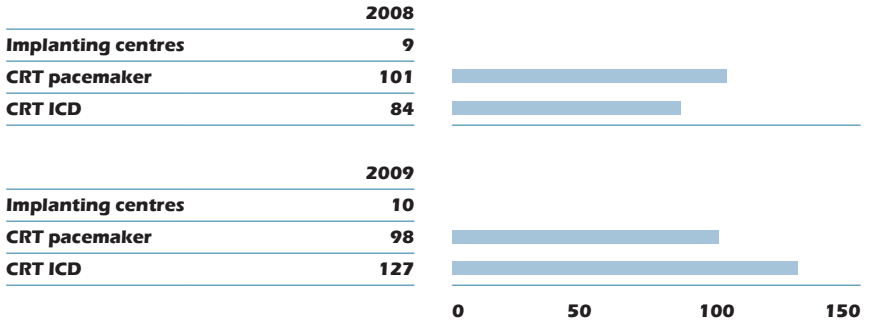


**Specialty performing implants**

<b>Cardiologists</b>	<b>98,4%</b>
<b>Surgeons</b>	<b>1,6%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

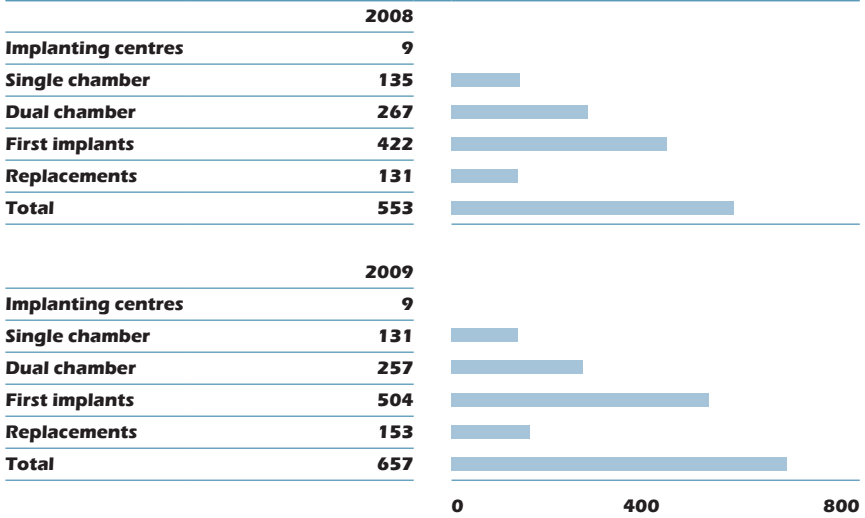


**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



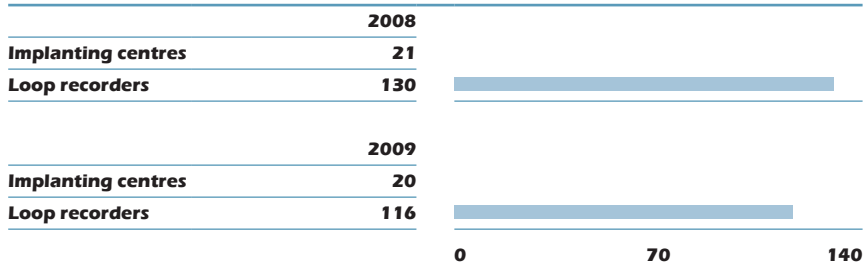
### Specialty performing implants

Cardiologists	100%
Surgeons	0%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

### Availability of remote monitoring of devices



### National registry for

ICD	<input checked="" type="checkbox"/>
Pacing	<input checked="" type="checkbox"/>
Electrophysiology	<input type="checkbox"/>
Norwegian Pacemaker Registry	

### Availability of a national quality insurance system or complication registry

Yes

Norwegian Pacemaker Registry  
Incomplete complication registry

### Availability of a national institution coordinating and guiding device recalls

No

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

5

	2008	2009
<b>Number of ablations performed</b>	<b>1.201</b>	<b>1.167</b>
<b>Mean number (ablations/centres)</b>	<b>240</b>	<b>233</b>
<b>Number of AF ablations</b>	<b>359</b>	<b>337</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

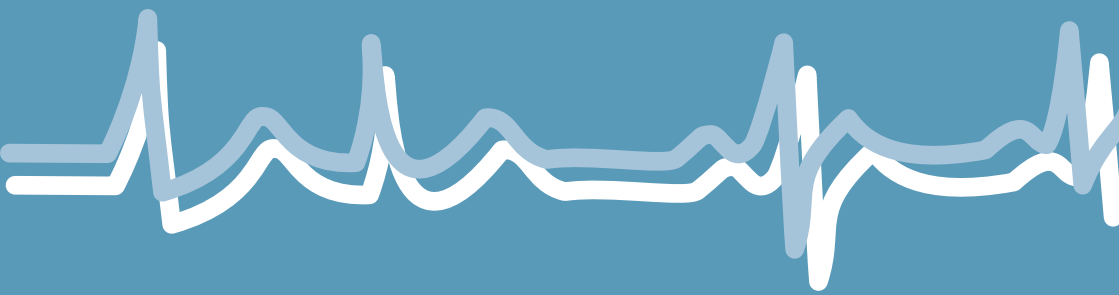
1 = no obstacle

5 = great obstacle

Sources: Norwegian Working Group of Arrhythmias – Chairman: Erik Kongsgaard and Norwegian Statistics

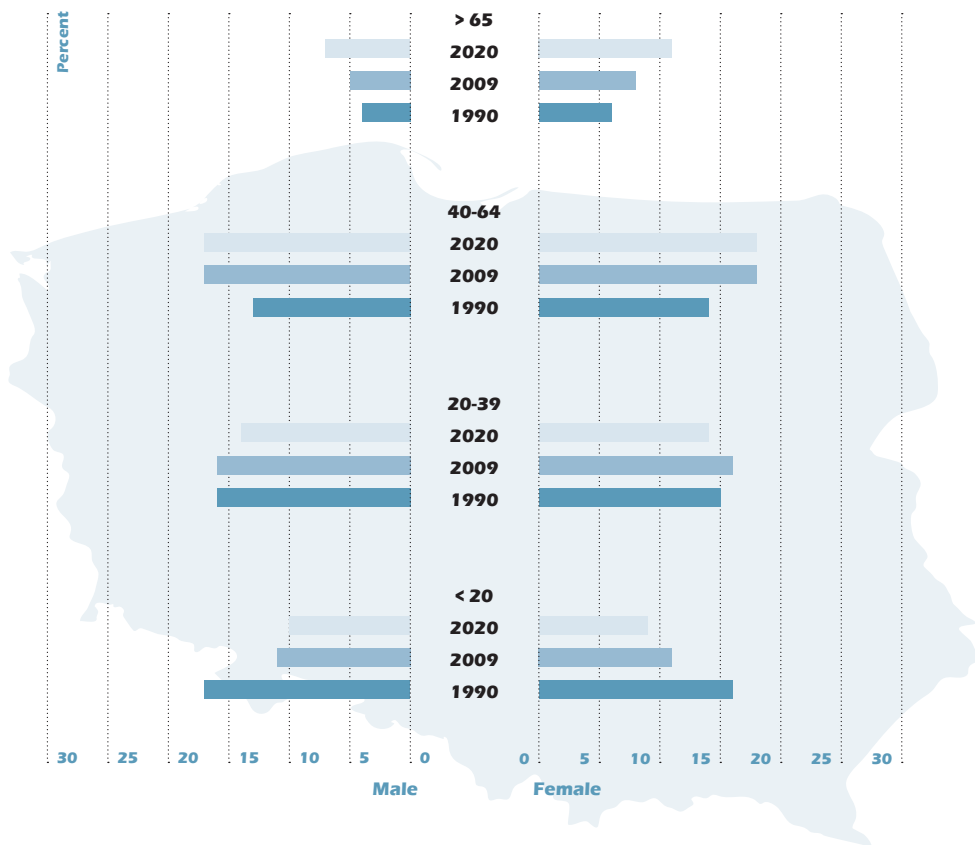


# POLAND



# 1. Statistics

## Age pyramid for Poland





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>2,08</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>516,17</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,03</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>4,69</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>75,45</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>9,9</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>10,87</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>422,96*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>11.098,16*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>6,2</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>69,9</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>30,1</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country

<b>2008</b>	<b>40%*</b>
<b>2009</b>	<b>not available</b>



\* approx.

## 3. Healthcare System

Poland has the health care system (NHS Found) based on general health insurance (on compulsory basis).




Basic insurance availability Yes

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>98%*</b>	
<b>Uninsured citizens</b>	<b>2%*</b>	

\* approx. 0 50 100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>98%*</b>	
<b>Private insurance company</b>	<b>1%*</b>	
<b>Private co-payment</b>	<b>5%*</b>	

\* approx. 0 50 100

Possibility of subscribing to private health insurance plans Yes

### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>



### Reimbursement availability

<b>Internal loop recorders</b>	<input type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Polish Cardiac Society and Heart Rhythm Division Heart Rhythm Division's accreditation in process of acceptance of the Board of Polish Cardiac Society</b>	

**National accreditation for physicians** **Yes**

**Licence from the Polish Medical Association**

**National accreditation for centres to perform EP** **Yes**

**Accreditation (three levels A,B and C) from the Heart Rhythm Divisions' which needs  
acceptance from the Board of Polish Cardiac Society**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **No**

**Specialty required for ICD or pacemaker implants** **No**

**Official national competency guidelines for  
electrophysiological studies or catheter ablation** **No**

**Required period of training to perform implantations** **No**

### Training centres availability

<b>Pacemaker</b>	<b>60</b>
<b>ICD implantation</b>	<b>35</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>11</b>
<b>CRT implantation</b>	<b>12</b>
<b>Atrial fibrillation ablation</b>	<b>5</b>



**Number of medical faculties** **15**

**Percentage of academic facilities among practicing EP and implant centres** **30%\***





\* approx.

## 5. Pacemakers

### Pacemaker units implanted

<b>2008</b>	<b>27.251</b>	
<b>2009</b>	<b>27.194</b>	
		0                      15.000                      30.000

### Pacemaker units implanted and number of implanting centres

	2008	
<b>Implanting centres</b>	<b>99</b>	
<b>New implants</b>	<b>16.626</b>	
<b>Replacements</b>	<b>10.625</b>	
		0                      12.000                      24.000
	<b>2009</b>	
<b>Implanting centres</b>	<b>99</b>	
<b>New implants</b>	<b>22.573</b>	
<b>Replacements</b>	<b>4.621</b>	

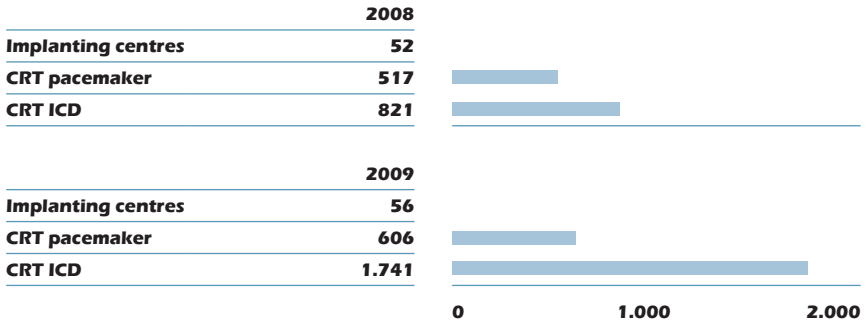
### Specialty performing implants

<b>Cardiologists</b>	<b>98%</b>
<b>Surgeons</b>	<b>1%</b>
<b>Other (Pediatrics)</b>	<b>1%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

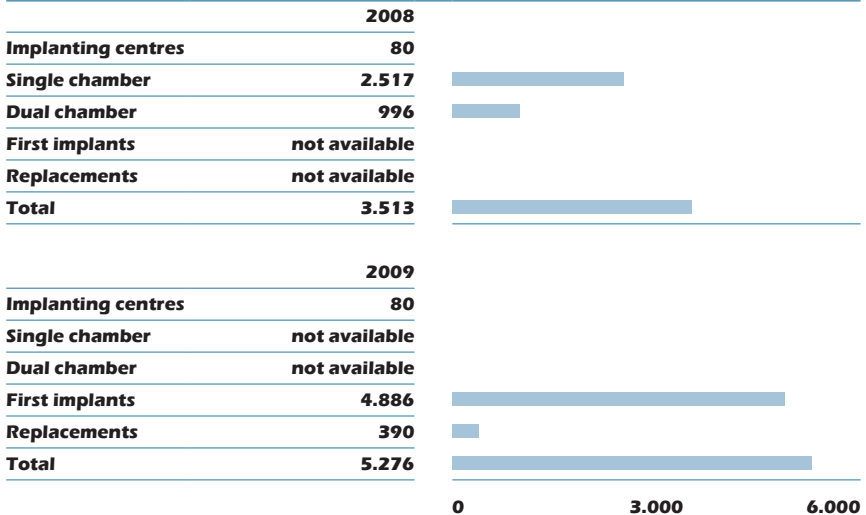


### Specialty performing implants

Cardiologists	95%
Surgeons	0%
Other (Pediatrics)	5%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres




### Specialty performing implants

Cardiologists	99%
Surgeons	0%
Other	1%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	2008	
Implanting centres	5	
Loop recorders	30	
	2009	
Implanting centres	5	
Loop recorders	not available	
		0                      30                      60

### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

### Availability of remote monitoring of devices

National Consultant for Cardiology

### National registry for

ICD	<input checked="" type="checkbox"/>
Pacing	<input checked="" type="checkbox"/>
Electrophysiology	<input checked="" type="checkbox"/>
Polish ICD Register; Elektroterapia; Polish Multicenter AF Ablation Register	



**Availability of a national quality insurance system or complication registry** **Yes**

**Urząd Rejestracji Produktów Medycznych – Warsaw; National Consultant for Cardiology**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**Urząd Rejestracji Produktów Medycznych – Warsaw; National Consultant for Cardiology Cooperation – Heart Rhythm Division of Polish Cardiac Society**

## 10. Interventional electrophysiology

**Number of performing catheter ablation centres** **42**

	<b>2008</b>	<b>2009</b>
<b>Number of ablations performed</b>	<b>4.716</b>	<b>6.390</b>
<b>Mean number (ablations/centres)</b>	<b>124</b>	<b>152</b>
<b>Number of AF ablations</b>	<b>436</b>	<b>734</b>

## 11. Guidelines

**Guidelines adhered to ICD implants and pacemaker implants**

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

**Necessity of guideline translation to national language** **Yes**

**Obstacles to guideline implementation**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

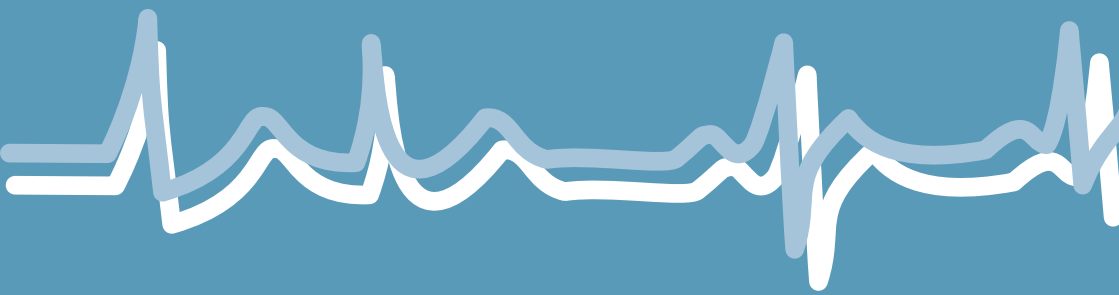
**1 = no obstacle**

**5 = great obstacle**

**Sources: Heart Rhythm Division Polish Cardiac Society – Prof. Andrzej Kutarski**

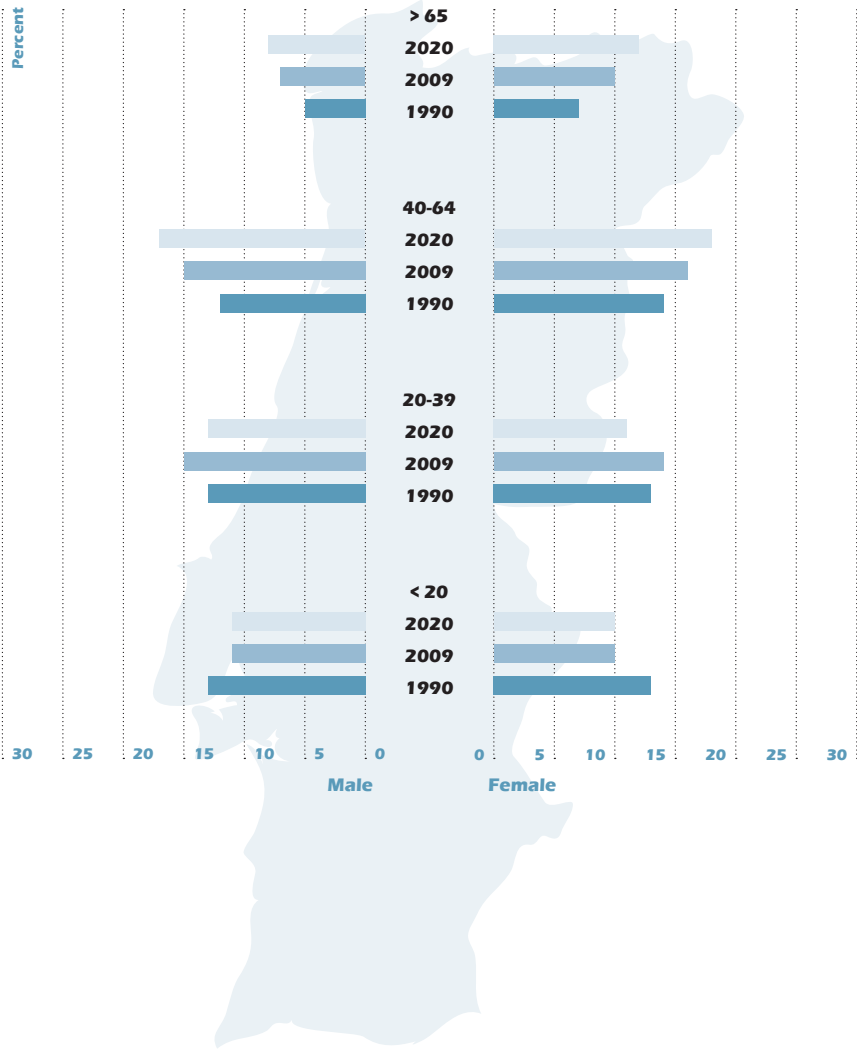


# PORTUGAL



# 1. Statistics

## Age pyramid for Portugal



**Healthcare data**

<b>Hospitals (per 100.000 population)</b>	<b>1,93</b>	<b>2005</b>
<b>Beds (per 100.000 population)</b>	<b>345,44</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,43</b>	<b>2005</b>
<b>Density of nurses (per 1.000 population)</b>	<b>4,81</b>	<b>2006</b>

**Demographic information**

<b>Population annual growth rate (%)</b>	<b>0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>78,31</b>	<b>2004</b>
<b>Death rate (per 1,000 population)</b>	<b>9,75</b>	<b>2004</b>
<b>Live births (per 1,000 population)</b>	<b>10,38</b>	<b>2005</b>

**Economic information**

<b>Gross domestic product (U.S dollar-billions)</b>	<b>219,84*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>20.654,94*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>10</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>71,8</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>28,2</b>	<b>2006</b>

\* IMF estimative





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

Those treatments are available in public hospitals.

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input type="checkbox"/>
ICD secondary prevention	<input type="checkbox"/>
CRT devices	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

These treatments are free in public services and they are not reimbursed for private payments.

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology*	<input checked="" type="checkbox"/>

\* College of cardiology, subspecialty in Cardiac Electrophysiology

#### National accreditation for physicians

Yes

The Medical Nacional Board

#### National accreditation for centres

No

#### National Society supporting EHRA accreditation system

No

Our meetings are accredited by EBAC

#### Specialty required for catheter ablation

Yes

Cardiologist with the sub-specialty in Cardiac Electrophysiology

#### Specialty required for ICD or pacemaker implants

Yes

Cardiologist with the sub-specialty in Cardiac Electrophysiology

Required period of training to perform implantations

2 years

Training centres availability

<b>Pacemaker</b>	<b>12</b>
<b>ICD implantation</b>	<b>5</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>5</b>
<b>CRT implantation</b>	<b>5</b>
<b>Atrial fibrillation ablation</b>	<b>3</b>

Number of medical faculties



7

Percentage of academic facilities among practicing EP and implant centres

37,5%





## 5. Pacemakers

Pacemaker units implanted

<b>2008</b>	<b>8.182</b>	
<b>2009</b>	<b>7.969</b>	

0                      3.000                      6.000                      9.000

Pacemaker units implanted and number of implanting centres

	<b>2008</b>	
<b>Implanting centres</b>	<b>40</b>	
<b>New implants</b>	<b>6.496</b>	
<b>Replacements</b>	<b>1.472</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>43</b>	
<b>New implants</b>	<b>5.794</b>	
<b>Replacements</b>	<b>1.502</b>	

0                                      4.000                                      8.000



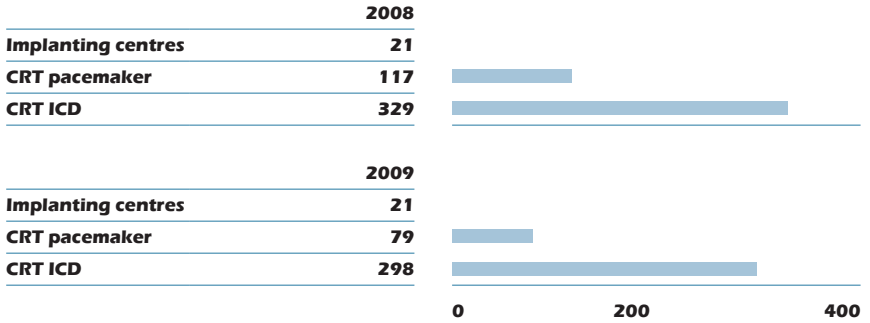


**Specialty performing implants**

<b>Cardiologists</b>	<b>99%</b>
<b>Surgeons</b>	<b>1%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

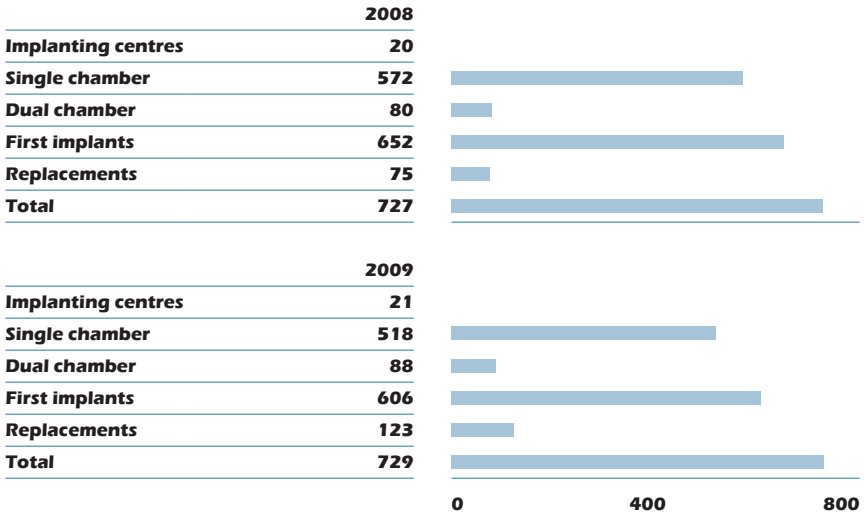


**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	90%
Surgeons	10%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

		2008	
Implanting centres		not available	
Loop recorders		not available	
		2009	
Implanting centres		not available	
Loop recorders		not available	



### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device speci-

fic

**Availability of remote monitoring of devices**

**In very few centers**

### National registry for

**ICD**

**Pacing**

**Electrophysiology**

**APAPE National Registry**

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**INFARMED**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

16

	2008	2009
<b>Number of ablations performed</b>	<b>1.594</b>	<b>1.391</b>
<b>Mean number (ablations/centres)</b>	<b>100</b>	<b>87</b>
<b>Number of AF ablations</b>	<b>233</b>	<b>318</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

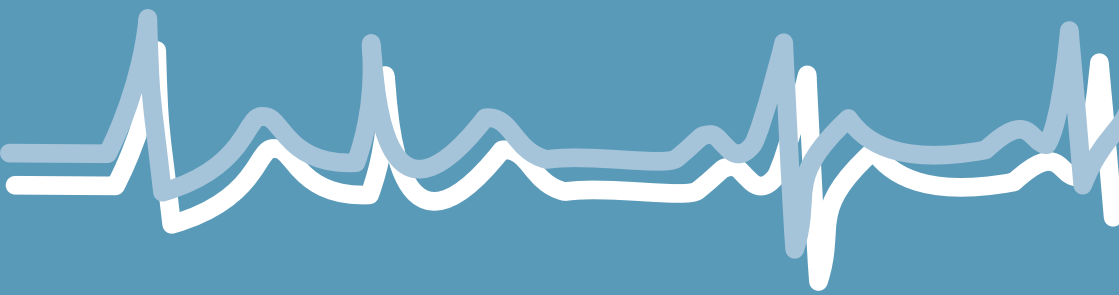
5 = great obstacle

Sources: Portuguese Association of Arrhythmology, Pacing and Electrophysiology (APAPE) – Chairman Dr. João Jose Primo, APAPE registry, National Institute of Statistics, Pordata and National Institute of Insurances



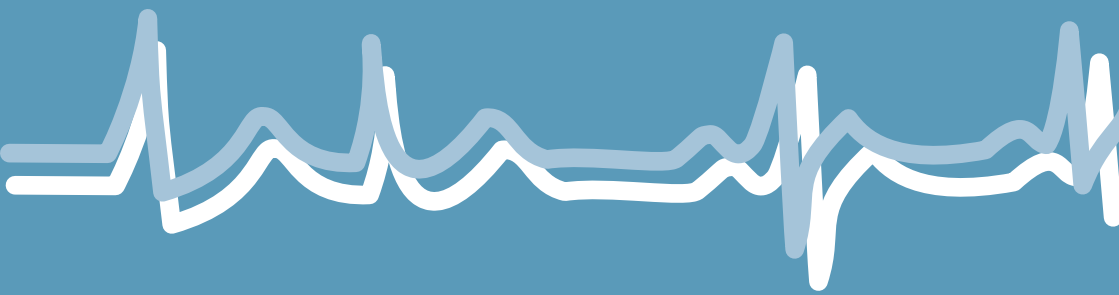
# REPUBLIC OF MOLDOVA

There will be information in the next edition.



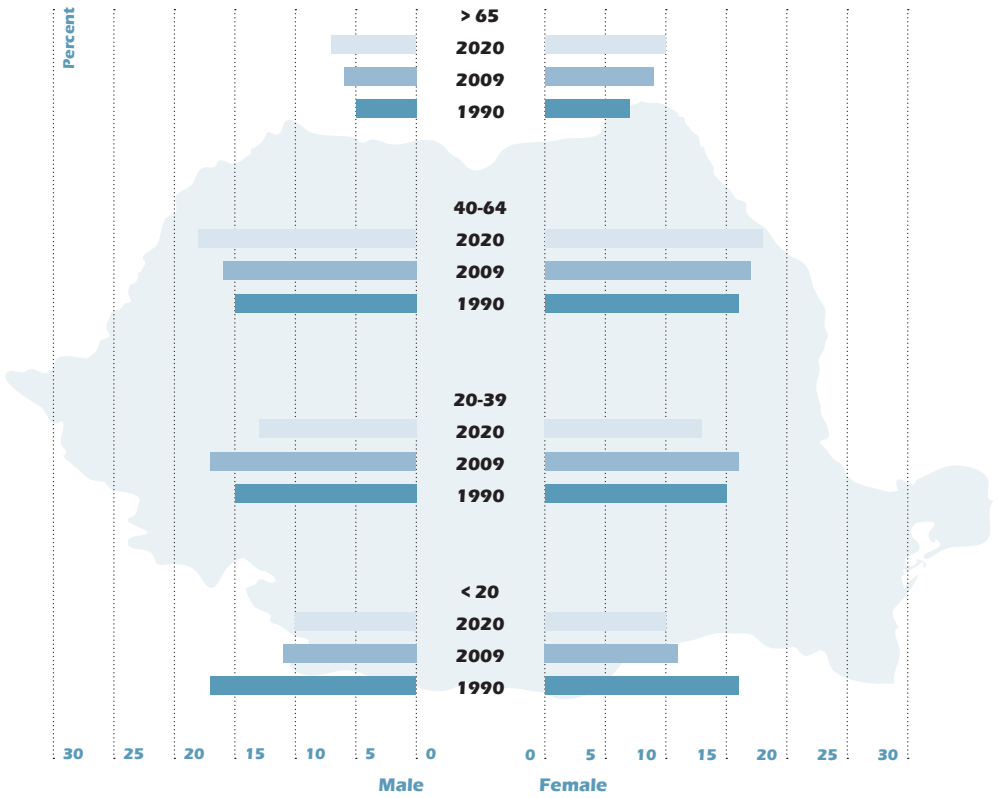


# ROMANIA



# 1. Statistics

## Age pyramid for Romania







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,94</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>654,29</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>1,92</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>3,97</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>73,47</b>	<b>2008</b>
<b>Death rate (per 1.000 population)</b>	<b>11,77</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>10,32</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>160,67*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>7.502,90*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>5,7</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>71</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>29</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




The adoption of the Law on Social Health Insurance in 1997 initiated the transformation of the Romanian health-care system from a Semashko state-financed model to an insurance-based system. Since the law came into force in 1998, earmarked payroll contributions have become the main source of health sector revenue. The National Health system has been funded by the National Health Care Insurance Fund, to which employers and employees make mandatory contributions. Health insurance covers ambulatory, inpatient, and dental care, including clinical preventive services and drugs. A framework contract, agreed upon annually by the National Health Insurance Fund (NHIF) and the College of Physicians and approved by the Cabinet, defines the benefits package, conditions for service delivery, and payment mechanisms.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>98%</b>	
<b>Uninsured citizens</b>	<b>2%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>57%</b>	
<b>Private insurance company</b>	<b>14%</b>	
<b>Private co-payment</b>	<b>29%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>
<b>In very limited numbers of ICDs</b>	

#### Reimbursement availability

Internal loop recorders	<input type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>
<b>In very limited number of complex devices.</b>	

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

No

**Required period of training to perform implantations**

No

**Training centres availability**

<b>Pacemaker</b>	<b>12</b>
<b>ICD implantation</b>	<b>7</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>7</b>
<b>CRT implantation</b>	<b>5</b>
<b>Atrial fibrillation ablation</b>	<b>0</b>

**Number of medical faculties**



11

**Percentage of academic facilities among practicing EP and implant centres**

100%

## 5. Pacemakers

**Pacemaker units implanted**

<b>2008</b>	<b>2.348</b>	
<b>2009</b>	<b>3.000</b>	
<b>* It refers to only one center</b>		<b>0                      1.500                      3.000</b>

**Pacemaker units implanted and number of implanting centres**

		<b>2008</b>
<b>Implanting centres</b>		<b>18</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>
		<b>2009</b>
<b>Implanting centres</b>		<b>18</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>

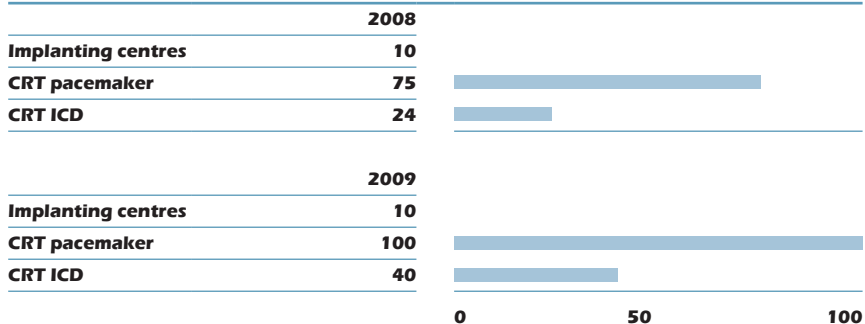


### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>





## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008	
Implanting centres	not available
Loop recorders	not available
2009	
Implanting centres	not available
Loop recorders	not available

### Specialty performing implants

Cardiologists	not available
Surgeons	not available

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD	<input type="checkbox"/>
Pacing	<input type="checkbox"/>
Electrophysiology	<input type="checkbox"/>

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

11

	2008	2009
<b>Number of ablations performed</b>	<b>780</b>	<b>904</b>
<b>Mean number (ablations/centres)</b>	<b>70</b>	<b>82</b>
<b>Number of AF ablations</b>	<b>0</b>	<b>4</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

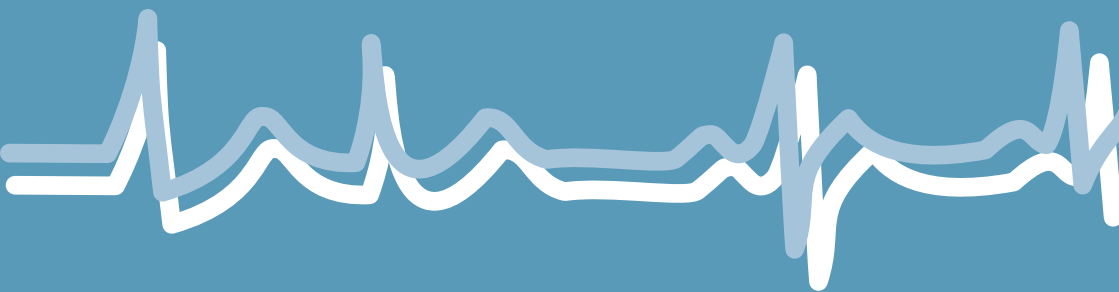
1 = no obstacle

5 = great obstacle

Sources: Romanian Society of Cardiology, Arrhythmias Working Group – President: Assoc. Prof. Dan Dobreanu

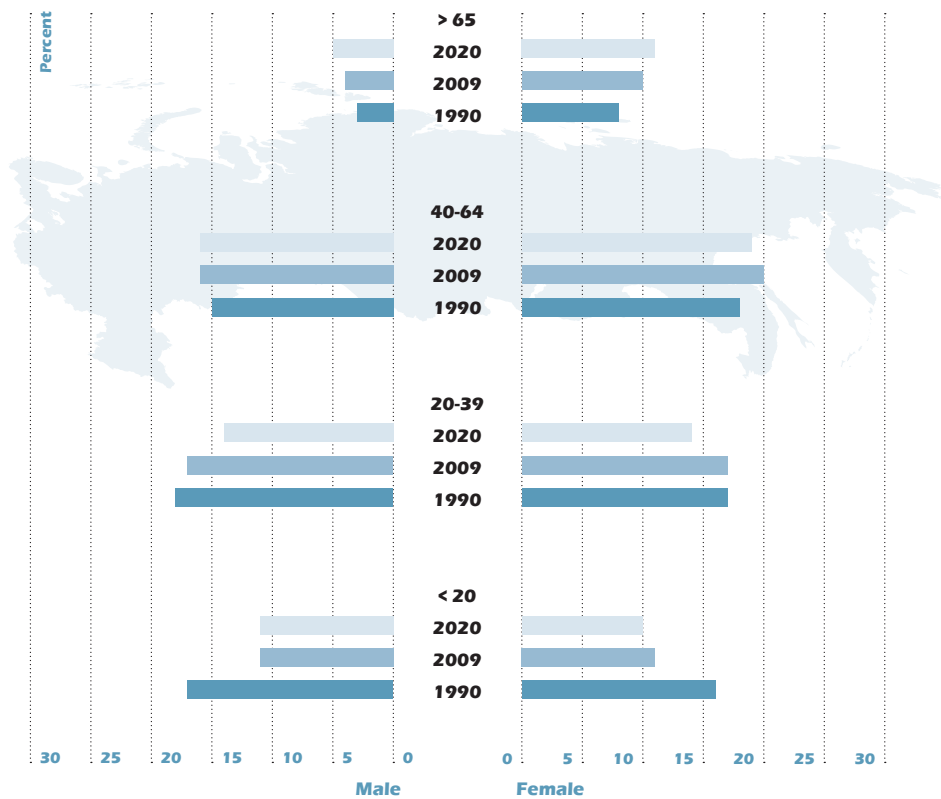


# **RUSSIAN FEDERATION**



# 1. Statistics

## Age pyramid for Russian Federation





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,5</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>965,85</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>4,31</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>8,06</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,5</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>66,67</b>	<b>2006</b>
<b>Death rate (per 1.000 population)</b>	<b>15,21</b>	<b>2006</b>
<b>Live births (per 1.000 population)</b>	<b>10,38</b>	<b>2006</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>1.254,65*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>8.873,61*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>5,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>63,2</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>36,8</b>	<b>2006</b>

\* IMF estimative





### Reimbursement availability

<b>Internal loop recorders</b>	<input type="checkbox"/>
<b>ICD primary prevention</b>	<input type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>

**National accreditation for physicians** Yes

**National accreditation for centres** Yes

**National Society supporting EHRA accreditation system** Yes

**Specialty required for catheter ablation** No

**Specialty required for ICD or pacemaker implants** No

**Official national competency guidelines for electrophysiological studies or catheter ablation** Yes

**Russian Society of Arrhythmology**

**Required period of training to perform implantations** 3 years

### Training centres availability



<b>Pacemaker</b>	<b>7</b>
<b>ICD implantation</b>	<b>7</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>7</b>
<b>CRT implantation</b>	<b>5</b>
<b>Atrial fibrillation ablation</b>	<b>5</b>

**Number of medical faculties** **not available**





**Percentage of academic facilities among practicing EP and implant centres** **not available**

## 5. Pacemakers

### Pacemaker units implanted

<b>2008</b>	<b>23.751</b>	
<b>2009</b>	<b>26.375</b>	
<b>* approx.</b>		<b>0      10.000      20.000      30.000</b>

### Pacemaker units implanted and number of implanting centres

	<b>2008</b>	
<b>Implanting centres</b>	<b>110</b>	
<b>New implants</b>	<b>20.163</b>	
<b>Replacements</b>	<b>3.588</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>115</b>	
<b>New implants</b>	<b>22.516</b>	
<b>Replacements</b>	<b>3.859</b>	
		<b>0      12.000      24.000</b>

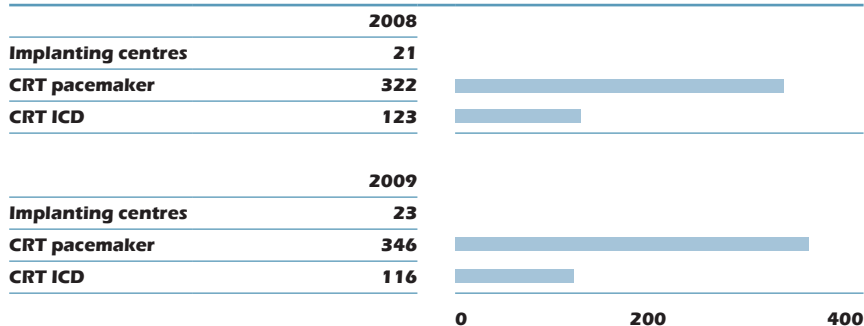
### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>30%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

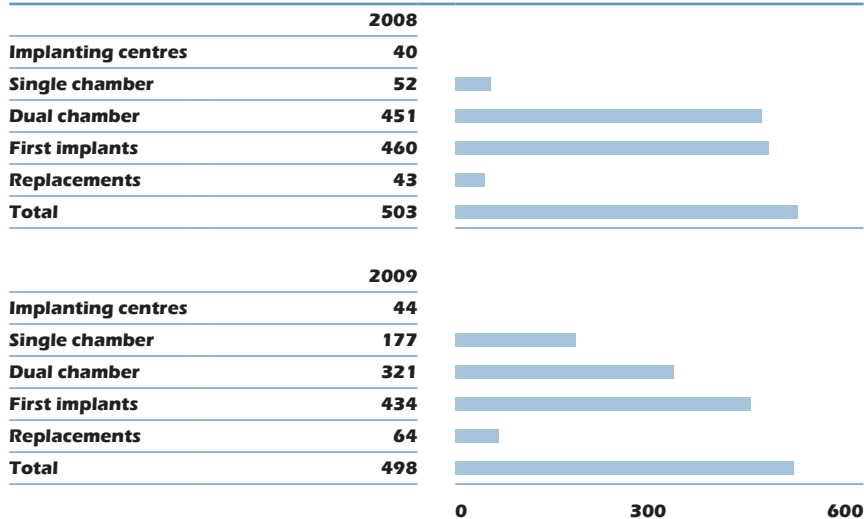


### Specialty performing implants

Cardiologists	70%
Surgeons	30%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres




### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>30%</b>

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

		2008		
<b>Implanting centres</b>		<b>17</b>		
<b>Loop recorders</b>		<b>85</b>		
		2009		
<b>Implanting centres</b>	<b>not available</b>			
<b>Loop recorders</b>	<b>not available</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

### Specialty performing implants

<b>Cardiologists</b>	<b>30%</b>
<b>Surgeons</b>	<b>70%</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Russian Centre of Arrhythmology</b>	

Availability of a national quality insurance system or complication registry **Yes**

**Russian Customer Control**

Availability of a national institution coordinating and guiding device recalls **Yes**

**Bakoulev Scientific Centre for Cardio-Vascular Surgery**





## 10. Interventional electrophysiology

Number of performing catheter ablation centres

57

	2008	2009
<b>Number of ablations performed</b>	<b>11.200</b>	<b>13.384</b>
<b>Mean number (ablations/centres)</b>	<b>196</b>	<b>194</b>
<b>Number of AF ablations</b>	<b>1.500</b>	<b>2.514</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

Obstacles to guideline implementation

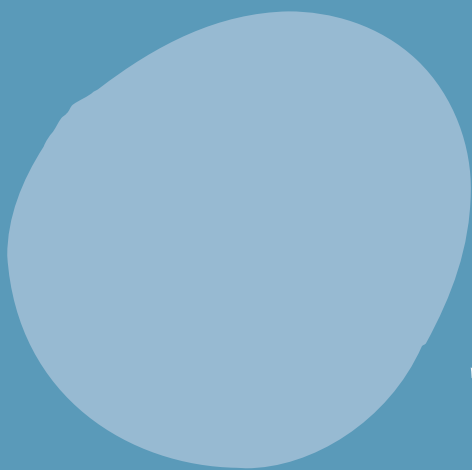
	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

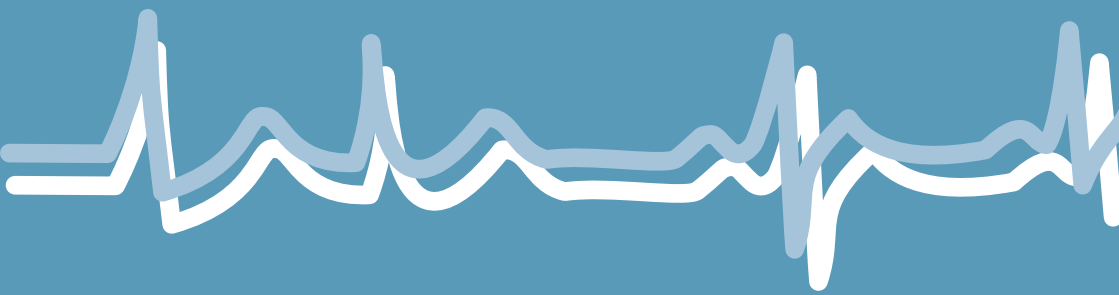
Sources: Clinical Electrophysiology, Arrhythmology and Cardiac Pacing – Russian Federation, Chairman: Prof. A. Sh. Revishvili





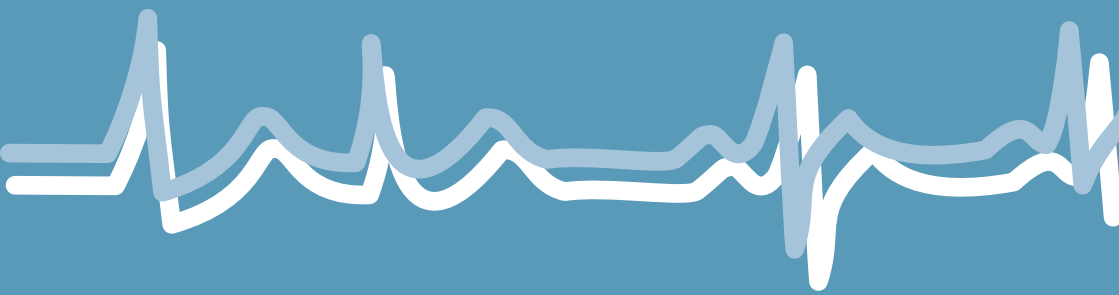
# SAN MARINO

There will be information in the next edition.



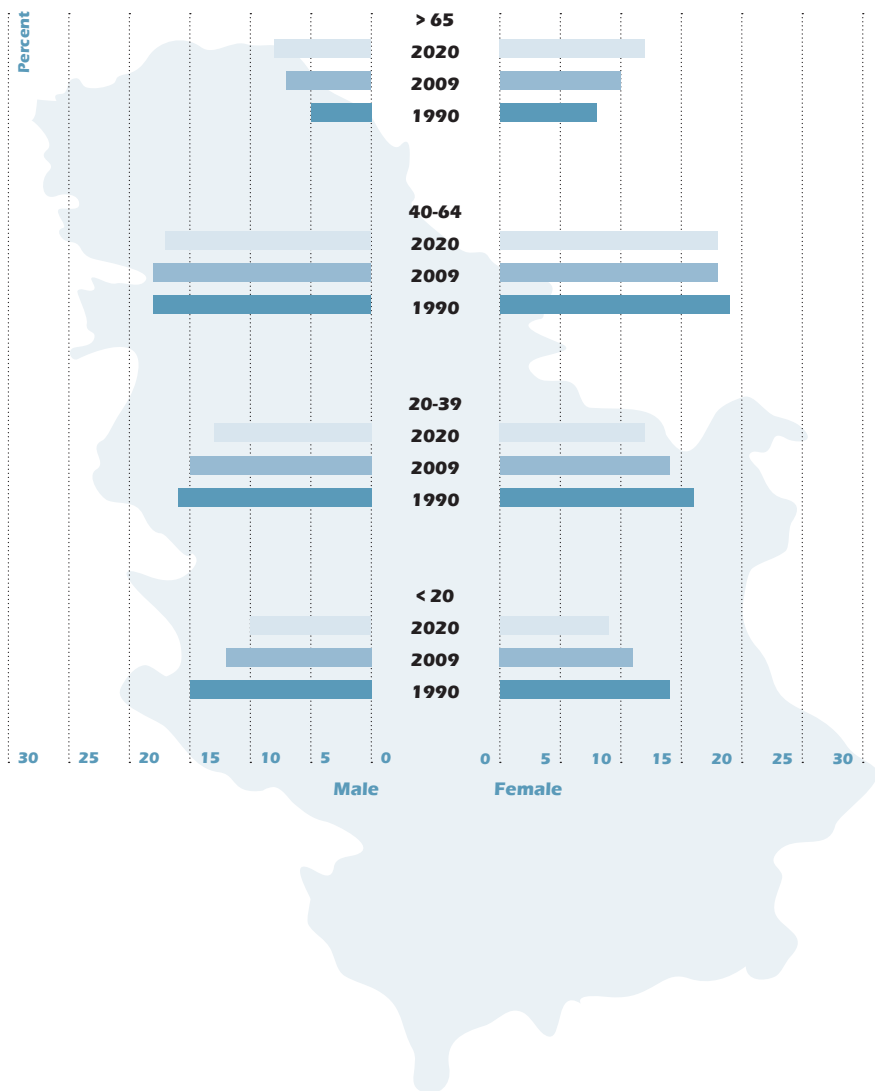


# SERBIA



# 1. Statistics

## Age pyramid for Serbia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,4</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>540,26</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,71</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>5,57</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,5</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>73,69</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>13,97</b>	<b>2008</b>
<b>Live births (per 1.000 population)</b>	<b>9,4</b>	<b>2008</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>42,39*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>5.742,04*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7,6</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>71</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>29</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>304 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>55,8%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System


The National healthcare system in Serbia is provided through an established network of health centers and health stations (primary care). As a secondary and tertiary care, general hospitals, university clinical centers and specialised institutions are providing services. The private healthcare is not incorporated to the national healthcare system.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>95%</b>	
<b>Uninsured citizens</b>	<b>5%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>100%</b>	
<b>Private insurance company</b>	<b>not available</b>	
<b>Private co-payment</b>	<b>not available</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **Yes**





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

It is mandatory the payment of 5% of the implant cost, however to a maximum amount of 200 Euros.

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

The Working Group on cardiac pacing provides the Statement for Pacing and Device therapy for participants who passed on the 6 month training in the referral center.

National accreditation for physicians Yes

National accreditation for centres No

The Ministry of Health accredited the Pacemaker Center in Clinical center of Serbia as referral for the country.

National Society supporting EHRA accreditation system Yes

Specialty required for catheter ablation Yes

Cardiologist

Specialty required for ICD or pacemaker implants Yes

Cardiologist



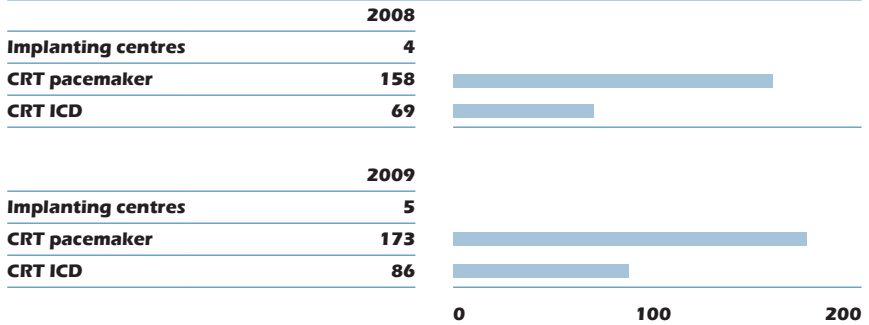


**Specialty performing implants**

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

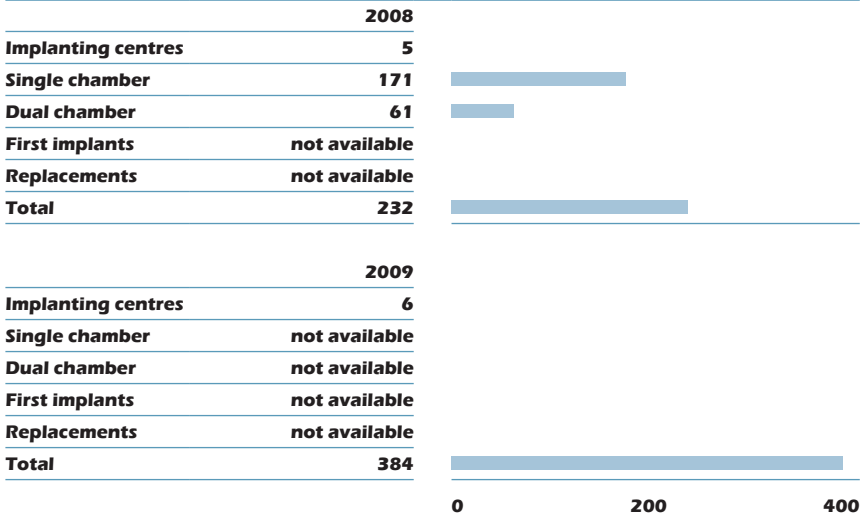


**Specialty performing implants**

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



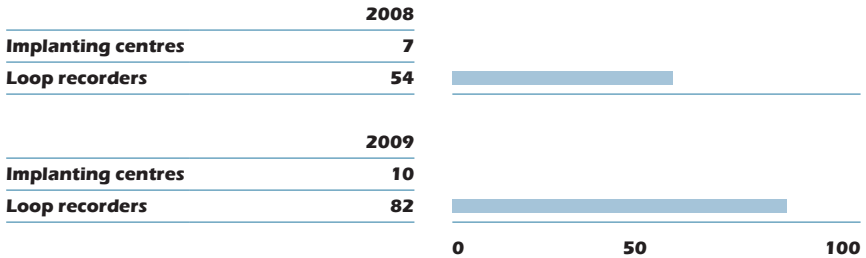
### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

ICD	<input checked="" type="checkbox"/>
Pacing	<input checked="" type="checkbox"/>
Electrophysiology	<input checked="" type="checkbox"/>

Referral Pacemaker center, Clinical center of Serbia

Availability of a national quality insurance system or complication registry **Yes**

Ministry of Health of Serbia

Availability of a national institution coordinating and guiding device recalls **Yes**

Ministry of Health of Serbia

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

3

	2008	2009
<b>Number of ablations performed</b>	<b>610</b>	<b>840</b>
<b>Mean number (ablations/centres)</b>	<b>203</b>	<b>280</b>
<b>Number of AF ablations</b>	<b>55</b>	<b>75</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

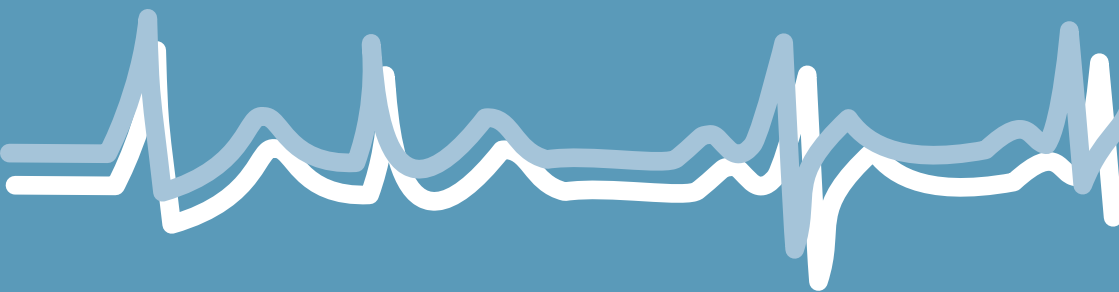
	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Other: Limited finance</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1 = no obstacle

5 = great obstacle

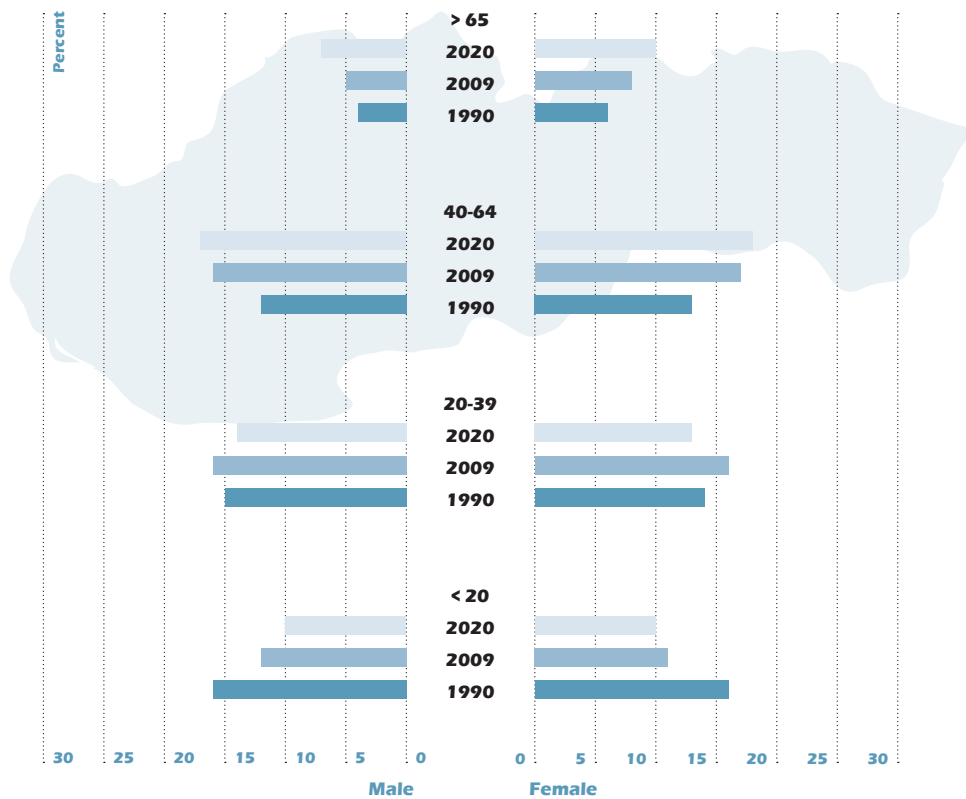
Sources: Serbian Working Group on Cardiac Pacing – Chairman: Prof. Goran Milasinovic

# SLOVAKIA



# 1. Statistics

## Age pyramid for Slovakia







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>2,65</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>678,84</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,13</b>	<b>2004</b>
<b>Density of nurses (per 1.000 population)</b>	<b>6,32</b>	<b>2005</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>74,3</b>	<b>2005</b>
<b>Death rate (per 1.000 population)</b>	<b>9,92</b>	<b>2005</b>
<b>Live births (per 1.000 population)</b>	<b>10,1</b>	<b>2005</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>88,30*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>16.315,41*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>7</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>73,9</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>26,1</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>461 per 100.000 citizens</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>53%</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System




National health system with universal health insurance coverage, major hospitals (incl. university hospitals) owned and operated by government, regional hospitals mostly non-profit organizations or privately owned. General practitioners and most specialists work in private offices (on the basis of agreements with insurance companies), no (or very little) cash contribution from the patients. There is no patient financial contribution for arrhythmia devices or interventions.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>	
<b>Uninsured citizens</b>	<b>0%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>75%</b>	
<b>Private insurance company</b>	<b>25%</b>	
<b>Private co-payment</b>	<b>0%</b>	
		0                      50                      100

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input checked="" type="checkbox"/>
<b>Invasive electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Certified clinical activity in implantation and management of pacemakers (starting in 2010)</b>	
<b>Certified clinical activity in diagnostic and interventional electrophysiology (starting in 2010)</b>	

**National accreditation for physicians** **No**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist, surgeon**

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Ministry of Health of the Slovak republic

Required period of training to perform implantations

2 years

Training centres availability

Pacemaker	3
ICD implantation	3
Electrophysiological studies and catheter ablation	3
CRT implantation	3
Atrial fibrillation ablation	1

Number of medical faculties

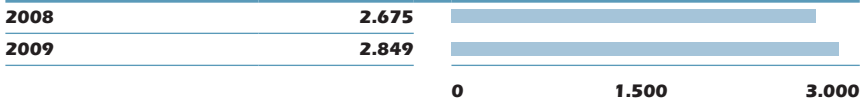
4

Percentage of academic facilities among practicing EP and implant centres

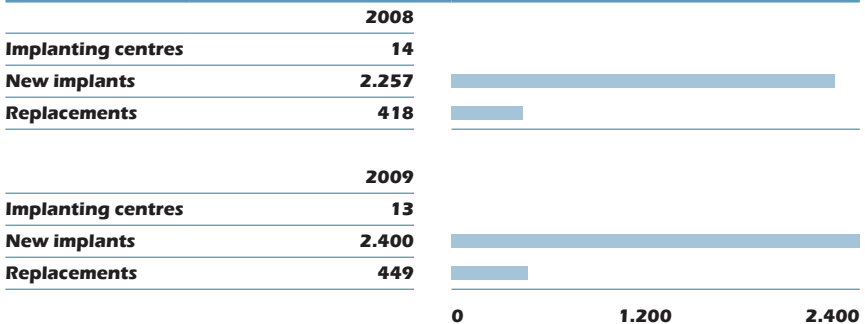
38%

## 5. Pacemakers

Pacemaker units implanted



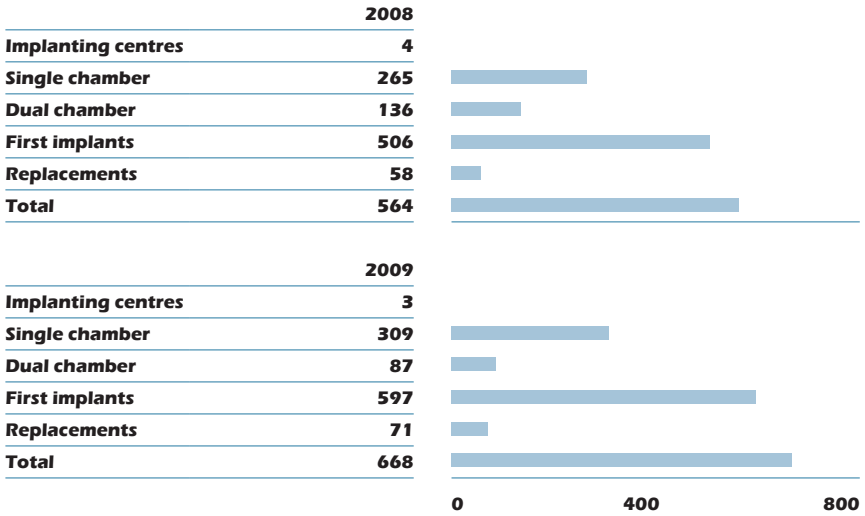
Pacemaker units implanted and number of implanting centres





## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	75%
Surgeons	25%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008	
Implanting centres	3
Loop recorders	not available

2009	
Implanting centres	3
Loop recorders	not available



### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>
<b>Slovimpulz</b>	

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**  
**SUKL (State Institute for Drug Control)**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

4

	2008	2009
<b>Number of ablations performed</b>	<b>878</b>	<b>889</b>
<b>Mean number (ablations/centres)</b>	<b>220</b>	<b>222</b>
<b>Number of AF ablations</b>	<b>118</b>	<b>129</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

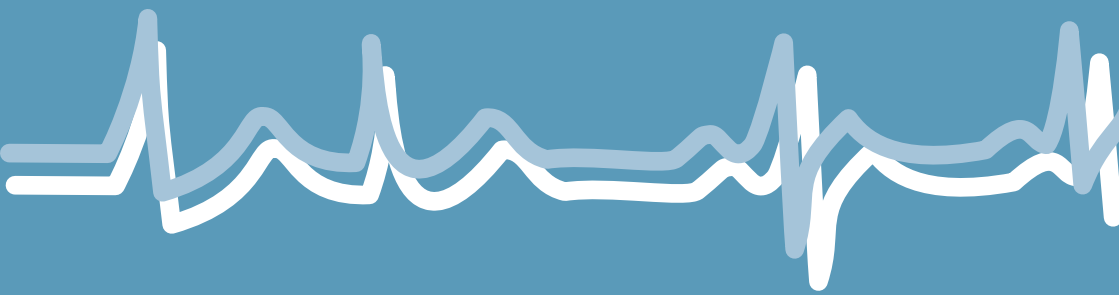
1 = no obstacle

5 = great obstacle

Source: Slovak Heart Rhythm Association – Chairman: Prof. Dr. Robert Hatala

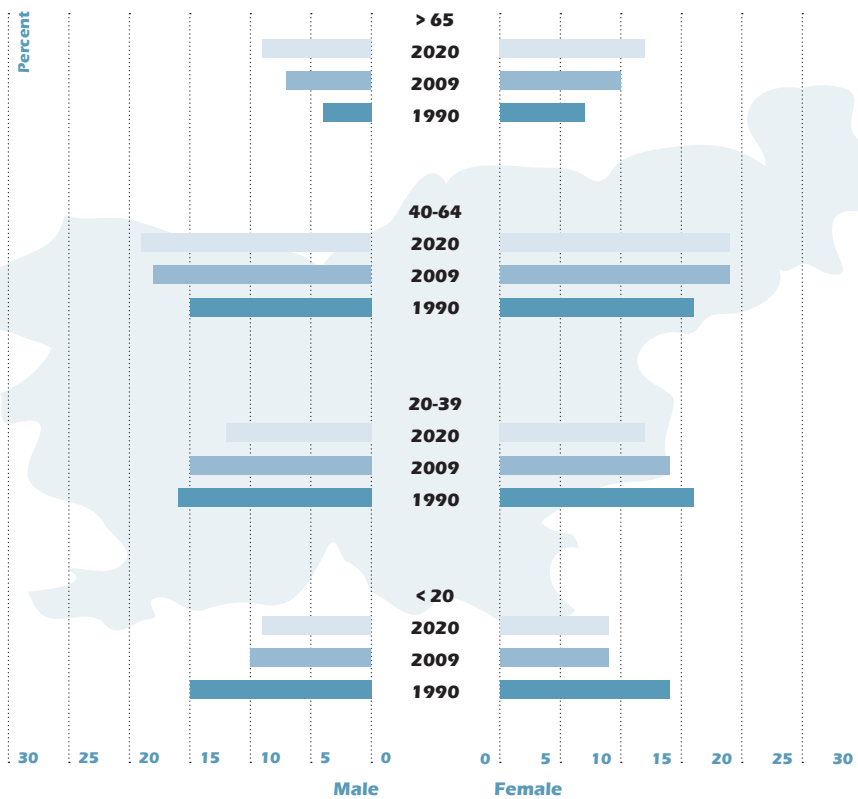


# SLOVENIA



# 1. Statistics

## Age pyramid for Slovenia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,44</b>	<b>2007</b>
<b>Beds (per 100.000 population)</b>	<b>466,18</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,37</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,65</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>-0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>78,53</b>	<b>2007</b>
<b>Death rate (per 1.000 population)</b>	<b>9,2</b>	<b>2007</b>
<b>Live births (per 1.000 population)</b>	<b>9,81</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>49,55*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>24.583,31*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,4</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>73</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>27</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>



## 3. Healthcare System

The healthcare system in Slovenia is based on the public system. The National health insurance institute is an autonomous fund.




### Basic insurance availability

No

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>99%</b>	
<b>Uninsured citizens</b>	<b>1%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>85%</b>	
<b>Private insurance company</b>	<b>13%</b>	
<b>Private co-payment</b>	<b>2%</b>	
		0                      50                      100

### Possibility of subscribing to private health insurance plans

Yes



#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **Yes**

**Internist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Surgeon or internist**

**Official national competency guidelines for electrophysiological studies or catheter ablation** **No**

**Required period of training to perform implantations** **No**

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**Training centres availability**

<b>Pacemaker</b>	<b>2</b>
<b>ICD implantation</b>	<b>2</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>2</b>
<b>CRT implantation</b>	<b>2</b>
<b>Atrial fibrillation ablation</b>	<b>2</b>

**Number of medical faculties** **2**

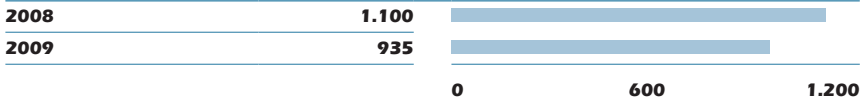
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**Percentage of academic facilities among practicing EP and implant centres** **50%**

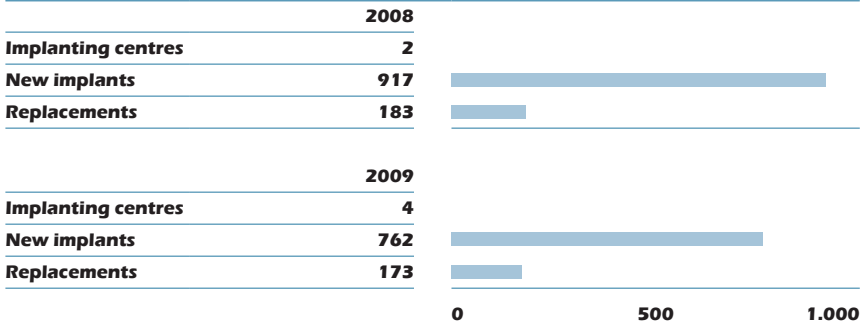
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**5. Pacemakers**

**Pacemaker units implanted**



**Pacemaker units implanted and number of implanting centres**



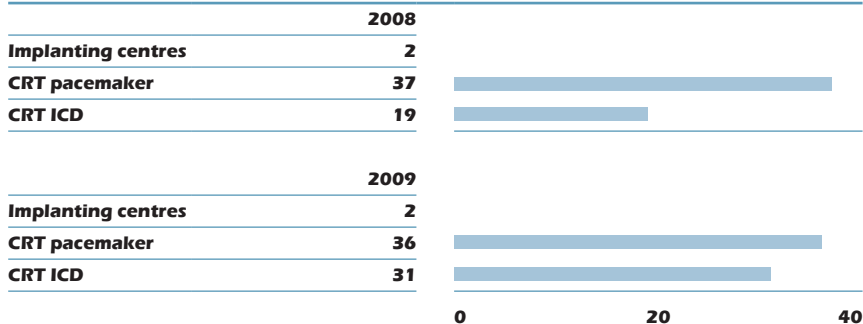
**Specialty performing implants**

<b>Cardiologists</b>	<b>0%</b>
<b>Surgeons</b>	<b>100%</b>



## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

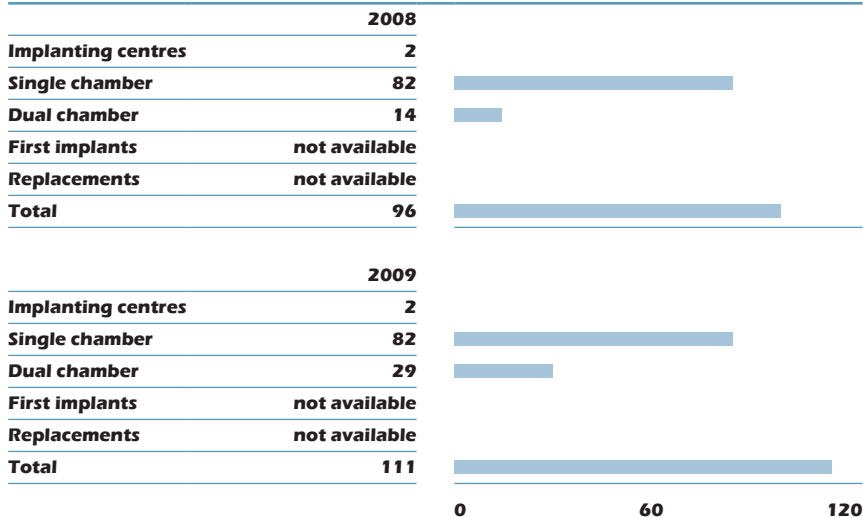


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>23%</b>
<b>Surgeons</b>	<b>77%</b>

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

	2008	
<b>Implanting centres</b>	<b>2</b>	
<b>Loop recorders</b>	<b>10*</b>	
	2009	
<b>Implanting centres</b>	<b>1</b>	
<b>Loop recorders</b>	<b>26</b>	
<b>* approx.</b>	<b>0</b>	<b>15</b> <b>30</b>

### Specialty performing implants

<b>Cardiologists</b>	<b>50%</b>
<b>Surgeons</b>	<b>50%</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input checked="" type="checkbox"/>
<b>Working Group on EP and Electrostimulation</b>	

Availability of a national quality insurance system or complication registry **Yes**  
Agency for Medical Products and Medical Devices of the Republic of Slovenia

Availability of a national institution coordinating and guiding device recalls **Yes**  
Public Agency for Medicinal Products and Medical Devices of the Republic of Slovenia



## 10. Interventional electrophysiology

Number of performing catheter ablation centres 2

	2008	2009
<b>Number of ablations performed</b>	<b>296</b>	<b>246</b>
<b>Mean number (ablations/centres)</b>	<b>148</b>	<b>123</b>
<b>Number of AF ablations</b>	<b>50</b>	<b>94</b>

## 11. Guidelines

### Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language No

### Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

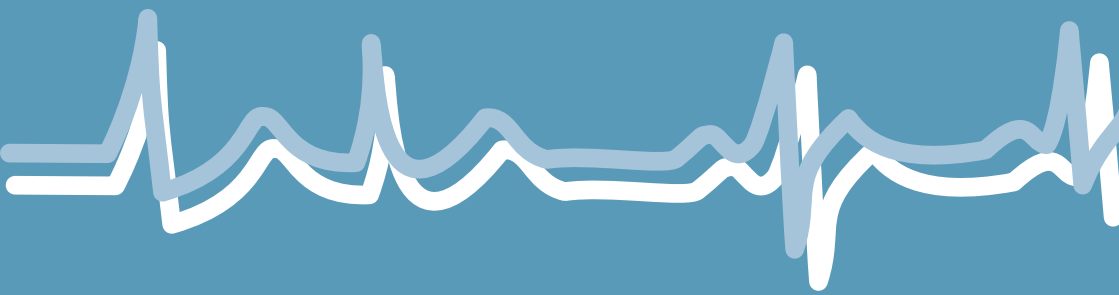
1 = no obstacle

5 = great obstacle

Sources: Slovenia National Working Group on Arrhythmias and Pacing – Chairman:  
Prof. P. Rakovec

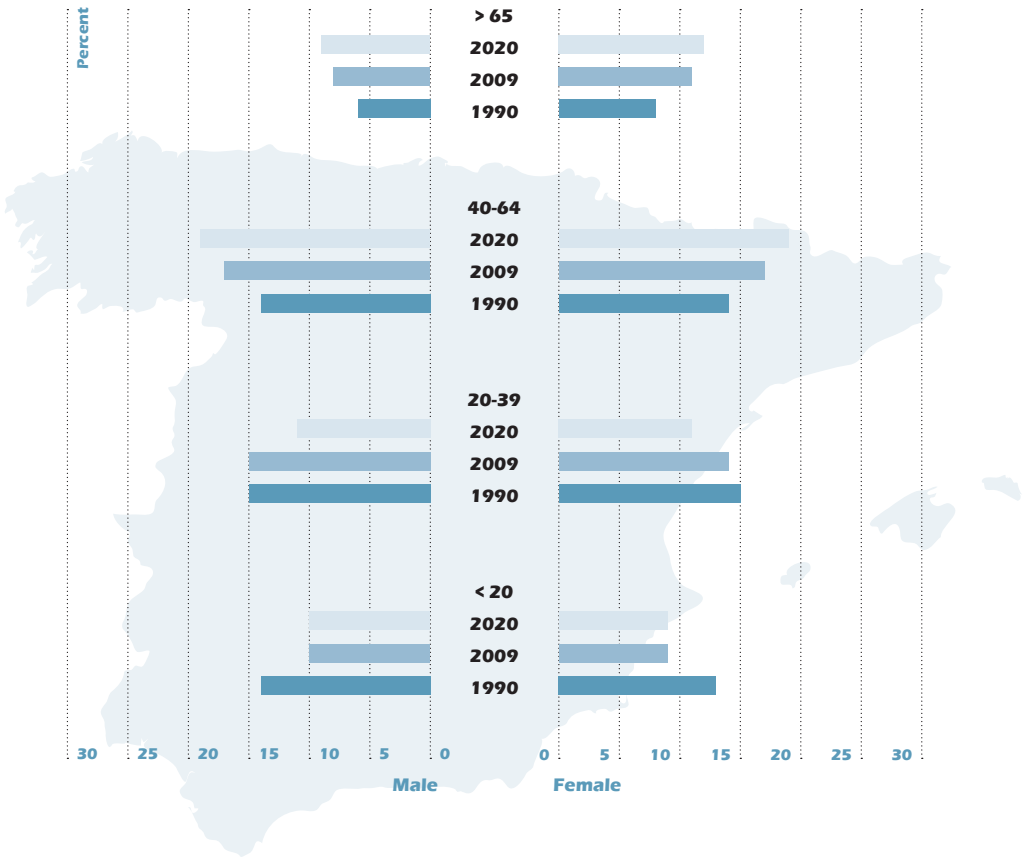


# SPAIN



# 1. Statistics

## Age pyramid for Spain





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,72</b>	<b>2006</b>
<b>Beds (per 100.000 population)</b>	<b>337,03</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,76</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>7,44</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,1</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>80,44</b>	<b>2005</b>
<b>Death rate (per 1.000 population)</b>	<b>8,93</b>	<b>2005</b>
<b>Live births (per 1.000 population)</b>	<b>10,75</b>	<b>2005</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>1.438,35*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>31.141,50*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,1</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>72,5</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>27,5</b>	<b>2006</b>

\* IMF estimative





#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy*	<input checked="" type="checkbox"/>
Invasive electrophysiology**	<input checked="" type="checkbox"/>

\* Acreditación en estimulación cardiaca

\*\* Acreditación de formación específica y excelencia para la práctica de Electrofisiología Cardiaca Intervencionista

National accreditation for physicians Yes

National accreditation for centres Yes

National Society supporting EHRA accreditation system Yes

Specialty required for catheter ablation Yes

Cardiologist

Specialty required for ICD or pacemaker implants Yes

Cardiologist, cardiac surgeon, intensive care physician

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**Yes**

**Sociedad Española de Cardiología**

**Required period of training to perform implantations**

**No**

**Training centres availability**

<b>Pacemaker</b>	<b>43</b>
<b>ICD implantation</b>	<b>36</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>37</b>
<b>CRT implantation</b>	<b>31</b>
<b>Atrial fibrillation ablation</b>	<b>14</b>

**Number of medical faculties**



**26**

**Percentage of academic facilities among practicing EP and implant centres**

**50%**

**5. Pacemakers**

**Pacemaker units implanted**

<b>2008</b>	<b>32.696</b>	
<b>2009</b>	<b>34.330</b>	
		<b>0                      18.000                      36.000</b>

**Pacemaker units implanted and number of implanting centres**

	<b>2008</b>	
<b>Implanting centres</b>	<b>114</b>	
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	
	<b>2009</b>	
<b>Implanting centres</b>	<b>120</b>	
<b>New implants</b>	<b>not available</b>	
<b>Replacements</b>	<b>not available</b>	



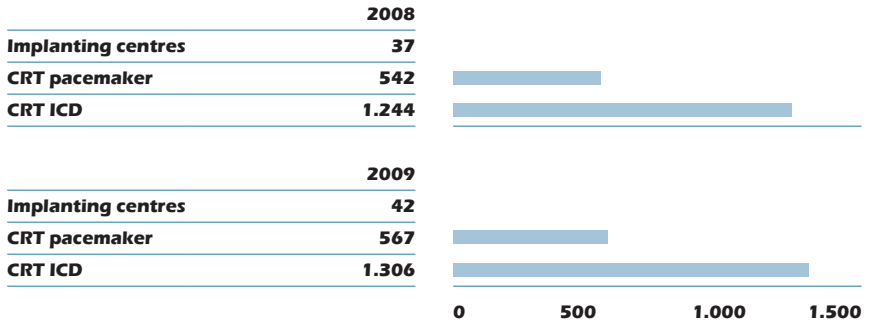


### Specialty performing implants

<b>Cardiologists</b>	<b>70%</b>
<b>Surgeons</b>	<b>25%</b>
<b>Other: Intensive care physician</b>	<b>5%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

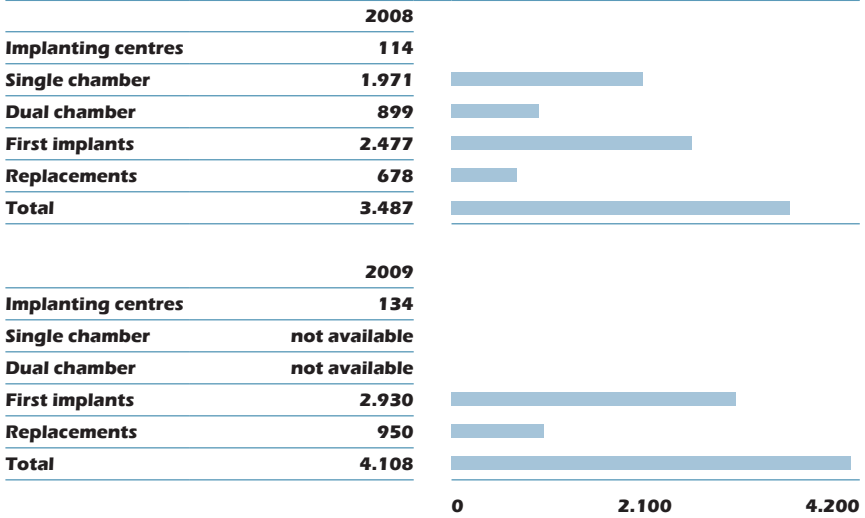


### Specialty performing implants

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other</b>	<b>5%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	73%
Surgeons	19%
Other	8%



## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

2008			
Implanting centres	130		
Loop recorders	1.085		
2009			
Implanting centres	134		
Loop recorders	1.139		
		0	600
			1.200

### Specialty performing implants

Cardiologists	98%
Surgeons	1%
Other	1%

## 9. Device specific

Availability of remote monitoring of devices



### National registry for

ICD*	<input checked="" type="checkbox"/>
Pacing**	<input checked="" type="checkbox"/>
Electrophysiology***	<input checked="" type="checkbox"/>

\* Registro Español de Desfibrilador Automático implantable

\*\* Registro Español de marcapasos

\*\*\* Registro español de ablación con cateter

Availability of a national quality insurance system or complication registry

Yes

Registro Español de ablación con cateter

Availability of a national institution coordinating and guiding device recalls

Yes

Sección de Electrofisiología y Arritmias (SEA)  
Management recommendations documents

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

54

	2008	2009
<b>Number of ablations performed</b>	<b>7.063</b>	<b>7.798</b>
<b>Mean number (ablations/centres)</b>	<b>146</b>	<b>144</b>
<b>Number of AF ablations</b>	<b>622</b>	<b>1.025</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

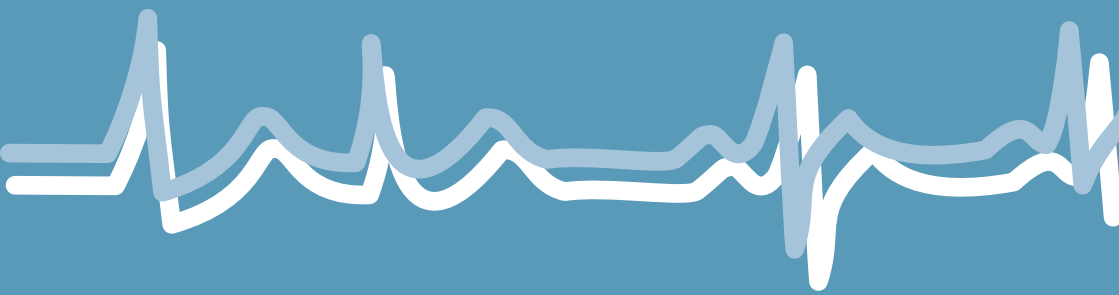
1 = no obstacle

5 = great obstacle

Sources: Section of Electrophysiology and Arrhythmias of the Spanish Society of Cardiology –

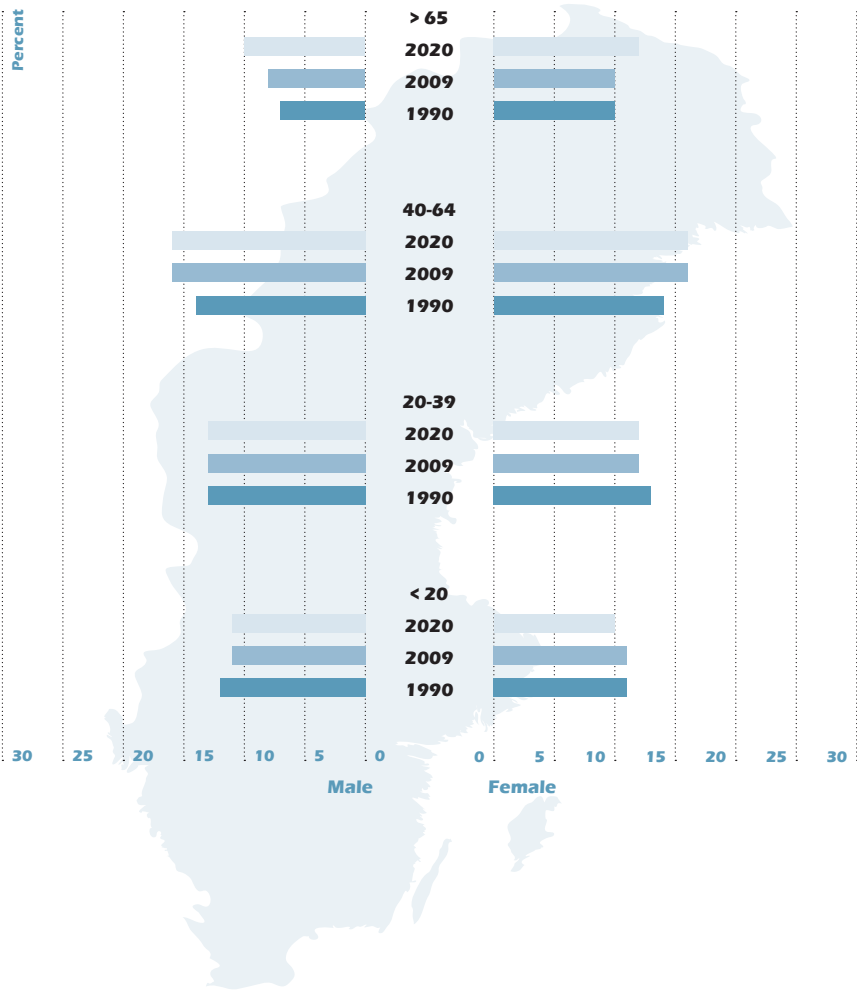
Chairman: Dr Ignacio Fernandez-Lozano

# SWEDEN



# 1. Statistics

## Age pyramid for Sweden





#### Healthcare data

<b>Hospitals (per 100,000 population)</b>	<b>0,9</b>	<b>2004</b>
<b>Beds (per 100.000 population)</b>	<b>370</b>	<b>2004</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,58</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>10,83</b>	<b>2006</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,2</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>81,19</b>	<b>2007</b>
<b>Death rate (per 1,000 population)</b>	<b>10,04</b>	<b>2007</b>
<b>Live births (per 1,000 population)</b>	<b>11,74</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U,S dollar-billions)</b>	<b>397,70*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>43.146,74*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,9</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>81,2</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>18,8</b>	<b>2006</b>

\* IMF estimative







#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** **Yes**

**National accreditation for centres** **No**

**National Society supporting EHRA accreditation system** **Yes**

**Specialty required for catheter ablation** **No**

**Not formally, but all catheter ablation operators are cardiologists.**

**Specialty required for ICD or pacemaker implants** **No**



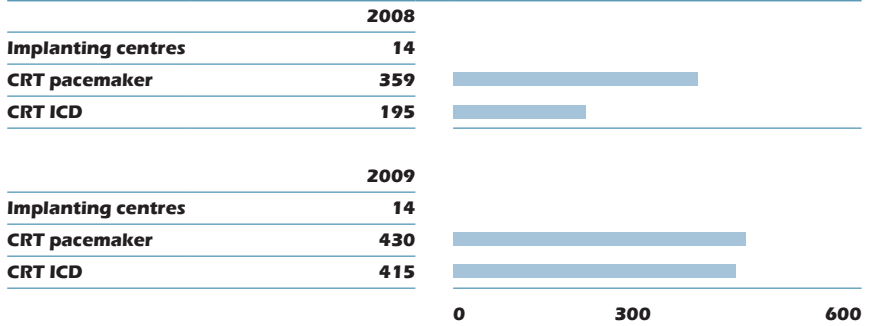


**Specialty performing implants**

<b>Cardiologists</b>	<b>90%</b>
<b>Surgeons</b>	<b>5%</b>
<b>Other: Anaesthesiologists, specialists in internal medicine</b>	<b>5%</b>

**6. Cardiac resynchronization therapy devices**

**CRT units implanted and number of implanting centres**

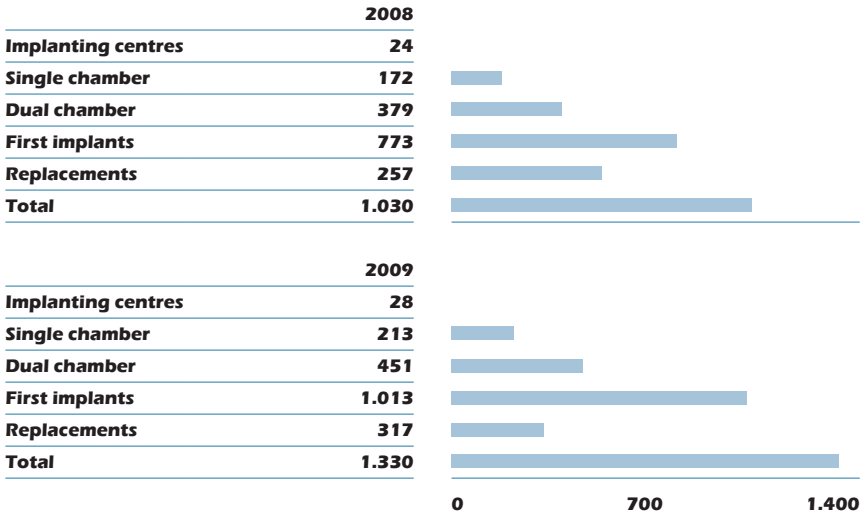


**Specialty performing implants**

<b>Cardiologists</b>	<b>98%</b>
<b>Surgeons</b>	<b>2%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

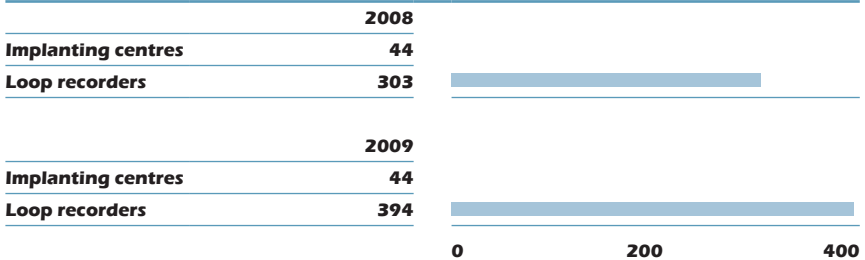


### Specialty performing implants

Cardiologists	98%
Surgeons	2%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



### Specialty performing implants

<b>Cardiologists</b>	<b>98%</b>
<b>Surgeons</b>	<b>2%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD*</b>	<input checked="" type="checkbox"/>
<b>Pacing*</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology**</b>	<input checked="" type="checkbox"/>

\* Swedish ICD and Pacemaker register

\*\* Svenska Kateterablationsregistret

**Availability of a national quality insurance system or complication registry** **Yes**

**ICD and Pacemaker registries and Svenska Ablationsregistret track complication rates.**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**Läkemedelsverket  
Equivalent to FDA**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

9

	2008	2009
<b>Number of ablations performed</b>	<b>2.530</b>	<b>2.839</b>
<b>Mean number (ablations/centres)</b>	<b>316</b>	<b>315</b>
<b>Number of AF ablations</b>	<b>543</b>	<b>906</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

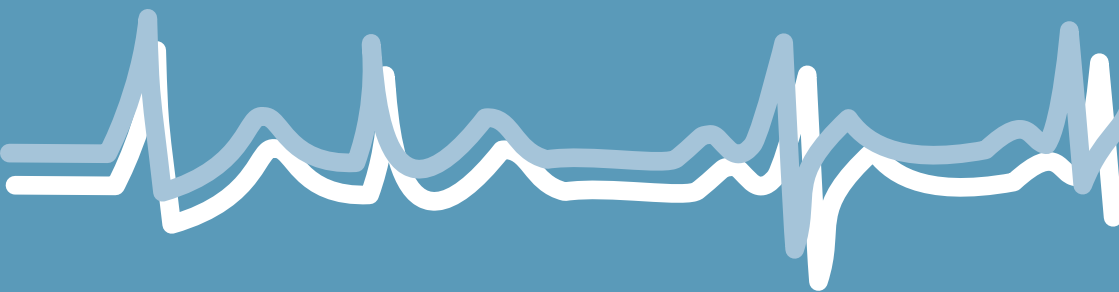
	1	2	3	4	5
<b>Lack of centres</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

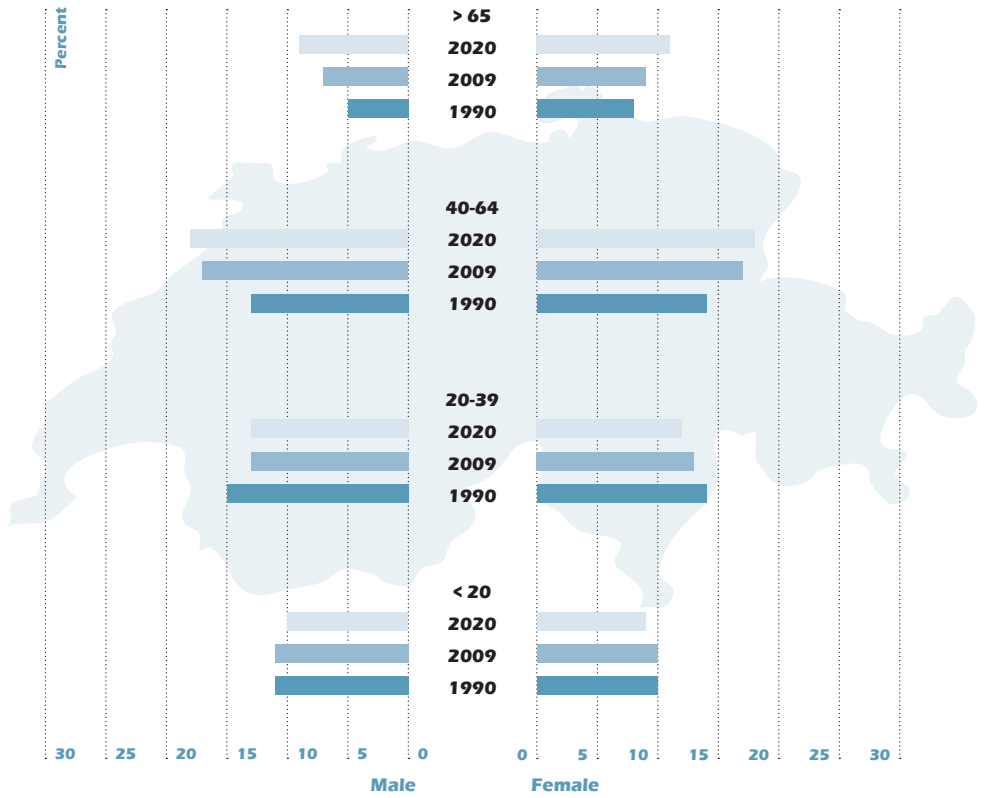
Sources: Working Group on Arrhythmias, The Swedish Society of Cardiology –  
Chairman: Johan Brandt, M.D., Ph.D and National Registries

# SWITZERLAND



# 1. Statistics

## Age pyramid for Switzerland







#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>4,53</b>	<b>2005</b>
<b>Beds (per 100.000 population)</b>	<b>553,92</b>	<b>2005</b>
<b>Density of physicians (per 1.000 population)</b>	<b>3,85</b>	<b>2006</b>
<b>Density of nurses (per 1.000 population)</b>	<b>10,75</b>	<b>2002</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,3</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>82,17</b>	<b>2007</b>
<b>Death rate (per 1,000 population)</b>	<b>8,09</b>	<b>2007</b>
<b>Live births (per 1,000 population)</b>	<b>9,87</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>484,13*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>66.126,79*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>11,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>60,3</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>39,7</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

### Proportion cardiac mortality over total mortality of the country



<b>2008</b>	<b>not available</b>
<b>2009</b>	<b>not available</b>

## 3. Healthcare System

The healthcare system in Switzerland is based on a compulsory general insurance for all citizens. There are complementary private insurances which the citizens are free to choose.

**Basic insurance availability** **Yes**

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>100%</b>			
<b>Uninsured citizens</b>	<b>0%</b>			
		<b>0</b>	<b>50</b>	<b>100</b>

### Distribution of insurance modality

<b>Public insurance company</b>	<b>not available</b>
<b>Private insurance company</b>	<b>not available</b>
<b>Private co-payment</b>	<b>not available</b>

**Possibility of subscribing to private health insurance plans** **Yes**



#### Co-payment necessary for the following therapy

ICD devices	<input type="checkbox"/>
Pacemakers	<input type="checkbox"/>
Ablation	<input type="checkbox"/>

#### Reimbursement availability

Internal loop recorders	<input checked="" type="checkbox"/>
ICD primary prevention	<input checked="" type="checkbox"/>
ICD secondary prevention	<input checked="" type="checkbox"/>
CRT devices	<input checked="" type="checkbox"/>
Ablation	<input checked="" type="checkbox"/>
Unlimited availability of treatment	<input type="checkbox"/>

## 4. Education

#### National accreditation availability

Device therapy	<input type="checkbox"/>
Invasive electrophysiology	<input type="checkbox"/>

National accreditation for physicians **Yes**

National accreditation for centres **No**

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **Yes**

**Cardiologist**  
Guidelines edicted by the Working group for Pacing and Electrophysiology of the Swiss Society of Cardiology.

Specialty required for ICD or pacemaker implants **Yes**

**Cardiologist; surgeon**  
Guidelines edicted by the Working group for Pacing and Electrophysiology of the Swiss Society of Cardiology.

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Working group for Pacing and Electrophysiology of the Swiss Society of Cardiology

Required period of training to perform implantations

No

Training centres availability

Pacemaker	5
ICD implantation	5
Electrophysiological studies and catheter ablation	5
CRT implantation	5
Atrial fibrillation ablation	5

Number of medical faculties

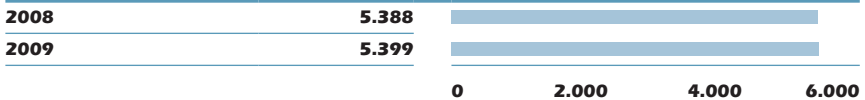
5

Percentage of academic facilities among practicing EP and implant centres

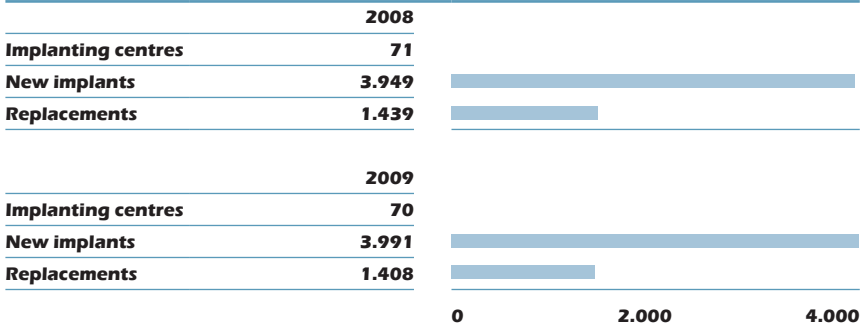
7-30%

## 5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



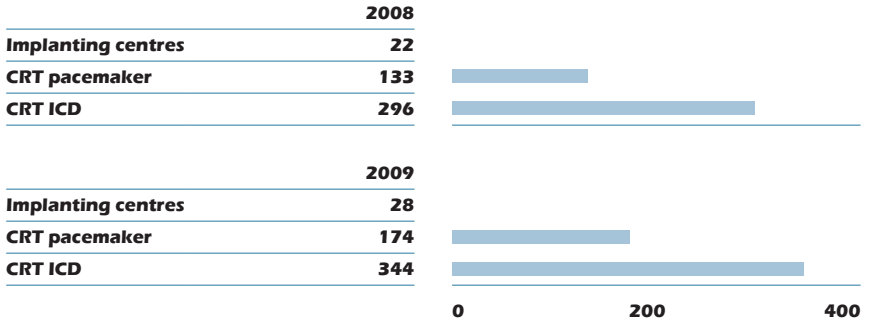


### Specialty performing implants

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

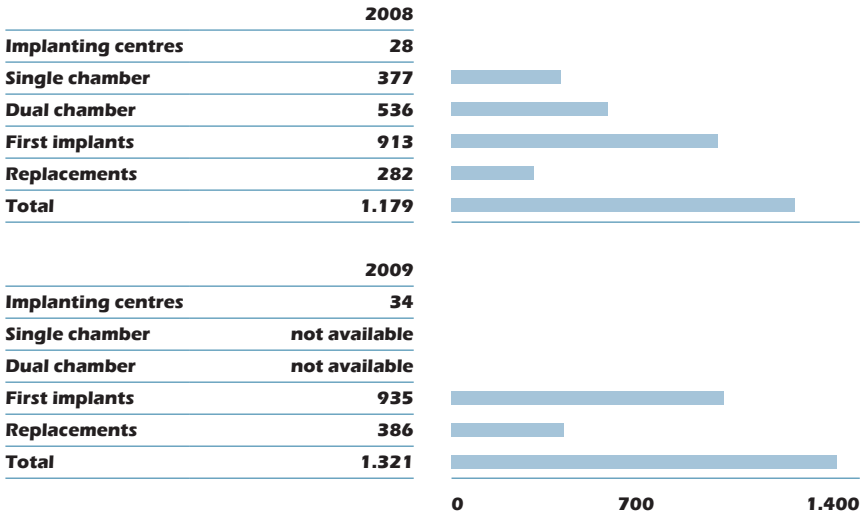


### Specialty performing implants

<b>Cardiologists</b>	<b>99%</b>
<b>Surgeons</b>	<b>1%</b>

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres



### Specialty performing implants

Cardiologists	99%
Surgeons	1%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres

		2008	
Implanting centres	not available		
Loop recorders	not available		

		2009	
Implanting centres	not available		
Loop recorders	not available		



### Specialty performing implants

<b>Cardiologists</b>	<b>not available</b>
<b>Surgeons</b>	<b>not available</b>

## 9. Device speci-

fic

**Availability of remote monitoring of devices**

### National registry for

**ICD**

**Pacing**

**Electrophysiology**

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **Yes**

**Swissmedic (National Institution)**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

19

	2008	2009
<b>Number of ablations performed</b>	<b>3.497</b>	<b>3.830</b>
<b>Mean number (ablations/centres)</b>	<b>184</b>	<b>201</b>
<b>Number of AF ablations</b>	<b>999</b>	<b>1.178</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

No

Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

5 = great obstacle

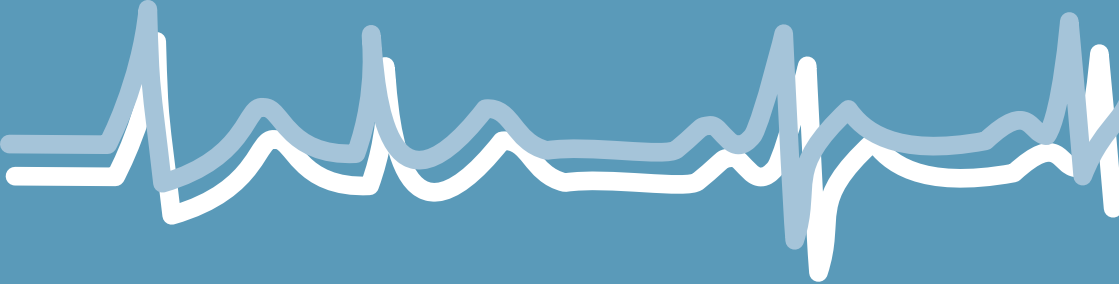
Sources: Swiss Working Group on Cardiac Pacing and Electrophysiology – Chairman: Dr. J. Schläpfer





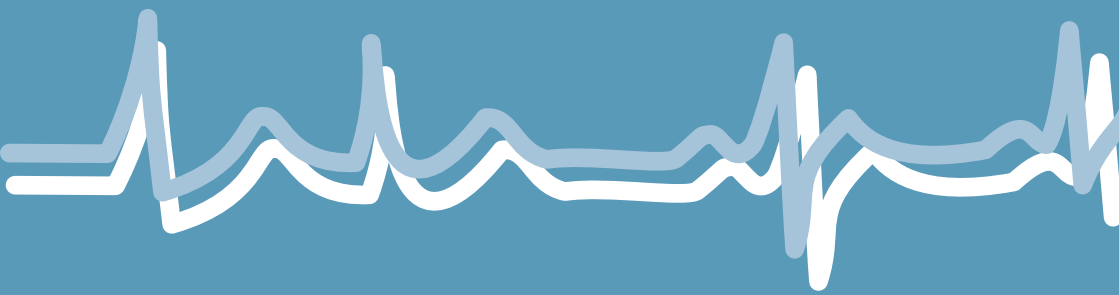
# SYRIA

There will be information in the next edition.



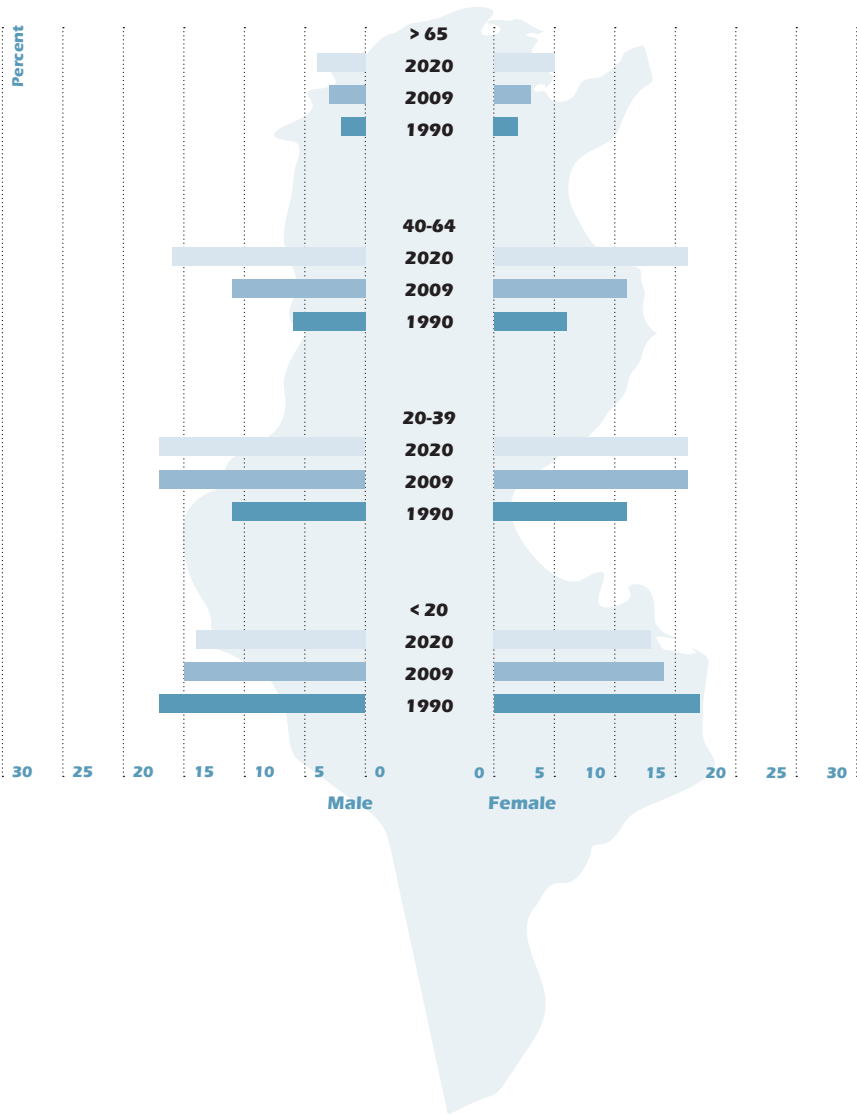


# TUNISIA



# 1. Statistics

## Age pyramid for Tunisia





#### Healthcare data

<b>Hospitals (per 100.000 population)</b>	<b>1,76</b>	<b>2004</b>
<b>Beds (per 100.000 population)</b>	<b>190</b>	<b>2006</b>
<b>Density of physicians (per 1.000 population)</b>	<b>1,3</b>	<b>2004</b>
<b>Density of nurses (per 1.000 population)</b>	<b>2,9</b>	<b>2004</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>1,0</b>	<b>2009</b>
<b>Life expectancy at birth</b>	<b>72</b>	<b>2006</b>
<b>Death rate (per 1,000 population)</b>	<b>5,6</b>	<b>2006</b>
<b>Live births (per 1,000 population)</b>	<b>17</b>	<b>2007</b>

#### Economic information

<b>Gross domestic product (U,S dollar-billions)</b>	<b>39,57*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>3.794,43*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>5,3</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>43,7</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>56,3</b>	<b>2006</b>

\* IMF estimative

## 2. Country

### Proportion of deaths resulting from cardiovascular disease

<b>2008</b>	<b>163 per 100.000 citizens</b>
<b>2009</b>	<b>168 per 100.000 citizens*</b>

\* approx.

### Proportion cardiac mortality over total mortality of the country

<b>2008</b>	<b>29%</b>
<b>2009</b>	<b>30%</b>



## 3. Healthcare System

Both basic preventive and curative services are available to almost the entire population, regardless of their socioeconomic status. Almost 90 percent of the population has access to health care through either a health insurance scheme or a medical assistance program. The coverage of the illness risk is ensured through many mechanisms and funding sources. These mechanisms include: a social protection scheme managed by a National Fund for Illness Insurance (Caisse Nationale d'Assurance Maladie), a free medical access and reduced tariffs for poor and mutual and private health insurance schemes. Preventive care and public health programs are freely provided for the whole population. Despite the wide coverage of the Tunisian population by social security and the implementation of mechanisms insuring the coverage of illness risk for the poor, the Tunisian health system is still mainly funded through direct households' contribution which is dramatically increasing and it is estimated at 43% during the last five years.




### Basic insurance availability

No

### Percentage of insured and uninsured citizens

<b>Insured citizens</b>	<b>90%</b>	
<b>Uninsured citizens</b>	<b>10%</b>	
		0                      50                      100

### Distribution of insurance modality

<b>Public insurance company</b>	<b>80%</b>	
<b>Private insurance company</b>	<b>15%</b>	
<b>Private co-payment</b>	<b>5%</b>	
		0                      50                      100



**Possibility of subscribing to private health insurance plans** **No**

---

**Co-payment necessary for the following therapy**

---

**ICD devices**

**Pacemakers**

**Ablation**

**Reimbursement availability**

---

**Internal loop recorders**

**ICD primary prevention**

**ICD secondary prevention**

**CRT devices**

**Ablation**

**Unlimited availability of treatment**

## 4. Education

**National accreditation availability**

---

**Device therapy**

**Invasive electrophysiology**

**CEC de Rythmologie**

**National accreditation for physicians** **Yes**

---

**National accreditation for centres** **No**

---

**National Society supporting EHRA accreditation system** **Yes**

---

**Specialty required for catheter ablation** **Yes**

**Cardiologist**

**Specialty required for ICD or pacemaker implants** **Yes**

**Cardiologist and cardiovascular surgeon**

Required period of training to perform implantations

2 years

Training centres availability

<b>Pacemaker</b>	<b>15</b>
<b>ICD implantation</b>	<b>10</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>9</b>
<b>CRT implantation</b>	<b>10</b>
<b>Atrial fibrillation ablation</b>	<b>2</b>

Number of medical faculties

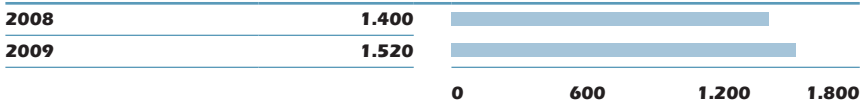
4

Percentage of academic facilities among practicing EP and implant centres

70%

## 5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

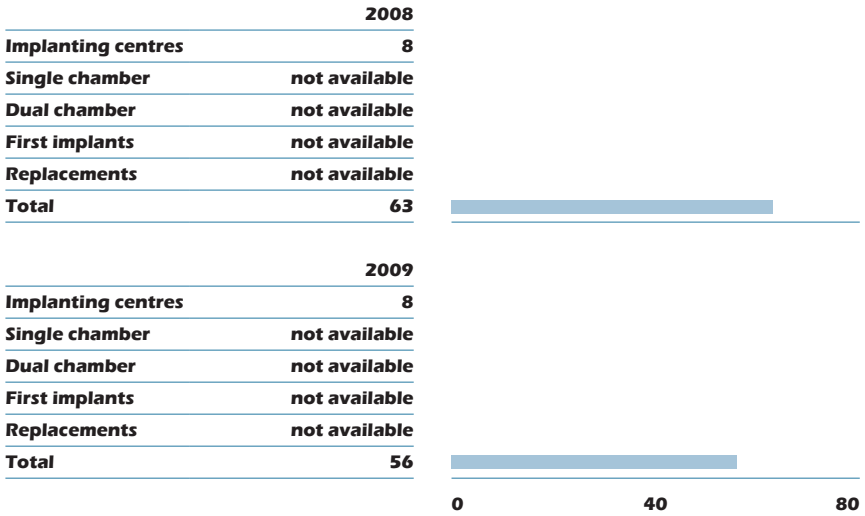
		2008
<b>Implanting centres</b>		<b>8</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>
		2009
<b>Implanting centres</b>		<b>10</b>
<b>New implants</b>		<b>not available</b>
<b>Replacements</b>		<b>not available</b>





## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

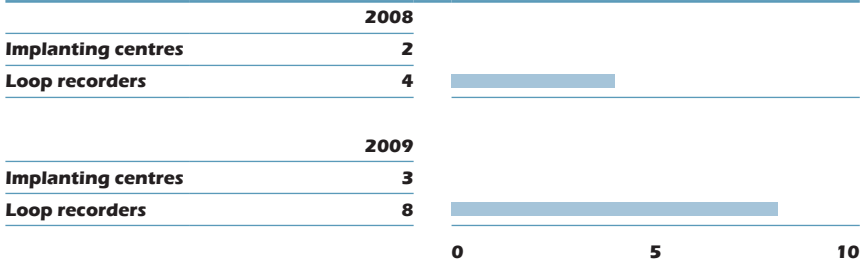


### Specialty performing implants

Cardiologists	95%
Surgeons	5%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres





### Specialty performing implants

<b>Cardiologists</b>	<b>95%</b>
<b>Surgeons</b>	<b>5%</b>

## 9. Device specific

**Availability of remote monitoring of devices**

### National registry for

<b>ICD</b>	<input type="checkbox"/>
<b>Pacing</b>	<input type="checkbox"/>
<b>Electrophysiology</b>	<input type="checkbox"/>

**Availability of a national quality insurance system or complication registry** **No**

**Availability of a national institution coordinating and guiding device recalls** **No**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres

9

	2008	2009
<b>Number of ablations performed</b>	<b>450</b>	<b>510</b>
<b>Mean number (ablations/centres)</b>	<b>60</b>	<b>60</b>
<b>Number of AF ablations</b>	<b>17</b>	<b>20</b>

## 11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input type="checkbox"/>
<b>U.S.</b>	<input type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

Necessity of guideline translation to national language

Yes

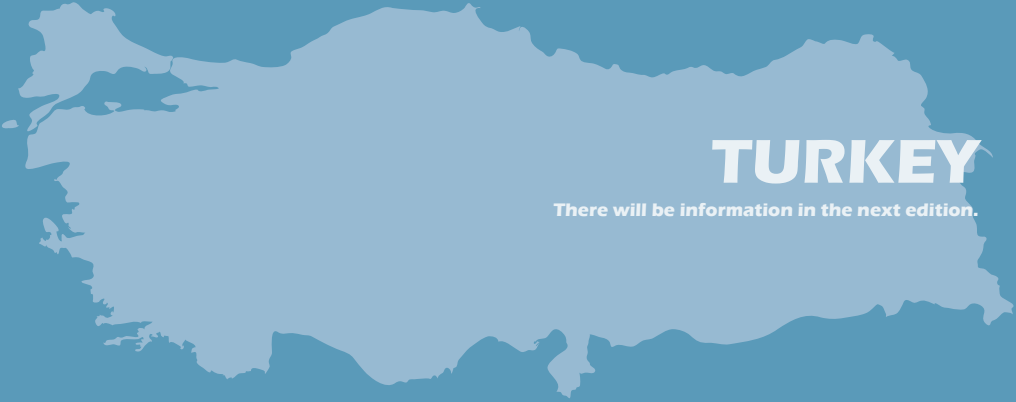
Obstacles to guideline implementation

	1	2	3	4	5
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = no obstacle

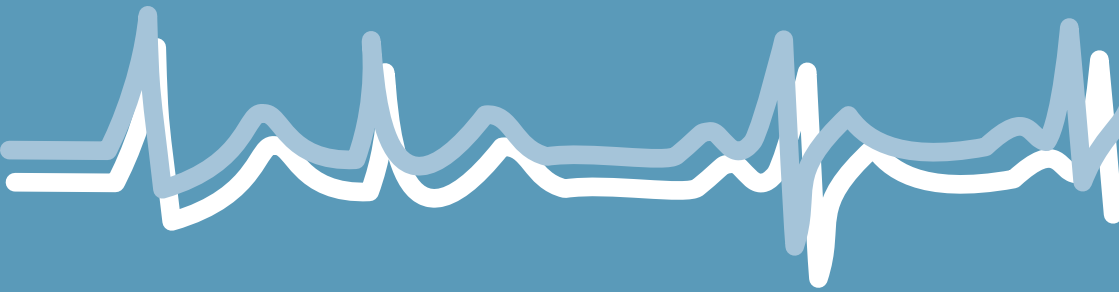
5 = great obstacle

Sources: Working Group on Arrhythmias – President: Dr. Habib Haouala



# TURKEY

There will be information in the next edition.

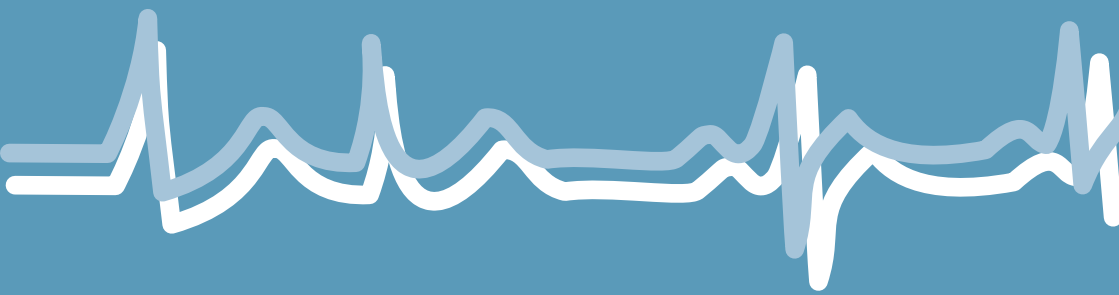






# UKRAINE

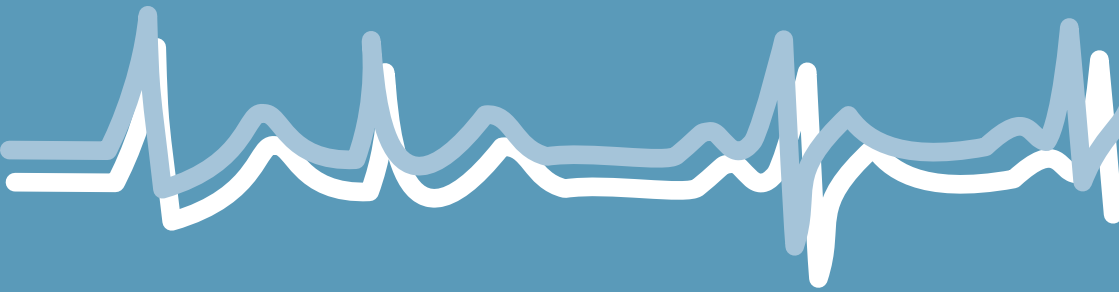
There will be information in the next edition.





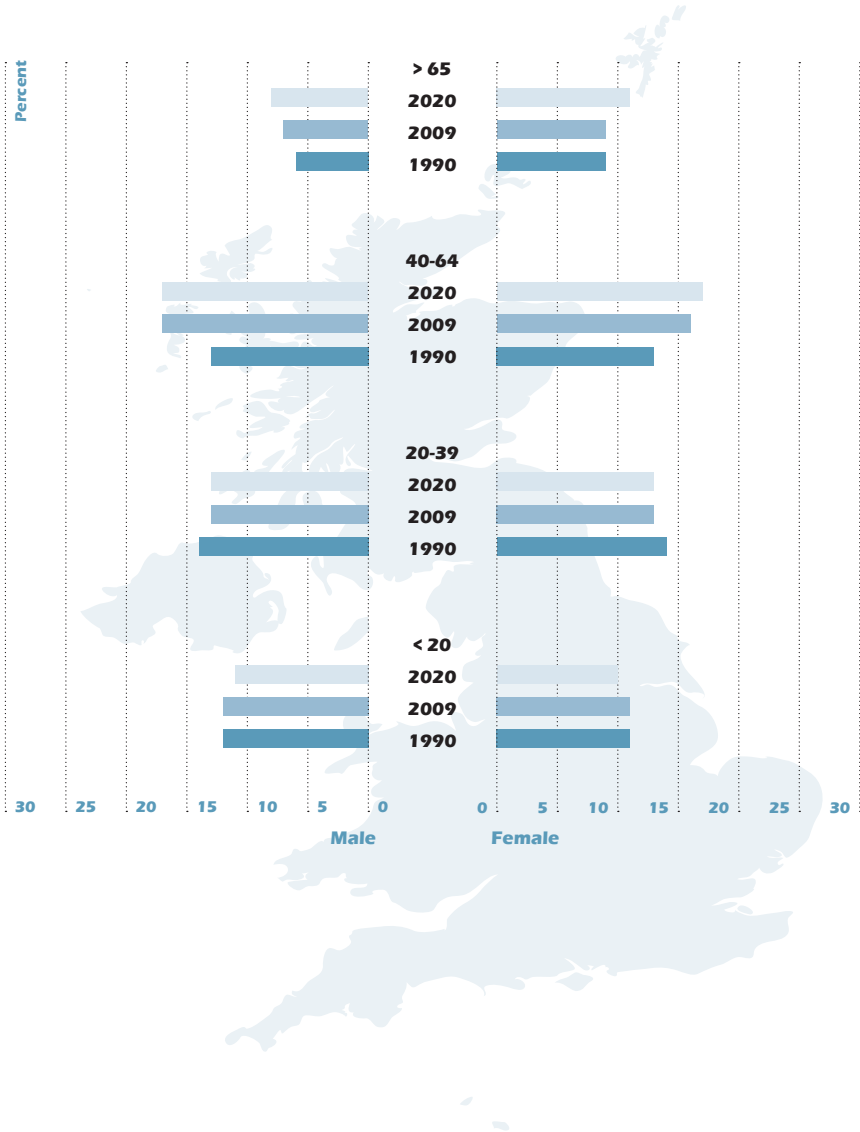


# UNITED KINGDOM



# 1. Statistics

## Age pyramid for United Kingdom





#### Healthcare data

<b>Hospitals (per 100,000 population)</b>	<b>1,400</b>	<b>2009</b>
<b>Beds (per 100,000 population)</b>	<b>389,72</b>	<b>2007</b>
<b>Density of physicians (per 1.000 population)</b>	<b>2,13</b>	<b>2007</b>
<b>Density of nurses (per 1.000 population)</b>	<b>9,3</b>	<b>2007</b>

#### Demographic information

<b>Population annual growth rate (%)</b>	<b>0,3</b>	<b>2004</b>
<b>Life expectancy at birth</b>	<b>79,86</b>	<b>2004</b>
<b>Death rate (per 1.000 population)</b>	<b>9,42</b>	<b>2002</b>
<b>Live births (per 1.000 population)</b>	<b>12,66</b>	<b>2004</b>

#### Economic information

<b>Gross domestic product (U.S dollar-billions)</b>	<b>2.198,16*</b>	<b>2009</b>
<b>Gross domestic product per capita (U.S dollar-units)</b>	<b>35.727,96*</b>	<b>2009</b>
<b>Total expenditure on health as % of GDP</b>	<b>8,4</b>	<b>2006</b>
<b>General government expenditure on health as % of total expenditure on health</b>	<b>87,4</b>	<b>2006</b>
<b>Private expenditure on health as % of total expenditure on health</b>	<b>12,6</b>	<b>2006</b>

\* IMF estimative





#### Co-payment necessary for the following therapy

<b>ICD devices</b>	<input type="checkbox"/>
<b>Pacemakers</b>	<input type="checkbox"/>
<b>Ablation</b>	<input type="checkbox"/>
<b>National guidelines</b>	

#### Reimbursement availability

<b>Internal loop recorders</b>	<input checked="" type="checkbox"/>
<b>ICD primary prevention</b>	<input checked="" type="checkbox"/>
<b>ICD secondary prevention</b>	<input checked="" type="checkbox"/>
<b>CRT devices</b>	<input checked="" type="checkbox"/>
<b>Ablation</b>	<input checked="" type="checkbox"/>
<b>Unlimited availability of treatment</b>	<input checked="" type="checkbox"/>

## 4. Education

#### National accreditation availability

<b>Device therapy</b>	<input type="checkbox"/>
<b>Invasive electrophysiology</b>	<input type="checkbox"/>

**National accreditation for physicians** Yes

**National accreditation for centres to perform EP** No

**National Society supporting EHRA accreditation system** No

**Specialty required for catheter ablation** Yes

**Cardiologist**

**Specialty required for ICD or pacemaker implants** Yes

**Cardiologist**

**Official national competency guidelines for electrophysiological studies or catheter ablation**

**Yes**

**Heart Rhythm UK**

**Required period of training to perform implantations**

**2 years**

**Training centres availability**

<b>Pacemaker</b>	<b>70</b>
<b>ICD implantation</b>	<b>35</b>
<b>Electrophysiological studies and catheter ablation</b>	<b>30</b>
<b>CRT implantation</b>	<b>35</b>
<b>Atrial fibrillation ablation</b>	<b>30</b>

**Number of medical faculties**

**35**

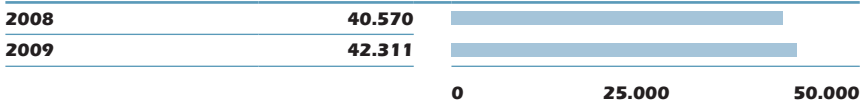
**Percentage of academic facilities among practicing EP and implant centres**

**20%\***

**\* approx.**

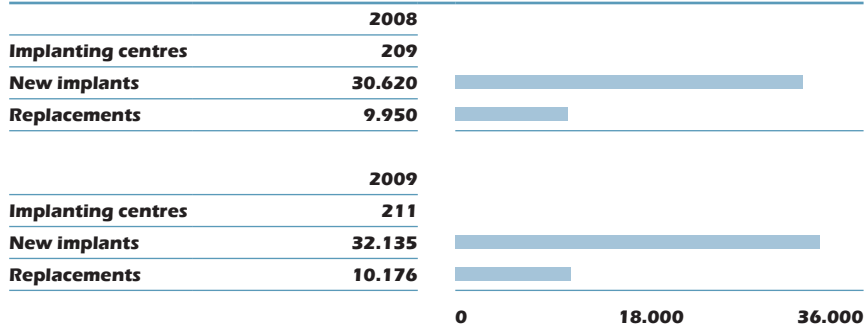
## **5. Pacemakers**

**Pacemaker units implanted**





### Pacemaker units implanted and number of implanting centres

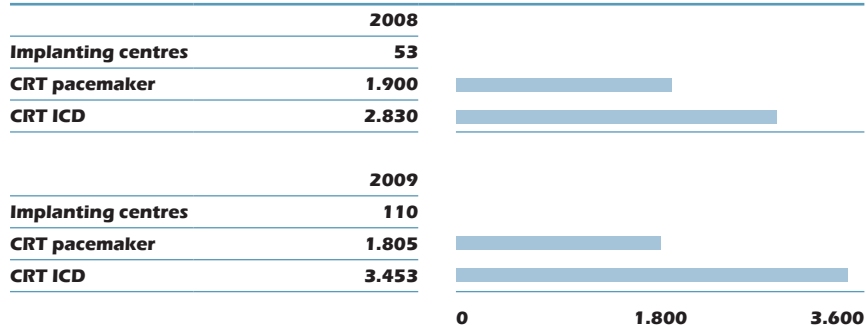


### Specialty performing implants

Cardiologists	99,49%
Surgeons	0,51%

## 6. Cardiac resynchronization therapy devices

### CRT units implanted and number of implanting centres

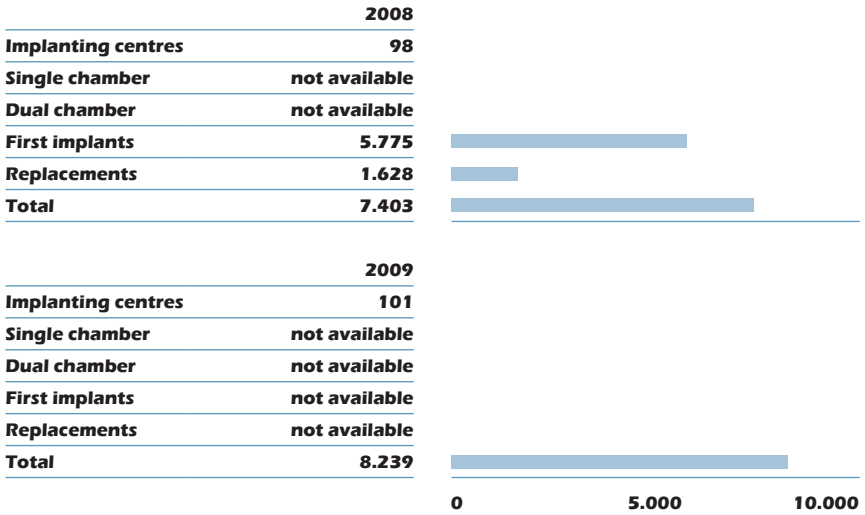


### Specialty performing implants

Cardiologists	99,7%
Surgeons	0,3%

## 7. Implantable Cardiac Defibrillator

### ICD units implanted and number of implanting centres

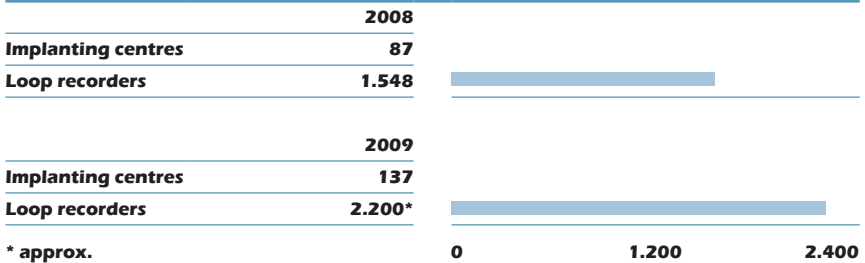


### Specialty performing implants

Cardiologists	100%
Surgeons	0%

## 8. Loop recorders

### Loop recorders implanted and number of implanting centres



\* approx.





### Specialty performing implants

<b>Cardiologists</b>	<b>100%</b>
<b>Surgeons</b>	<b>0%</b>

## 9. Device specific

Availability of remote monitoring of devices

### National registry for

<b>ICD</b>	<input checked="" type="checkbox"/>
<b>Pacing</b>	<input checked="" type="checkbox"/>
<b>Electrophysiology</b>	<input checked="" type="checkbox"/>
<b>CCAD</b>	

Availability of a national quality insurance system or complication registry **No**

Availability of a national institution coordinating and guiding device recalls **Yes**  
**Medicines and Healthcare products Regulatory Agency**

## 10. Interventional electrophysiology

Number of performing catheter ablation centres **40**

	<b>2008</b>	<b>2009</b>
<b>Number of ablations performed</b>	<b>12.057</b>	<b>13.003</b>
<b>Mean number (ablations/centres)</b>	<b>310</b>	<b>280</b>
<b>Number of AF ablations</b>	<b>2.629</b>	<b>3.237</b>

## 11. Guidelines

### Guidelines adhered to ICD implants and pacemaker implants

<b>National</b>	<input checked="" type="checkbox"/>
<b>U.S.</b>	<input checked="" type="checkbox"/>
<b>European</b>	<input checked="" type="checkbox"/>

**Necessity of guideline translation to national language** **Yes**

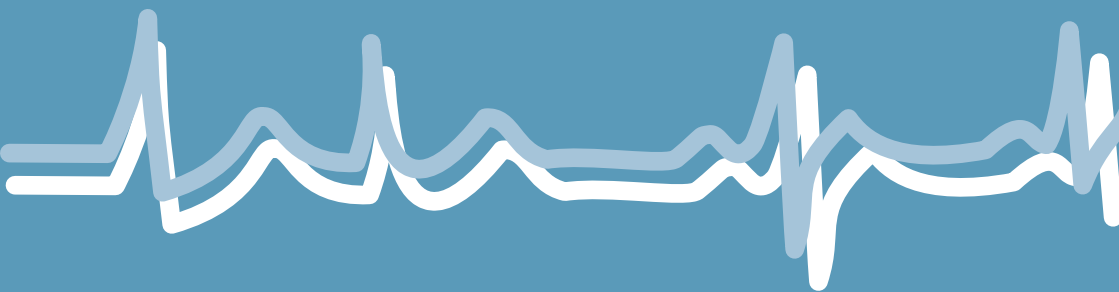
### Obstacles to guideline implementation

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Lack of centres</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of reimbursement, limited financial resources</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of referral</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Lack of trained personnel</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Low awareness of guidelines</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lack of operators</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Other*</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

\* Lack of belief in applicability of guidelines to many patients seen in routine clinical practice **1 = no obstacle** **5 = great obstacle**

**Sources: Heart Rhythm UK – President: Dr. Edward Rowland**

## 3. SOURCES



### 3. Sources

#### Main Sources

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**The data in the White Book has been collected and authorized by the National Societies and National Working Groups.**

**The National Societies and National Working Groups that participated in this edition of the White Book  
re listed below:**

- **Arrhythmias Working Group of Armenia**
- **Armenian Working Group of Cardiac Pacing & Electrophysiology**
- **Austrian Working Group of Invasive Rhythmology**
- **Scientific Laboratory of Heart Arrhythmias of Belarus**
- **Belgian Heart Rhythm Association (BeHRA)**
- **Bulgarian Working Group of Electrophysiology**
- **Croatian Working Group on Arrhythmias and Cardiac Pacing**
- **Cyprus Society of Cardiology**
- **Working Group on Arrhythmias and Cardiac Pacing of Czech Republic**
- **Danish Working Group for Electrophysiology**
- **Egyptian Cardiac Rhythm Association (ECRA)**
- **Egyptian Society of Cardiology**
- **Estonian Working Group of Arrhythmias**
- **Finnish Working Group of Arrhythmias and Cardiac Pacing of the Finnish Cardiac Society**

## **Main Sources**

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- **FYRO, Macedonia Working Group on Electrophysiology and Cardiac Pacing**
- **Working Group on Arrhythmias and Cardiac Pacing – France**
- **Working Group on Arrhythmias of the Georgian College of Cardiology**
- **German Working Group on Cardiac Pacing and Arrhythmia**
- **Hellenic Working Group on Electrophysiology and Pacing**
- **Hungarian Society of Cardiology**
- **Hungarian Working Group on Arrhythmias and Cardiac Pacing**
- **Irish Working Group on Electrophysiology**
- **Israeli Working Group on Electrophysiology and Cardiac Pacing**
- **Italian Association on Arrhythmias and Cardiac Pacing (AIAC)**
- **Latvian Working Group on Arrhythmology and Cardiac Pacing**
- **Lithuanian Working Group on Arrhythmias Pacing and Electrophysiology**
- **National Institute of Cardiac Surgery and Interventional Cardiology (INCCI) of Luxembourg**
- **Pacemaker Center of Montenegro**
- **Netherlands Heart Rhythm Association (NHRA)**
- **Norwegian Working Group of Arrhythmias**

### 3. Sources

#### Main Sources

---

- **Heart Rhythm Division of the Polish Cardiac Society**
- **Portuguese Association of Arrhythmology, Pacing and Electrophysiology (APAPE)**
- **Romanian Society of Cardiology, Arrhythmias Working Group**
- **Russian Federation Working Group in Clinical Electrophysiology**
- **Serbian Working Group in Cardiac Pacemakers and Arrhythmias**
- **Slovak Heart Rhythm Association (SHRA)**
- **Slovenian Working Group for Pacing and Arrhythmias**
- **Spanish Section of Electrophysiology and Arrhythmias of the Spanish Society of Cardiology**
- **Study Group of Arrhythmias of the Associazione Nazionale Medici Cardiologi Ospedalieri (ANMCO)**
- **Swedish Working Group on Arrhythmias**
- **Swiss Working Group on Cardiac Pacing and Electrophysiology**
- **Tunisian Working Group on Arrhythmias**
- **Heart Rhythm United Kingdom**

#### Additional Sources

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- **Austrian National Ablation Registry**
- **Belgium National Statistical Institute**
- **Croatian Registry on Cardiac Pacing, ICD and Electrophysiology**
- **Estonian Pacemaker and ICD Implantation Registry**

## **Additional Sources**

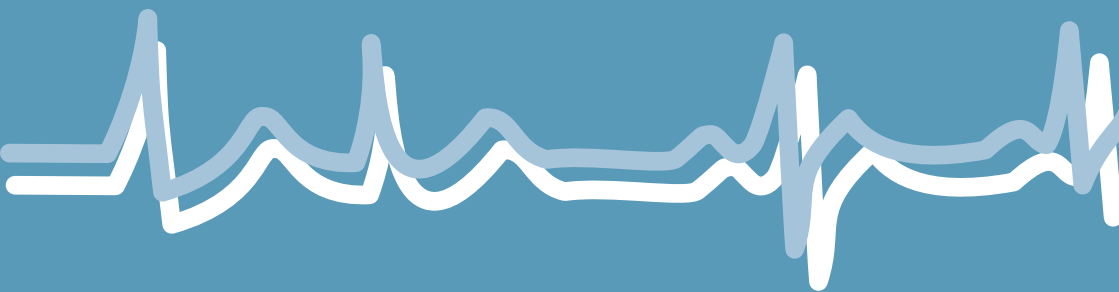
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- **Health care systems in transition: Latvia. Copenhagen, European Observatory on Health Systems and Policies, 2001**
- **Health care systems in transition: Russian Federation. Copenhagen, European Observatory on Health Systems and Policies, 2003**
- **Health care systems in transition: The Former Yugoslav Republic of Macedonia. Copenhagen, European Observatory on Health Systems and Policies, 2000**
- **Hellenic National Statistical Service**
- **Ministry of Health of the Republic of Belarus**
- **Ministry of Labour, Health and Social Affairs of Georgia**
- **Norway Pacemaker Register**
- **Institute for Public Health and Protocols from Clinical Center Montenegro**
- **International Monetary Fund (IMF), Washington DC, USA.  
<http://www.imf.org>**
- **Slovak registry of pacemakers, ICD and ablations (SLOVIMPULZ)**
- **Spanish Catheter Ablation Registry**
- **Statistical Information System (WHOSIS).  
World Health Organization, Geneva, Switzerland.  
<http://www.who.int/whosis/en/>**
- **U.S. Census Bureau, International. Atlanta, USA.  
<http://www.census.gov/>**
- **World Health Statistics. World Health Organization, Geneva, Switzerland.  
<http://www.who.org>**





## 4. APPENDIX



## 4. Appendix



### EHRA Accreditation

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The EHRA offers the first European certification of professional excellence, in two areas:

- Invasive Cardiac Electrophysiology
- Cardiac Pacing & ICDs

The EHRA is pleased to publish the list, starting from 2006, of professionals who are officially fully accredited, as well as that of the candidates who have passed the written part of the accreditation process. «Join us in congratulating them!»

### Invasive Cardiac Electrophysiology

#### EHRA EP Accredited professionals

ARBELO LAINEZ	Elena	Spain	2009
AVELLA	Andrea	Italy	2009
BARRERA CORDERO	Alberto	Spain	2006
BELOTTI	Giusepina	Italy	2008
BENCSIK	Gabor	Hungary	2009
BERRUEZO SANCHEZ	Antonio	Spain	2010
BRUGADA TERRADELLAS	Josep	Spain	2009
BURRI	Haran	Switzerland	2008
DAVOODI	Gholamreza	Iran	2008
DURAY	Gábor Zoltán	Germany	2008
FERNANDEZ LOZANO	Ignacio	Spain	2006
GARCIA MORAN	Emilio	Spain	2007
GRECU	Mihaela	Romania	2007
HERNANDEZ-MADRID	Antonio	Spain	2009
HERREROS GUILARTE	Benito	Spain	2006
HUYBRECHTS	Wim	Belgium	2009
IVO PETRUS TRINES	Serge Alexander	Netherlands	2008
JANSEN	Ward P.J.	Netherlands	2010
JASTREZBSKI	Marek	Poland	2008
KEMME	Michiel	Netherlands	2009
KILISZEK	Marek	Poland	2010
LAURENZI	Francesco	Italy	2009
LETSAS	Konstantinos	Greece	2009
LUBINSKI	Andrzej	Poland	2007
MADRID	Antonio	Spain	2009

**EHRA EP Accredited professionals**

<b>MARTINEZ ALDAY</b>	<b>Jesus</b>	<b>Spain</b>	<b>2006</b>
<b>MAZUR</b>	<b>Alexander</b>	<b>Italy</b>	<b>2006</b>
<b>MORENO PLANAS</b>	<b>Javier</b>	<b>Spain</b>	<b>2006</b>
<b>MOYA I. MITJANS</b>	<b>Angel</b>	<b>Spain</b>	<b>2006</b>
<b>NAVARRETE</b>	<b>Antonio</b>	<b>United States</b>	<b>2008</b>
<b>ORMAETXE MERODIO</b>	<b>José Miguel</b>	<b>Spain</b>	<b>2006</b>
<b>OSCA</b>	<b>Joaquin</b>	<b>Spain</b>	<b>2010</b>
<b>PAPIASHVILI</b>	<b>Giorgi</b>	<b>Georgia</b>	<b>2009</b>
<b>PASTOR FUENTES</b>	<b>Augustin</b>	<b>Spain</b>	<b>2006</b>
<b>PEINADO</b>	<b>Rafael</b>	<b>Spain</b>	<b>2007</b>
<b>PEREZ CASTELLANO</b>	<b>Nicasio</b>	<b>Spain</b>	<b>2006</b>
<b>PEREZ VILLACASTIN</b>	<b>Julian</b>	<b>Spain</b>	<b>2006</b>
<b>POZZETTI</b>	<b>Daniela</b>	<b>Italy</b>	<b>2007</b>
<b>ROTEN</b>	<b>Laurent</b>	<b>Switzerland</b>	<b>2009</b>
<b>SABATE DE LA CRUZ</b>	<b>Xavier</b>	<b>Spain</b>	<b>2007</b>
<b>SALGUERO BODES</b>	<b>Rafael</b>	<b>Spain</b>	<b>2009</b>
<b>SAUSE</b>	<b>Armin</b>	<b>Germany</b>	<b>2009</b>
<b>SEOW</b>	<b>Swee-Chong</b>	<b>Singapore</b>	<b>2007</b>
<b>SMIT</b>	<b>Jaap Jan Johannes</b>	<b>Netherlands</b>	<b>2009</b>
<b>TOQUERO RAMOS</b>	<b>Jorgue</b>	<b>Spain</b>	<b>2006</b>
<b>TZEIS</b>	<b>Stylianos</b>	<b>Greece</b>	<b>2010</b>
<b>VATASESCU</b>	<b>Radu-Gabriel</b>	<b>Romania</b>	<b>2009</b>
<b>VOSS</b>	<b>Frederik</b>	<b>Germany</b>	<b>2009</b>
<b>VUKAJLOVIC</b>	<b>Dejan</b>	<b>Serbia</b>	<b>2009</b>
<b>ZOPPO</b>	<b>Franco</b>	<b>Italy</b>	<b>2008</b>

## 4. Appendix

### EHRA Accreditation

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## Invasive Cardiac Electrophysiology

### EP Accreditation candidates successful to exam

<b>ABEDIN</b>	<b>Zainul</b>	<b>United States</b>	<b>2007</b>
<b>AL BUNNI</b>	<b>Muhamad</b>	<b>Italy</b>	<b>2007</b>
<b>ANGUERA CAMOS</b>	<b>Ignacio</b>	<b>Spain</b>	<b>2008</b>
<b>ARCOCHA TORRES</b>	<b>Maria Fe</b>	<b>Spain</b>	<b>2009</b>
<b>AYALA PAREDES</b>	<b>Felix</b>	<b>Canada</b>	<b>2007</b>
<b>BUERKLE</b>	<b>Gerd</b>	<b>Austria</b>	<b>2008</b>
<b>CANO PEREZ</b>	<b>Oscar</b>	<b>Spain</b>	<b>2009</b>
<b>CASTRO URDA</b>	<b>Victor</b>	<b>Spain</b>	<b>2009</b>
<b>CATANCHIN</b>	<b>Andrei</b>	<b>United Kingdom</b>	<b>2008</b>
<b>DE GROOT</b>	<b>Joris R</b>	<b>Netherlands</b>	<b>2009</b>
<b>DEL CASTILLO ARROJO</b>	<b>Silvia</b>	<b>Spain</b>	<b>2006</b>
<b>DEUTSCH</b>	<b>Alexandru</b>	<b>Germany</b>	<b>2009</b>
<b>EISENBERGER</b>	<b>Martin</b>	<b>United Kingdom</b>	<b>2008</b>
<b>FORCLAZ</b>	<b>Andrei</b>	<b>Switzerland</b>	<b>2009</b>
<b>GALLARDO LOBO</b>	<b>Rodrigo</b>	<b>Spain</b>	<b>2009</b>
<b>GAWRYCIAK</b>	<b>Marcin</b>	<b>Poland</b>	<b>2009</b>
<b>GLOWNIAK</b>	<b>Andrzej</b>	<b>Poland</b>	<b>2009</b>
<b>GONZALEZ VASSEROT</b>	<b>Maria del Mar</b>	<b>Spain</b>	<b>2007</b>
<b>GONZALEZ-ENRIQUEZ</b>	<b>Susana</b>	<b>Spain</b>	<b>2008</b>
<b>HERCZKU</b>	<b>Csaba</b>	<b>Hungary</b>	<b>2009</b>
<b>HOBBS</b>	<b>William</b>	<b>United Kingdom</b>	<b>2007</b>
<b>HOGLUND</b>	<b>Niklas</b>	<b>Sweden</b>	<b>2008</b>
<b>JANDA</b>	<b>Igor</b>	<b>Germany</b>	<b>2009</b>
<b>JOHAR</b>	<b>Sofian</b>	<b>United Kingdom</b>	<b>2009</b>
<b>JONES</b>	<b>David Gareth</b>	<b>United Kingdom</b>	<b>2009</b>
<b>MARTINEK</b>	<b>Martin</b>	<b>Austria</b>	<b>2008</b>
<b>MARTINEZ SANDE</b>	<b>Jose Luis</b>	<b>Spain</b>	<b>2009</b>
<b>MASSIN</b>	<b>Francois</b>	<b>Belgium</b>	<b>2009</b>
<b>MATIA FRANCES</b>	<b>Roberto</b>	<b>Spain</b>	<b>2009</b>
<b>MATIELLO</b>	<b>Maria</b>	<b>Spain</b>	<b>2007</b>

**EP Accreditation candidates successful to exam**

<b>MUELLER</b>	<b>Dirk</b>	<b>Germany</b>	<b>2008</b>
<b>PAISEY</b>	<b>John</b>	<b>United Kingdom</b>	<b>2008</b>
<b>PUCHOL</b>	<b>Alberto</b>	<b>Spain</b>	<b>2009</b>
<b>RAMANNA</b>	<b>Hemanth</b>	<b>Netherlands</b>	<b>2008</b>
<b>REBELLATO</b>	<b>Luca</b>	<b>Italy</b>	<b>2009</b>
<b>RODORF</b>	<b>Roberto</b>	<b>Italy</b>	<b>2009</b>
<b>SCHOONDERWOERD</b>	<b>Bas</b>	<b>Netherlands</b>	<b>2008</b>
<b>SIELSKI</b>	<b>Slawomir</b>	<b>Poland</b>	<b>2007</b>
<b>SKODA</b>	<b>Jan</b>	<b>Czech Republic</b>	<b>2008</b>
<b>SPADACINI</b>	<b>Gianmario</b>	<b>Italy</b>	<b>2006</b>
<b>SUMAN HORDUNA</b>	<b>Irina</b>	<b>Canada</b>	<b>2008</b>
<b>TOMLINSON</b>	<b>D</b>	<b>United Kingdom</b>	<b>2008</b>
<b>TREGUER</b>	<b>Frederic</b>	<b>France</b>	<b>2009</b>
<b>TRINES SERGE</b>	<b>Alexander Ivo Petrus</b>	<b>Netherlands</b>	<b>2006</b>
<b>URBAN</b>	<b>Lubos</b>	<b>Slovak Republic</b>	<b>2009</b>
<b>VITALE</b>	<b>Raffaele</b>	<b>Italy</b>	<b>2009</b>
<b>VUKAJLOVIC</b>	<b>Dejan</b>	<b>Serbia</b>	<b>2009</b>
<b>ZUCHELLI</b>	<b>Giulio</b>	<b>Italy</b>	<b>2008</b>

**Candidates successful to the exam need to have their logbook assessed by an EHRA grader to be fully accredited. EHRA Accreditation is valid for 10 years.**

## 4. Appendix

### EHRA Accreditation

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## «Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

### EHRA CP Accredited professionals

<b>MARTINEK</b>	<b>Martin</b>	<b>Austria</b>	<b>2009</b>
<b>KETELS</b>	<b>Stefan</b>	<b>Belgium</b>	<b>2009</b>
<b>HJORTSHØJ</b>	<b>Søren</b>	<b>Denmark</b>	<b>2010</b>
<b>GRADAUS</b>	<b>Rainer</b>	<b>Germany</b>	<b>2007</b>
<b>KLEIN</b>	<b>Gunnar</b>	<b>Germany</b>	<b>2008</b>
<b>NEVEN</b>	<b>Kars</b>	<b>Germany</b>	<b>2008</b>
<b>DURAY</b>	<b>Gábor Zoltán</b>	<b>Germany</b>	<b>2009</b>
<b>LÜDORFF</b>	<b>Guido</b>	<b>Germany</b>	<b>2009</b>
<b>VOSS</b>	<b>Frederik</b>	<b>Germany</b>	<b>2009</b>
<b>HEIB</b>	<b>Klaus Dieter</b>	<b>Germany</b>	<b>2010</b>
<b>APOSTOLOPOULOS</b>	<b>Theodoros</b>	<b>Greece</b>	<b>2007</b>
<b>DILAVERIS</b>	<b>Polychronis</b>	<b>Greece</b>	<b>2007</b>
<b>IOANNIDIS</b>	<b>Panagiotis</b>	<b>Greece</b>	<b>2007</b>
<b>SIMEONIDOU</b>	<b>Eftihia</b>	<b>Greece</b>	<b>2007</b>
<b>VASILOPOULOS</b>	<b>Charambalos</b>	<b>Greece</b>	<b>2007</b>
<b>ZERVOPOULOS</b>	<b>George</b>	<b>Greece</b>	<b>2007</b>
<b>KARABINOS</b>	<b>Ilias K</b>	<b>Greece</b>	<b>2009</b>
<b>MERKELY</b>	<b>Bela</b>	<b>Hungary</b>	<b>2007</b>
<b>BOHM</b>	<b>Ádám</b>	<b>Hungary</b>	<b>2009</b>
<b>BENCSEK</b>	<b>Gábor</b>	<b>Hungary</b>	<b>2009</b>
<b>DAVOODI</b>	<b>Gholamreza</b>	<b>Iran</b>	<b>2006</b>
<b>LIPCHENCA</b>	<b>Igor Ariel</b>	<b>Israel</b>	<b>2009</b>
<b>AVELLA</b>	<b>Andrea</b>	<b>Italy</b>	<b>2006</b>
<b>BELOTTI</b>	<b>Giusepina</b>	<b>Italy</b>	<b>2006</b>
<b>AL BUNNI</b>	<b>Muhamad</b>	<b>Italy</b>	<b>2007</b>
<b>CALZOLARI</b>	<b>Vittorio</b>	<b>Italy</b>	<b>2007</b>
<b>CURNIS</b>	<b>Antonio</b>	<b>Italy</b>	<b>2007</b>
<b>MASCIOLI</b>	<b>Giosue</b>	<b>Italy</b>	<b>2007</b>
<b>POZZETTI</b>	<b>Daniela</b>	<b>Italy</b>	<b>2007</b>
<b>SGARITO</b>	<b>Guiseppe</b>	<b>Italy</b>	<b>2007</b>
<b>VACCARI</b>	<b>Diego</b>	<b>Italy</b>	<b>2007</b>
<b>ZOPPO</b>	<b>Franco</b>	<b>Italy</b>	<b>2007</b>

**EHRA CP Accredited professionals**

<b>MARINI</b>	<b>Massimiliano</b>	<b>Italy</b>	<b>2008</b>
<b>CROSATO</b>	<b>Martino</b>	<b>Italy</b>	<b>2009</b>
<b>PAULUSSEN</b>	<b>Guido</b>	<b>Netherlands</b>	<b>2007</b>
<b>SPIERENBURG</b>	<b>Han A.M.</b>	<b>Netherlands</b>	<b>2009</b>
<b>VAN OPSTAL</b>	<b>Jurren</b>	<b>Netherlands</b>	<b>2009</b>
<b>WESTENDORP</b>	<b>Iris C.D.</b>	<b>Netherlands</b>	<b>2009</b>
<b>KEMME</b>	<b>Michiel</b>	<b>Netherlands</b>	<b>2009</b>
<b>FOLKERINGA</b>	<b>Johan Richard</b>	<b>Netherlands</b>	<b>2009</b>
<b>BORGER VAN DER BURG</b>	<b>Alida Elisabeth</b>	<b>Netherlands</b>	<b>2009</b>
<b>BOUWELS</b>	<b>Leon HR</b>	<b>Netherlands</b>	<b>2009</b>
<b>BROERS</b>	<b>Bernard</b>	<b>Netherlands</b>	<b>2010</b>
<b>GJESTVANG</b>	<b>Finn Tore</b>	<b>Norway</b>	<b>2009</b>
<b>KÖPP</b>	<b>Ulf</b>	<b>Norway</b>	<b>2009</b>
<b>EIVINSDON</b>	<b>Gunvald</b>	<b>Norway</b>	<b>2009</b>
<b>MITROWSKI</b>	<b>Przemyslaw</b>	<b>Poland</b>	<b>2006</b>
<b>BISSINGER</b>	<b>Andrzej</b>	<b>Poland</b>	<b>2007</b>
<b>JASTREZBSKI</b>	<b>Marek</b>	<b>Poland</b>	<b>2007</b>
<b>PRZYBYLSKI</b>	<b>Andrzej</b>	<b>Poland</b>	<b>2008</b>
<b>MACIAG</b>	<b>Aleksander</b>	<b>Poland</b>	<b>2009</b>
<b>STERLINSKI</b>	<b>Maciej</b>	<b>Poland</b>	<b>2009</b>
<b>VATASESCU</b>	<b>Radu Gabriel</b>	<b>Romania</b>	<b>2007</b>
<b>GRECU</b>	<b>Mihaela</b>	<b>Romania</b>	<b>2009</b>
<b>SEOW</b>	<b>Swee-Chong</b>	<b>Singapore</b>	<b>2008</b>
<b>GARCIA BOLAO</b>	<b>José Ignacio</b>	<b>Spain</b>	<b>2006</b>
<b>HERREROS GUILARTE</b>	<b>Benito</b>	<b>Spain</b>	<b>2006</b>
<b>MORENO PLANAS</b>	<b>Javier</b>	<b>Spain</b>	<b>2006</b>
<b>PEREZ CASTELLANO</b>	<b>Nicasio</b>	<b>Spain</b>	<b>2006</b>
<b>GARCIA MORAN</b>	<b>Emilio</b>	<b>Spain</b>	<b>2007</b>
<b>PINDADO RODRIGUEZ</b>	<b>Javier</b>	<b>Spain</b>	<b>2010</b>
<b>HORNSTEN</b>	<b>Jonas</b>	<b>Sweden</b>	<b>2007</b>
<b>SJÖBLOM</b>	<b>Johanna</b>	<b>Sweden</b>	<b>2009</b>
<b>BURRI</b>	<b>Haran</b>	<b>Switzerland</b>	<b>2006</b>

## 4. Appendix



### EHRA Accreditation

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#### «Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

##### EHRA CP Accredited professionals

<b>ROTEN</b>	<b>Laurent</b>	<b>Switzerland</b>	<b>2009</b>
<b>ZAKY</b>	<b>Hosam</b>	<b>United Arab Emirates</b>	<b>2007</b>
<b>OSMAN</b>	<b>Faizel</b>	<b>United Kingdom</b>	<b>2007</b>
<b>PUGH</b>	<b>Peter J</b>	<b>United Kingdom</b>	<b>2009</b>
<b>BOOS</b>	<b>Christopher John</b>	<b>United Kingdom</b>	<b>2009</b>
<b>RAO</b>	<b>Archana</b>	<b>United Kingdom</b>	<b>2009</b>

#### «Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

##### CP Accreditation candidates successful to exam

<b>AARDEMA</b>	<b>Margriet W.</b>	<b>Netherlands</b>	<b>2006</b>
<b>AERTS</b>	<b>Arnaud</b>	<b>Netherlands</b>	<b>2009</b>
<b>ALDERGARD</b>	<b>Niklas</b>	<b>Sweden</b>	<b>2007</b>
<b>ALGALARRONDO</b>	<b>Vincent</b>	<b>France</b>	<b>2009</b>
<b>AYALA PAREDES</b>	<b>Felix Alejandro</b>	<b>Canada</b>	<b>2006</b>
<b>BACCHIONI</b>	<b>Giuseppe</b>	<b>Italy</b>	<b>2008</b>
<b>BAHGAT</b>	<b>Amr Kamal</b>	<b>Egypt</b>	<b>2009</b>
<b>BARTHEZ</b>	<b>Olivier</b>	<b>France</b>	<b>2009</b>
<b>BIJSTERVELD</b>	<b>Nick</b>	<b>Netherlands</b>	<b>2009</b>
<b>BLAAUW</b>	<b>Y</b>	<b>Netherlands</b>	<b>2009</b>
<b>BORRELLI</b>	<b>Alessio</b>	<b>Italy</b>	<b>2009</b>
<b>BREULS</b>	<b>Nico</b>	<b>Netherlands</b>	<b>2009</b>
<b>BUERKLE</b>	<b>Gerd</b>	<b>Austria</b>	<b>2008</b>
<b>CANDEIAS</b>	<b>Rui</b>	<b>Portugal</b>	<b>2008</b>
<b>CSONTOS</b>	<b>Pal</b>	<b>Hungary</b>	<b>2009</b>
<b>DE GROOT</b>	<b>Joris R</b>	<b>Netherlands</b>	<b>2009</b>
<b>DE JONG</b>	<b>Richard M</b>	<b>Netherlands</b>	<b>2007</b>
<b>DE JONG</b>	<b>Jonas</b>	<b>Netherlands</b>	<b>2009</b>
<b>DE JONG</b>	<b>Jeroen</b>	<b>Netherlands</b>	<b>2006</b>
<b>DE LA FUENTE</b>	<b>Sam</b>	<b>Netherlands</b>	<b>2009</b>



**CP Accreditation candidates successful to exam**

<b>DE LEEUW</b>	<b>Martin</b>	<b>Netherlands</b>	<b>2008</b>
<b>DE POTTER</b>	<b>Tom</b>	<b>Belgium</b>	<b>2008</b>
<b>DE WAARD</b>	<b>Daan</b>	<b>Netherlands</b>	<b>2007</b>
<b>DE WEERD</b>	<b>Gerjan</b>	<b>Netherlands</b>	<b>2009</b>
<b>DIAB</b>	<b>Ihab Gomaa</b>	<b>United Kingdom</b>	<b>2009</b>
<b>EISENBERGER</b>	<b>Martin</b>	<b>United Kingdom</b>	<b>2008</b>
<b>ENGBERS</b>	<b>Jos G</b>	<b>Netherlands</b>	<b>2009</b>
<b>ERCKERT</b>	<b>Martin</b>	<b>Italy</b>	<b>2006</b>
<b>ESCHEN</b>	<b>Ole</b>	<b>Denmark</b>	<b>2009</b>
<b>FLEVARI</b>	<b>Panayota</b>	<b>Greece</b>	<b>2008</b>
<b>FOLDESI</b>	<b>Csaba Laszlo</b>	<b>Hungary</b>	<b>2009</b>
<b>FOLEY</b>	<b>Paul</b>	<b>United Kingdom</b>	<b>2009</b>
<b>FRANCA PEREIRA</b>	<b>Roberto</b>	<b>United States</b>	<b>2007</b>
<b>FRYKMAN</b>	<b>Viveka</b>	<b>Sweden</b>	<b>2007</b>
<b>GALLARDO LOBO</b>	<b>Rodrigo</b>	<b>Hungary</b>	<b>2009</b>
<b>GEBETSBERGER</b>	<b>Franz</b>	<b>Austria</b>	<b>2008</b>
<b>GIANNOLA</b>	<b>Gabriele</b>	<b>Italy</b>	<b>2008</b>
<b>GONZALEZ-ENRIQUEZ</b>	<b>Susana</b>	<b>Spain</b>	<b>2008</b>
<b>HAUER</b>	<b>Herbert</b>	<b>Netherlands</b>	<b>2009</b>
<b>HAYES</b>	<b>Chris</b>	<b>United Kingdom</b>	<b>2009</b>
<b>HEMELS</b>	<b>Martin</b>	<b>Netherlands</b>	<b>2009</b>
<b>HERCZKU</b>	<b>Csaba</b>	<b>Hungary</b>	<b>2009</b>
<b>HURLIMANN</b>	<b>David</b>	<b>Switzerland</b>	<b>2009</b>
<b>HUYBRECHTS</b>	<b>Wim</b>	<b>Belgium</b>	<b>2008</b>
<b>IORGULESCU</b>	<b>Corneliu</b>	<b>Romania</b>	<b>2008</b>
<b>JANSEN</b>	<b>Annemieke</b>	<b>Netherlands</b>	<b>2008</b>
<b>JANSSENS</b>	<b>Cornelis</b>	<b>Netherlands</b>	<b>2006</b>
<b>JOHANSSON</b>	<b>Peter</b>	<b>Sweden</b>	<b>2008</b>
<b>JONES</b>	<b>David Gareth</b>	<b>United Kingdom</b>	<b>2009</b>
<b>KJELLMAN</b>	<b>Bjorn</b>	<b>Sweden</b>	<b>2007</b>
<b>KNOPS</b>	<b>Reinoud</b>	<b>Netherlands</b>	<b>2008</b>
<b>KOEPFLI</b>	<b>Pascal</b>	<b>Switzerland</b>	<b>2007</b>

## 4. Appendix

### EHRA Accreditation

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## «Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

### CP Accreditation candidates successful to exam

<b>KORANTZOPOULOS</b>	<b>Panagiotis</b>	<b>Greece</b>	<b>2009</b>
<b>KOULOURIS</b>	<b>Spyridon</b>	<b>Greece</b>	<b>2007</b>
<b>KOURGIANNIDIS</b>	<b>Georgios</b>	<b>Greece</b>	<b>2007</b>
<b>KRAVCHUK</b>	<b>Borys</b>	<b>Ukraine</b>	<b>2007</b>
<b>KRUPA</b>	<b>Wojciech</b>	<b>Poland</b>	<b>2006</b>
<b>LIEUW-A-FA</b>	<b>Mariska</b>	<b>Netherlands</b>	<b>2009</b>
<b>LINDELL</b>	<b>Peter</b>	<b>Sweden</b>	<b>2007</b>
<b>LINDGREEN</b>	<b>Ulf</b>	<b>Sweden</b>	<b>2008</b>
<b>LIPOLDOVA</b>	<b>Jolana</b>	<b>Czech Republic</b>	<b>2009</b>
<b>LITTERFELDT</b>	<b>Ingrid</b>	<b>Sweden</b>	<b>2008</b>
<b>LUZI</b>	<b>Mario</b>	<b>Italy</b>	<b>2008</b>
<b>MAASS</b>	<b>Alexander</b>	<b>Netherlands</b>	<b>2007</b>
<b>MAC GILLAVRY</b>	<b>Melvin</b>	<b>Netherlands</b>	<b>2008</b>
<b>MAGNUSSON</b>	<b>Peter</b>	<b>Sweden</b>	<b>2007</b>
<b>MARICONTI</b>	<b>Barbara</b>	<b>Italy</b>	<b>2008</b>
<b>MARTINEZ SANDE</b>	<b>Jose Luis</b>	<b>Spain</b>	<b>2009</b>
<b>MASSA</b>	<b>Thomas</b>	<b>Germany</b>	<b>2008</b>
<b>MAZZUCCO</b>	<b>Raffaele</b>	<b>Italy</b>	<b>2009</b>
<b>MEILTZ</b>	<b>Alexandre</b>	<b>Switzerland</b>	<b>2009</b>
<b>MEINE</b>	<b>Mathias</b>	<b>Netherlands</b>	<b>2007</b>
<b>MELANDER</b>	<b>Kjell</b>	<b>Sweden</b>	<b>2008</b>
<b>MLCOCHOVA</b>	<b>Hanka</b>	<b>Czech Republic</b>	<b>2009</b>
<b>MOLHOEK</b>	<b>Sander G</b>	<b>Netherlands</b>	<b>2008</b>
<b>MUELLER</b>	<b>Dirk</b>	<b>Germany</b>	<b>2008</b>
<b>MUNDEL</b>	<b>Markus</b>	<b>Germany</b>	<b>2008</b>
<b>MUNTINGA</b>	<b>Harm-Jans</b>	<b>Netherlands</b>	<b>2009</b>
<b>NAGARAJAN</b>	<b>Darbhamulla</b>	<b>United Kingdom</b>	<b>2007</b>
<b>NERI</b>	<b>Gianfilippo</b>	<b>Italy</b>	<b>2007</b>
<b>NICASTIA</b>	<b>Deborah</b>	<b>Netherlands</b>	<b>2009</b>
<b>NICOLAIDES</b>	<b>Eleftherios</b>	<b>United Kingdom</b>	<b>2007</b>
<b>ODLAND</b>	<b>Hans Henrik</b>	<b>Norway</b>	<b>2009</b>
<b>OIKARINEN</b>	<b>Lasse</b>	<b>Finland</b>	<b>2008</b>

**CP Accreditation candidates successful to exam**

<b>OSTROWSKA</b>	<b>Bozena</b>	<b>Sweden</b>	<b>2007</b>
<b>PAISEY</b>	<b>John</b>	<b>United Kingdom</b>	<b>2008</b>
<b>PARAVOLIDAKIS</b>	<b>Konstantinos</b>	<b>Greece</b>	<b>2008</b>
<b>PASCALE</b>	<b>Patrizio</b>	<b>Switzerland</b>	<b>2009</b>
<b>PAULUSSEN</b>	<b>Guido</b>	<b>Netherlands</b>	<b>2006</b>
<b>PENA HERNANDEZ</b>	<b>Jose Luis</b>	<b>Spain</b>	<b>2008</b>
<b>PEREZ DIEZ</b>	<b>Diego</b>	<b>Spain</b>	<b>2009</b>
<b>PETKAR</b>	<b>Sanjiv</b>	<b>United Kingdom</b>	<b>2008</b>
<b>PETRACCI</b>	<b>Barbara</b>	<b>Italy</b>	<b>2009</b>
<b>PETRU</b>	<b>Jan</b>	<b>Czech Republic</b>	<b>2009</b>
<b>PORRO</b>	<b>Rosa</b>	<b>Spain</b>	<b>2009</b>
<b>PUCHOL</b>	<b>Alberto</b>	<b>Spain</b>	<b>2009</b>
<b>RAMANNA</b>	<b>Hemanth</b>	<b>Netherlands</b>	<b>2008</b>
<b>REBELLATO</b>	<b>Luca</b>	<b>Italy</b>	<b>2009</b>
<b>RESTLE</b>	<b>Christian</b>	<b>Germany</b>	<b>2009</b>
<b>RUSSO</b>	<b>Giovanni</b>	<b>Italy</b>	<b>2009</b>
<b>SCHAUMANN</b>	<b>Anselm</b>	<b>Germany</b>	<b>2009</b>
<b>SCHEFFER</b>	<b>Michael G</b>	<b>Netherlands</b>	<b>2008</b>
<b>SCHOONDERWOERD</b>	<b>Bas</b>	<b>Netherlands</b>	<b>2008</b>
<b>SCHWAGTEN</b>	<b>Bruno</b>	<b>Belgium</b>	<b>2008</b>
<b>SENOUF</b>	<b>David</b>	<b>Switzerland</b>	<b>2009</b>
<b>SIELSKI</b>	<b>Slawomir</b>	<b>Poland</b>	
<b>STATESCU</b>	<b>Cristian</b>	<b>Romania</b>	<b>2009</b>
<b>STEEN</b>	<b>Torkel</b>	<b>Norway</b>	<b>2007</b>
<b>BOGDAN</b>	<b>Stefan Nicolea</b>	<b>Romania</b>	<b>2009</b>
<b>STEVENHAGEN</b>	<b>Jeroen</b>	<b>Netherlands</b>	<b>2008</b>
<b>STRIKWERDA</b>	<b>Sipke</b>	<b>Netherlands</b>	<b>2009</b>
<b>SWART</b>	<b>Hp</b>	<b>Netherlands</b>	<b>2009</b>
<b>TAHAPARY</b>	<b>Giovanni</b>	<b>Netherlands</b>	<b>2009</b>
<b>TEUBL</b>	<b>Alexander</b>	<b>Austria</b>	<b>2009</b>
<b>TIELEMAN</b>	<b>Robert</b>	<b>Netherlands</b>	<b>2009</b>
<b>TOMLINSON</b>	<b>D</b>	<b>United Kingdom</b>	<b>2009</b>

## 4. Appendix

### EHRA Accreditation

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## «Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

### CP Accreditation candidates successful to exam

<b>TORN</b>	<b>Marieke</b>	<b>Netherlands</b>	<b>2009</b>
<b>TOSSEBRO</b>	<b>Morten Shoren</b>	<b>Norway</b>	<b>2009</b>
<b>TREGUER</b>	<b>Frederic</b>	<b>France</b>	<b>2009</b>
<b>TRINES</b>	<b>Serge</b>	<b>Netherlands</b>	<b>2008</b>
<b>TUININGA</b>	<b>Ype</b>	<b>Netherlands</b>	<b>2009</b>
<b>TUREL</b>	<b>Baybars</b>	<b>Turkey</b>	<b>2009</b>
<b>URBAN</b>	<b>Lubos</b>	<b>Slovak Republic</b>	<b>2009</b>
<b>VAN DEN BOS</b>	<b>Ewout-Jan</b>	<b>Netherlands</b>	<b>2009</b>
<b>VAN DER WEERDT</b>	<b>Arno Peter</b>	<b>Netherlands</b>	<b>2007</b>
<b>VAN HERENDAEL</b>	<b>Hugo</b>	<b>Belgium</b>	<b>2009</b>
<b>VAN KRAAIJ</b>	<b>Dave</b>	<b>Netherlands</b>	<b>2009</b>
<b>VAN NOORD</b>	<b>Trudeke</b>	<b>Netherlands</b>	<b>2007</b>
<b>VAN OOSTROM</b>	<b>Antonie</b>	<b>Netherlands</b>	<b>2009</b>
<b>VAN SCHAARDENBURGH</b>	<b>Pepijn</b>	<b>Netherlands</b>	<b>2009</b>
<b>VAN SCHAIKVAN DER WIELEN</b>	<b>MarieLouise</b>	<b>Netherlands</b>	<b>2009</b>
<b>VERGARA</b>	<b>Pasquale</b>	<b>Italy</b>	<b>2009</b>
<b>VET</b>	<b>Thijs</b>	<b>Netherlands</b>	<b>2008</b>
<b>VICENTINI</b>	<b>Alessandro</b>	<b>Italy</b>	<b>2009</b>
<b>WESTRA</b>	<b>Sjoerd</b>	<b>Netherlands</b>	<b>2009</b>
<b>WIDDERSHOVEN</b>	<b>Josef Jos</b>	<b>United Kingdom</b>	<b>2009</b>
<b>WIJCHERS</b>	<b>Sip</b>	<b>Netherlands</b>	<b>2009</b>
<b>WILLEMS</b>	<b>Albert Richard</b>	<b>Netherlands</b>	<b>2009</b>
<b>WIM</b>	<b>Anne</b>	<b>Belgium</b>	<b>2008</b>
<b>ZALEVSKY</b>	<b>Valery P</b>	<b>Ukraine</b>	<b>2007</b>
<b>ZIMA</b>	<b>Endre</b>	<b>Hungary</b>	<b>2009</b>
<b>ZUCCHELLI</b>	<b>Giulio</b>	<b>Italy</b>	<b>2008</b>

Candidates successful to the exam need to have their logbook assessed by an EHRA grader to be fully accredited.

EHRA Accreditation is valid for 10 years.









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