

Albania · Algeria · Armenia · Austria · Belarus · Belgium · Bosnia & Herzegovina · Bulgaria · Croatia · Cyprus · Czech Republic · Denmark · Egypt · Estonia · Finland · Former Yugoslav Republic of Macedonia · France · Georgia · Germany · Greece · Hungary · Iceland · Ireland · Israel · Italy · Latvia · Lebanon · Libya · Lithuania · Luxembourg · Malta · Morocco · Netherlands · Norway · Poland · Portugal · Republic of Moldova · Romania · Russian Federation · San Marino · Serbia · Slovakia · Slovenia · Spain · Sweden · Switzerland · Syria · Tunisia · Turkey · Ukraine · United Kingdom

The EHRA White Book 2009

The Current Status of Cardiac Electrophysiology
in ESC Member Countries

J. Brugada, P. Vardas, C. Wolpert



www.escardio.org/EHRA



Acknowledgments

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

Preface – The European White Book of Electrophysiology: The second edition

In 2008, the first EHRA White Book of Electrophysiology 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 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 this year. The EHRA Summit provided the opportunity to share and exchange information from 29 member countries on specific needs for improvements, reimbursement policy and training issues, amongst other topics.

As stated in the 2008 edition, 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.

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 second edition and hope that with this new White Book we have set the ground for a continuous EHRA year 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 2010.

Josep Brugada, President EHRA (2007-2009)
Panos Vardas, President Elect
Christian Wolpert, Chairman National Societies

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1. Scope and Methodology

The EHRA White Book 2009 presents 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 sections of the book are:

1. Statistics
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, 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. To gather the data, the societies and working groups used a number of 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 2009 until end of May 2009.

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

2. ESC Countries Overview

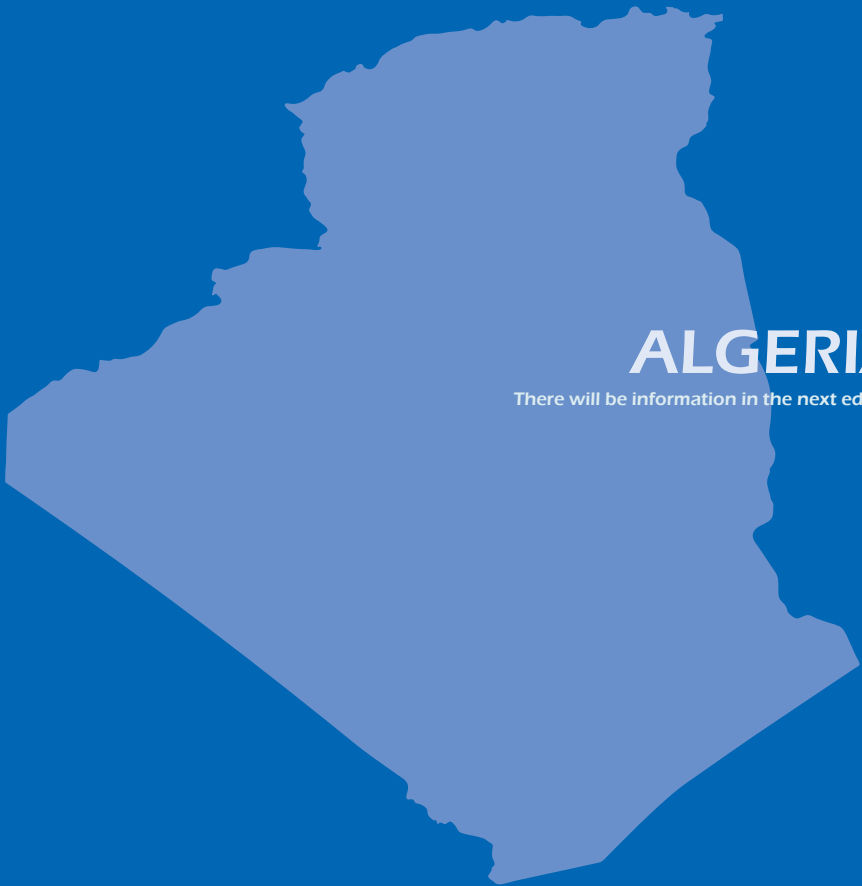




ALBANIA

There will be information in the next edition.





ALGERIA

There will be information in the next edition.

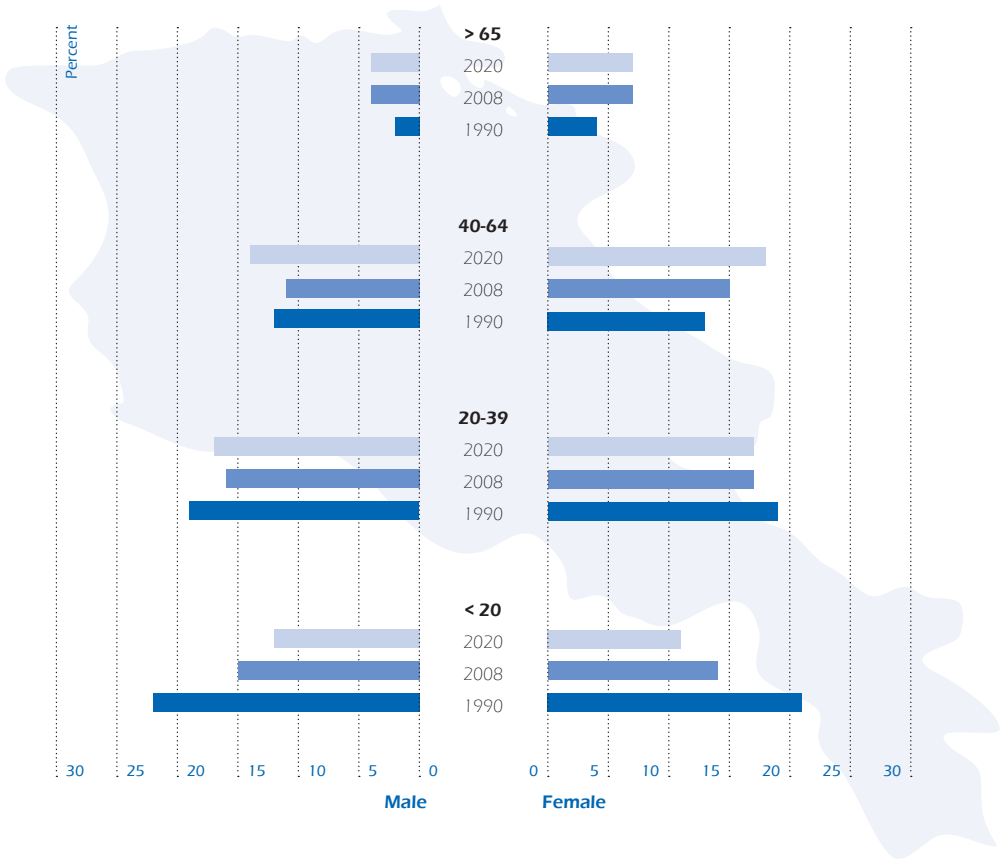


ARMENIA



1. Statistics

Age pyramid for Armenia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,18 | 2007 |
| Beds (per 100.000 population) | 406,82 | 2007 |
| Number of physicians | 11.088 | 2007 |
| Density of physicians (per 1.000 population) | 3,44 | 2007 |
| Number of nurses | 13.326 | 2007 |
| Density of nurses (per 1.000 population) | 4,13 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 1.424.970 | 1.592.400 | 3.017.370 |
| 2008 | 1.400.237 | 1.568.349 | 2.968.586 |
| 1990 | 1.655.623 | 1.721.160 | 3.376.783 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 12.070* | 2008 |
| Gross domestic product per capita | 3.400,56* | 2008 |
| Total expenditure on health as % of GDP | 4,7 | 2006 |
| General government expenditure on health as % of total expenditure on health | 41,2 | 2006 |
| Private expenditure on health as % of total expenditure on health | 58,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 43% |
| 2008 | not available |

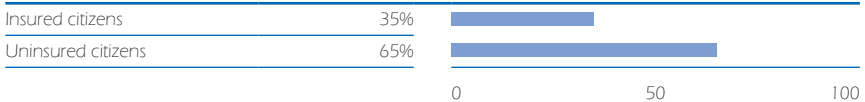
3. Healthcare System

The Armenian healthcare system comprises of a network of independent, self-financing (or mixed financing) health services that provide statutory and private services. In the past, hospitals had nominal accountability to the local administration. Today, they have financial autonomy and are increasingly responsible for their own budgets and management. Regional government, however, continues to monitor the care provided while the Ministry of Health retains regulatory functions. Authorities realize healthcare financing via State Healthcare Agency. Medical care is financed by state only in very few cases: 1) children 0-7 years old, 2) emergency medical care, 3) risk groups.

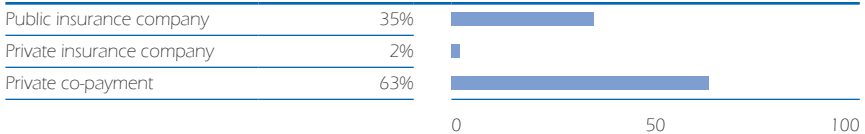
Basic insurance availability

No

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |

In 95% of cases patient or family have to pay the whole cost including Hospital stay for Pacemaker or ICD implant and for any kind of Ablation

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 type="checkbox"/> |

4. Education

National accreditation availability

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

National accreditation for physicians **No**

National accreditation for centres to perform EP **Yes**

Medicare service is a licenced activity in Armenia.

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

No

Required period of training to perform implantations

2 years

Training centres availability

| | |
|--|---|
| Pacemaker | 3 |
| ICD implantation | 1 |
| Electrophysiological studies and catheter ablation | 1 |
| CRT implantation | 1 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

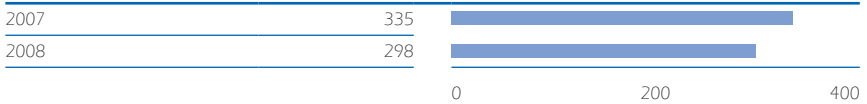
5

Percentage of academic facilities among practicing EP and implant centres

100%

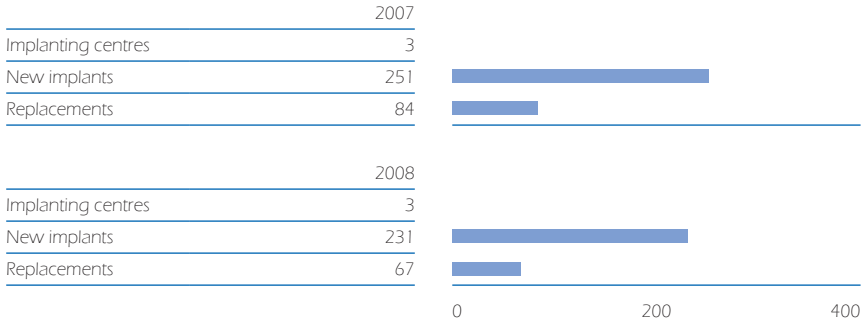
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

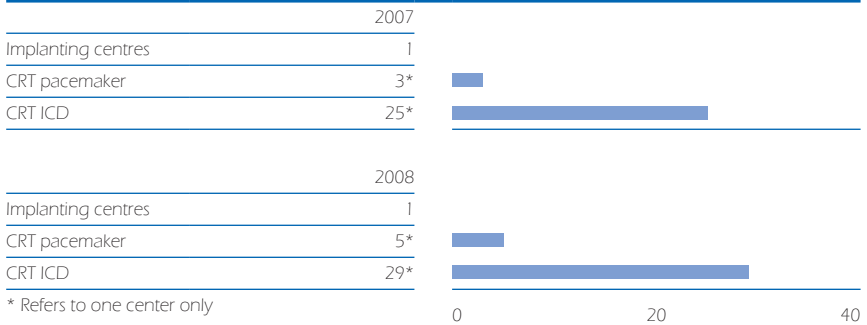


Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



* Refers to one center only

Specialty performing implants

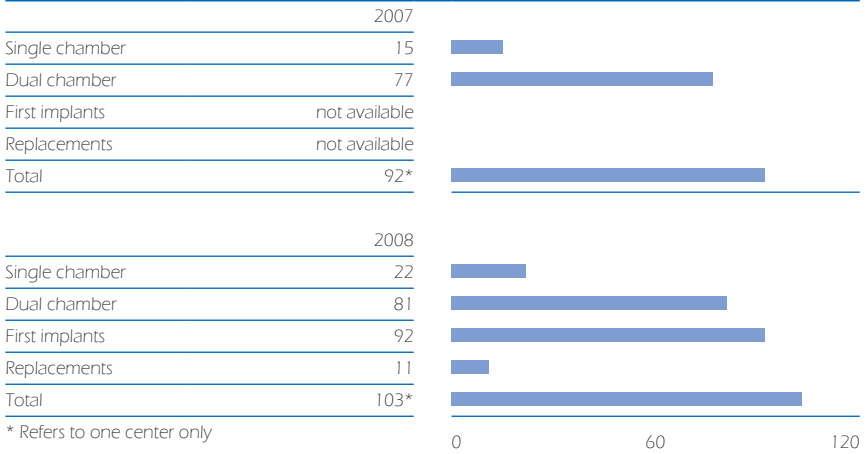
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

2

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

| | 2007 | |
|--------------------|------|--|
| Implanting centres | 0 | |
| Loop recorders | 0 | |
| | 2008 | |
| 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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 165 | 179 |
| Mean number (ablations/centres) | 165 | 179 |
| Number of AF ablations | 0 | 0 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

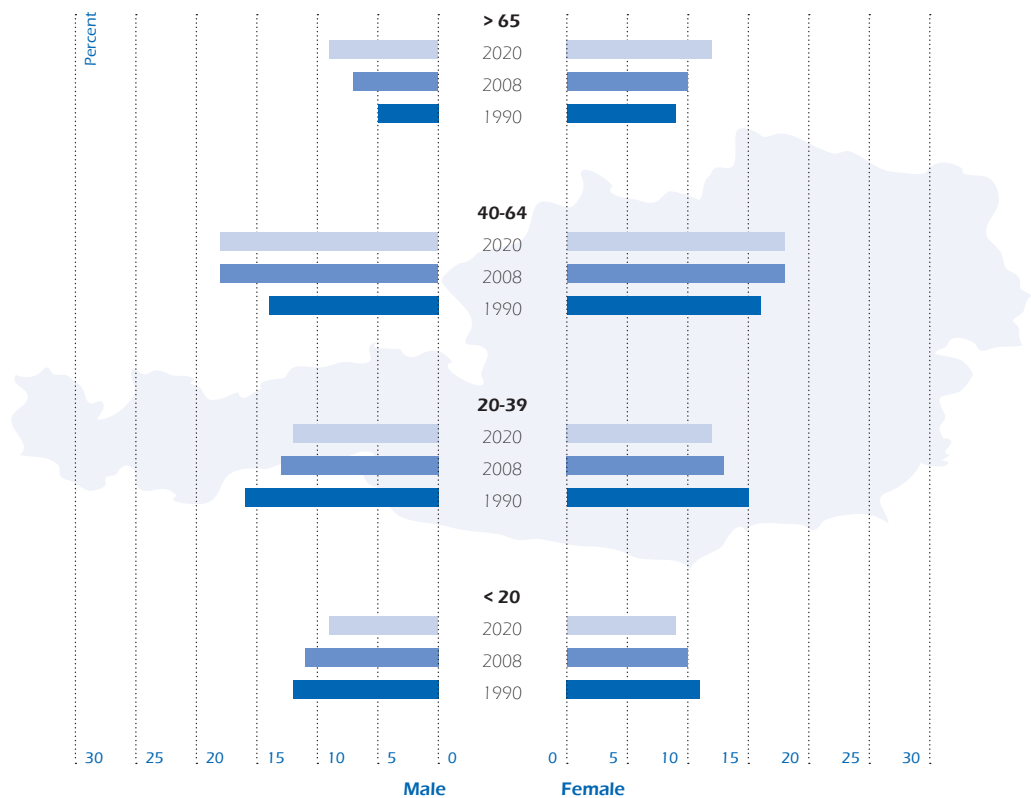
5 = great obstacle

AUSTRIA



1. Statistics

Age pyramid for Austria





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 3,25 | 2007 |
| Beds (per 100.000 population) | 776,34 | 2007 |
| Number of physicians | 31.175 | 2007 |
| Density of physicians (per 1.000 population) | 3,75 | 2007 |
| Number of nurses | 52.795 | 2007 |
| Density of nurses (per 1.000 population) | 6,35 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 4.008.502 | 4.211.322 | 8.219.824 |
| 2008 | 4.004.272 | 4.201.261 | 8.205.533 |
| 1990 | 3.765.953 | 4.052.470 | 7.818.423 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 432.404* | 2008 |
| Gross domestic product per capita | 52.159,18* | 2008 |
| Total expenditure on health as % of GDP | 9,9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 77 | 2006 |
| Private expenditure on health as % of total expenditure on health | 23 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | 400,7 |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 44% |
| 2008 | not available |

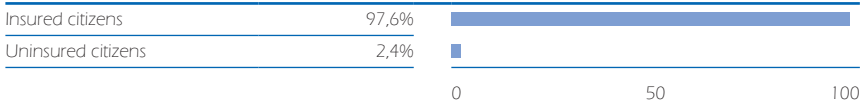
3. Healthcare System

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 healthcare and is responsible of supervising the statutory health insurance funds. (Source: Highlights on Health in Austria, WHO 2004)

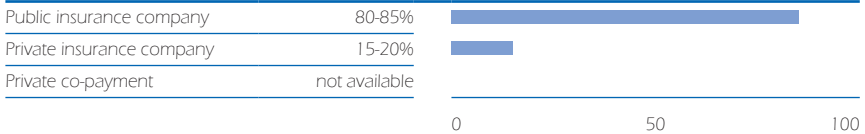
Basic insurance availability

Yes

Percentage of insured and uninsured citizens



Distribution of insurance modality



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 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 to perform EP

No

National Society supporting EHRA accreditation system

Yes

Specialty required for catheter ablation

Yes

Primarily cardiologist, surgeon

Specialty required for ICD or pacemaker implants

Yes

Cardiologist, surgeon

Official national competency guidelines for electrophysiological studies or catheter ablation

No

Training centres availability

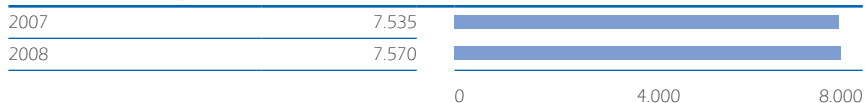
| | |
|--|---------------|
| Pacemaker | not available |
| ICD implantation | not available |
| Electrophysiological studies and catheter ablation | not available |
| CRT implantation | not available |
| Atrial fibrillation ablation | not available |

Number of medical faculties

Percentage of academic facilities among practicing EP and implant centres

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | |
|--------------------|---------------|
| | 2007 |
| Implanting centres | 65 |
| New implants | not available |
| Replacements | not available |

| | |
|--------------------|---------------|
| | 2008 |
| Implanting centres | 65 |
| New implants | not available |
| Replacements | not available |

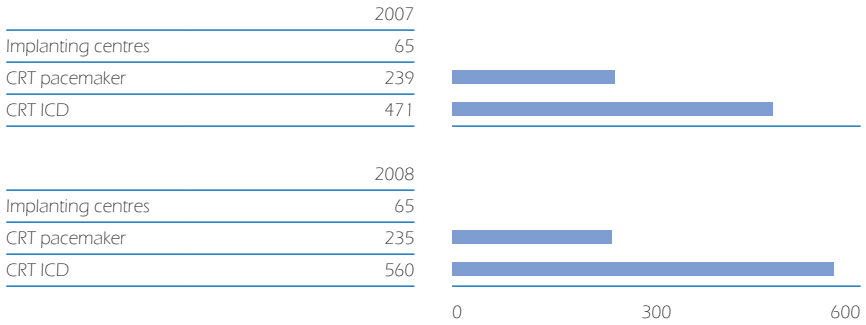
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 20% |
| Surgeons | 80% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

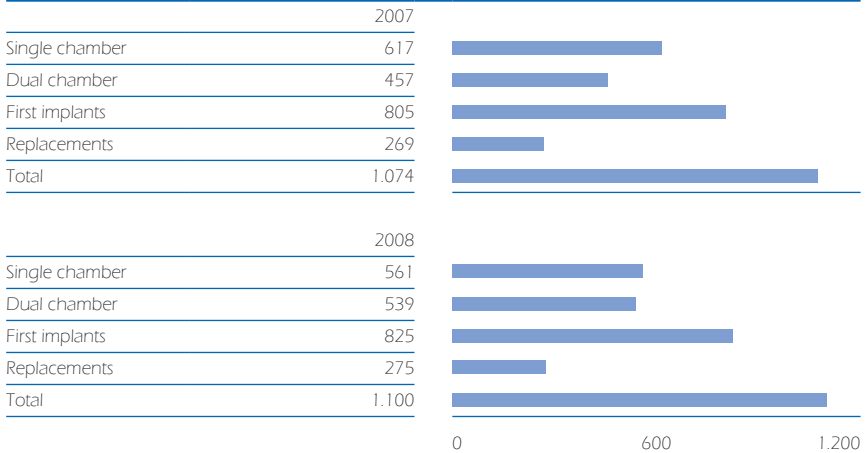
| | |
|---------------|-----|
| Cardiologists | 35% |
| Surgeons | 65% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

32

ICD units implanted and number of implanting centres

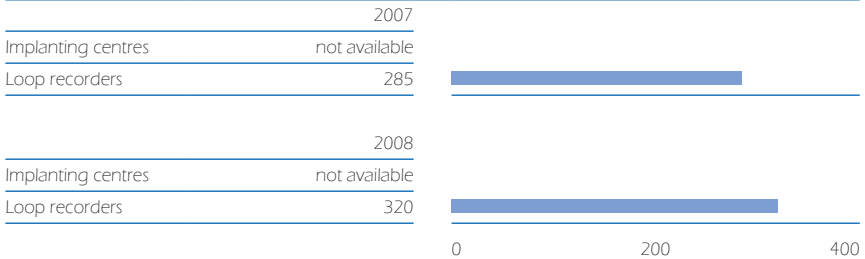


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 25% |
| Surgeons | 75% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



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"/> |

Availability of a national quality insurance system or complication registry

Yes

In preparation (BIOG)

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

14

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.509 | 1.362 |
| Mean number (ablations/centres) | 107 | 97 |
| Number of AF ablations | 238 | 293 |

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

No

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 checked="" type="checkbox"/> | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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

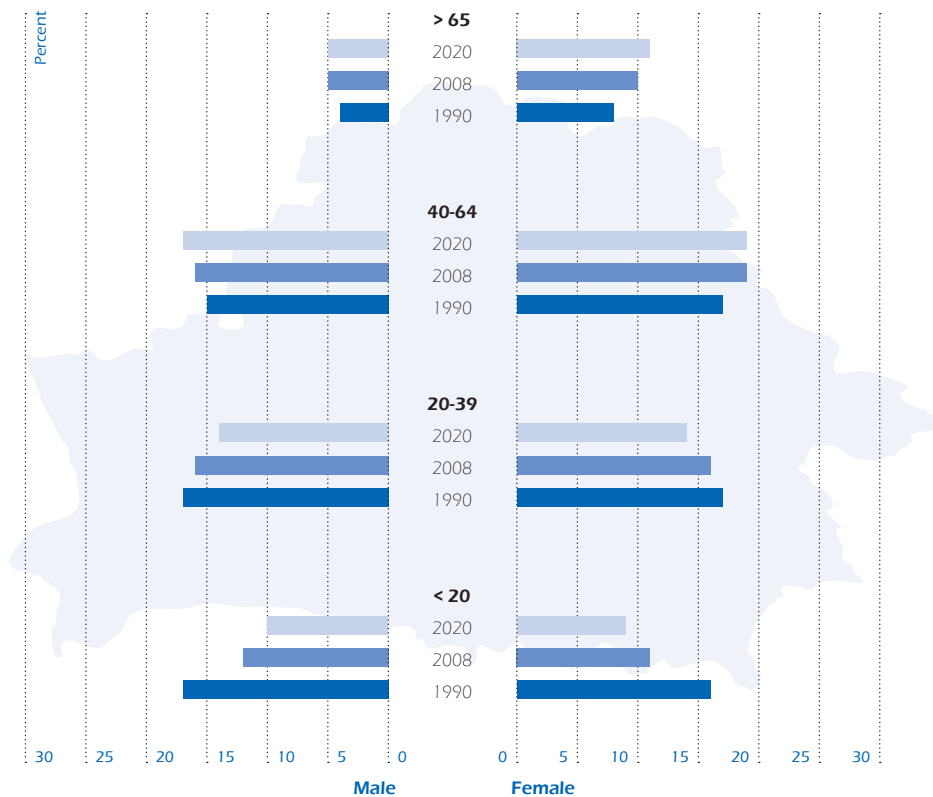
5 = great obstacle

BELARUS



1. Statistics

Age pyramid for Belarus





Healthcare data

| | | |
|--|----------|------|
| Hospitals (per 100.000 population) | 7,24 | 2007 |
| Beds (per 100.000 population) | 1 122,87 | 2007 |
| Number of physicians | 46.965 | 2007 |
| Density of physicians (per 1.000 population) | 4,84 | 2007 |
| Number of nurses | 116.193 | 2007 |
| Density of nurses (per 1.000 population) | 11,98 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 4.293.342 | 4.955.811 | 9.249.153 |
| 2008 | 4.511.211 | 5.174.557 | 9.685.768 |
| 1990 | 4.776.392 | 5.424.345 | 10.200.737 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 57.681* | 2008 |
| Gross domestic product per capita | 6.058,45* | 2008 |
| Total expenditure on health as % of GDP | 6,4 | 2006 |
| General government expenditure on health as % of total expenditure on health | 74,9 | 2006 |
| Private expenditure on health as % of total expenditure on health | 25,1 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 724 per 100.000 citizens |
| 2008 | 732 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country



| | |
|------|-------|
| 2007 | 52,8% |
| 2008 | 52,6% |

3. Healthcare System




National Health System

Basic insurance availability Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |
| | | 0 50 100 |

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 1%* |  |
| Private co-payment | 3%* |  |
| * approx. | | 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 checked="" type="checkbox"/> |
| Invasive electrophysiology | <input checked="" type="checkbox"/> |
| Roentgen-endovascular surgery | |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **Yes**

National Society supporting EHRA accreditation system **No**

Specialty required for catheter ablation **Yes**

Roentgen-endovascular surgeon

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

Roentgen-endovascular surgeon

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

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

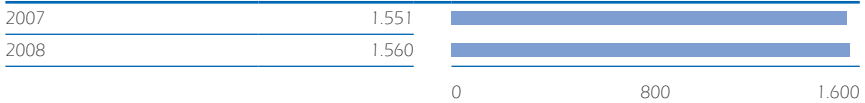
4

Percentage of academic facilities among practicing EP and implant centres

75%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | | 8 |
| New implants | not available | |
| Replacements | not available | |
| | | 2008 |
| Implanting centres | | 8 |
| New implants | not available | |
| Replacements | not available | |

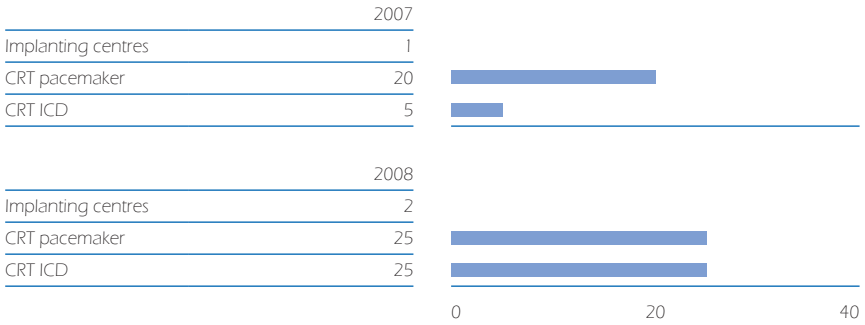
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 0% |
| Surgeons | 100% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

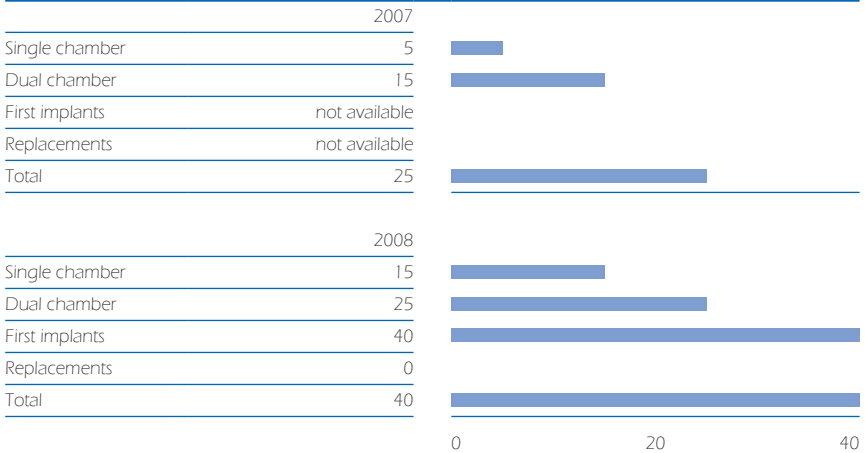
| | |
|---------------|------|
| Cardiologists | 0% |
| Surgeons | 100% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

2

ICD units implanted and number of implanting centres

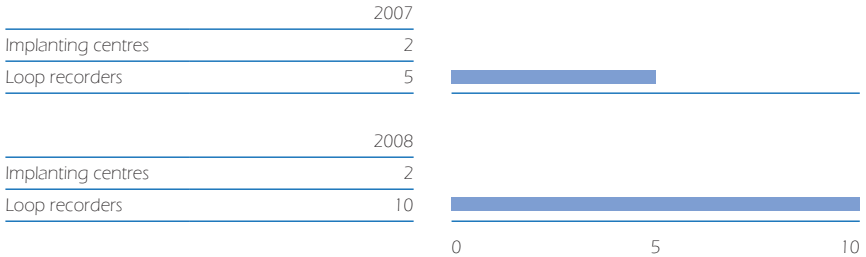


Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 0% |
| Surgeons | 100% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 0% |
| Surgeons | 100% |

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 **Yes**

Republican Scientific and Practical Centre of Cardiology and Ministry of Health



10. Interventional electrophysiology

Number of performing catheter ablation centres

2

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 66 | 170 |
| Mean number (ablations/centres) | 33 | 85 |
| Number of AF ablations | 6 | 14 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of reimbursement, limited financial resources | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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

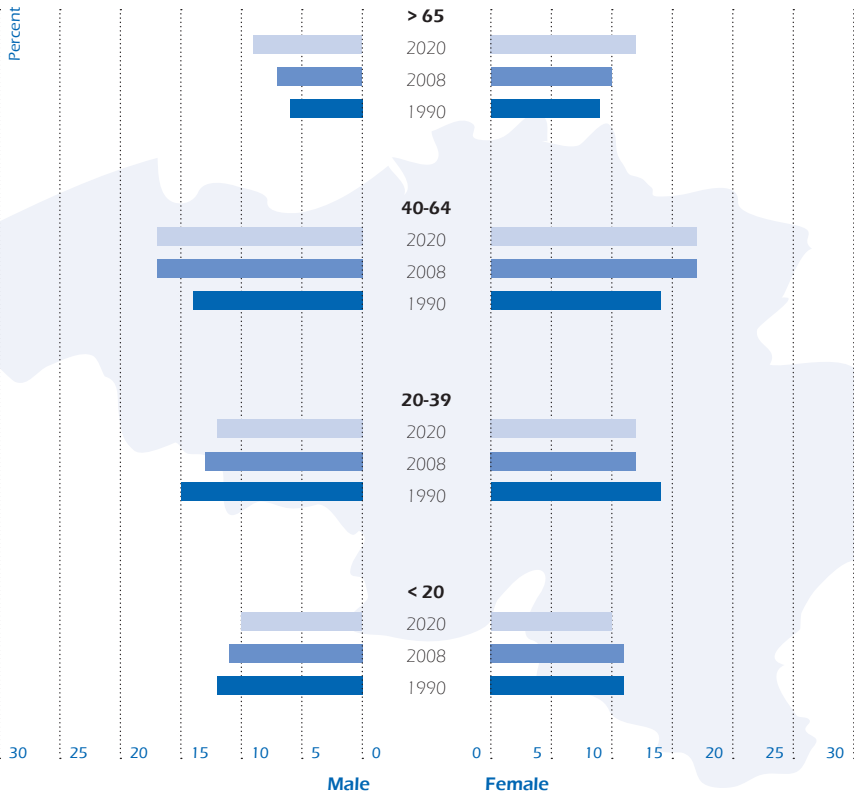
5 = great obstacle

BELGIUM



1. Statistics

Age pyramid for Belgium





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 2,01 | 2007 |
| Beds (per 100.000 population) | 525,06 | 2007 |
| Number of physicians | 44.124 | 2006 |
| Density of physicians (per 1.000 population) | 4,23 | 2006 |
| Number of nurses | 139.577 | 2004 |
| Density of nurses (per 1.000 population) | 13,41 | 2004 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 5.120.900 | 5.344.134 | 10.465.034 |
| 2008 | 5.092.834 | 5.311.117 | 10.403.951 |
| 1990 | 4.889.959 | 5.114.528 | 10.004.487 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 530.613* | 2008 |
| Gross domestic product per capita | 49.430,28* | 2008 |
| Total expenditure on health as % of GDP | 9,5 | 2006 |
| General government expenditure on health as % of total expenditure on health | 71,1 | 2006 |
| Private expenditure on health as % of total expenditure on health | 28,9 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

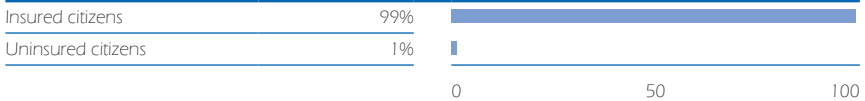
3. Healthcare System

Belgium has a compulsory healthcare system based on the social health insurance model. It is publicly funded and mainly provided privately. The federal government regulates and supervises the health insurance system. (Source: Highlights on health in Belgium. WHO, 2004)

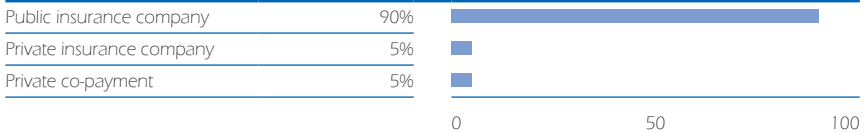
Basic insurance availability

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"/> |

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 to perform EP **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 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

| | |
|--|----|
| Pacemaker | 40 |
| ICD implantation | 25 |
| Electrophysiological studies and catheter ablation | 20 |
| CRT implantation | 20 |
| Atrial fibrillation ablation | 10 |

Number of medical faculties

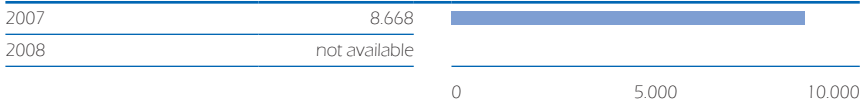
7

Percentage of academic facilities among practicing EP and implant centres

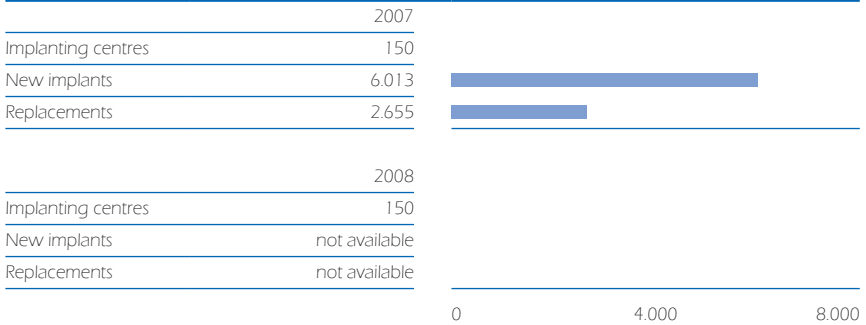
35%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 55% |
| Surgeons | 45% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| | 2007 | |
|--------------------|---------------|--|
| Implanting centres | 35 | |
| CRT pacemaker | not available | |
| CRT ICD | not available | |
| | 2008 | |
| Implanting centres | 35 | |
| CRT pacemaker | not available | |
| CRT ICD | not available | |

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

20

ICD units implanted and number of implanting centres

| | 2007 | |
|----------------|---------------|--|
| Single chamber | not available | |
| Dual chamber | not available | |
| First implants | not available | |
| Replacements | not available | |
| Total | 1.600* | |
| | 2008 | |
| Single chamber | 1.000 | |
| Dual chamber | 600 | |
| First implants | not available | |
| Replacements | not available | |
| Total | 1.600* | |

* approx.

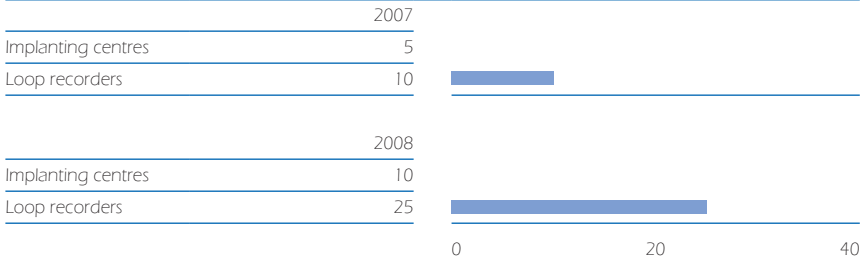
0 800 1.600

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |

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"/> |

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

35

| | 2007 | 2008 |
|---------------------------------|---------------|-------|
| Number of ablations performed | not available | 3.785 |
| Mean number (ablations/centres) | not available | 108 |
| Number of AF ablations | not available | 704 |

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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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



BOSNIA & HERZEGOVINA

There will be information in the next edition.

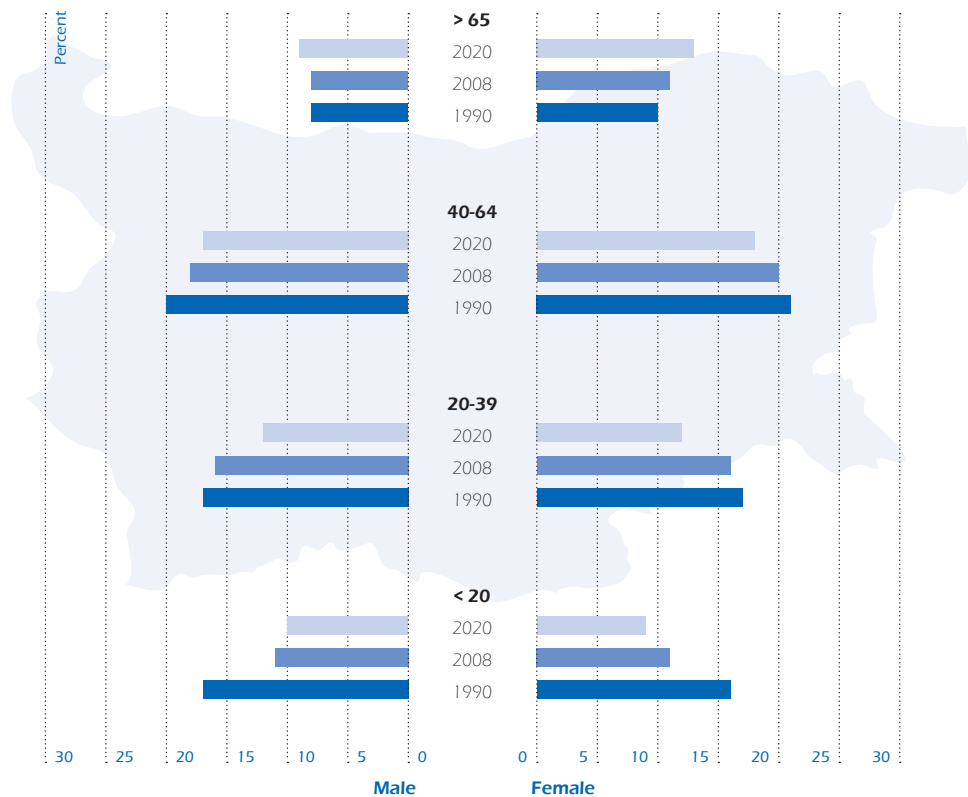


BULGARIA



1. Statistics

Age pyramid for Bulgaria





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,44 | 2007 |
| Beds (per 100.000 population) | 636,43 | 2007 |
| Number of physicians | 27.911 | 2007 |
| Density of physicians (per 1.000 population) | 3,64 | 2007 |
| Number of nurses | 32.244 | 2007 |
| Density of nurses (per 1.000 population) | 4,21 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 3.132.107 | 3.436.850 | 6.568.957 |
| 2008 | 3.485.012 | 3.777.663 | 7.262.675 |
| 1990 | 4.144.045 | 4.297.827 | 8.441.872 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 51.933* | 2008 |
| Gross domestic product per capita | 6.849,48* | 2008 |
| Total expenditure on health as % of GDP | 6,9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 59,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 40,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 971 per 100.000 citizens |
| 2008 | 988 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-------|
| 2007 | 65,8% |
| 2008 | 68% |

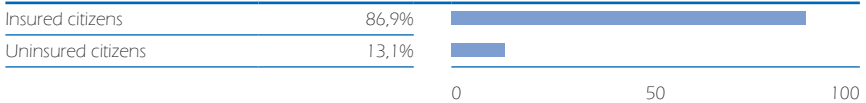
3. Healthcare System

The National Health system includes National Health System Fund and twenty private insurance funds. Basic healthcare insurance is mandatory for every citizen. Private co-payment is against the regulations.

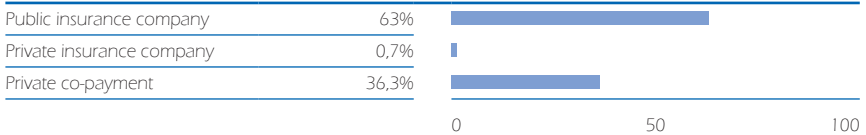
Basic insurance availability

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

National accreditation for physicians is in process of regulation.

National accreditation for centres to perform EP

No

National accreditation of centres is also 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

Official national competency guidelines for electrophysiological studies or catheter ablation

No

Required period of training to perform implantations

2 years

Training centres availability

| | |
|--|---|
| Pacemaker | 5 |
| ICD implantation | 3 |
| Electrophysiological studies and catheter ablation | 1 |
| CRT implantation | 3 |
| Atrial fibrillation ablation | 1 |

Number of medical faculties

6

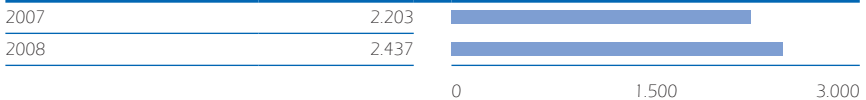
Percentage of academic facilities among practicing EP and implant centres

71,4%

50% among ablation or ICD centres, for pacemakers it is less - 21%

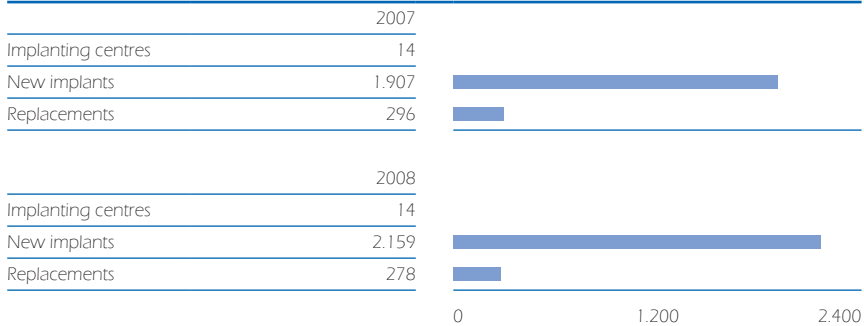
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

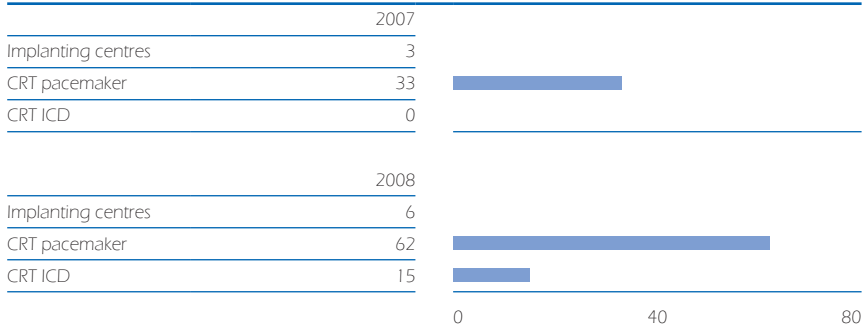


Specialty performing implants

| | |
|---------------|-------|
| Cardiologists | 82,4% |
| Surgeons | 17,6% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

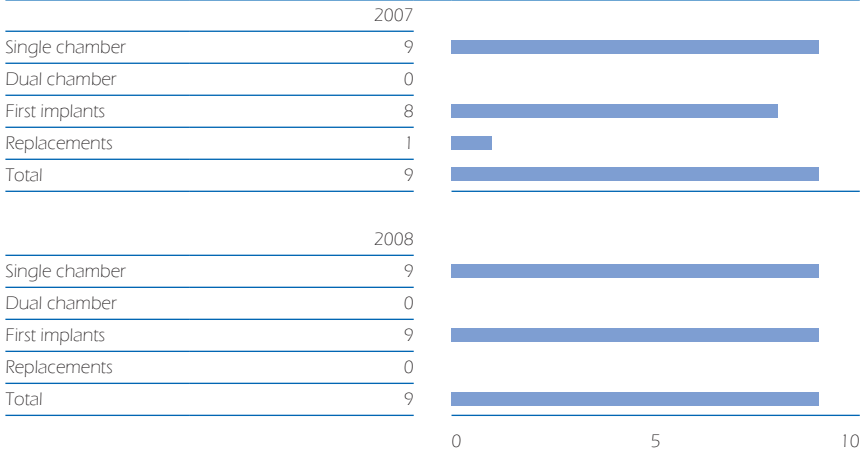
| | |
|---------------|-------|
| Cardiologists | 87,5% |
| Surgeons | 12,5% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

5

ICD units implanted and number of implanting centres

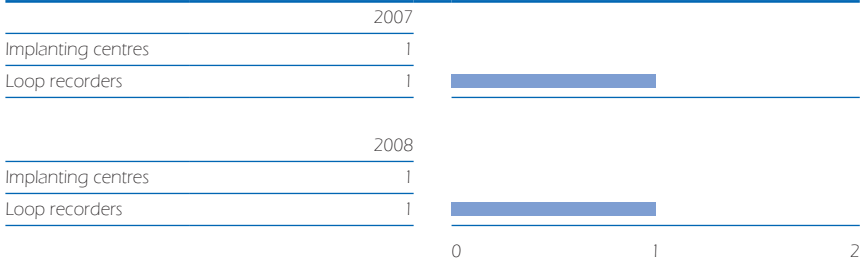


Specialty performing implants

| | |
|---------------|-------|
| Cardiologists | 85,7% |
| Surgeons | 14,3% |

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 at the National Heart Hospital

Availability of a national quality insurance system or complication registry

No

National Medical standards for device therapy and invasive electrophysiology are in process of regulation by the Ministry of Health.

Availability of a national institution coordinating and guiding device recalls

No

Device recalls are carried out by the implanting centres. Complicated implantations are referred to high volume academic centres.

10. Interventional electrophysiology

Number of performing catheter ablation centres

1

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 299 | 290 |
| Mean number (ablations/centres) | 299 | 290 |
| Number of AF ablations | 18 | 15 |

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**

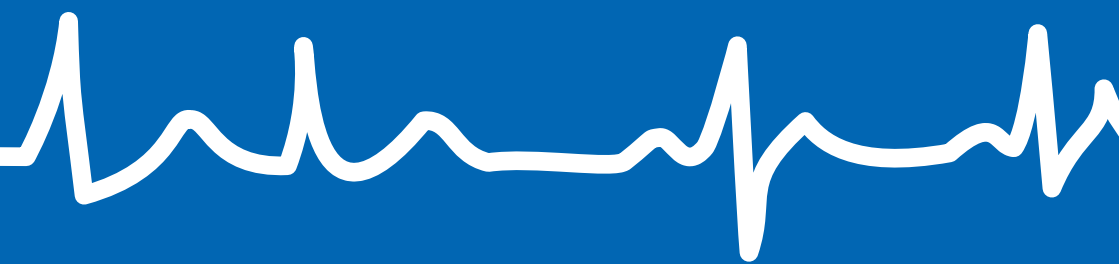
Obstacles to guideline implementation

| | 1 | 2 | 3 | 4 | 5 |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Lack of centres | <input checked="" type="checkbox"/> | <input 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 checked="" 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

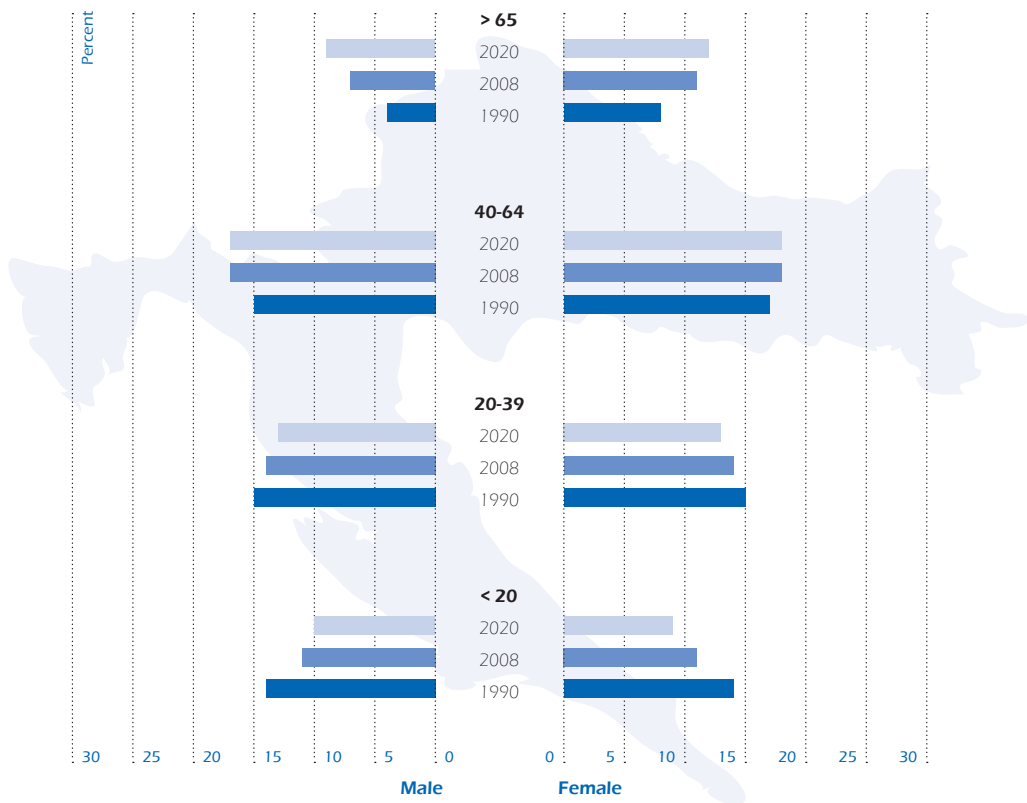
5 = great obstacle

CROATIA



1. Statistics

Age pyramid for Croatia





Healthcare data

| | | |
|---|--------|------|
| Hospitals (per 100 000 population) | 1,73 | 2007 |
| Beds (per 100 000 population) | 534,6 | 2007 |
| Number of physicians | 11.799 | 2007 |
| Density of physicians (per 1000 population) | 2,59 | 2007 |
| Number of nurses | 23.852 | 2007 |
| Density of nurses (per 1000 population) | 5,24 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.136.454 | 2.290.828 | 4.427.282 |
| 2008 | 2.160.729 | 2.330.814 | 4.491.543 |
| 1990 | 2.185.030 | 2.355.611 | 4.540.641 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 63.948* | 2008 |
| Gross domestic product per capita | 14.414,36* | 2008 |
| Total expenditure on health as % of GDP | 7,5 | 2006 |
| General government expenditure on health as % of total expenditure on health | 80,1 | 2006 |
| Private expenditure on health as % of total expenditure on health | 19,9 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 50% |
| 2008 | 50% |

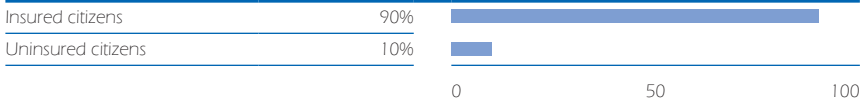
3. Healthcare System

Croatia has a National healthcare system. The Croatian Health Insurance Institute play a key role in the health system. Private insurances are also available in the country. (Health Care System in transition: Croatia, 1999)

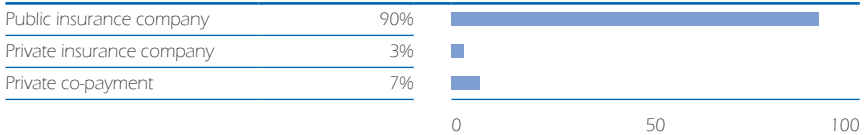
Basic insurance availability

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |

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 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 to perform EP **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 **No**

Required period of training to perform implantations

No

Training centres availability

| | |
|--|---|
| Pacemaker | 4 |
| ICD implantation | 3 |
| Electrophysiological studies and catheter ablation | 3 |
| CRT implantation | 3 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

4

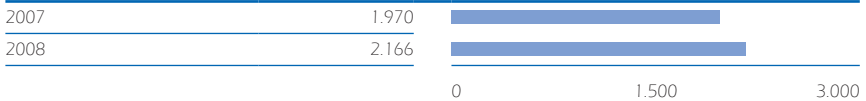
Percentage of academic facilities among practicing EP and implant centres

60%

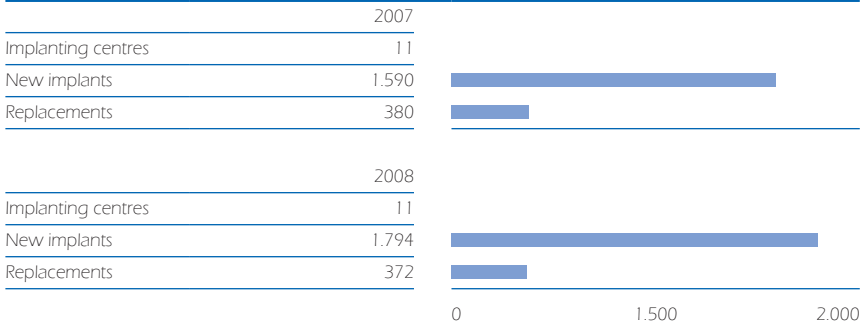
Depending on which devices and ablation procedures

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



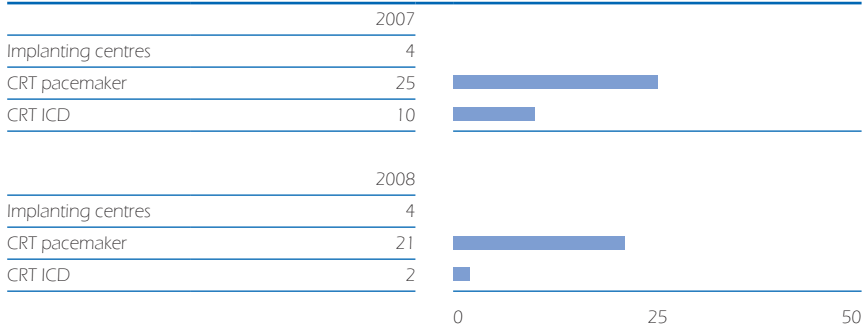
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



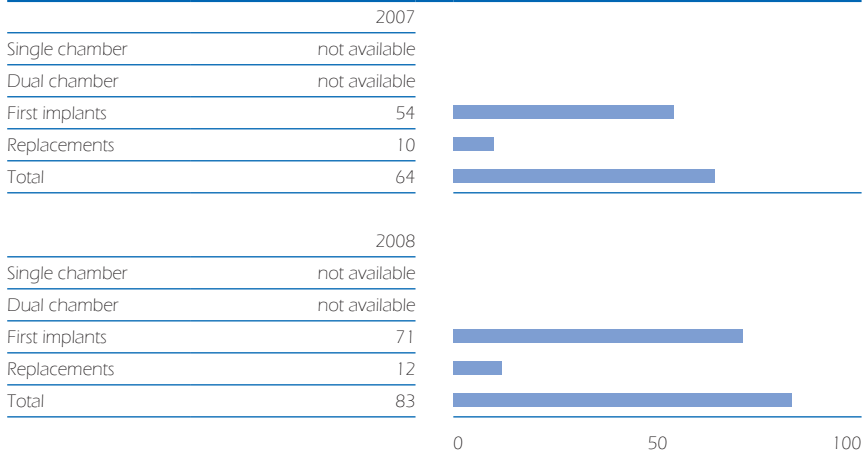
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |

7. Implantable Cardiac Defibrillator

Number of implanting centres 5

ICD units implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 20% |
| Surgeons | 80% |

8. Loop recorders

Loop recorders implanted and number of implanting centres

| | 2007 | |
|--------------------|------|--|
| Implanting centres | 0 | |
| Loop recorders | 0 | |
| | 2008 | |
| 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 checked="" type="checkbox"/> |
| Pacing* | <input checked="" type="checkbox"/> |
| Electrophysiology* | <input checked="" type="checkbox"/> |

* Croatian Registry on Cardiac Pacing, ICD and Electrophysiology

Availability of a national quality insurance system or complication registry

No

Not yet fully established

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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 217 | 264 |
| Mean number (ablations/centres) | 54 | 68 |
| Number of AF ablations | 0 | 0 |

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 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 checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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

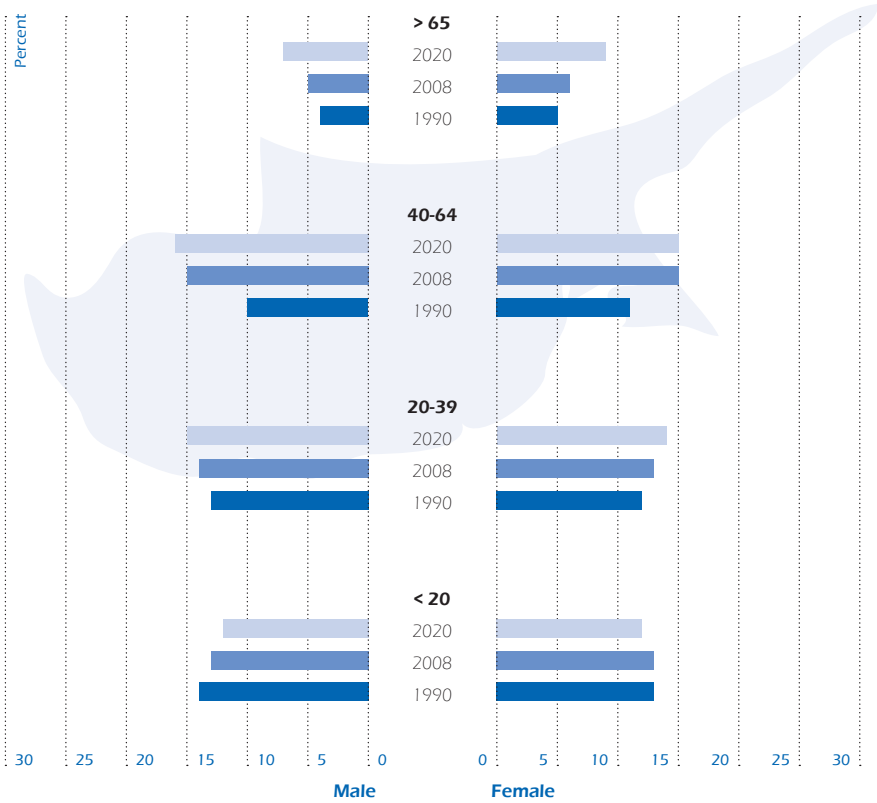
5 = great obstacle

CYPRUS



1. Statistics

Age pyramid for Cyprus





Healthcare data

| | | |
|--|-------|------|
| Hospitals (per 100.000 population) | 12,32 | 2006 |
| Beds (per 100.000 population) | 371,5 | 2006 |
| Number of physicians | 1.950 | 2006 |
| Density of physicians (per 1.000 population) | 2,53 | 2006 |
| Number of nurses | 3.361 | 2006 |
| Density of nurses (per 1.000 population) | 4,36 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|---------|---------|---------|
| 2020 | 418.702 | 420.428 | 839.130 |
| 2008 | 395.737 | 396.867 | 792.604 |
| 1990 | 339.644 | 341.705 | 681.349 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 25.585* | 2008 |
| Gross domestic product per capita | 32.194,93* | 2008 |
| Total expenditure on health as % of GDP | 6,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 44,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 55,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|------------------------|
| 2007 | 720 per 100.000 people |
| 2008 | 720 per 100.000 people |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 29% |
| 2008 | 29% |

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.



Basic insurance availability

No

Percentage of insured and uninsured citizens

| | |
|--------------------|---------------|
| Insured citizens | not available |
| Uninsured citizens | not available |

Distribution of insurance modality

| | | |
|---------------------------|---------------|---|
| Public insurance company | 70% |  |
| Private insurance company | 30% |  |
| Private co-payment | not available | |
| | | 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"/> |

* Income criteria apply



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"/> |

* Income criteria apply

4. Education

National accreditation availability

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

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**

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

| | |
|--|---|
| Pacemaker | 2 |
| ICD implantation | 1 |
| Electrophysiological studies and catheter ablation | 1 |
| CRT implantation | 1 |
| Atrial fibrillation ablation | 0 |



Number of medical faculties 0

Medical school to be established in 2011

Percentage of academic facilities among practicing EP and implant centres 0%

5. Pacemakers

Pacemaker units implanted

| | | |
|------|-----|---|
| 2007 | 250 |  |
| 2008 | 300 |  |
| | | 0 150 300 |

Pacemaker units implanted and number of implanting centres

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | | 5 |
| New implants | not available | |
| Replacements | not available | |
| | | 2008 |
| Implanting centres | | 5 |
| New implants | not available | |
| Replacements | not available | |

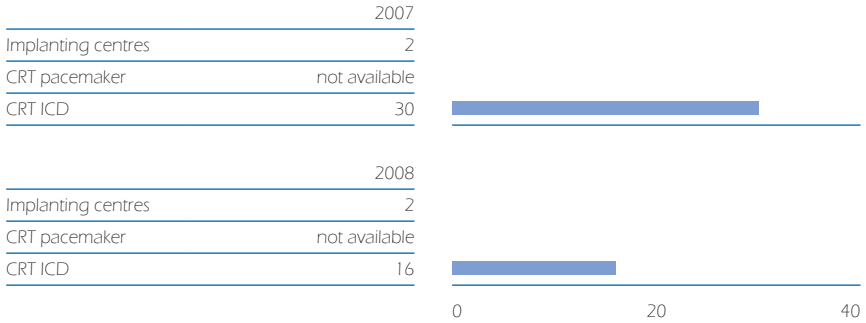
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

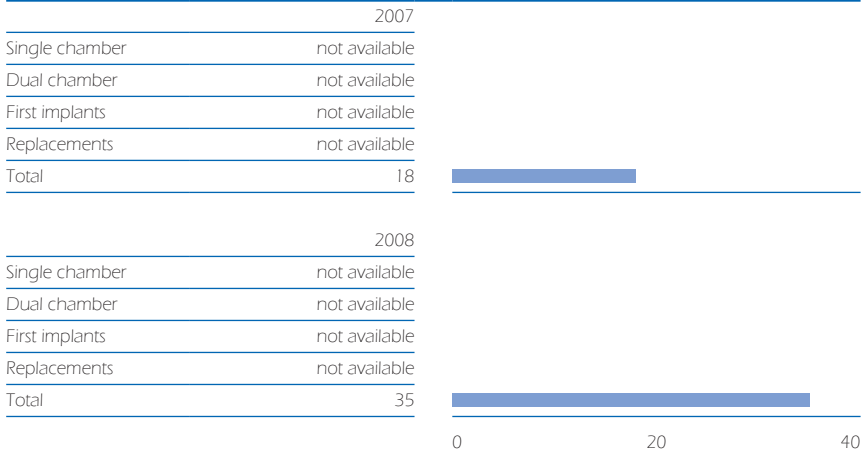
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

3

ICD units implanted and number of implanting centres

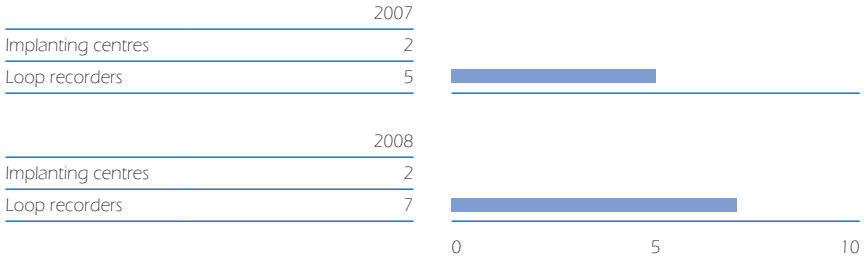


Specialty performing implants

| | |
|---------------|------|
| 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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 0 | 12 |
| Mean number (ablations/centres) | 0 | 12 |
| Number of AF ablations | 0 | 0 |

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 checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input 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 type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

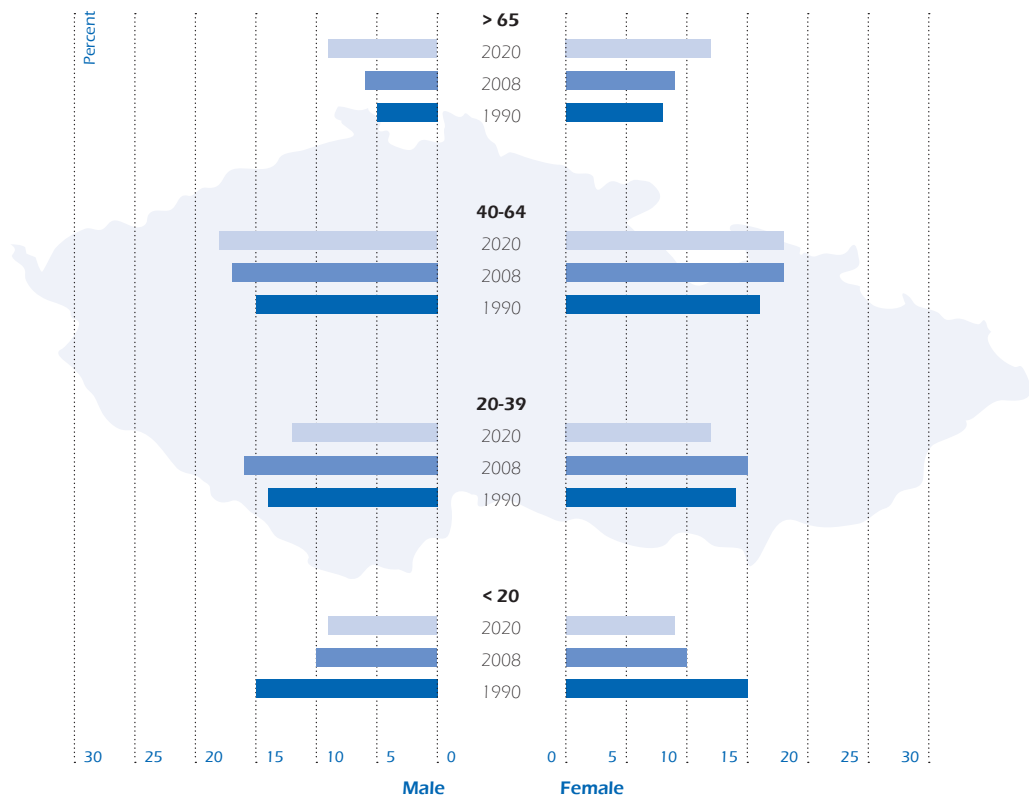
5 = great obstacle

CZECH REPUBLIC



1. Statistics

Age pyramid for Czech Republic





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 3,34 | 2007 |
| Beds (per 100.000 population) | 810,52 | 2007 |
| Number of physicians | 36.815 | 2007 |
| Density of physicians (per 1.000 population) | 3,57 | 2007 |
| Number of nurses | 86.989 | 2007 |
| Density of nurses (per 1.000 population) | 8,43 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 4.883.416 | 5.130.003 | 10.013.419 |
| 2008 | 4.981.619 | 5.239.292 | 10.220.911 |
| 1990 | 5.001.688 | 5.303.470 | 10.305.158 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 217.215* | 2008 |
| Gross domestic product per capita | 21.040,64* | 2008 |
| Total expenditure on health as % of GDP | 6,8 | 2006 |
| General government expenditure on health as % of total expenditure on health | 87,9 | 2006 |
| Private expenditure on health as % of total expenditure on health | 12,1 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|------------------------|
| 2007 | 508 per 100.000 people |
| 2008 | 511 per 100.000 people |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-------|
| 2007 | 50,1% |
| 2008 | 49,8% |



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 | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 0% |  |
| Private co-payment | 0% |  |

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 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"/> |
| Licences of the Czech Chamber of Physicians | |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **Yes**

For Cardiology training yes, for 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, surgeon

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Czech Chamber of Physicians Licenses and recommendations of The Working group on arrhythmias and cardiac pacing

Required period of training to perform implantations

No

Training centres availability

| | |
|--|----|
| Pacemaker | 18 |
| ICD implantation | 15 |
| Electrophysiological studies and catheter ablation | 15 |
| CRT implantation | 16 |
| Atrial fibrillation ablation | 9 |

Number of medical faculties

7

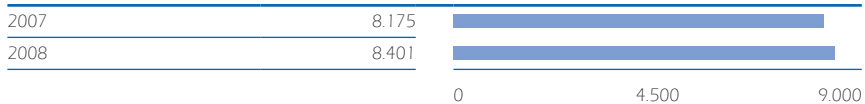
Percentage of academic facilities among practicing EP and implant centres

50%

50% among ablation or ICD centres, for pacemakers it is less - 21%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 38 |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | 39 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-----|
| Implanting centres | 16 |
| CRT pacemaker | 387 |
| CRT ICD | 412 |

| 2008 | |
|--------------------|-----|
| Implanting centres | 15 |
| CRT pacemaker | 492 |
| CRT ICD | 669 |

Specialty performing implants

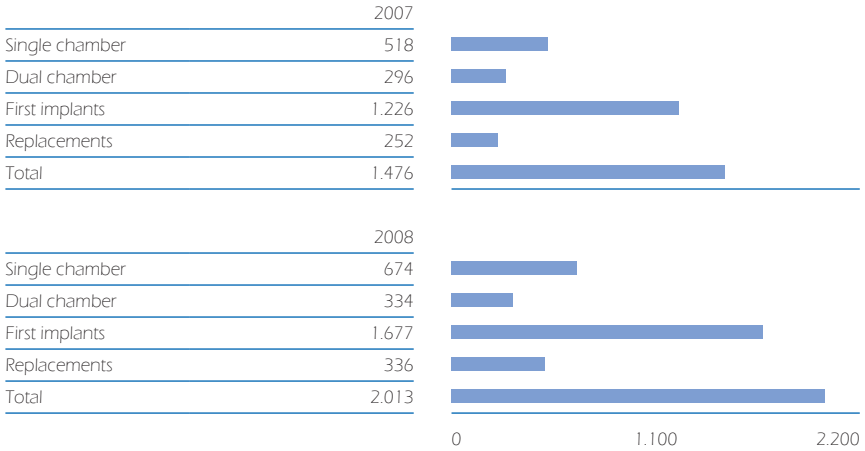
| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

15

ICD units implanted and number of implanting centres

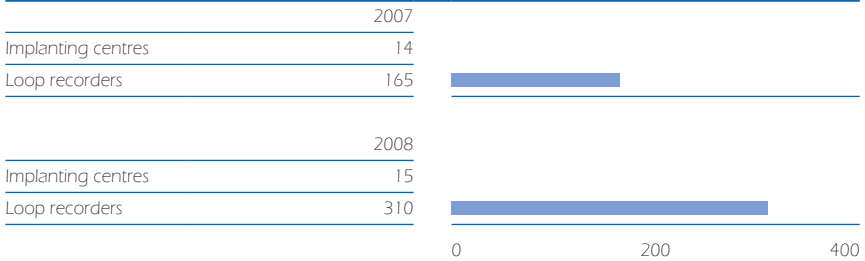


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 80% |
| Surgeons | 20% |

8. Loop recorders

Loop recorders implanted and number of implanting centres





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"/> |

Availability of a national quality insurance system or complication registry

No

Availability of a national institution coordinating and guiding device recalls

Yes

State institution SUKL – National administration for drug control

10. Interventional electrophysiology

Number of performing catheter ablation centres

14

14 for adults, 2 for children

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 2.901 | 3.470 |
| Mean number (ablations/centres) | 207.2 | 247.8 |
| Number of AF ablations | 546 | 900 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

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

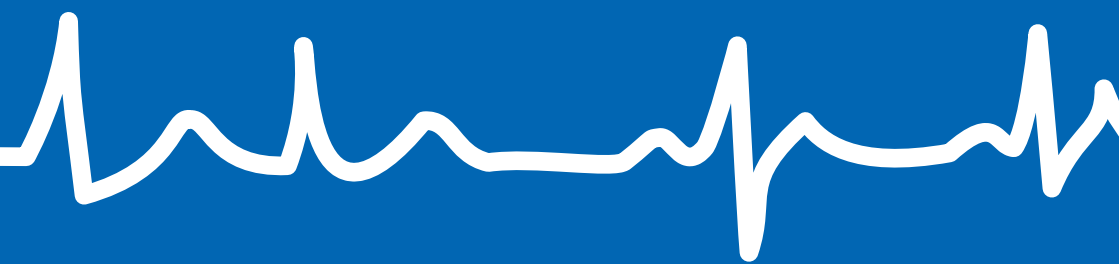
Obstacles to guideline implementation

| | 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 type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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

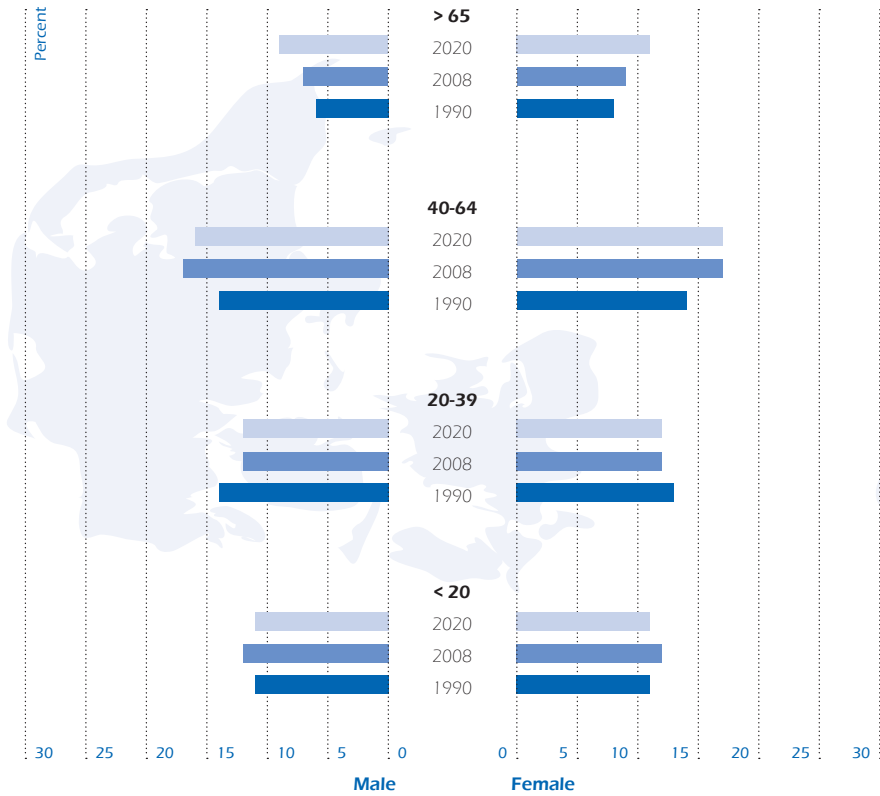
5 = great obstacle

DENMARK



1. Statistics

Age pyramid for Denmark





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,09 | 2005 |
| Beds (per 100.000 population) | 349,48 | 2007 |
| Number of physicians | 17.226 | 2006 |
| Density of physicians (per 1.000 population) | 3,2 | 2006 |
| Number of nurses | 51.787 | 2006 |
| Density of nurses (per 1.000 population) | 9,61 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.772.476 | 2.869.821 | 5.642.297 |
| 2008 | 2.709.804 | 2.774.919 | 5.484.723 |
| 1990 | 2.540.449 | 2.613.903 | 5.154.352 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 369.583* | 2008 |
| Gross domestic product per capita | 67.386,89* | 2008 |
| Total expenditure on health as % of GDP | 9,5 | 2006 |
| General government expenditure on health as % of total expenditure on health | 84 | 2006 |
| Private expenditure on health as % of total expenditure on health | 16 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Available for 2006, where it was 220 per 100.000 citizens

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Available for 2006, where it was 19%



3. Healthcare System

Denmark has a decentralised healthcare system providing universal coverage for all residents. It is tax based. Hospital care, general practitioner services and healthcare services are free at the point of use. (Highlights on health in Denmark, WHO, 2004)

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 0% |  |
| Private co-payment | 0% |  |

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 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 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 to perform EP **Yes**

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

| | |
|--|----|
| Pacemaker | 13 |
| ICD implantation | 5 |
| Electrophysiological studies and catheter ablation | 6 |
| CRT implantation | 5 |
| Atrial fibrillation ablation | 6 |

Number of medical faculties

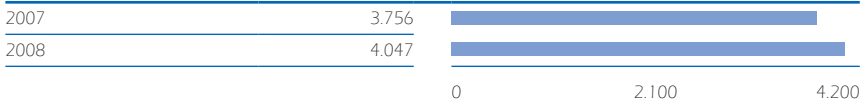
3

Percentage of academic facilities among practicing EP and implant centres

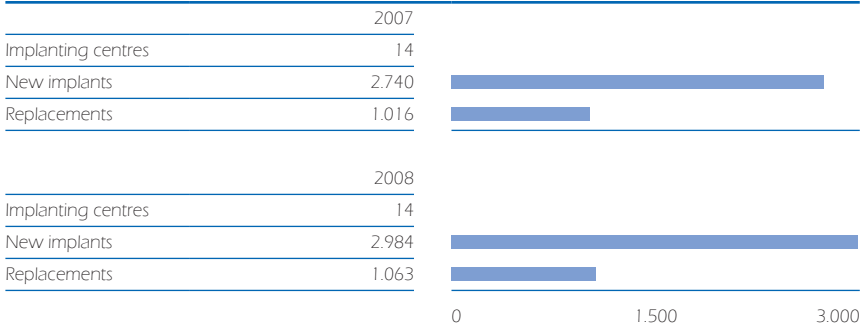
50%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



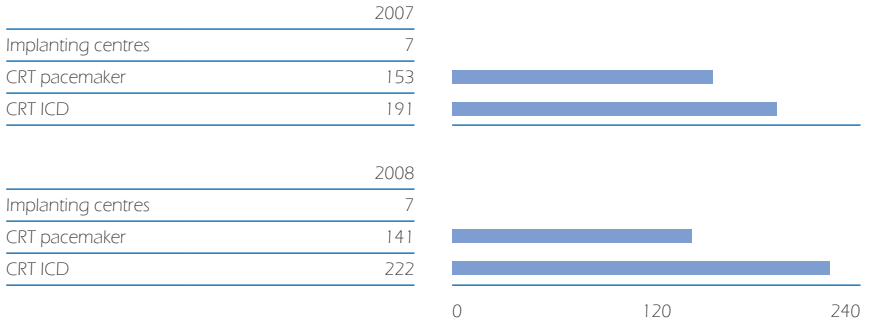
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

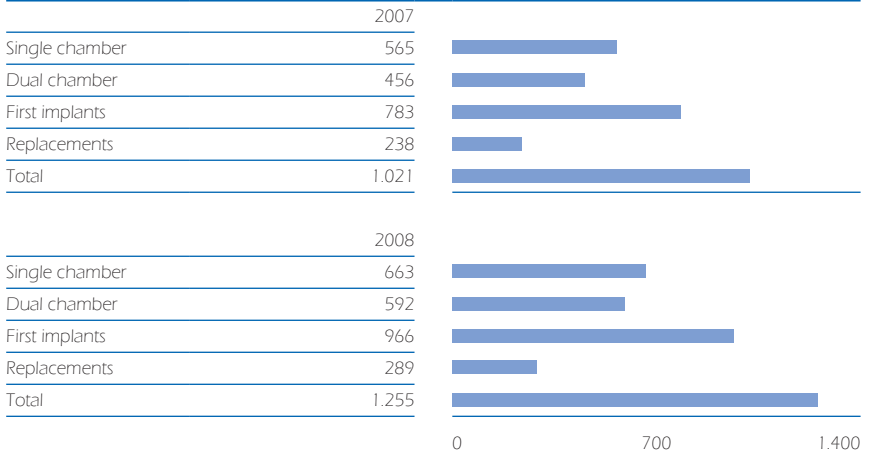
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

5

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

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | | 2008 |
| Implanting centres | not available | |
| Loop recorders | not available | |

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"/> |

Availability of a national quality insurance system or complication registry

Yes

Danish Pacemaker and ICD registry

Availability of a national institution coordinating and guiding device recalls

Yes

Danish Pacemaker and ICD Register



10. Interventional electrophysiology

Number of performing catheter ablation centres

6

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 2.350 | 2.315 |
| Mean number (ablations/centres) | 390 | 385 |
| Number of AF ablations | 1.130 | 1.100 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input checked="" type="checkbox"/> |
| U.S. | <input type="checkbox"/> |
| European | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of trained personnel | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input 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

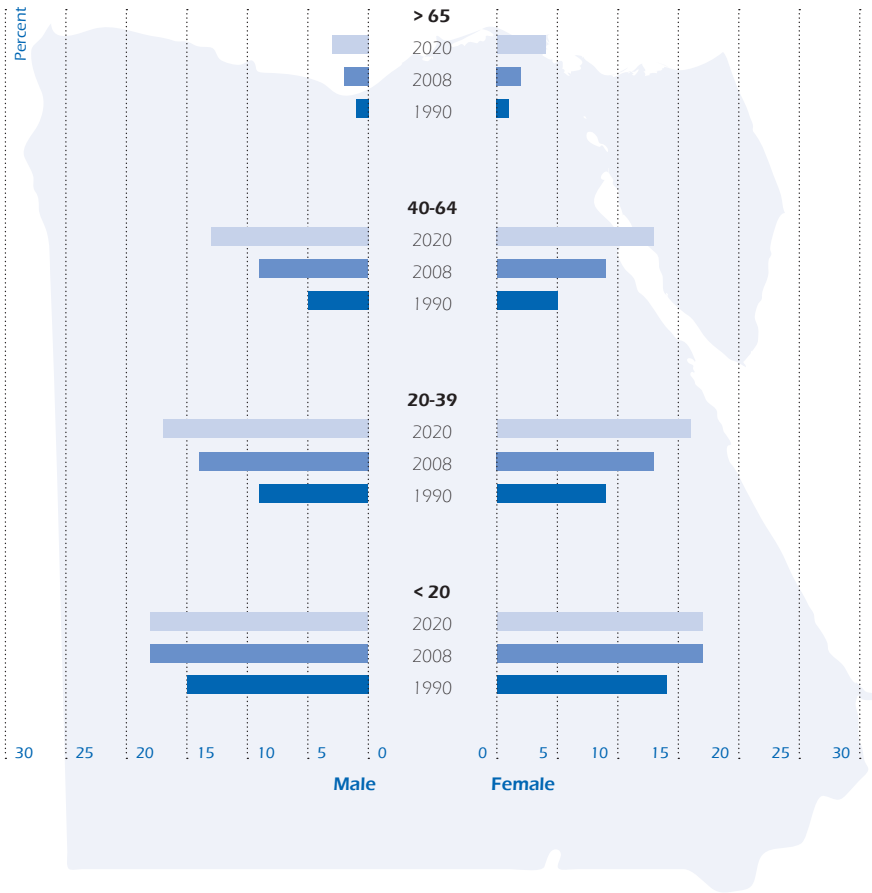
5 = great obstacle

EGYPT



1. Statistics

Age pyramid for Egypt





Healthcare data

| | | |
|--|---------------|---------------|
| Hospitals (per 100.000 population) | not available | not available |
| Beds (per 100.000 population) | 220 | 2005 |
| Number of physicians | 179.900 | 2005 |
| Density of physicians (per 1.000 population) | 2,4 | 2005 |
| Number of nurses | 249.787 | 2005 |
| Density of nurses (per 1.000 population) | 3,4 | 2005 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 49.021.745 | 48.444.320 | 97.466.065 |
| 2008 | 41.186.961 | 40.526.556 | 81.713.517 |
| 1990 | 28.706.068 | 27.977.152 | 56.683.220 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 158.255* | 2008 |
| Gross domestic product per capita | 2.108,80* | 2008 |
| Total expenditure on health as % of GDP | 6,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 40,7 | 2006 |
| Private expenditure on health as % of total expenditure on health | 59,3 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|-----------------------------|
| 2007 | 1.000 per 1000.000 citizens |
| 2008 | 1.100 per 1000.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

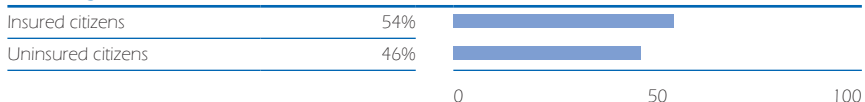
3. Healthcare System

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.

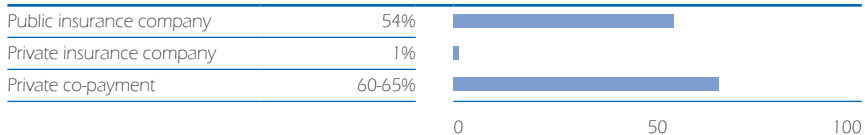
Basic insurance availability

No

Percentage of insured and uninsured citizens



Distribution of insurance modality



Possibility of subscribing to private health insurance plans

Yes



Co-payment necessary for the following therapy

| | |
|---|-------------------------------------|
| ICD devices | <input type="checkbox"/> |
| Pacemakers | <input checked="" type="checkbox"/> |
| Ablation | <input type="checkbox"/> |
| Co-payment for DDI pacemakers and others. | |

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"/> |

4. Education

National accreditation availability

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

National accreditation for physicians

Certification/licencing **Yes**

National accreditation for centres to perform EP

No

National Society supporting EHRA accreditation system

No

Specialty required for catheter ablation

Cardiologist, subspecialty electrophysiologist

Yes

Specialty required for ICD or pacemaker implants

Cardiologist, subspecialty electrophysiologist

Yes

Official national competency guidelines for electrophysiological studies or catheter ablation

No

Required period of training to perform implantations

4 years

Training centres availability

| | |
|--|----|
| Pacemaker | 12 |
| ICD implantation | 8 |
| Electrophysiological studies and catheter ablation | 6 |
| CRT implantation | 8 |
| Atrial fibrillation ablation | 4 |

Number of medical faculties

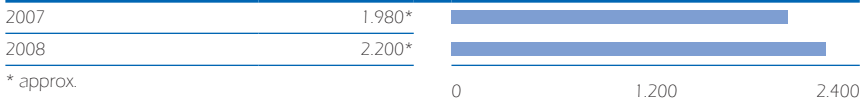
not available

Percentage of academic facilities among practicing EP and implant centres

60%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | not available |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | not available |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|----------------------------------|-----|
| Cardiologists | 40% |
| Surgeons | 5% |
| Other (Critical care physicians) | 55% |

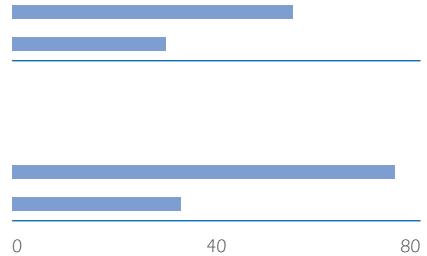
6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-----|
| Implanting centres | 5 |
| CRT pacemaker | 55* |
| CRT ICD | 30* |

| 2008 | |
|--------------------|-----|
| Implanting centres | 6 |
| CRT pacemaker | 75* |
| CRT ICD | 33* |

* Refer to a critical care center only



Specialty performing implants

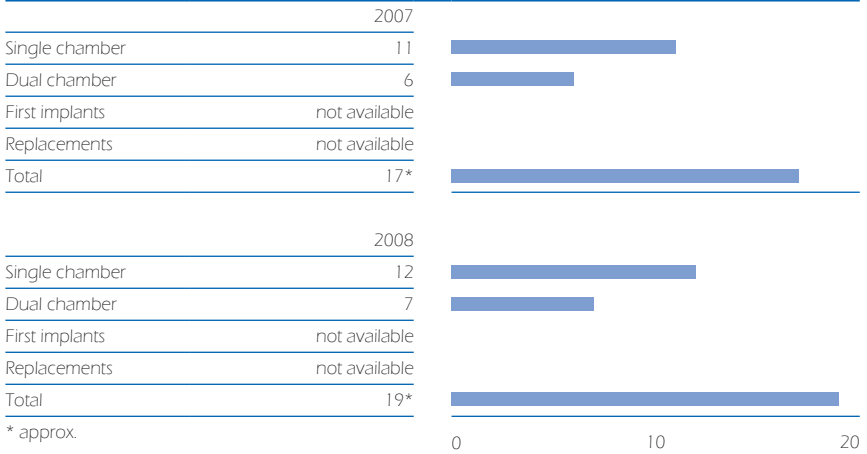
| | |
|----------------------------------|-----|
| Cardiologists | 50% |
| Surgeons | 0% |
| Other (Critical care physicians) | 50% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

8

ICD units implanted and number of implanting centres



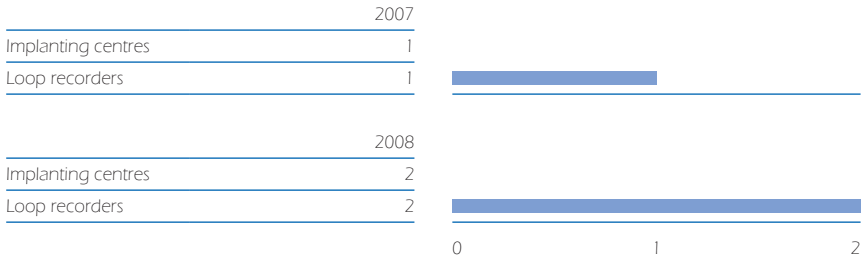
Specialty performing implants

| | |
|----------------------------------|-----|
| Cardiologists | 40% |
| Surgeons | 5% |
| Other (Critical care physicians) | 55% |



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

6

| | 2007 | 2008 |
|---------------------------------|---------------|---------------|
| Number of ablations performed | 225* | 250* |
| Mean number (ablations/centres) | 37,5 | 41,6 |
| Number of AF ablations | not available | not available |

* approx.

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input checked="" type="checkbox"/> |
| U.S. | <input checked="" type="checkbox"/> |
| European | <input 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 type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

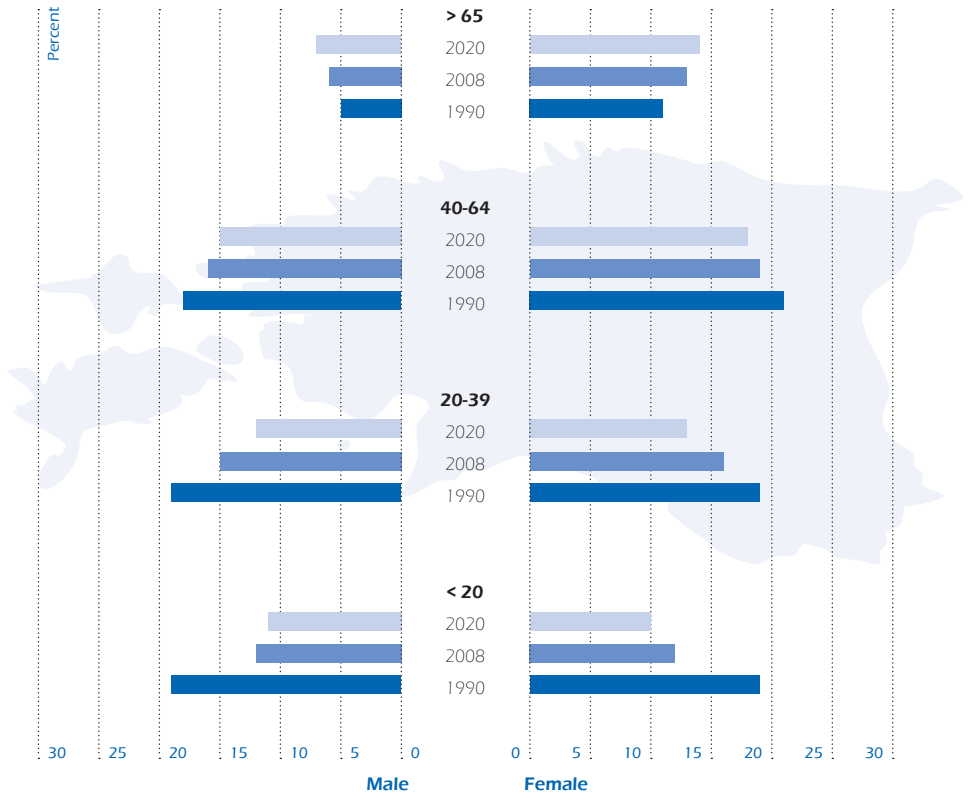
5 = great obstacle

ESTONIA



1. Statistics

Age pyramid for Estonia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,25 | 2007 |
| Beds (per 100.000 population) | 556,99 | 2007 |
| Number of physicians | 4.414 | 2006 |
| Density of physicians (per 1.000 population) | 3,29 | 2006 |
| Number of nurses | 8.803 | 2006 |
| Density of nurses (per 1.000 population) | 6,55 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|---------|---------|-----------|
| 2020 | 546.095 | 656.609 | 1.202.704 |
| 2008 | 597.210 | 710.395 | 1.307.605 |
| 1990 | 733.648 | 835.674 | 1.569.322 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 25.207* | 2008 |
| Gross domestic product per capita | 18.809,06* | 2008 |
| Total expenditure on health as % of GDP | 5 | 2006 |
| General government expenditure on health as % of total expenditure on health | 74,2 | 2006 |
| Private expenditure on health as % of total expenditure on health | 25,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 671 per 100.000 citizens |
| 2008 | 673 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 52% |
| 2008 | 54% |

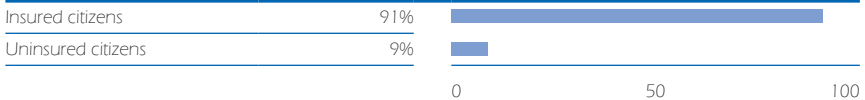
3. Healthcare System

Estonia has a State owned central tax-based sick fund. Emergency medical care is free of charge to all citizens. Most of the hospitals are public. Private hospitals focus on gynaecology and obstetrics, vascular surgery, reconstructive surgery and orthopaedics. Hospitals are categorized by competence level. Tartu University Clinic and North Estonian Medical Centre have the highest level of competence and are reference hospitals for others. First line level healthcare is provided by family doctors (GP).

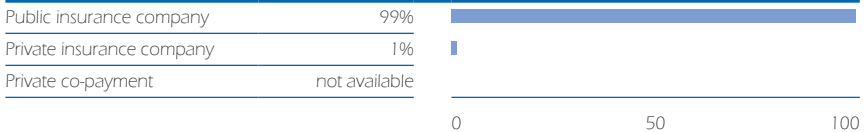
Basic insurance availability

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |

Insured patients will pay an average of 2 Euros for every night stayed in the hospital.
No additional payments are needed.

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"/> |

Reimbursement for ICDs starts in July 2009

4. Education

National accreditation availability

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

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **Yes**

Applies to all healthcare providers

National Society supporting EHRA accreditation system **Yes**

EHRA accreditation is voluntary, not demanded by National Society

Specialty required for catheter ablation **Yes**

Cardiologist; no subspecialty – electrophysiologist officially established, special training on-site after residency in cardiology required

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

Cardiologist, cardiac surgeon

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

ESC guidelines

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

Training centres availability

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

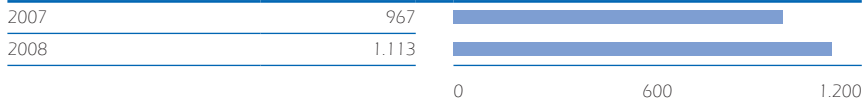
Number of medical faculties **1**

Percentage of academic facilities among practicing EP and implant centres **50%**

Pacemaker implant centres 20% and ICD and CRT implanting centres 50%

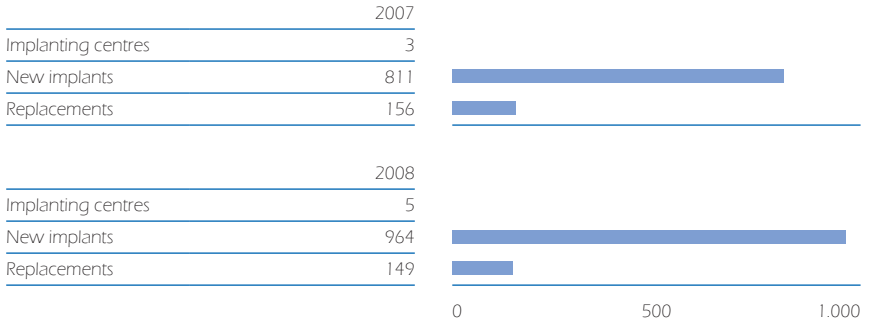
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

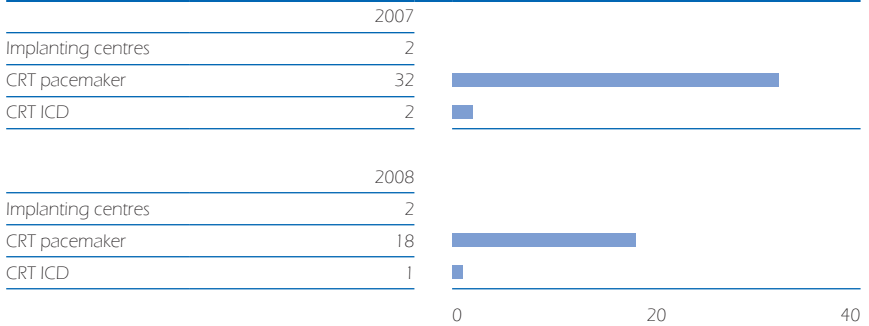


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 62% |
| Surgeons | 38% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

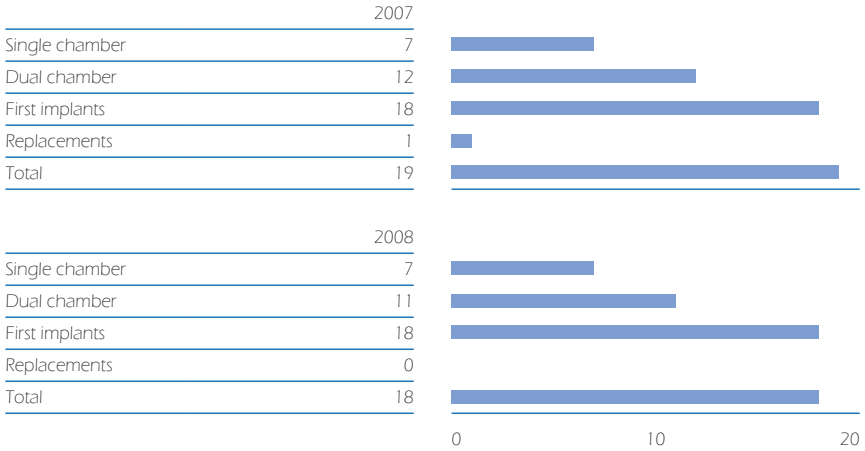
| | |
|---------------|-----|
| Cardiologists | 76% |
| Surgeons | 24% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

2

ICD units implanted and number of implanting centres

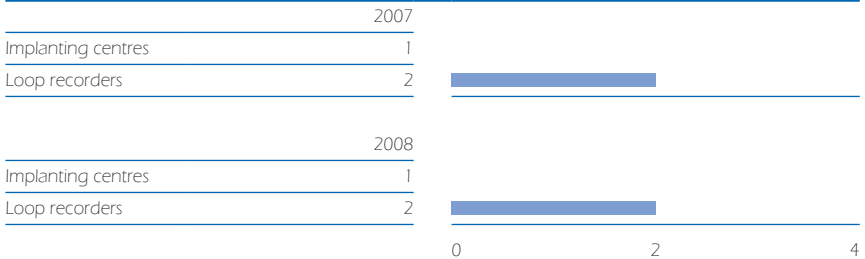


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 81% |
| Surgeons | 19% |

8. Loop recorders

Loop recorders implanted and number of implanting centres





Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 0% |
| Surgeons | 100% |

9. Device specific

Availability of remote monitoring of devices

Will be available for ICD-s from autumn 2009

National registry for

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

Estonian Registry for pacemakers and ICDs

Availability of a national quality insurance system or complication registry

No

Availability of a national institution coordinating and guiding device recalls

Yes

Function of the State Agency of Medicines

10. Interventional electrophysiology

Number of performing catheter ablation centres

2

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 406 | 497 |
| Mean number (ablations/centres) | 203 | 248 |
| Number of AF ablations | 30* | 96* |

* catheter based

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

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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Lack of trained personnel | <input checked="" type="checkbox"/> | <input 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

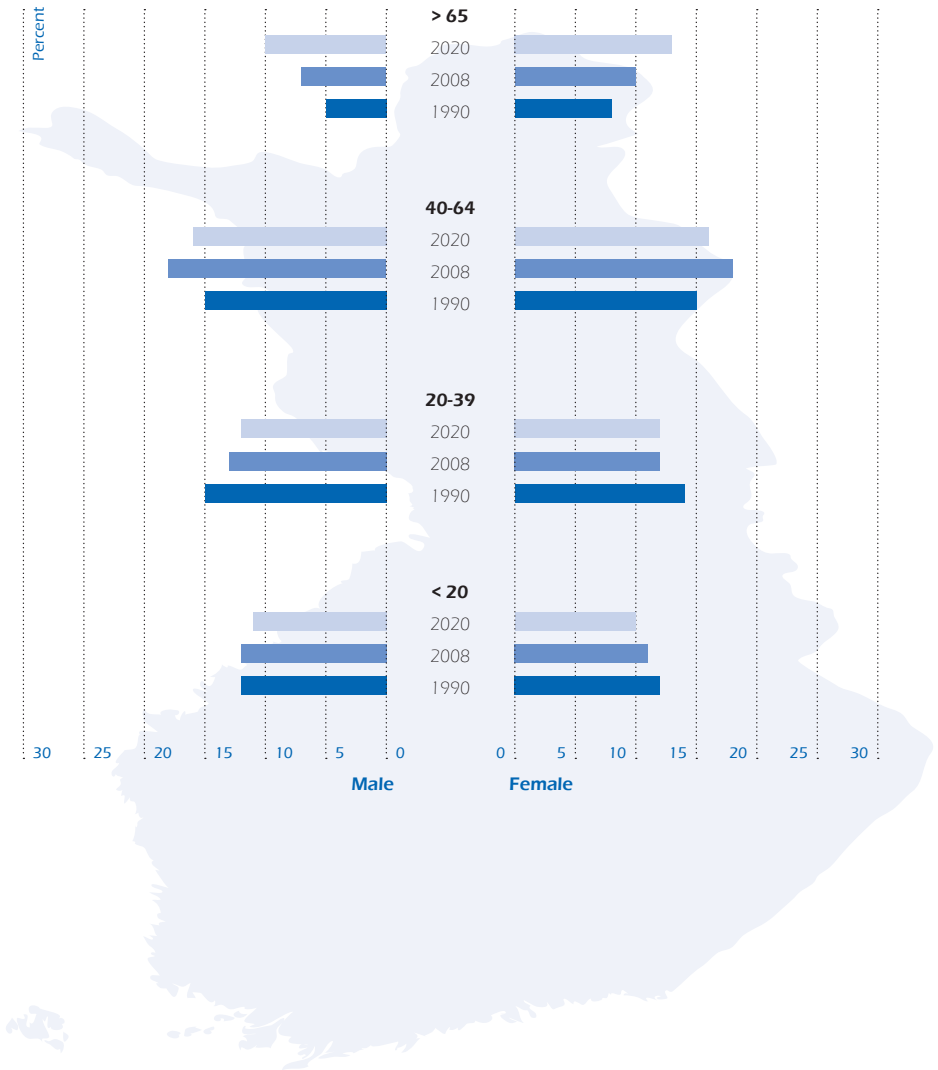
5 = great obstacle

FINLAND



1. Statistics

Age pyramid for Finland





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 6,45 | 2007 |
| Beds (per 100.000 population) | 682,49 | 2007 |
| Number of physicians | 17.503 | 2007 |
| Density of physicians (per 1.000 population) | 3,31 | 2007 |
| Number of nurses | 45.040 | 2006 |
| Density of nurses (per 1.000 population) | 8,55 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.576.746 | 2.695.245 | 5.271.991 |
| 2008 | 2.566.796 | 2.677.953 | 5.244.749 |
| 1990 | 2.434.646 | 2.579.140 | 5.013.786 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 287.621* | 2008 |
| Gross domestic product per capita | 54.577,85* | 2008 |
| Total expenditure on health as % of GDP | 7,6 | 2006 |
| General government expenditure on health as % of total expenditure on health | 78,5 | 2006 |
| Private expenditure on health as % of total expenditure on health | 21,5 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | 20,7% |

3. Healthcare System

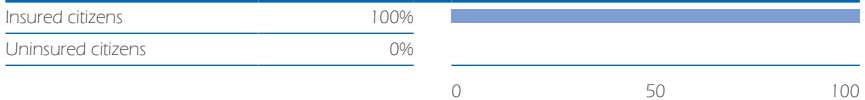
Finland has a compulsory healthcare system which is tax based. It provides comprehensive coverage for the entire population. The Ministry of Social Affairs and Health issues the legislation on health and social care policies and monitors the implementation. At a local level, the municipal health committee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

(Source: Highlights on health in Finland. WHO 2004)

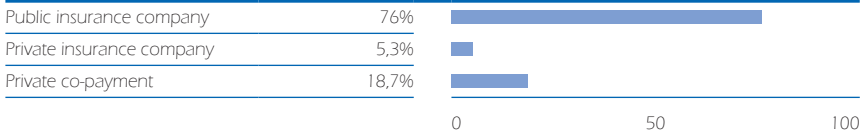
Basic insurance availability

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |

Patients only have to pay a nominal fee for hospital admission but no fee is charged for the devices or ablation.

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 to perform EP **No**

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **No**

There are no official requirements, however special training in EP is recommended.

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

There are no official requirements, however special training in EP is recommended.

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

Required period of training to perform implantations

No

Training centres availability

| | |
|--|----|
| Pacemaker | 16 |
| ICD implantation | 5 |
| Electrophysiological studies and catheter ablation | 5 |
| CRT implantation | 5 |
| Atrial fibrillation ablation | 3 |

Number of medical faculties

5

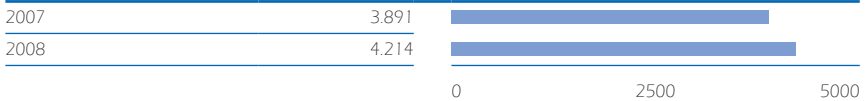
Percentage of academic facilities among practicing EP and implant centres

20%

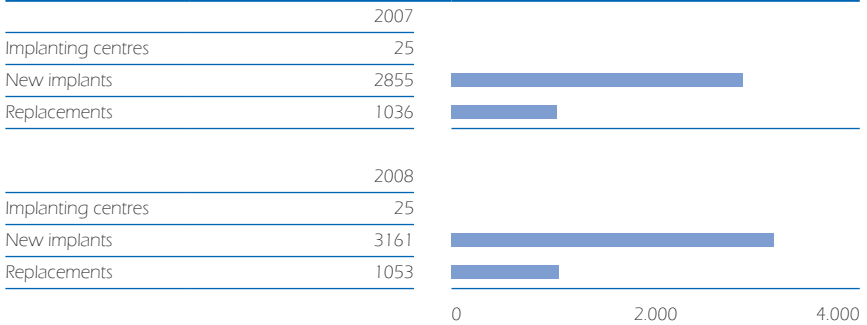
20% for devices and approx. 95% for ablations

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres





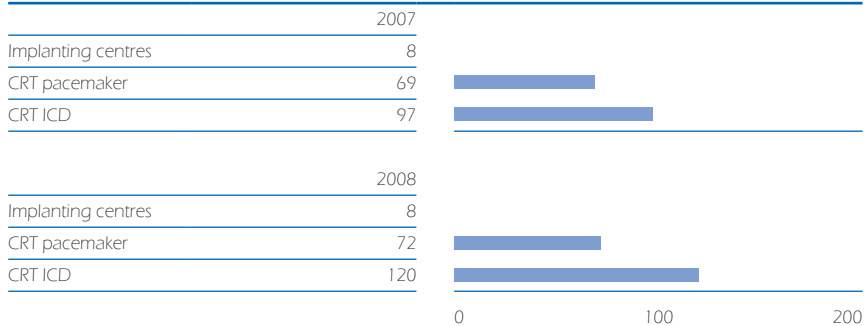
Specialty performing implants

| | |
|-------------------|------|
| Cardiologists | 85% |
| Surgeons | 10%* |
| Internal medicine | 5% |

*mainly replacements

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5%* |

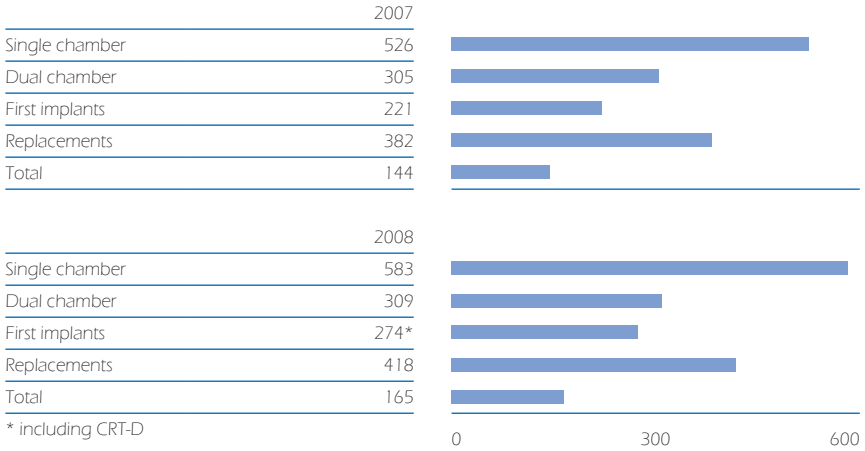
* mainly replacements

7. Implantable Cardiac Defibrillator

Number of implanting centres

16

ICD units implanted and number of implanting centres



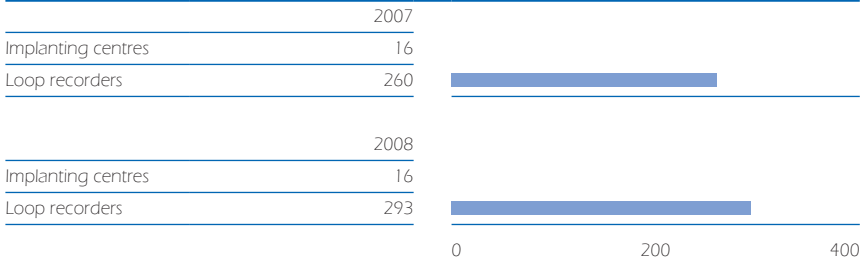
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 95% |
| Surgeons | 10%* |

* mainly replacements

8. Loop recorders

Loop recorders implanted and number of implanting centres





Specialty performing implants

| | |
|-------------------|-----|
| Cardiologists | 95% |
| Surgeons | 0% |
| Internal medicine | 5% |

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

Yes

National Agency for Medicines Medical Device Department

Availability of a national institution coordinating and guiding device recalls

Yes

National Agency for Medicines Medical Device Department

10. Interventional electrophysiology

Number of performing catheter ablation centres

7

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.184 | 1.205 |
| Mean number (ablations/centres) | 169 | 172 |
| Number of AF ablations | 215 | 252 |

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 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 type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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

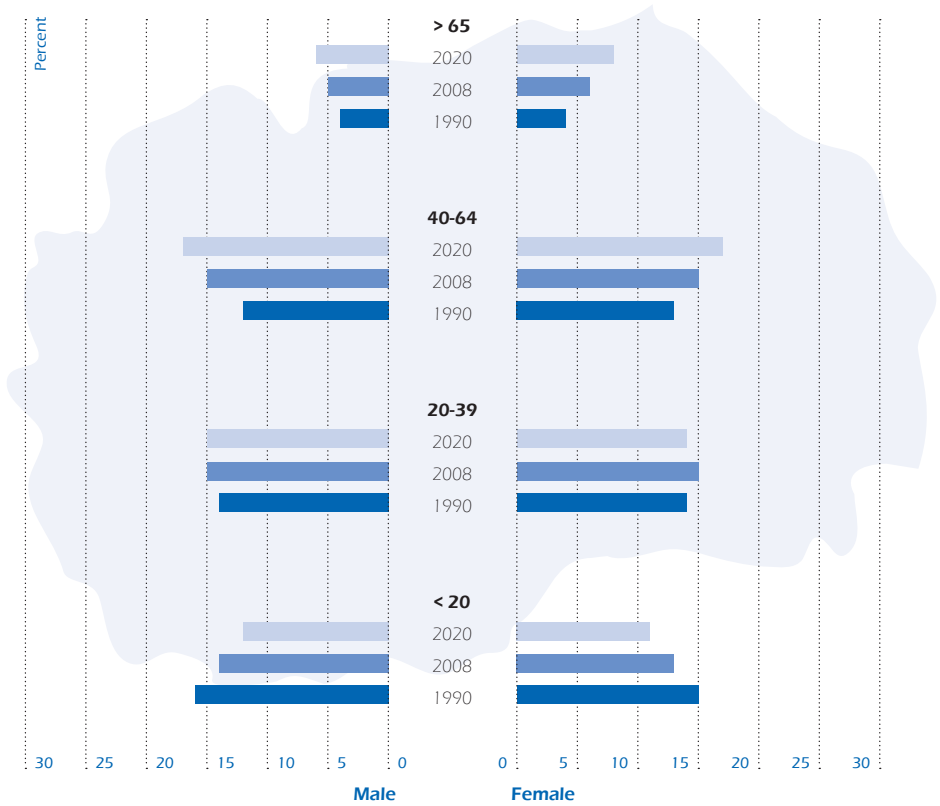
5 = great obstacle

Former Yugoslav Republic of
MACEDONIA



1. Statistics

Age pyramid for FYROM





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 2,69 | 2007 |
| Beds (per 100.000 population) | 462,69 | 2006 |
| Number of physicians | 5.187 | 2006 |
| Density of physicians (per 1.000 population) | 2,54 | 2006 |
| Number of nurses | 7.545 | 2006 |
| Density of nurses (per 1.000 population) | 2,54 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 1.051.601 | 1.061.173 | 2.112.774 |
| 2008 | 1.028.698 | 1.032.617 | 2.061.315 |
| 1990 | 968.931 | 966.103 | 1.935.034 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 9.624* | 2008 |
| Gross domestic product per capita | 4.683,24* | 2008 |
| Total expenditure on health as % of GDP | 8,2 | 2006 |
| General government expenditure on health as % of total expenditure on health | 71,6 | 2006 |
| Private expenditure on health as % of total expenditure on health | 28,4 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

3. Healthcare System

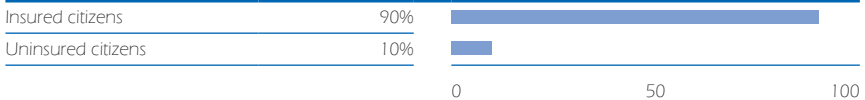
The healthcare system in the former Yugoslav Republic of Macedonia is based on a National Health system which is administrated by the Ministry of Health. A system of compulsory health insurance was established to coordinate health insurance for the population and to oversee health services.

(Health care systems in transition, 2000)

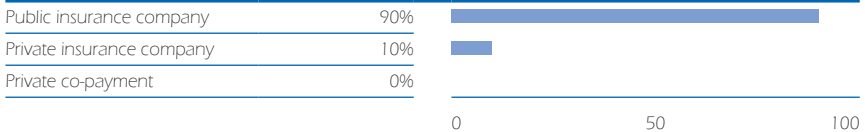
Basic insurance availability

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |

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 to perform EP **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

No

Required period of training to perform implantations

No

Training centres availability

| | |
|--|---|
| Pacemaker | 1 |
| ICD implantation | 1 |
| Electrophysiological studies and catheter ablation | 1 |
| CRT implantation | 1 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

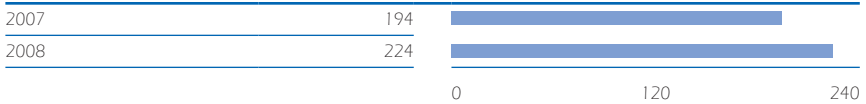
2

Percentage of academic facilities among practicing EP and implant centres

1%

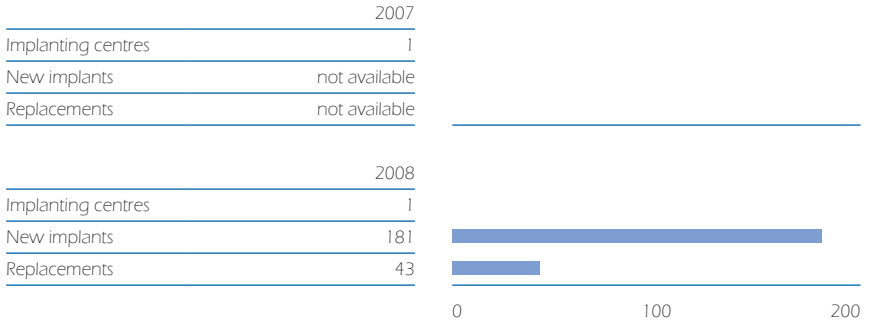
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

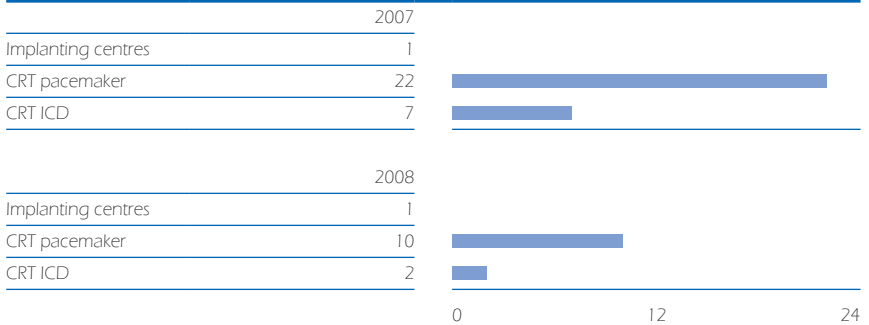


Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

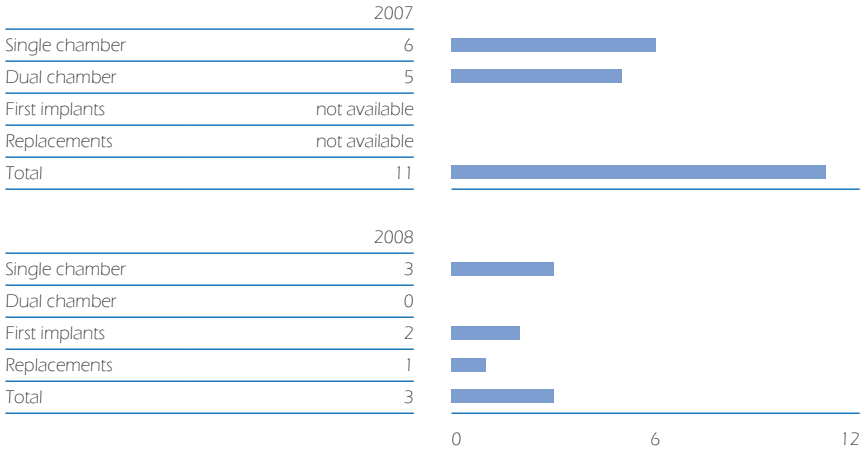
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

1

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

| | | 2007 | |
|--------------------|---|------|--|
| Implanting centres | 1 | | |
| Loop recorders | 0 | | |
| | | 2008 | |
| Implanting centres | 1 | | |
| 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**

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 69 | 51 |
| Mean number (ablations/centres) | 69 | 51 |
| Number of AF ablations | 0 | 0 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

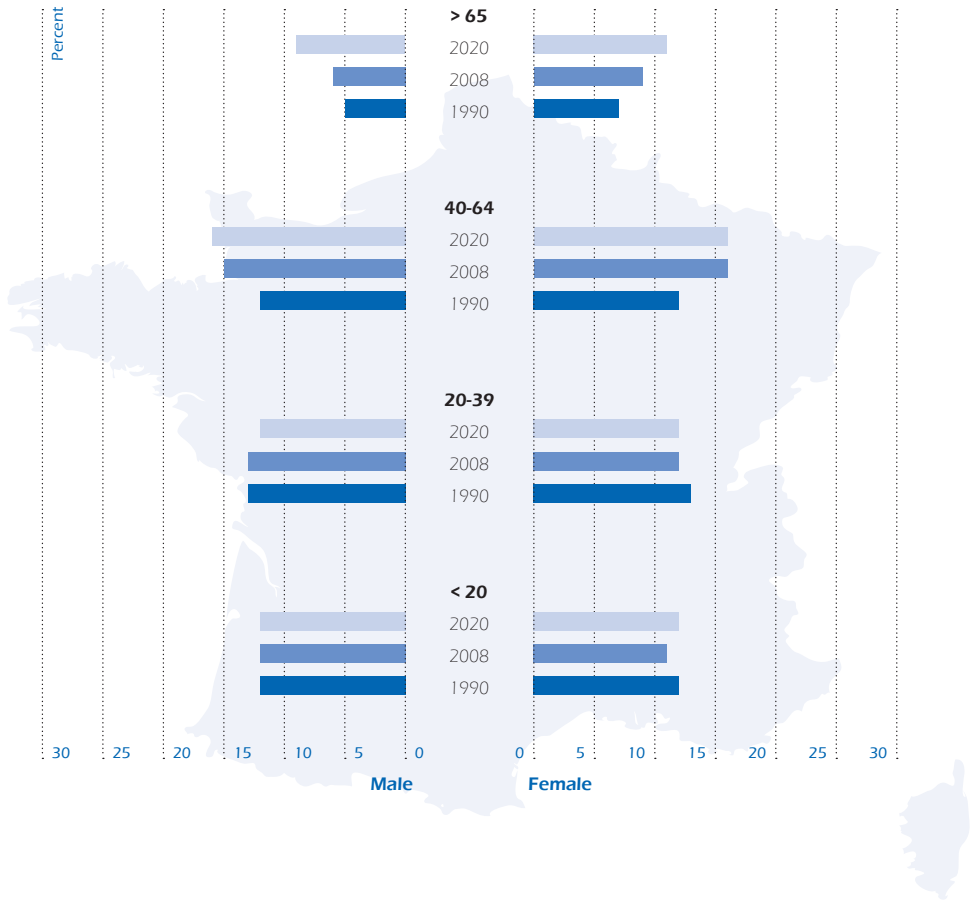
5 = great obstacle

FRANCE



1. Statistics

Age pyramid for France





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100 000 population) | 4,68 | 2005 |
| Beds (per 100 000 population) | 7 16,78 | 2006 |
| Number of physicians | 208.191 | 2007 |
| Density of physicians (per 1 000 population) | 3,42 | 2007 |
| Number of nurses | 483.380 | 2007 |
| Density of nurses (per 1 000 population) | 7,93 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 33.067.921 | 34.449.594 | 67.517.515 |
| 2008 | 31.312.486 | 32.745.304 | 64.057.790 |
| 1990 | 28.330.633 | 29.837.527 | 58.168.160 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 2.978.121* | 2008 |
| Gross domestic product per capita | 48.012,01* | 2008 |
| Total expenditure on health as % of GDP | 11,1 | 2006 |
| General government expenditure on health as % of total expenditure on health | 79,7 | 2006 |
| Private expenditure on health as % of total expenditure on health | 20,3 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 390 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 45% |
| 2008 | not available |



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

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 0% |  |
| Private co-payment | 40% |  |

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 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 **No**

National accreditation for centres to perform EP **Yes**

For CRT and ICD

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

1 year

Training centres availability

| | |
|--|-----|
| Pacemaker | 120 |
| ICD implantation | 50 |
| Electrophysiological studies and catheter ablation | 50 |
| CRT implantation | 50 |
| Atrial fibrillation ablation | 20 |

Number of medical faculties

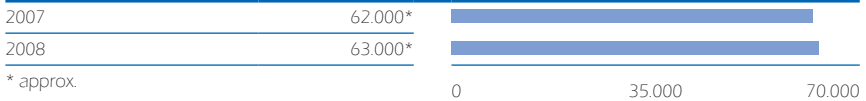
not available

Percentage of academic facilities among practicing EP and implant centres

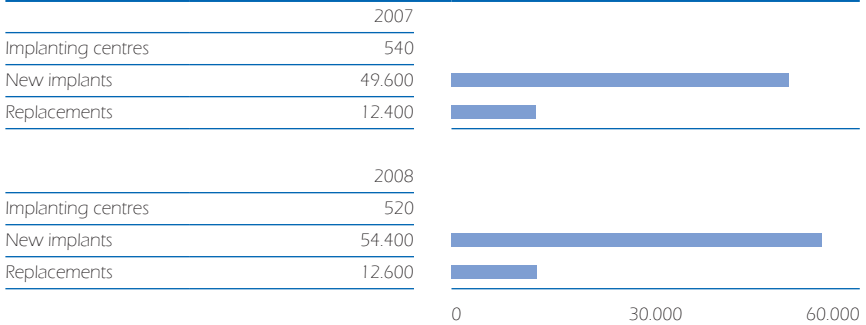
50%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



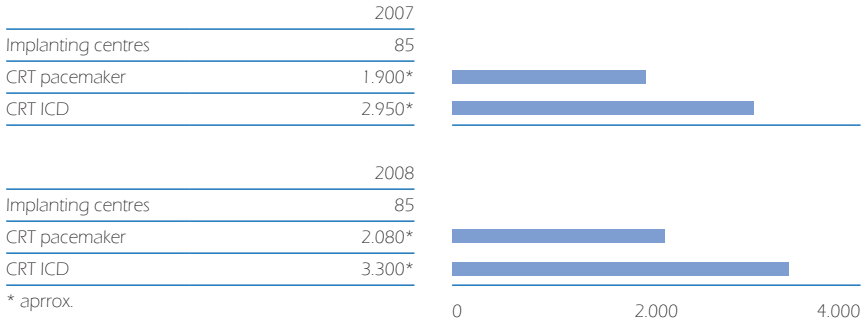
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

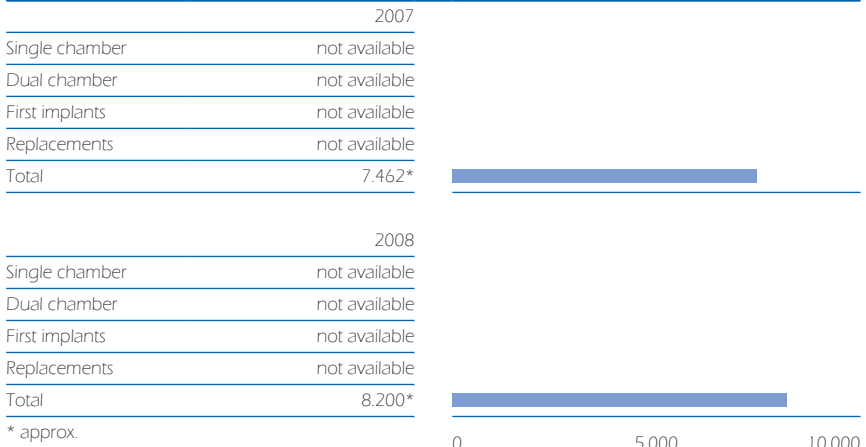
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

80

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

| | 2007 | |
|--------------------|---------------|--|
| Implanting centres | not available | |
| Loop recorders | not available | |

| | 2008 | |
|--------------------|---------------|--|
| 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 type="checkbox"/> |
| Stidexif | |

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

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

AFSAPS

10. Interventional electrophysiology

Number of performing catheter ablation centres

207

| | 2007 | 2008 |
|---------------------------------|---------------|---------------|
| Number of ablations performed | 18.200 | not available |
| Mean number (ablations/centres) | 87 | 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

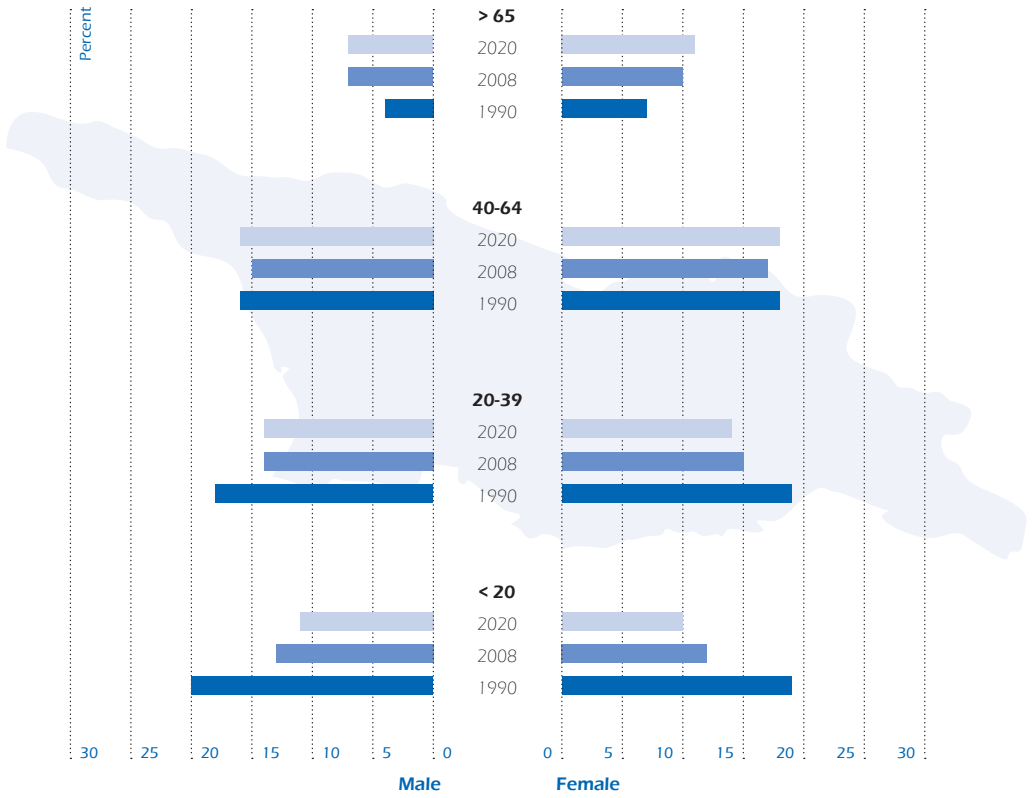
5 = great obstacle

GEORGIA



1. Statistics

Age pyramid for Georgia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 6,04 | 2007 |
| Beds (per 100.000 population) | 331,9 | 2007 |
| Number of physicians | 19.951 | 2007 |
| Density of physicians (per 1.000 population) | 4,55 | 2007 |
| Number of nurses | 15.948 | 2007 |
| Density of nurses (per 1.000 population) | 3,63 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.123.322 | 2.316.430 | 4.439.752 |
| 2008 | 2.207.558 | 2.423.283 | 4.630.841 |
| 1990 | 2.576.049 | 2.850.158 | 5.426.207 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 13.283* | 2008 |
| Gross domestic product per capita | 3.060,93* | 2008 |
| Total expenditure on health as % of GDP | 8,4 | 2006 |
| General government expenditure on health as % of total expenditure on health | 21,5 | 2006 |
| Private expenditure on health as % of total expenditure on health | 78,5 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 341 per 100.000 citizens |
| 2008 | 332 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 36% |
| 2008 | 35% |

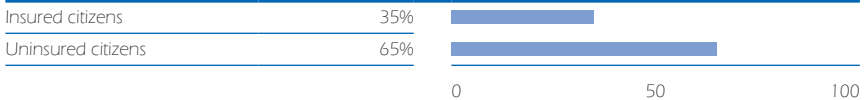
3. Healthcare System

NHS fund, Private Insurance and Private Payment

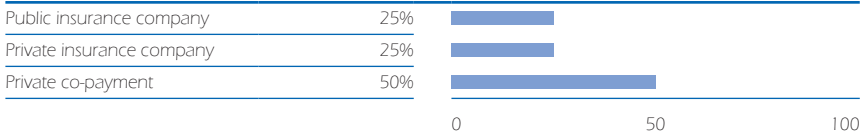
Basic insurance availability

No

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"/> |

There are non-insured patients who have to pay by themselves



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"/> |
| Reimbursement often is much less than actual costs | |

4. Education

National accreditation availability

| | |
|---|--------------------------|
| Device therapy | <input type="checkbox"/> |
| Invasive electrophysiology | <input type="checkbox"/> |
| It is a part of cardiology specialization | |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **Yes**

National Society supporting EHRA accreditation system **No**

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

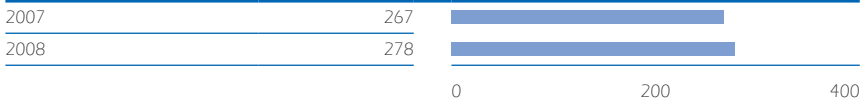
| | |
|--|---|
| Pacemaker | 0 |
| ICD implantation | 0 |
| Electrophysiological studies and catheter ablation | 0 |
| CRT implantation | 0 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties 6

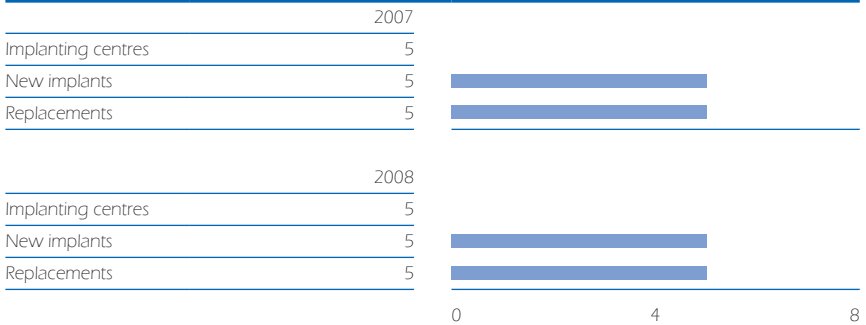
Percentage of academic facilities among practicing EP and implant centres 60%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



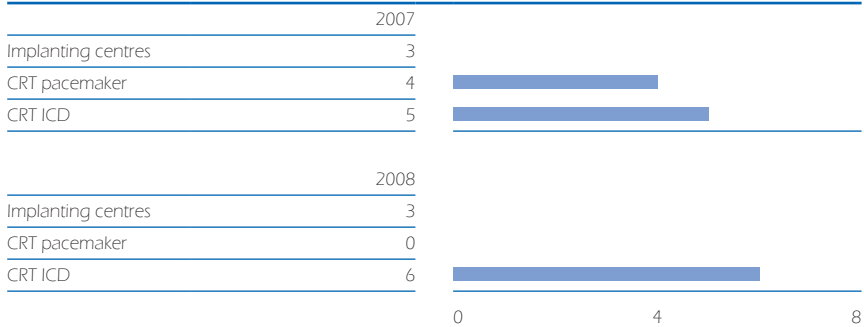
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 90% |
| Surgeons | 10% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



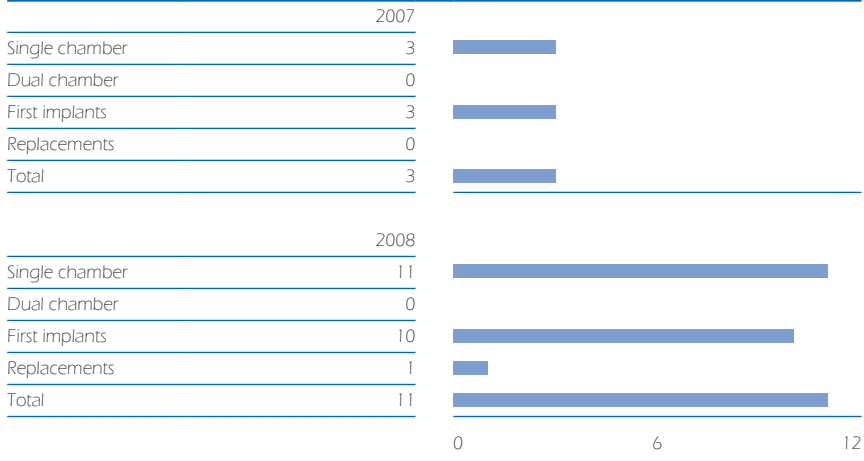
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres 4

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

| | 2007 | |
|--------------------|------|--|
| Implanting centres | 0 | |
| Loop recorders | 0 | |
| | 2008 | |
| 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

3

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 64 | 108 |
| Mean number (ablations/centres) | 21 | 35 |
| Number of AF ablations | 0 | 0 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of trained personnel | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

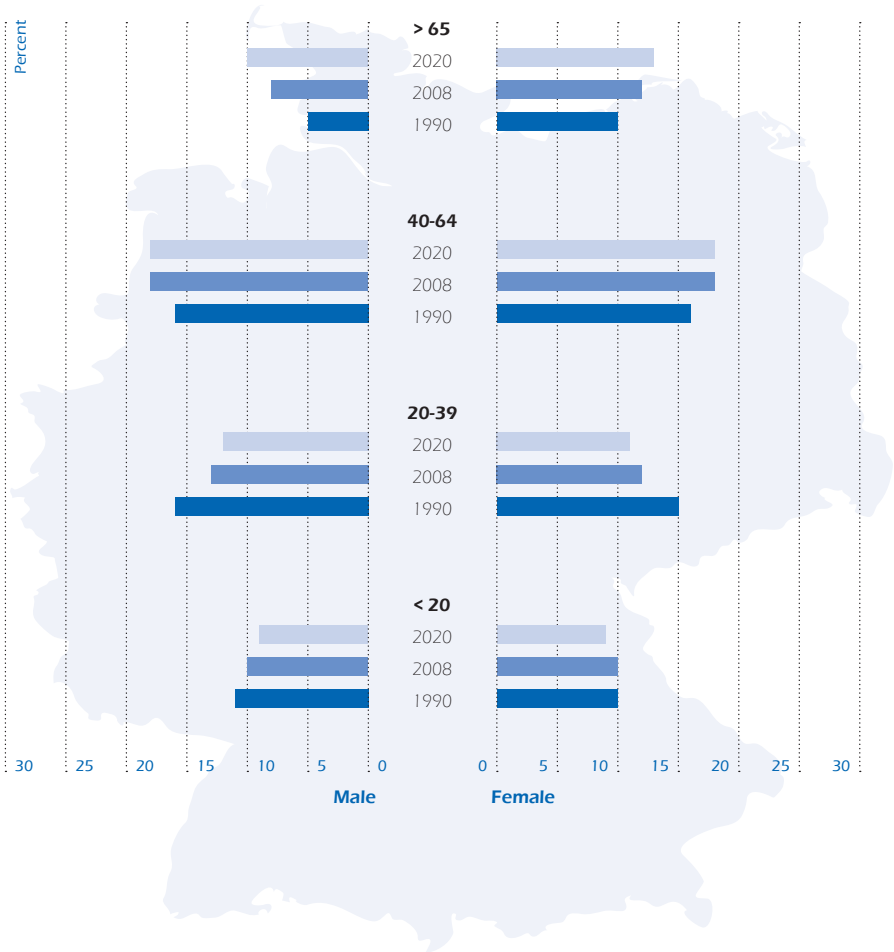
5 = great obstacle

GERMANY



1. Statistics

Age pyramid for Germany





Healthcare data

| | | |
|---|---------|------|
| Hospitals (per 100 000 population) | 4,07 | 2006 |
| Beds (per 100 000 population) | 829,09 | 2006 |
| Number of physicians | 288.182 | 2007 |
| Density of physicians (per 1000 population) | 3,48 | 2007 |
| Number of nurses | 644.000 | 2006 |
| Density of nurses (per 1000 population) | 7,81 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 40.108.410 | 41.313.963 | 81.422.373 |
| 2008 | 40.482.726 | 41.886.822 | 82.369.548 |
| 1990 | 38.657.711 | 41.326.533 | 79.984.244 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 3.818.470* | 2008 |
| Gross domestic product per capita | 46.498,66* | 2008 |
| Total expenditure on health as % of GDP | 10,4 | 2006 |
| General government expenditure on health as % of total expenditure on health | 76,6 | 2006 |
| Private expenditure on health as % of total expenditure on health | 23,4 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-------|
| 2007 | 46,8% |
| 2008 | 43,4% |



3. Healthcare System

The German healthcare system has three arms: family doctors, outpatient specialists and hospitals. The hospitals are in part public, private or academic hospitals. They provide regular, advanced or maximal patient care. Social health insurance is compulsory and there are 3 co-existing schemes: the statutory health insurance market, which covers 87% of the population (2003), the private health insurance market, which covers 10% of the population and the governmental scheme, which covers 2% of the population.

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|-----|---|
| Insured citizens | 99% |  |
| Uninsured citizens | 1% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 90% |  |
| Private insurance company | 10% |  |
| Private co-payment | < 1% |  |

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"/> |

Leitlinien (Guidelines) für invasive elektrophysiologische Diagnostik 2007; Leitlinien (Guidelines) zur Herzschrittmachertherapie 2006; Kommentar zu den „ESC-Guidelines for cardiac pacing and cardiac resynchronization therapy“ 2008; Kommentar zu „ACC/AHA/ESC 2006 Guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death“ 2008; Curriculum ICD Therapie 2007; Curriculum „Praxis der Herzschrittmachertherapie“ 2006; „Leitlinien zur Katheterablation“ 2007 Leitlinien zur Implantation von Defibrillatoren 2006; Statement of the WG of pacemakers of the German Cardiac Society: Safety of asynchronous cardiac pacing 2006

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**

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

Examined Cardiologist or Surgeon is a precondition to receive the level of competency accreditation and to train another physician.



Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 1.024 |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | 1.035 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---|-----|
| Cardiologists | 58% |
| Surgeons | 30% |
| Other (Cardiac Surgeons, pediatric surgeons, pediatric cardiologists) | 12% |

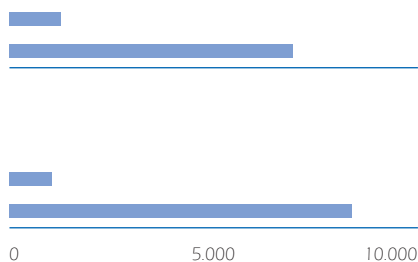
6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-------|
| Implanting centres | 332* |
| CRT pacemaker | 1.264 |
| CRT ICD | 6.932 |

| 2008 | |
|--------------------|---------------|
| Implanting centres | not available |
| CRT pacemaker | 1.040 |
| CRT ICD | 8.400 |

* CRT-P: 132; CRT-D: 200.



Specialty performing implants

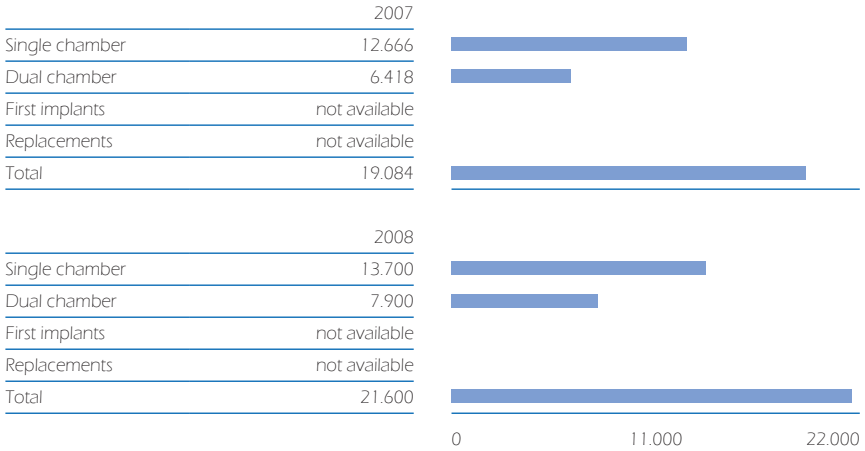
| | |
|-----------------------|-----|
| Cardiologists | 45% |
| Surgeons | 5% |
| Other (both together) | 50% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

360

ICD units implanted and number of implanting centres



Specialty performing implants

| | |
|----------------------------------|-----|
| Cardiologists | 30% |
| Surgeons | 50% |
| Other (Both speciality together) | 20% |

8. Loop recorders

Loop recorders implanted and number of implanting centres

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | | 2008 |
| 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 checked="" type="checkbox"/> |
| Electrophysiology | <input type="checkbox"/> |
| Deutsches Herzschrittmacher-Register | |

Availability of a national quality insurance system or complication registry

Yes

BOS Registry

Already existing and 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 (Bundesinstitut für Arzneimittel und Medizinprodukte: BfArM)

10. Interventional electrophysiology

Number of performing catheter ablation centres

350*

* approx.

| | 2007 | 2008 |
|---------------------------------|---------------|---------------|
| Number of ablations performed | 30.200 | 30.000* |
| Mean number (ablations/centres) | not available | not available |
| Number of AF ablations | not available | 8.500* |

* approx.

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 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 type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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

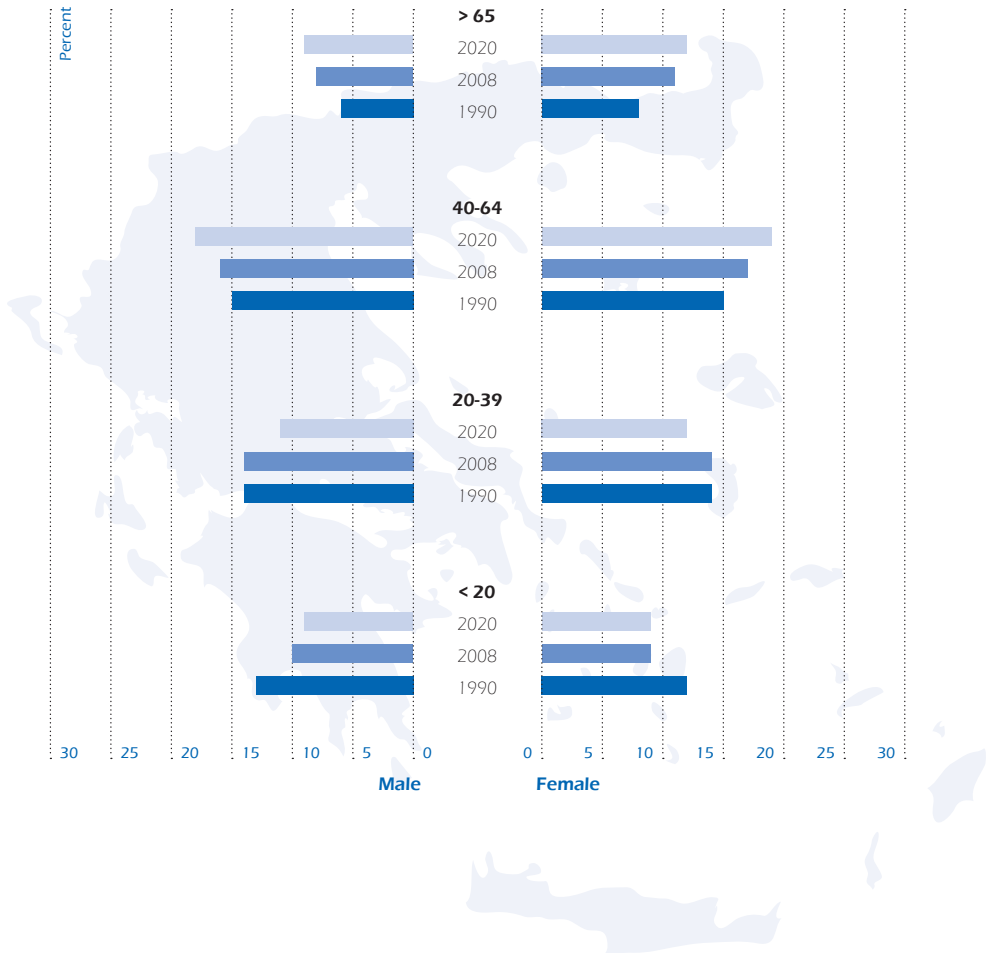
5 = great obstacle

GREECE



1. Statistics

Age pyramid for Greece





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 2,84 | 2006 |
| Beds (per 100.000 population) | 481,69 | 2006 |
| Number of physicians | 59.599 | 2006 |
| Density of physicians (per 1.000 population) | 5,35 | 2006 |
| Number of nurses | 36.434 | 2006 |
| Density of nurses (per 1.000 population) | 3,27 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 5.234.464 | 5.507.568 | 10.742.032 |
| 2008 | 5.255.575 | 5.467.241 | 10.722.816 |
| 1990 | 5.052.070 | 5.198.810 | 10.250.880 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 373.516* | 2008 |
| Gross domestic product per capita | 33.433,84* | 2008 |
| Total expenditure on health as % of GDP | 9,9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 42,5 | 2006 |
| Private expenditure on health as % of total expenditure on health | 57,5 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 31,68% |
| 2008 | not available |

3. Healthcare System

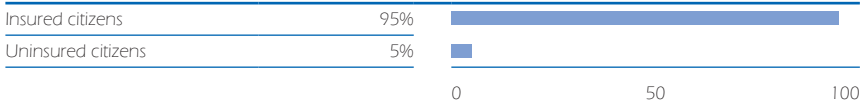
The Greek healthcare system is characterized by the coexistence of the National Health Service (NHS), a compulsory social insurance and a voluntary private health insurance system. The NHS provides universal coverage to the population and offers equal access to health services for all and social cohesion.

[Source: Highlights in health. WHO, 2004]

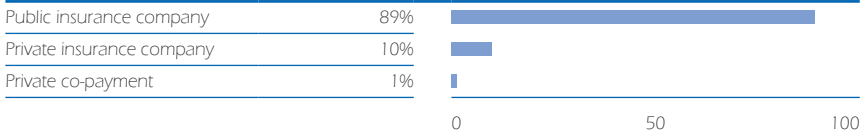
Basic insurance availability

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 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"/> |

4. Education

National accreditation availability

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

Only for pacemakers there is requirement for a minimum training of one year at an implanting center

National accreditation for physicians

Yes

Board for Cardiology. Not for subspecialties

National accreditation for centres to perform EP

Yes

For pacing and ICD implanting centers

National Society supporting EHRA accreditation system

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 or Cardiothoracic Surgery

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

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

Training centres availability

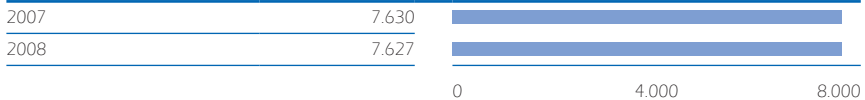
| | |
|--|----|
| Pacemaker | 15 |
| ICD implantation | 6 |
| Electrophysiological studies and catheter ablation | 8 |
| CRT implantation | 8 |
| Atrial fibrillation ablation | 6 |

Number of medical faculties **7**

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

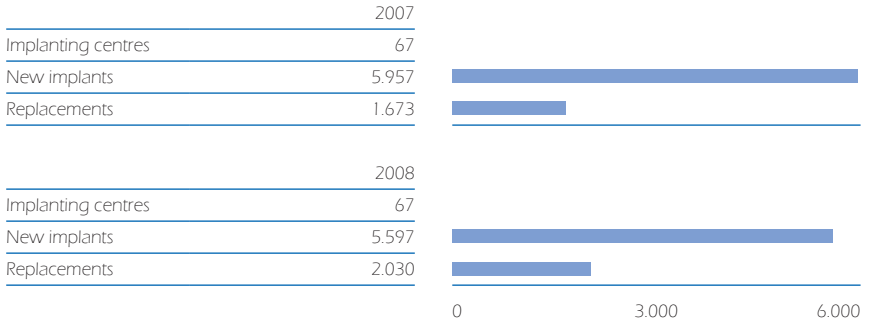
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

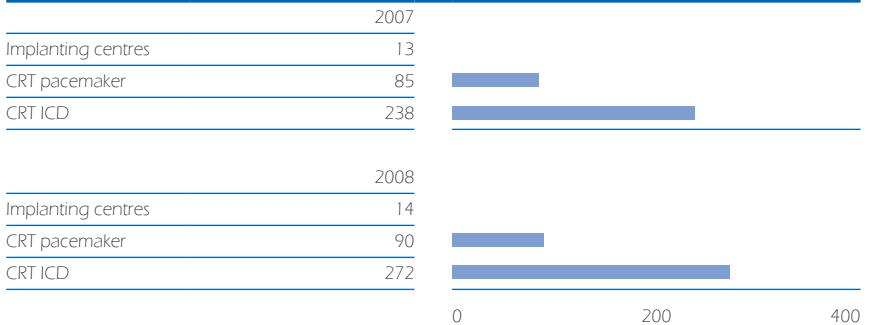


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

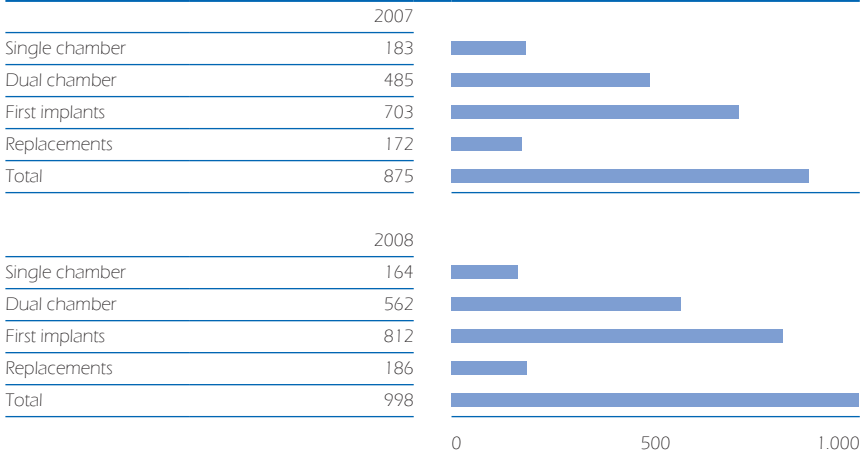
| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

23

ICD units implanted and number of implanting centres



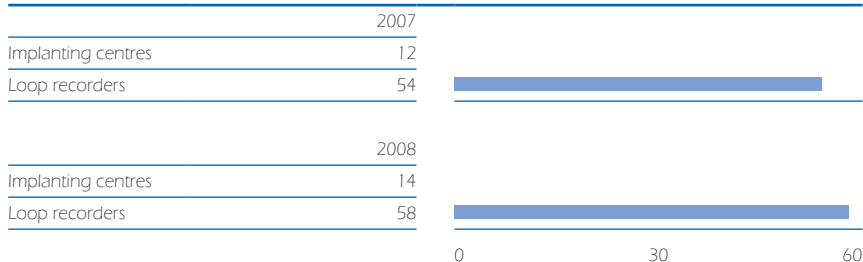
Specialty performing implants

| | |
|---------------|-----|
| 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 checked="" type="checkbox"/> |
| Pacing | <input checked="" type="checkbox"/> |
| Electrophysiology | <input checked="" type="checkbox"/> |

Availability of a national quality insurance system or complication registry

No

Under proposal to the Ministry of Health by the Working Group

Availability of a national institution coordinating and guiding device recalls

Yes

EFET

10. Interventional electrophysiology

Number of performing catheter ablation centres

23

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.275 | 1.213 |
| Mean number (ablations/centres) | 55 | 53 |
| Number of AF ablations | 166 | 164 |

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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of reimbursement, limited financial resources | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input 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

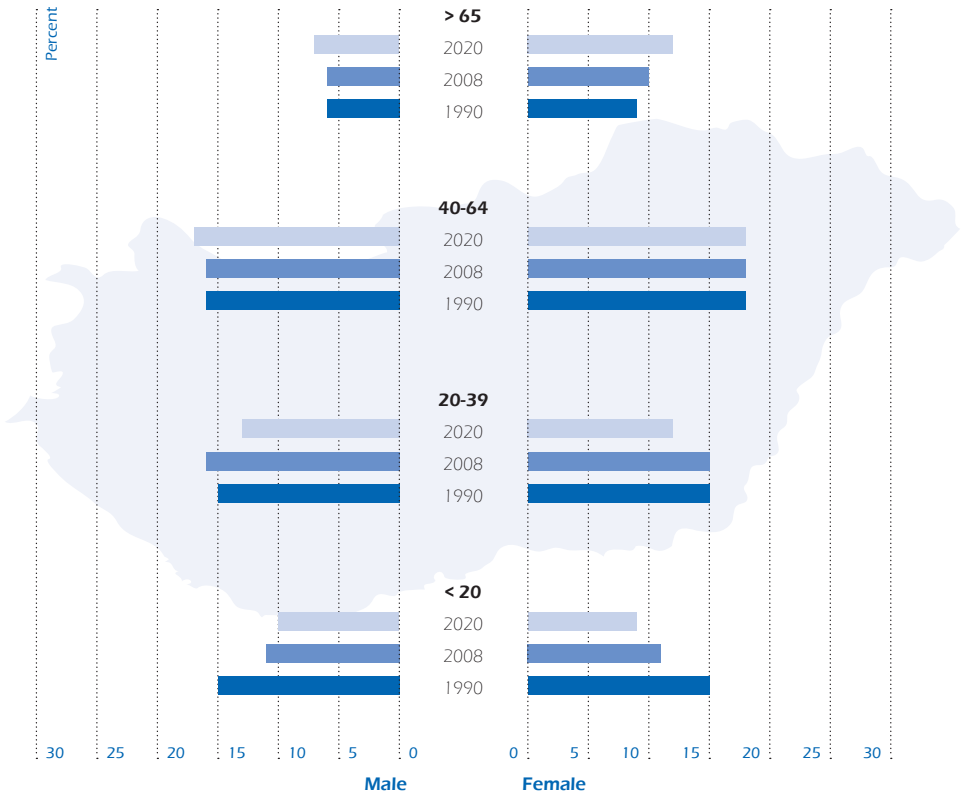
5 = great obstacle

HUNGARY



1. Statistics

Age pyramid for Hungary





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 1,76 | 2007 |
| Beds (per 100.000 population) | 7 12,55 | 2007 |
| Number of physicians | 27.957 | 2007 |
| Density of physicians (per 1.000 population) | 2,78 | 2007 |
| Number of nurses | 90.889 | 2007 |
| Density of nurses (per 1.000 population) | 9,04 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 4.571.596 | 5.030.016 | 9.601.612 |
| 2008 | 4.727.205 | 5.203.710 | 9.930.915 |
| 1990 | 4.980.782 | 5.391.096 | 10.371.878 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 164.339* | 2008 |
| Gross domestic product per capita | 16.343,32* | 2008 |
| Total expenditure on health as % of GDP | 7,6 | 2006 |
| General government expenditure on health as % of total expenditure on health | 70,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 29,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 349 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 75% |
| 2008 | not available |

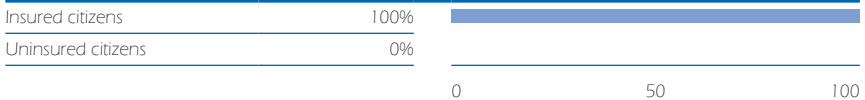
3. Healthcare System

National Health Insurance Fund

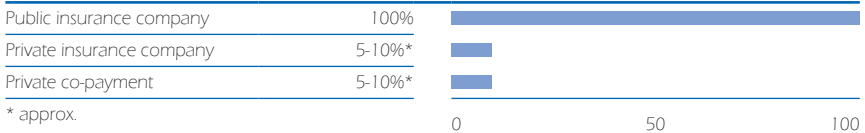
Basic insurance availability

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 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 type="checkbox"/> |

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

4. Education

National accreditation availability

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

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

National accreditation for physicians

Yes

National accreditation for centres to perform EP

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

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

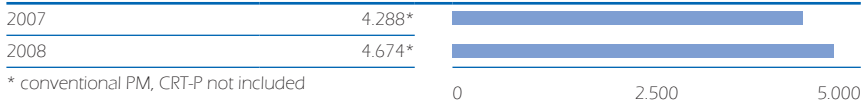
4

Percentage of academic facilities among practicing EP and implant centres

27%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | | 2007 |
|--------------------|--|---------------|
| Implanting centres | | 15 |
| New implants | | not available |
| Replacements | | not available |
| | | 2008 |
| Implanting centres | | 15 |
| New implants | | not available |
| Replacements | | not available |

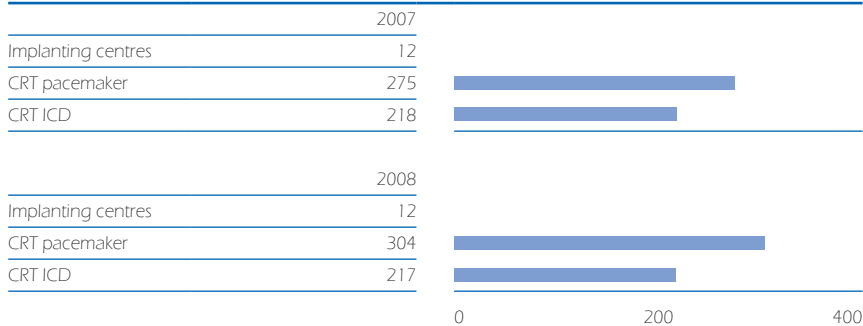
Specialty performing implants

| | |
|--------------------------|-----|
| Cardiologists | 90% |
| Surgeons | 5% |
| Other (Anesthesiologist) | 5% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

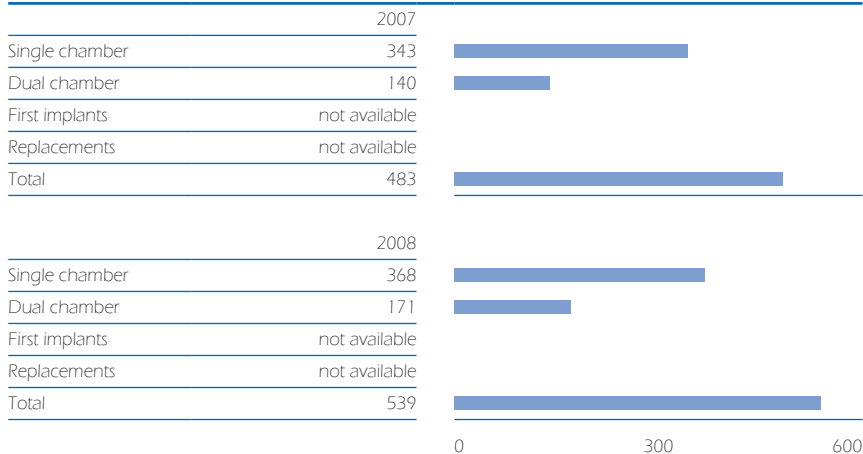
| | |
|--------------------------|-----|
| Cardiologists | 93% |
| Surgeons | 2% |
| Other (Anesthesiologist) | 5% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

12

ICD units implanted and number of implanting centres

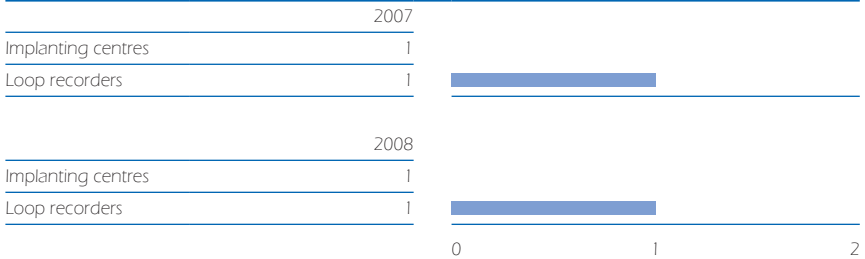


Specialty performing implants

| | |
|--------------------------|-----|
| Cardiologists | 90% |
| Surgeons | 5% |
| Other (Anesthesiologist) | 5% |

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"/> |

Hungarian on-line pacemaker registry and individual paper based data collection from centers

Availability of a national quality insurance system or complication registry

Yes

Hungarian on-line 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

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 2.371 | 2.190 |
| Mean number (ablations/centres) | 237,1 | 219,0 |
| Number of AF ablations | 237 | 309 |

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 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle

ICELAND



1. Statistics

Age pyramid for Iceland





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 6,76 | 2005 |
| Beds (per 100.000 population) | 750,80 | 2002 |
| Number of physicians | 1.120 | 2006 |
| Density of physicians (per 1.000 population) | 3,68 | 2006 |
| Number of nurses | 2.760 | 2004 |
| Density of nurses (per 1.000 population) | 9,43 | 2004 |

Population by age and sex

| | Male | Female | Total |
|------|---------|---------|---------|
| 2020 | 163.803 | 165.318 | 329.121 |
| 2008 | 152.261 | 152.106 | 304.367 |
| 1990 | 133.446 | 132.629 | 266.075 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 19.023* | 2008 |
| Gross domestic product per capita | 60.121,73* | 2008 |
| Total expenditure on health as % of GDP | 9,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 83,1 | 2006 |
| Private expenditure on health as % of total expenditure on health | 16,9 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 22% |
| 2008 | 22% |



3. Healthcare System

National healthcare system provided by the state and financed by taxes. There is open access to all citizens and in hospital procedures without patient charge. Open primary care against nominal fee (less than 5 euro) and specialist service paid approximately 1/3 by the patient and 2/3 by the state.

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|---------------|---|
| Public insurance company | 100% |  |
| Private insurance company | 5% |  |
| Private co-payment | not available |  |

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 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 checked="" type="checkbox"/> |

4. Education

National accreditation availability

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

National accreditation for physicians **No**

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

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **Yes**

Cardiologist with EP subspecialty training (certified)

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

Cardiologists

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

BeHRA guidelines

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

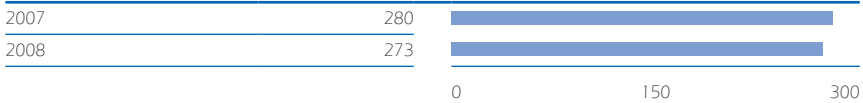
1

Percentage of academic facilities among practicing EP and implant centres

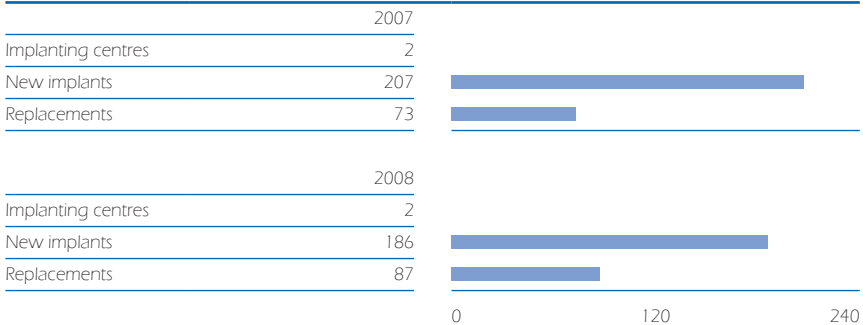
100%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



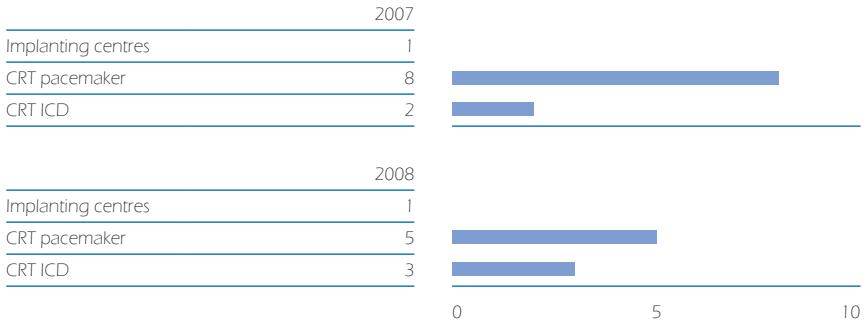
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 50% |
| Surgeons | 50% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

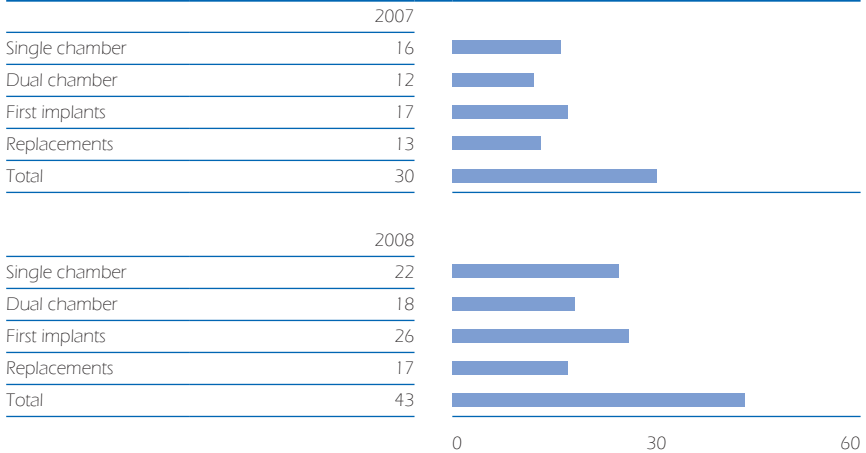
| | |
|---------------|-----|
| Cardiologists | 50% |
| Surgeons | 50% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

1

ICD units implanted and number of implanting centres

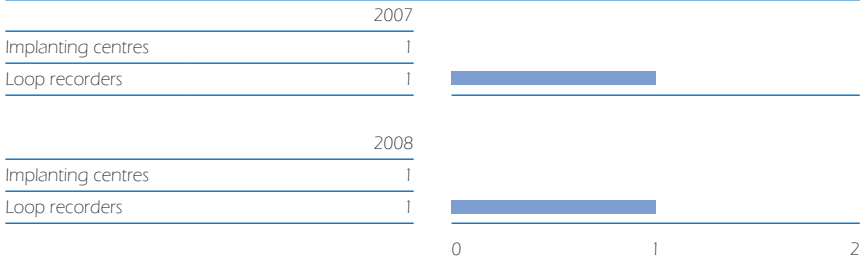


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 50% |
| Surgeons | 50% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 50% |
| Surgeons | 50% |

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"/> |

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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 83 | 77 |
| Mean number (ablations/centres) | 83 | 77 |
| Number of AF ablations | 8 | 15 |

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

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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

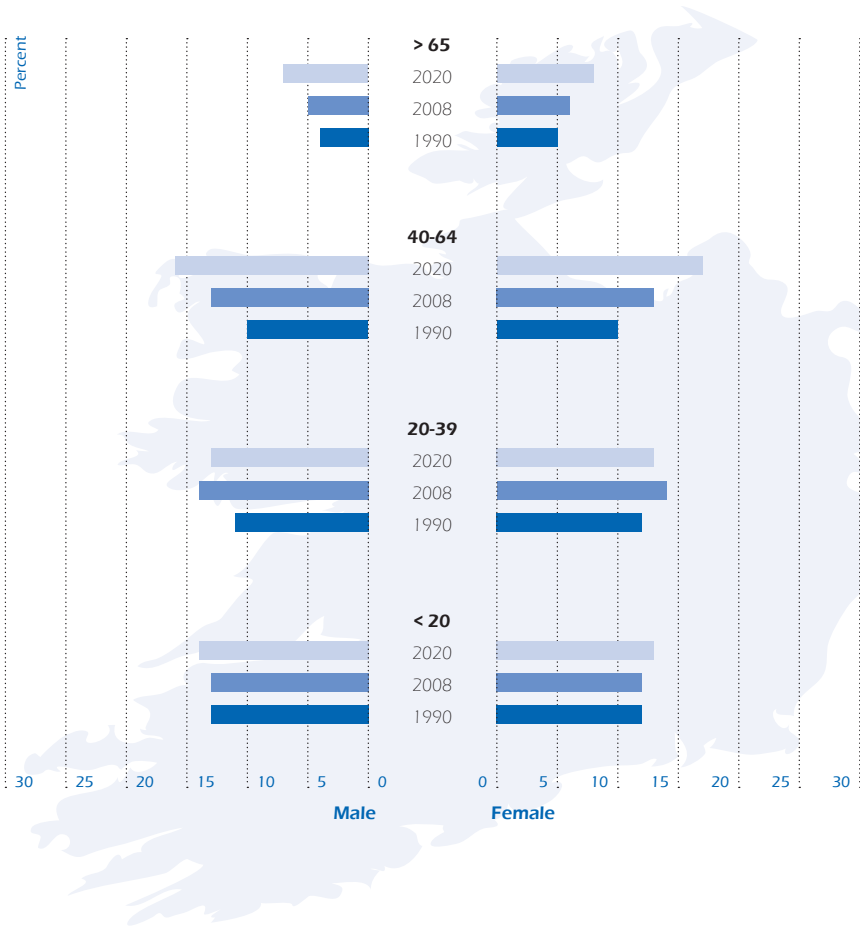
5 = great obstacle

IRELAND



1. Statistics

Age pyramid for Ireland





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,06 | 2007 |
| Beds (per 100.000 population) | 533,91 | 2006 |
| Number of physicians | 13.141 | 2007 |
| Density of physicians (per 1.000 population) | 3,03 | 2007 |
| Number of nurses | 67.245 | 2007 |
| Density of nurses (per 1.000 population) | 15,5 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.324.321 | 2.349.827 | 4.674.148 |
| 2008 | 2.067.014 | 2.089.105 | 4.156.119 |
| 1990 | 1.805.228 | 1.830.951 | 3.636.179 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 285.018* | 2008 |
| Gross domestic product per capita | 64.659,90* | 2008 |
| Total expenditure on health as % of GDP | 7,5 | 2006 |
| General government expenditure on health as % of total expenditure on health | 78,3 | 2006 |
| Private expenditure on health as % of total expenditure on health | 21,7 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 230 per 100,000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 19.1%* |
| 2008 | not available |

* Refer to CHD deaths

3. Healthcare System

An individual living in Ireland for at least one year is considered by the HSE to be “ordinarily resident” and is entitled to either full eligibility (Category 1) or limited eligibility (Category 2), for health services. Individuals who have not been resident in Ireland for at least one year must satisfy the HSE that it is their intention to remain for a minimum of one year in order to be eligible for health services.

(Source: Health Service Executive, 2008)



Basic insurance availability

No

Percentage of insured and uninsured citizens

| | |
|--------------------|---------------|
| Insured citizens | not available |
| Uninsured citizens | not available |

Distribution of insurance modality

| | | |
|---------------------------|-------|---|
| Public insurance company | 32% |  |
| Private insurance company | 47,2% |  |
| Private co-payment | 0% | |

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"/> |
| Refund of drugs scheme and other small arrangements | |

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 **No**

National accreditation for centres to perform EP **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

| | |
|--|---------------|
| Pacemaker | not available |
| ICD implantation | not available |
| Electrophysiological studies and catheter ablation | not available |
| CRT implantation | not available |
| Atrial fibrillation ablation | not available |

Number of medical faculties

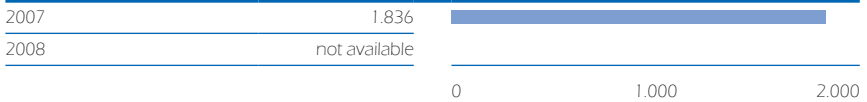
not available

Percentage of academic facilities among practicing EP and implant centres

80%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 13 |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | not available |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | not available |
| CRT pacemaker | not available |
| CRT ICD | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | not available |
| CRT pacemaker | not available |
| CRT ICD | not available |

Specialty performing implants

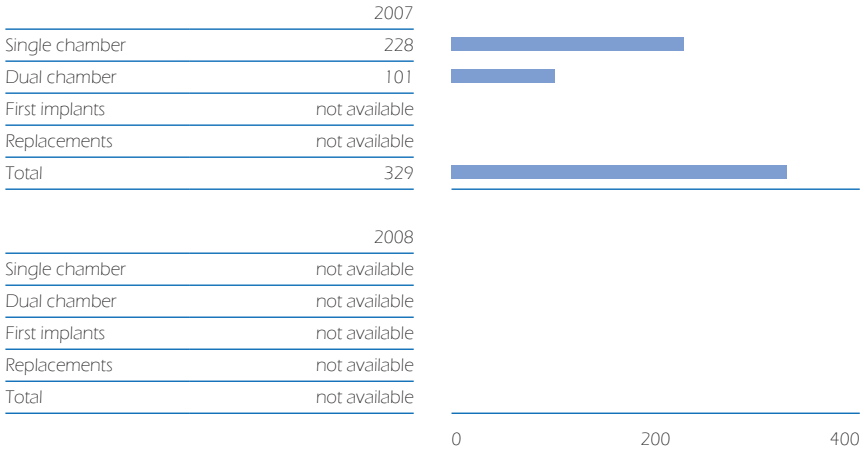
| | |
|---------------|---------------|
| Cardiologists | not available |
| Surgeons | not available |

7. Implantable Cardiac Defibrillator

Number of implanting centres

12

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

| 2007 | |
|--------------------|---------------|
| Implanting centres | not available |
| Loop recorders | not available |

| 2008 | |
|--------------------|---------------|
| 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 **Yes**

Irish Medicines Board

10. Interventional electrophysiology

Number of performing catheter ablation centres **8**

| | 2007 | 2008 |
|---------------------------------|------|---------------|
| Number of ablations performed | 335 | not available |
| Mean number (ablations/centres) | 40,9 | not available |
| Number of AF ablations | 400* | not available |

* approx.

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

Necessity of guideline translation to national language **No**

Obstacles to guideline implementation

| | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Lack of centres | <input type="checkbox"/> | <input 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 type="checkbox"/> |
| Lack of referral | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

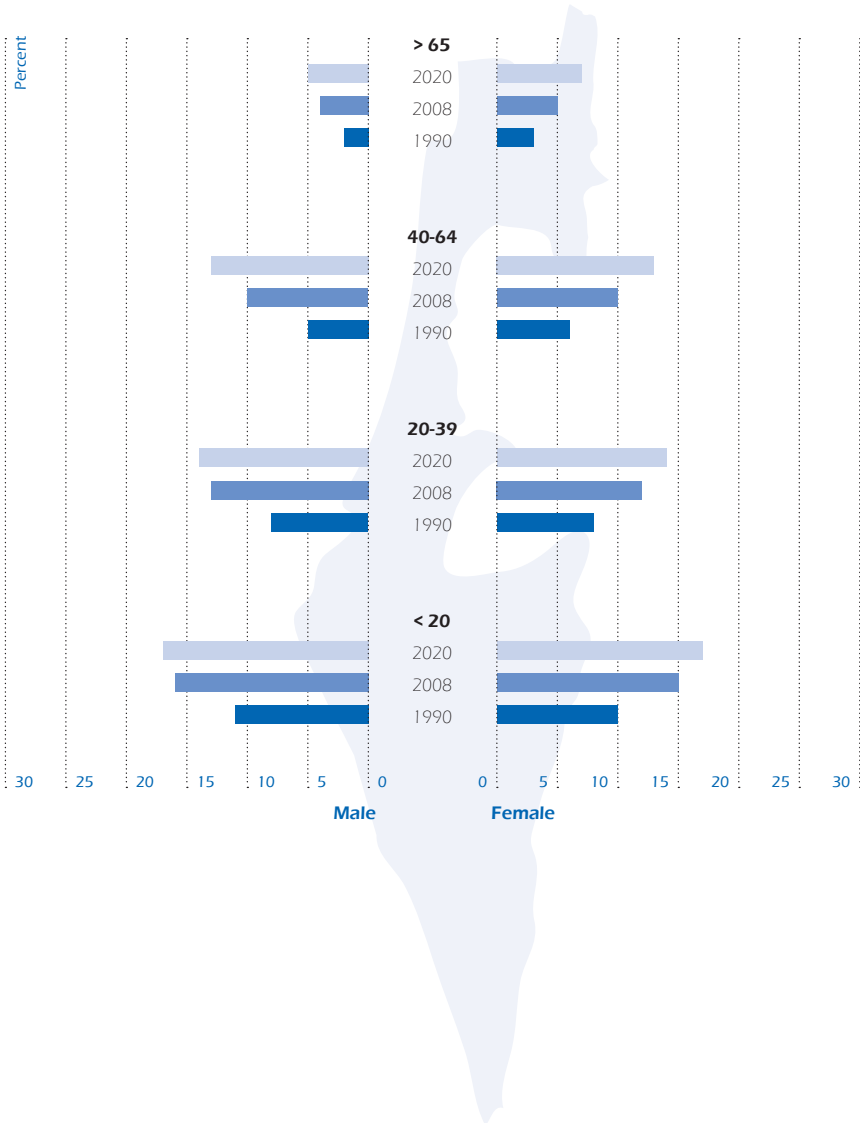
5 = great obstacle

ISRAEL



1. Statistics

Age pyramid for Israel





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 0,3 | 2008 |
| Beds (per 100.000 population) | 200 | 2008 |
| Number of physicians | 25.314 | 2007 |
| Density of physicians (per 1.000 population) | 3,53 | 2007 |
| Number of nurses | 41.571 | 2007 |
| Density of nurses (per 1.000 population) | 5,79 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 4.255.930 | 4.222.665 | 8.478.595 |
| 2008 | 3.564.446 | 3.547.913 | 7.112.359 |
| 1990 | 2.233.274 | 2.244.534 | 4.477.808 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 188.746* | 2008 |
| Gross domestic product per capita | 26.535,60* | 2008 |
| Total expenditure on health as % of GDP | 7,8 | 2006 |
| General government expenditure on health as % of total expenditure on health | 65,3 | 2006 |
| Private expenditure on health as % of total expenditure on health | 34,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

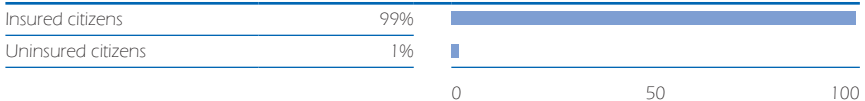
3. Healthcare System

Israel's health system is financed through social insurance and taxation. It is based on regulated competition among health plans. A National Health Insurance (NHI) was introduced in Israel in 1995 and achieved universal coverage. The Ministry of Health has overall responsibility for the health of the population as well as for the functioning of the health system. (Source: Highlights on health, WHO 2004). Private medical insurance is also available in the country.

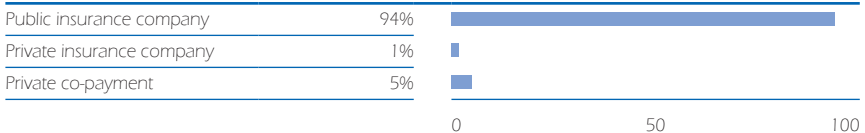
Basic insurance availability

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 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"/> |

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).

4. Education

National accreditation availability

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

National accreditation for physicians

Yes

National accreditation for centres to perform EP

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

| | |
|--|----|
| Pacemaker | 17 |
| ICD implantation | 17 |
| Electrophysiological studies and catheter ablation | 12 |
| CRT implantation | 12 |
| Atrial fibrillation ablation | 7 |

Number of medical faculties

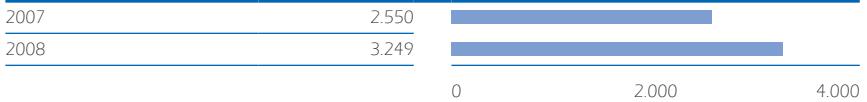
4

Percentage of academic facilities among practicing EP and implant centres

90%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 17 |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | 17 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

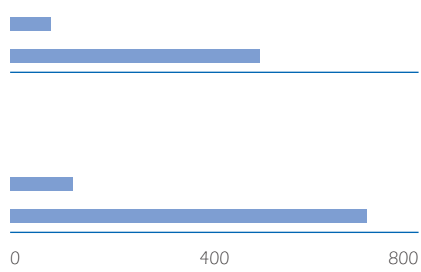
6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-----|
| Implanting centres | 12 |
| CRT pacemaker | 79 |
| CRT ICD | 489 |

| 2008 | |
|--------------------|-----|
| Implanting centres | 12 |
| CRT pacemaker | 123 |
| CRT ICD | 699 |

* approx.



Specialty performing implants

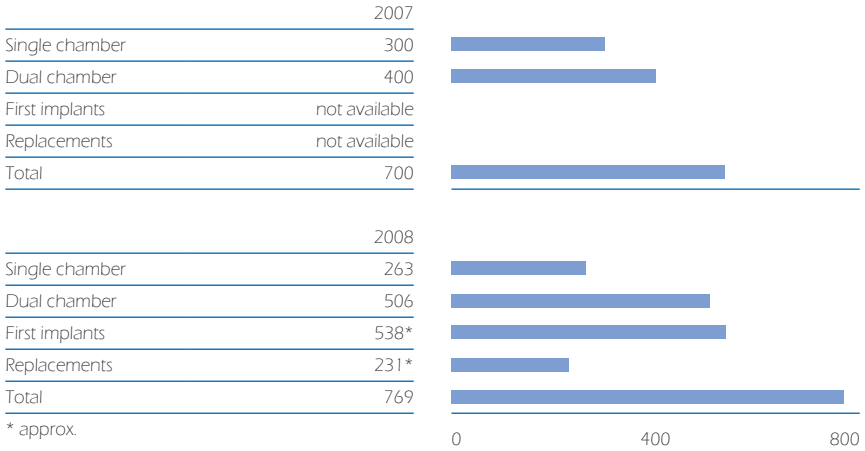
| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

17

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

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | 12 | |
| Loop recorders | not available | |
| | | 2008 |
| Implanting centres | 12 | |
| Loop recorders | not available | |



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 **12**

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.640 | 1.900 |
| Mean number (ablations/centres) | 137 | 158 |
| Number of AF ablations | 150 | 200 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

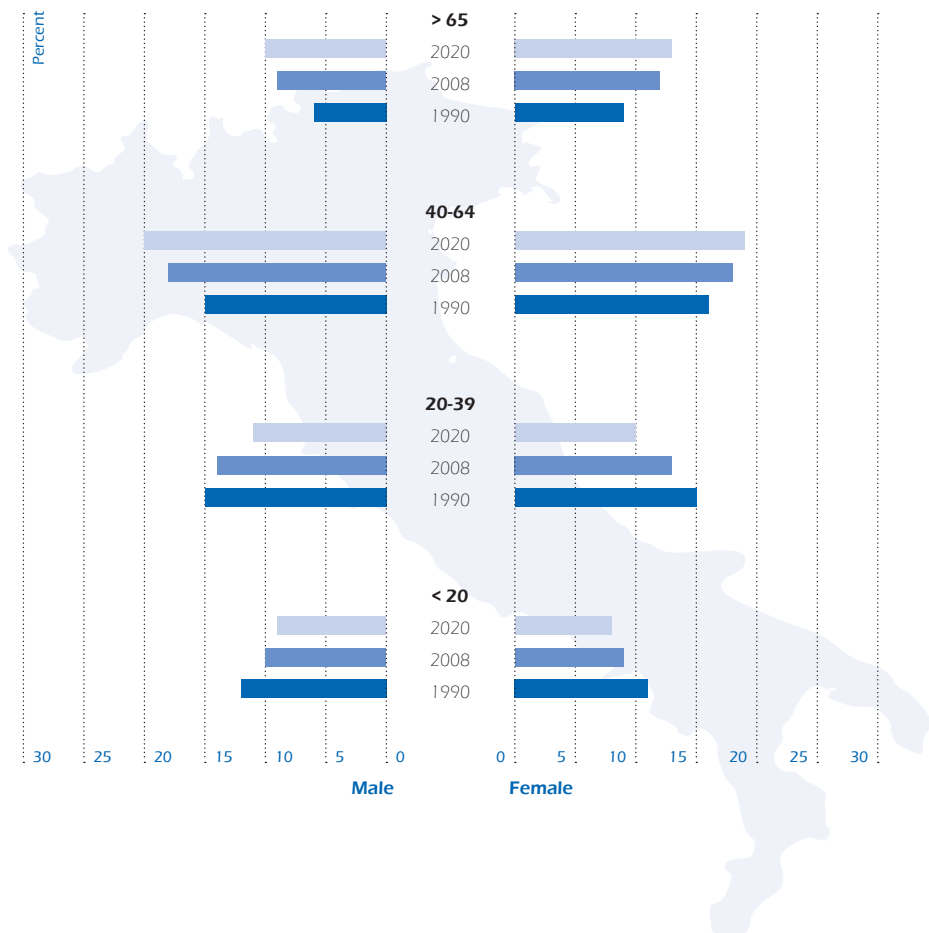
5 = great obstacle

ITALY



1. Statistics

Age pyramid for Italy





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 2,18 | 2006 |
| Beds (per 100.000 population) | 393,9 | 2006 |
| Number of physicians | 215.377 | 2006 |
| Density of physicians (per 1.000 population) | 3,65 | 2006 |
| Number of nurses | 413.000 | 2006 |
| Density of nurses (per 1.000 population) | 7,01 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 28.104.685 | 28.923.539 | 57.028.224 |
| 2008 | 28.485.387 | 29.659.934 | 58.145.321 |
| 1990 | 27.583.007 | 29.257.840 | 56.840.847 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 2.399.287* | 2008 |
| Gross domestic product per capita | 40.449,60* | 2008 |
| Total expenditure on health as % of GDP | 9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 77,1 | 2006 |
| Private expenditure on health as % of total expenditure on health | 22,9 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

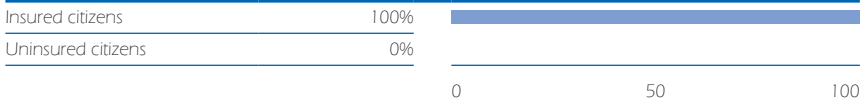
3. Healthcare System

National Health System

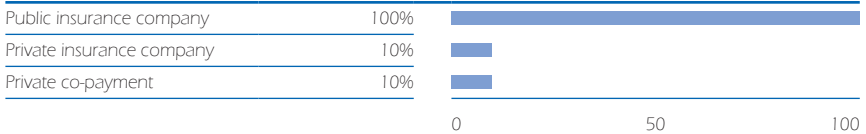
Basic insurance availability

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 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"/> |

AIAC is starting with the first accreditation exam for device therapy and invasive electrophysiology (not yet acknowledged by the National Health Care System)

National accreditation for physicians **No**

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

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

| | |
|--|---------------|
| Pacemaker | not available |
| ICD implantation | not available |
| Electrophysiological studies and catheter ablation | not available |
| CRT implantation | not available |
| Atrial fibrillation ablation | not available |

Number of medical faculties

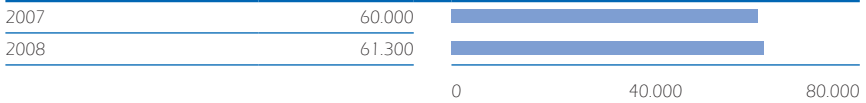
90

Percentage of academic facilities among practicing EP and implant centres

5%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | | |
|--------------------|---------------|--|
| | 2007 | |
| Implanting centres | 456 | |
| New implants | not available | |
| Replacements | not available | |
| | 2008 | |
| Implanting centres | 470 | |
| New implants | not available | |
| Replacements | not available | |

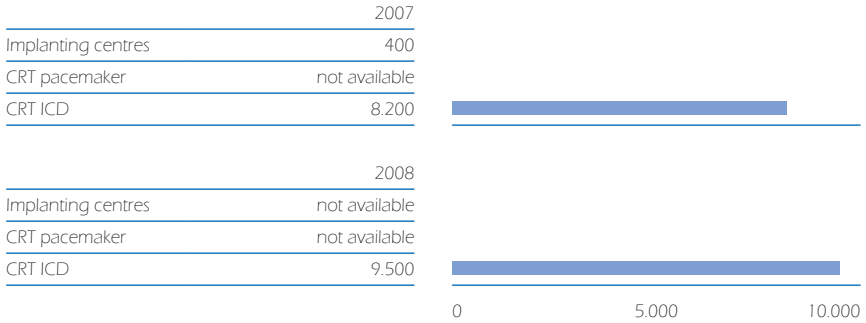
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

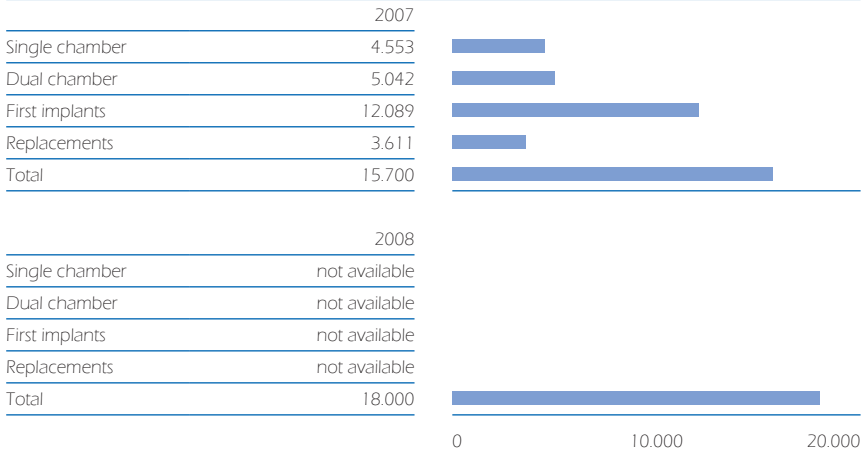
| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

400

ICD units implanted and number of implanting centres

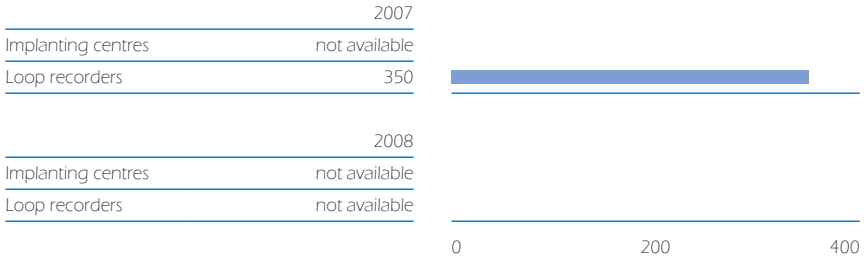


Specialty performing implants

| | |
|---------------|-----|
| 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 checked="" type="checkbox"/> |
| Pacing | <input checked="" type="checkbox"/> |
| Electrophysiology | <input checked="" type="checkbox"/> |
| AIAC Registry | |

Availability of a national quality insurance system or complication registry

No

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

A Recall and Complication Registry has been organized by AIAC since 2004. The objectives of the Registry is to monitor device recalls and advisories and to draw guidelines to manage them.

10. Interventional electrophysiology**Number of performing catheter ablation centres****95**

| | 2007 | 2008 |
|---------------------------------|--------|---------------|
| Number of ablations performed | 13.137 | not available |
| Mean number (ablations/centres) | 138 | not available |
| Number of AF ablations | 3.447 | 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

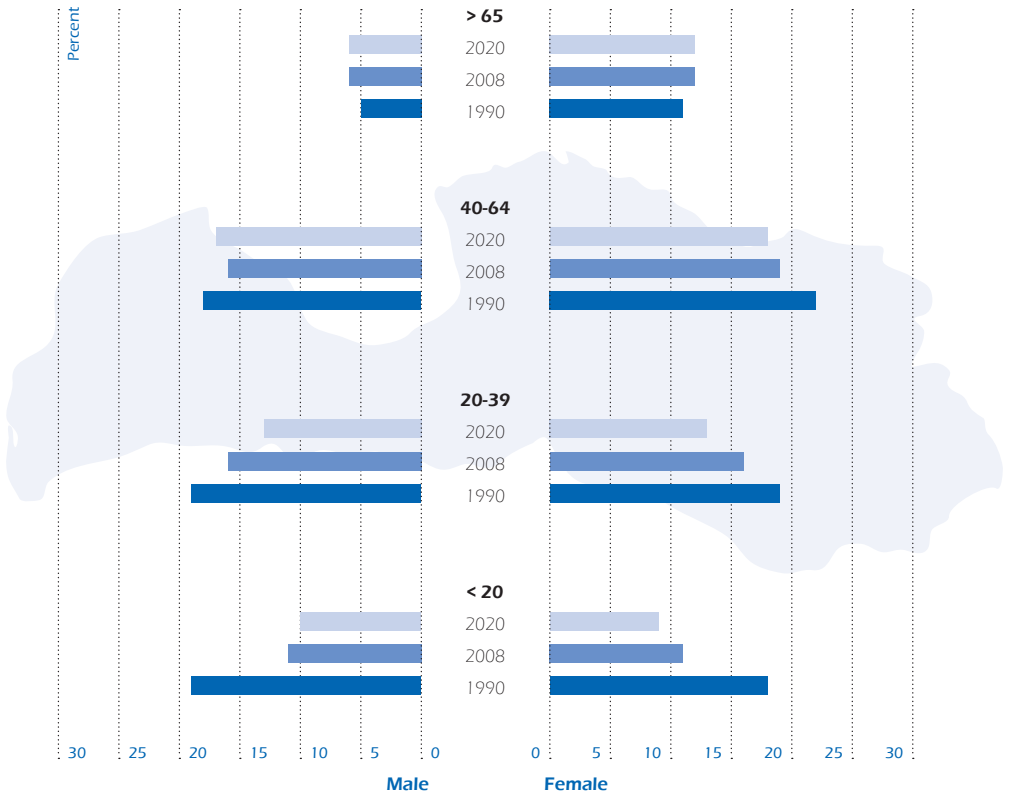
5 = great obstacle

LATVIA



1. Statistics

Age pyramid for Latvia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,13 | 2007 |
| Beds (per 100.000 population) | 757,13 | 2007 |
| Number of physicians | 6.940 | 2007 |
| Density of physicians (per 1.000 population) | 3,05 | 2007 |
| Number of nurses | 12.472 | 2007 |
| Density of nurses (per 1.000 population) | 5,48 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 965.111 | 1.112.336 | 2.077.447 |
| 2008 | 1.039.711 | 1.205.712 | 2.245.423 |
| 1990 | 1.238.635 | 1.424.955 | 2.663.590 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 33.902* | 2008 |
| Gross domestic product per capita | 14.930,12* | 2008 |
| Total expenditure on health as % of GDP | 6 | 2006 |
| General government expenditure on health as % of total expenditure on health | 63,2 | 2006 |
| Private expenditure on health as % of total expenditure on health | 36,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-------|
| 2007 | 54,7% |
| 2008 | 53,4% |

3. Healthcare System

In Latvia, a National healthcare system is divided between the Ministry of Welfare and municipalities.

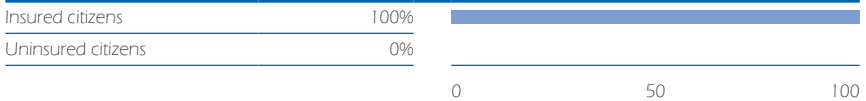
It is a decentralized and mainly based on local administrative structures.

(Source: Health Care Systems in Transition: Latvia, European Observatory on Health Care Systems, 2001)

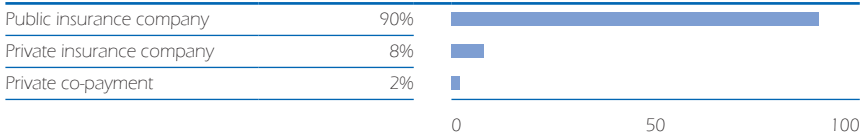
Basic insurance availability

Yes

Percentage of insured and uninsured citizens



Distribution of insurance modality



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 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 checked="" type="checkbox"/> |
| Invasive electrophysiology | <input checked="" type="checkbox"/> |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **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

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

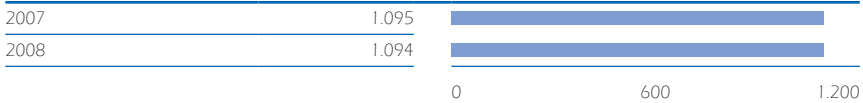
2

Percentage of academic facilities among practicing EP and implant centres

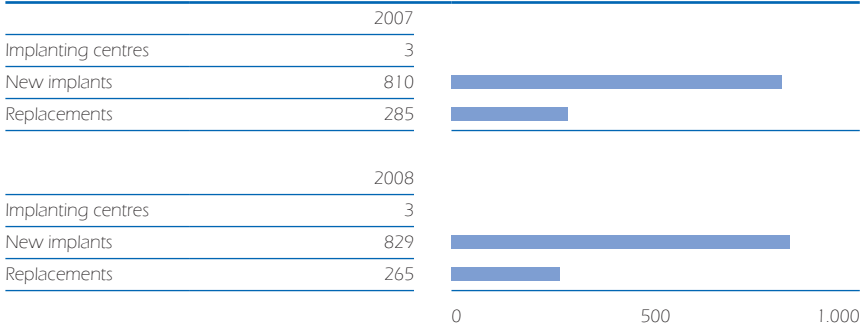
2%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



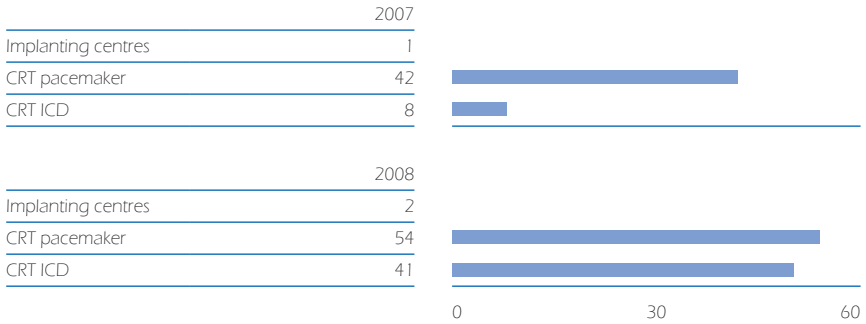
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 60% |
| Surgeons | 40% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

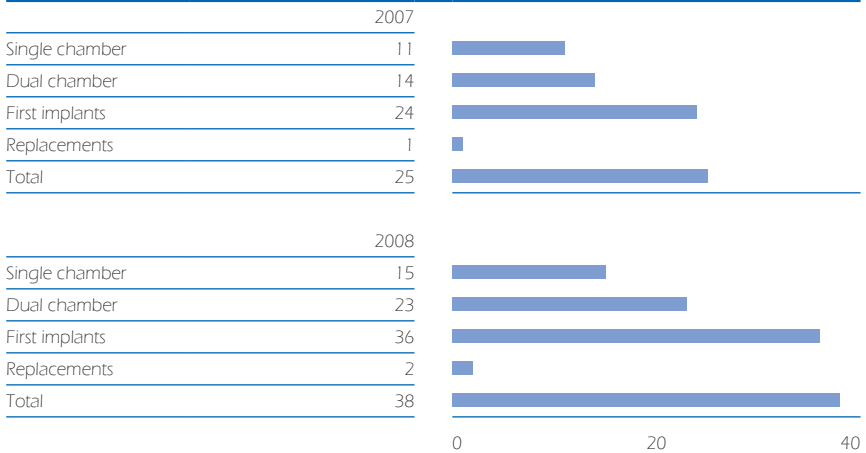
| | |
|---------------|-----|
| Cardiologists | 60% |
| Surgeons | 40% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

2

ICD units implanted and number of implanting centres

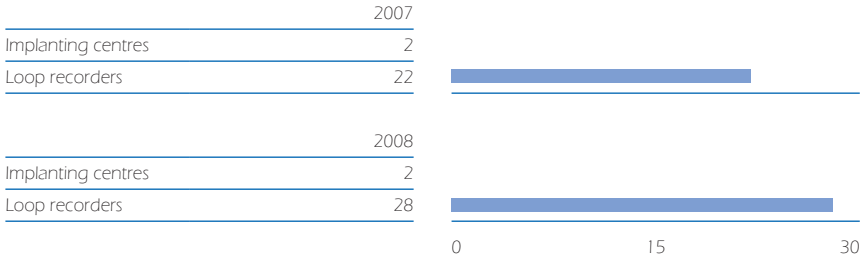


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 60% |
| Surgeons | 40% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 60% |
| Surgeons | 40% |

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"/> |

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**

| | 2007 | 2008 |
|---------------------------------|-------|------|
| Number of ablations performed | 215 | 304 |
| Mean number (ablations/centres) | 107,5 | 152 |
| Number of AF ablations | 16 | 42 |

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

| | |
|----------|-------------------------------------|
| National | <input checked="" 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 type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of trained personnel | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

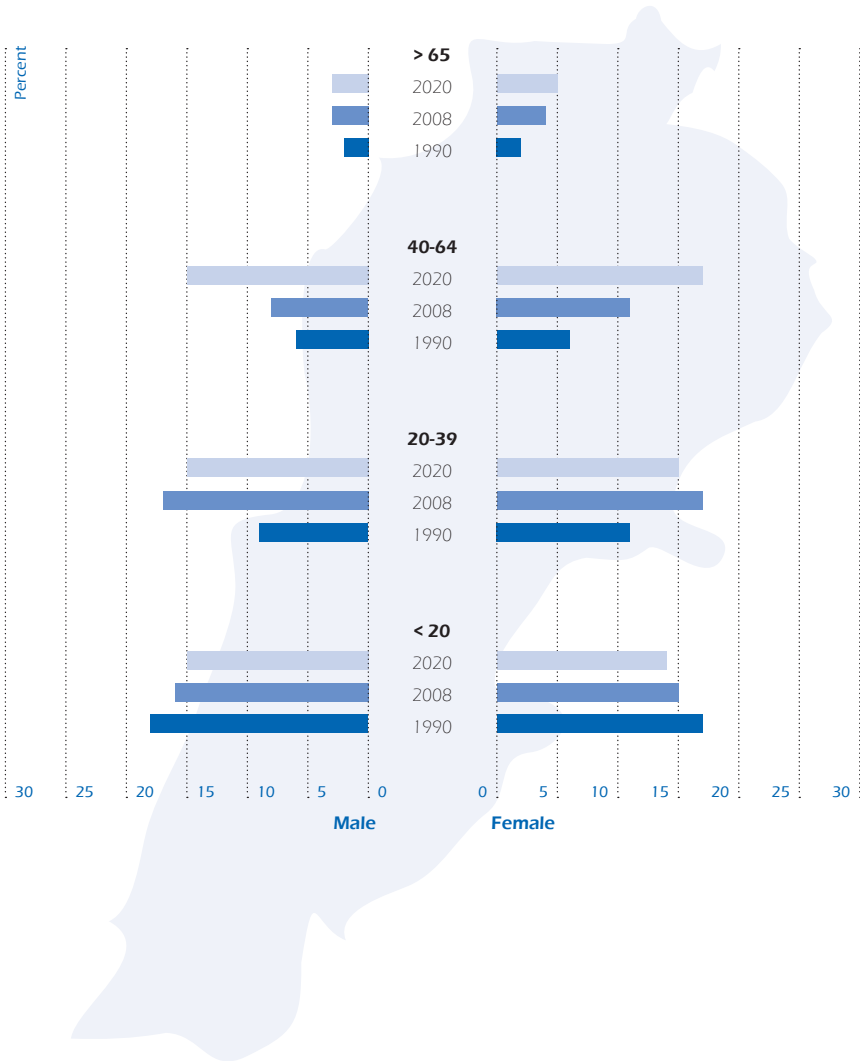
5 = great obstacle

LEBANON



1. Statistics

Age pyramid for Lebanon





Healthcare data

| | | |
|--|---------------|---------------|
| Hospitals (per 100.000 population) | not available | not available |
| Beds (per 100.000 population) | 360 | 2005 |
| Number of physicians | 8.440 | 2005 |
| Density of physicians (per 1.000 population) | 2,4 | 2005 |
| Number of nurses | 4.720 | 2005 |
| Density of nurses (per 1.000 population) | 1,3 | 2005 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.157.474 | 2.264.786 | 4.422.260 |
| 2008 | 1.930.017 | 2.041.924 | 3.971.941 |
| 1990 | 1.525.407 | 1.624.267 | 3.149.674 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 28.024* | 2008 |
| Gross domestic product per capita | 7.375,85* | 2008 |
| Total expenditure on health as % of GDP | 8,9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 46,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 53,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

3. Healthcare System

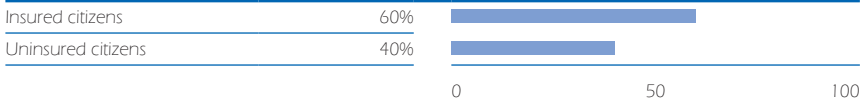
Lebanon's healthcare system is funded by various schemes: public, not-for-profit and private. It includes governmental social insurance, private insurance companies and the National Social Security Fund (NSSF) which cover all employees in the formal sector.

(WHO, 2005)

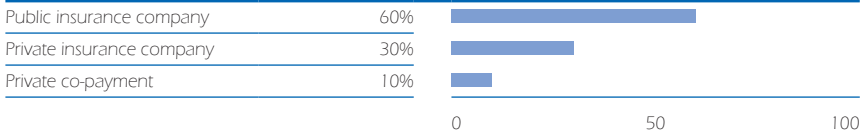
Basic insurance availability

No

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"/> |

It represents 15% of the total amount.

Reimbursement availability

| | |
|-------------------------------------|-------------------------------------|
| Internal loop recorders | not available |
| 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 **No**

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

No

Required period of training to perform implantations

No

Training centres availability

| | |
|--|---|
| Pacemaker | 0 |
| ICD implantation | 0 |
| Electrophysiological studies and catheter ablation | 0 |
| CRT implantation | 0 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

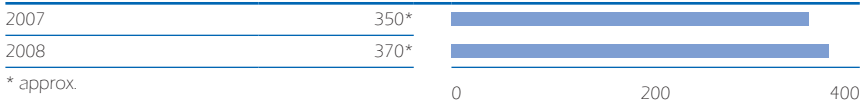
5

Percentage of academic facilities among practicing EP and implant centres

5%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | not available |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | not available |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

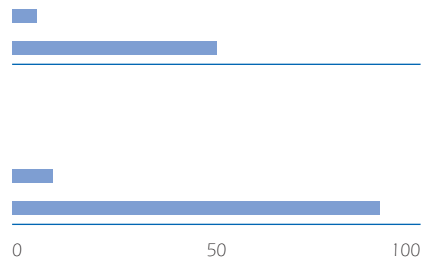
6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-----|
| Implanting centres | 10 |
| CRT pacemaker | 6* |
| CRT ICD | 50* |

| 2008 | |
|--------------------|-----|
| Implanting centres | 10 |
| CRT pacemaker | 10* |
| CRT ICD | 90* |

* approx.



Specialty performing implants

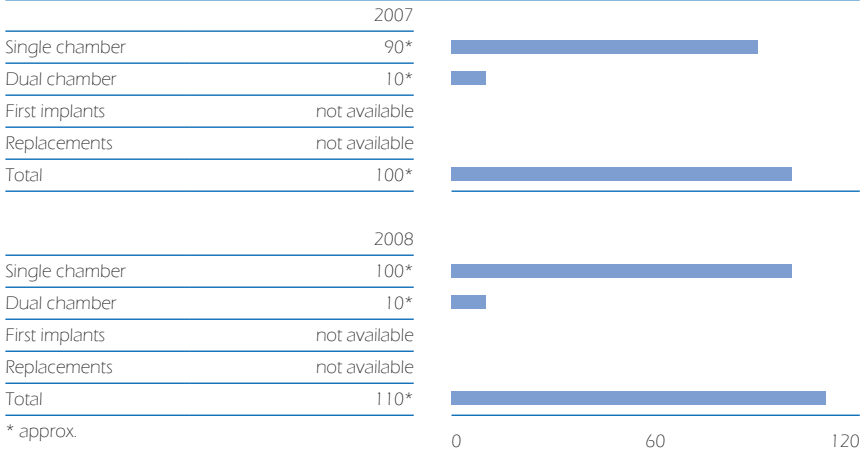
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

10

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

| | | 2007 |
|--------------------|---|------|
| Implanting centres | 0 | |
| Loop recorders | 0 | |
| | | 2008 |
| 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**

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

10. Interventional electrophysiology

Number of performing catheter ablation centres **3**

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 90 | 100 |
| Mean number (ablations/centres) | 30 | 33 |
| Number of AF ablations | 0 | 0 |

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

No

Obstacles to guideline implementation

| | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Lack of centres | <input type="checkbox"/> | <input 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 type="checkbox"/> |
| Lack of referral | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle



LIBYA

There will be information in the next edition.



LITHUANIA



1. Statistics

Age pyramid for Lithuania





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 4,89 | 2007 |
| Beds (per 100.000 population) | 813,95 | 2007 |
| Number of physicians | 13.729 | 2007 |
| Density of physicians (per 1.000 population) | 4,07 | 2007 |
| Number of nurses | 24.804 | 2007 |
| Density of nurses (per 1.000 population) | 7,35 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 1.620.495 | 1.814.847 | 3.435.342 |
| 2008 | 1.676.402 | 1.888.803 | 3.565.205 |
| 1990 | 1.749.096 | 1.945.740 | 3.694.836 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 48.747* | 2008 |
| Gross domestic product per capita | 14.456,17* | 2008 |
| Total expenditure on health as % of GDP | 6,2 | 2006 |
| General government expenditure on health as % of total expenditure on health | 70 | 2006 |
| Private expenditure on health as % of total expenditure on health | 30 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

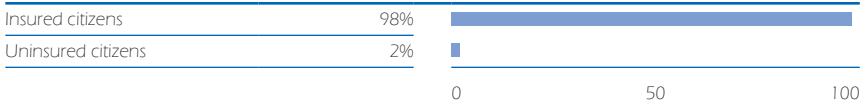
3. Healthcare System

Near 100 percent financing via Patient State fund.

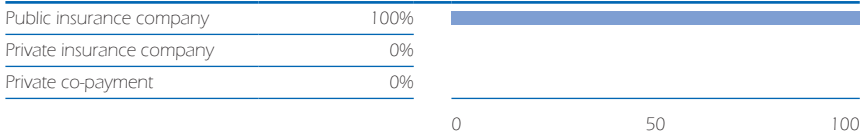
Basic insurance availability

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 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 to perform EP **Yes**

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **Yes**

Cardiologist, cardiac surgeon (cardiac surgeons perform epicardial lead implants)

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

| | |
|--|---|
| Pacemaker | 3 |
| ICD implantation | 3 |
| Electrophysiological studies and catheter ablation | 3 |
| CRT implantation | 3 |
| Atrial fibrillation ablation | 2 |

Number of medical faculties

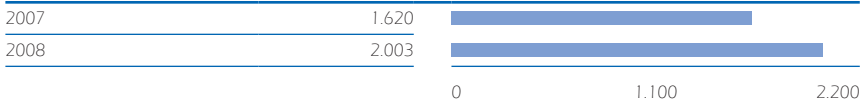
2

Percentage of academic facilities among practicing EP and implant centres

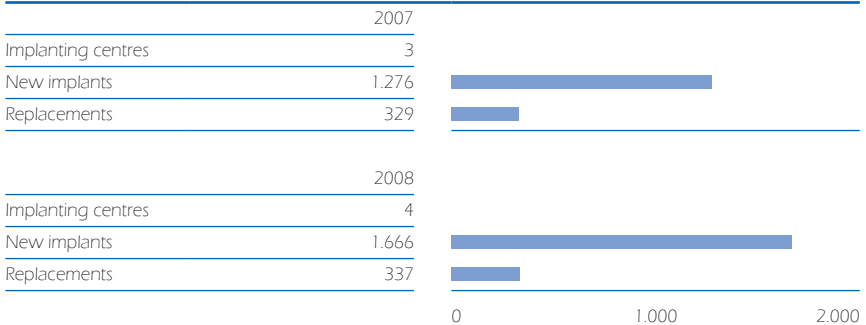
50%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



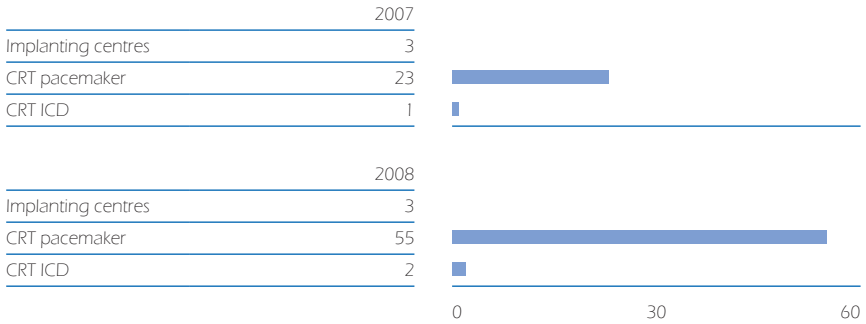
Specialty performing implants

| | |
|---------------|-------|
| Cardiologists | 96,5% |
| Surgeons | 3,5% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

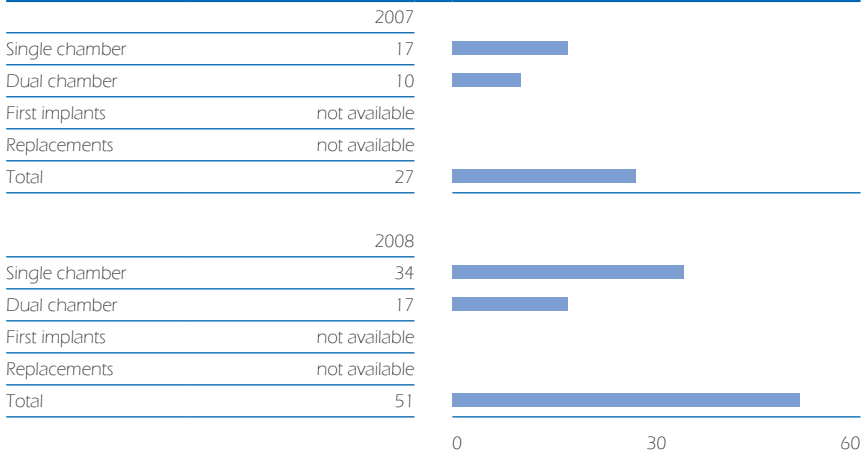
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

3

ICD units implanted and number of implanting centres

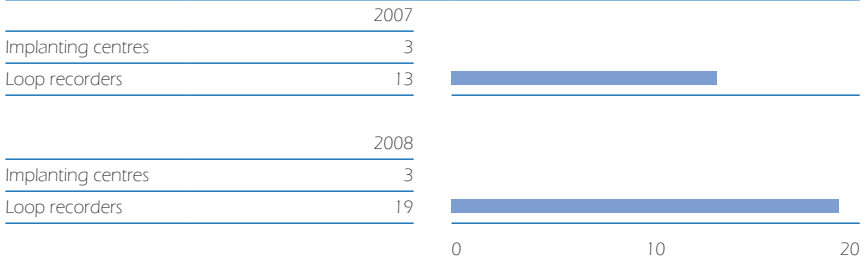


Specialty performing implants

| | |
|---------------|------|
| 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

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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 580 | 797 |
| Mean number (ablations/centres) | 193 | 266 |
| Number of AF ablations | 32 | 38 |

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 type="checkbox"/> | <input checked="" 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

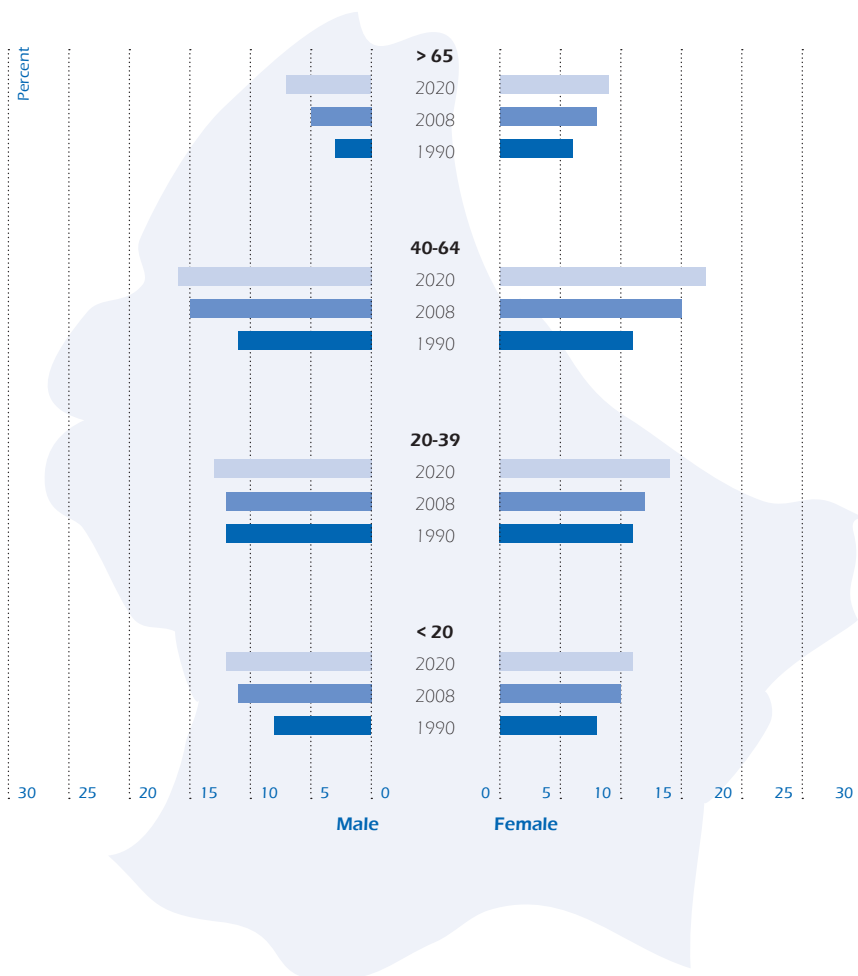
5 = great obstacle

LUXEMBOURG



1. Statistics

Age pyramid for Luxembourg





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 3,96 | 2004 |
| Beds (per 100.000 population) | 633,36 | 2004 |
| Number of physicians | 1.326 | 2005 |
| Density of physicians (per 1.000 population) | 2,9 | 2005 |
| Number of nurses | 4.678 | 2005 |
| Density of nurses (per 1.000 population) | 10,23 | 2005 |

Population by age and sex

| | Male | Female | Total |
|------|---------|---------|---------|
| 2020 | 273.218 | 282.940 | 556.158 |
| 2008 | 239.291 | 246.715 | 486.006 |
| 1990 | 189.847 | 197.305 | 387.152 |

Economic information

| | | |
|---|-------------|------|
| Gross domestic product (U.S dollar-billions) | 57.609* | 2008 |
| Gross domestic product per capita | 118.045,18* | 2008 |
| Total expenditure on health as % of GDP | 7,2 | 2006 |
| General government expenditure on health as % of total expenditure on health | 90,6 | 2006 |
| Private expenditure on health as % of total expenditure on health | 9,4 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |



3. Healthcare System

Luxemburg'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

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |
| | | 0 50 100 |

Distribution of insurance modality

| | | |
|---------------------------|---------------|---|
| Public insurance company | 100% |  |
| Private insurance company | 58% |  |
| Private co-payment | not available |  |
| | | 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

No

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, surgeon

Official national competency guidelines for electrophysiological studies or catheter ablation

No

Required period of training to perform implantations

No

Training centres availability

| | |
|--|---|
| Pacemaker | 0 |
| ICD implantation | 0 |
| Electrophysiological studies and catheter ablation | 0 |
| CRT implantation | 0 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

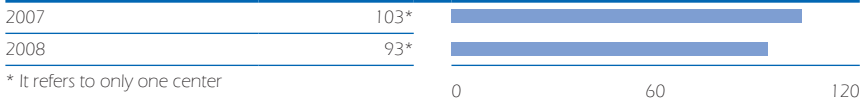
0

Percentage of academic facilities among practicing EP and implant centres

0%

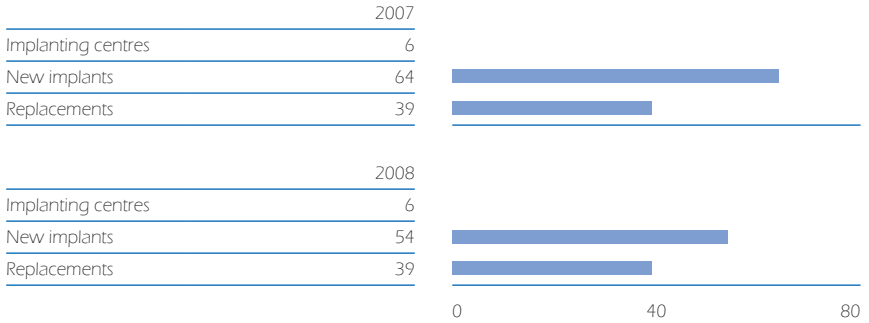
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

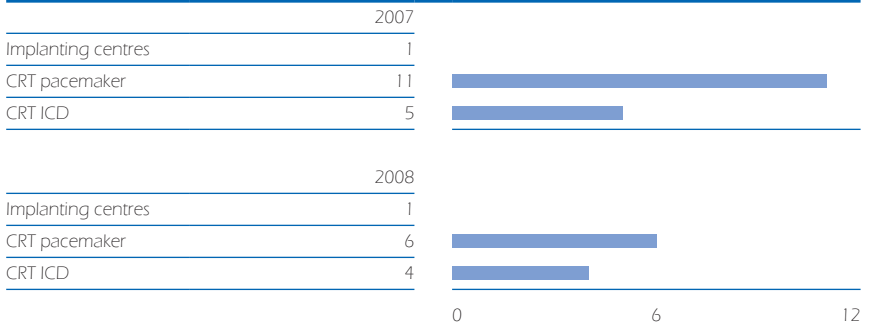


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

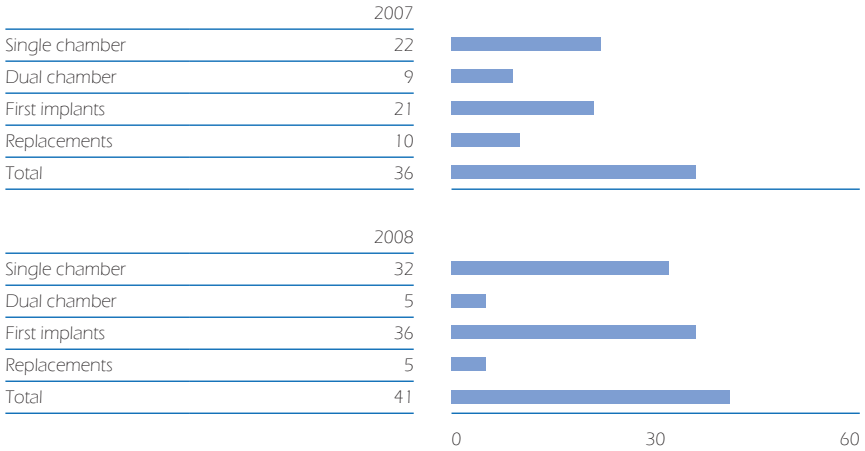
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

1

ICD units implanted and number of implanting centres

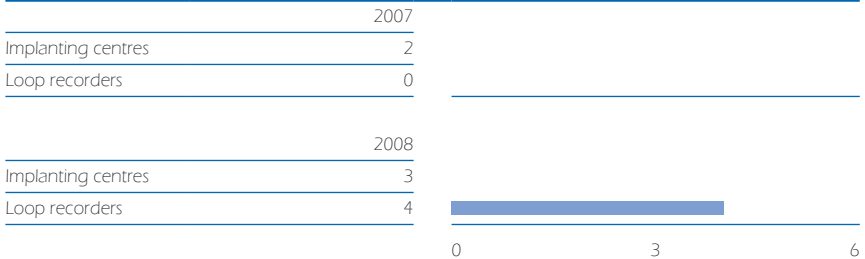


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

8. Loop recorders

Loop recorders implanted and number of implanting centres





Specialty performing implants

| | |
|---------------|------|
| 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 Sante

10. Interventional electrophysiology

Number of performing catheter ablation centres **1**

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 80 | 99 |
| Mean number (ablations/centres) | 80 | 99 |
| Number of AF ablations | 0 | 9 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low awareness of guidelines | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (Lack of local facilities) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle



MALTA

There will be information in the next edition.





MOROCCO

There will be information in the next edition.

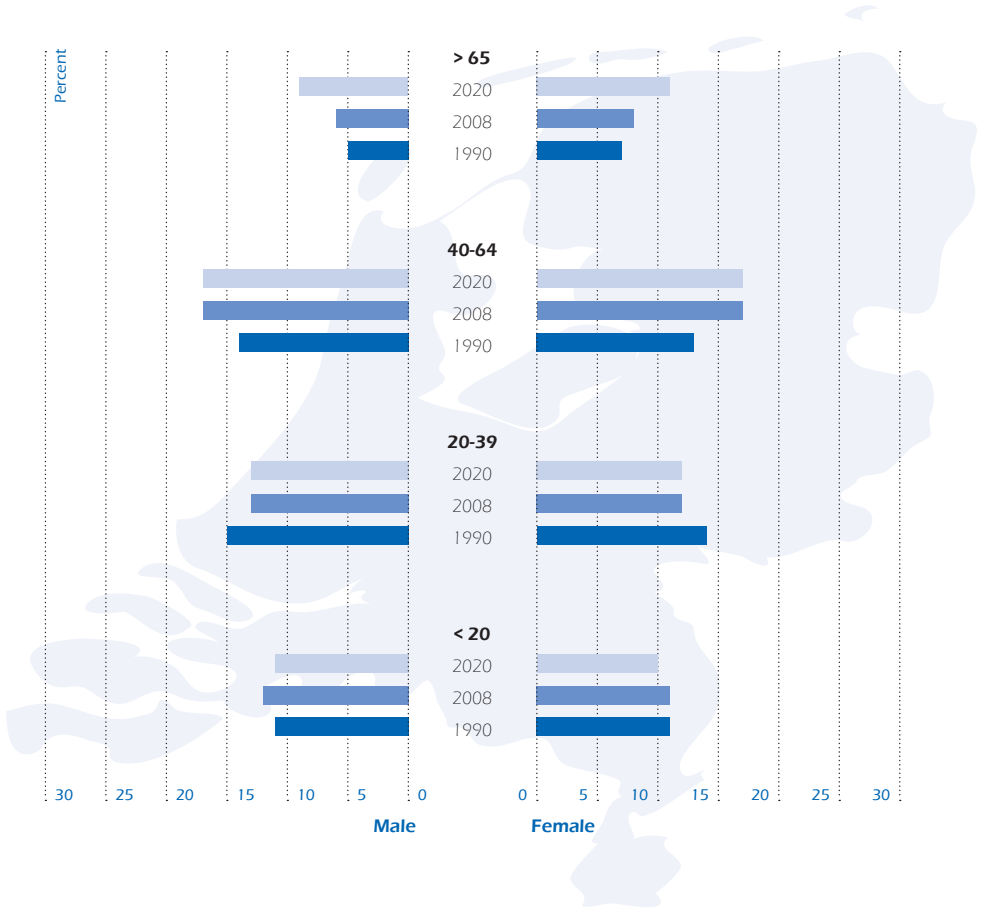


NETHERLANDS



1. Statistics

Age pyramid for Netherlands





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 1,16 | 2007 |
| Beds (per 100.000 population) | 480,8 | 2007 |
| Number of physicians | 64.417 | 2007 |
| Density of physicians (per 1.000 population) | 3,93 | 2007 |
| Number of nurses | 246.545 | 2007 |
| Density of nurses (per 1.000 population) | 15,05 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 8.558.880 | 8.773.125 | 17.332.005 |
| 2008 | 8.242.283 | 8.403.030 | 16.645.313 |
| 1990 | 7.644.907 | 7.814.147 | 15.459.054 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 909.465* | 2008 |
| Gross domestic product per capita | 54.445,06* | 2008 |
| Total expenditure on health as % of GDP | 9,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 81,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 18,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 248 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 33% |
| 2008 | not available |

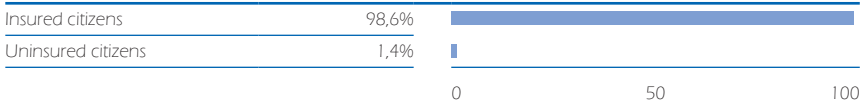
3. Healthcare System

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

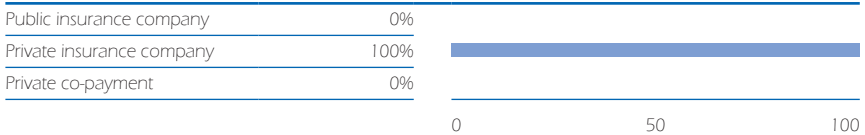
Basic insurance availability

Yes

Percentage of insured and uninsured citizens



Distribution of insurance modality



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 | ☑ |
| ICD primary prevention | ☑ |
| ICD secondary prevention | ☑ |
| CRT devices | ☑ |
| Ablation | ☑ |
| Unlimited availability of treatment | ☑ |

4. Education

National accreditation availability

| | |
|---------------------------------------|---|
| Device therapy | ☑ |
| Invasive electrophysiology | ☑ |
| EHRA, no official Dutch accreditation | |

National accreditation for physicians

Yes

GAIA

National accreditation for centres to perform EP

Yes

National Society supporting EHRA accreditation system

Yes

Specialty required for catheter ablation

Yes

Electrophysiologist (with EHRA exam) also surgeons perform PVI in consultation with the electrophysiologist

Specialty required for ICD or pacemaker implants

Yes

ICD cardiologist + EHRA exam

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

European Guidelines

Required period of training to perform implantations

1 year

Training centres availability

| | |
|--|----|
| Pacemaker | 17 |
| ICD implantation | 17 |
| Electrophysiological studies and catheter ablation | 13 |
| CRT implantation | 17 |
| Atrial fibrillation ablation | 13 |

Number of medical faculties

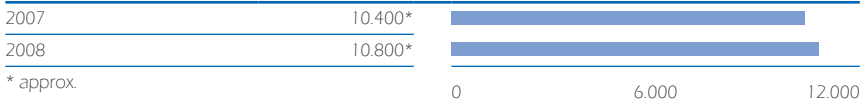
8

Percentage of academic facilities among practicing EP and implant centres

80%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| New implants | not available | |
| Replacements | not available | |
| | | 2008 |
| Implanting centres | not available | |
| New implants | not available | |
| Replacements | not available | |

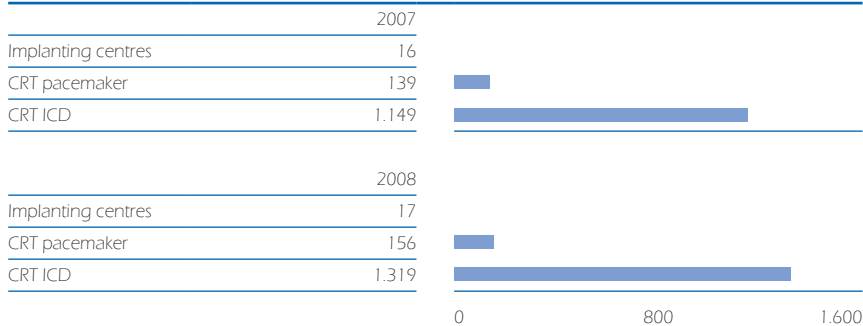
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

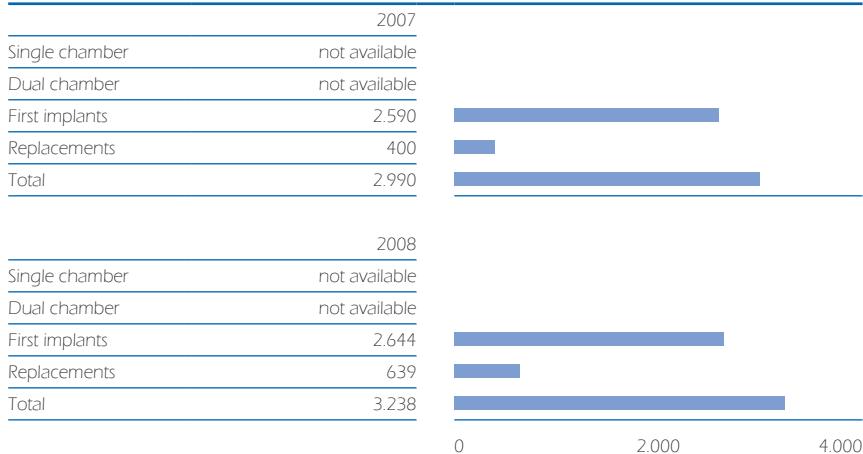
| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

17

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

| | 2007 | |
|--------------------|---------------|--|
| Implanting centres | not available | |
| Loop recorders | not available | |

| | 2008 | |
|--------------------|---------------|--|
| Implanting centres | not available | |
| Loop recorders | not available | |

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"/> |
| DIPR | |

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

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

NHRA device committee



10. Interventional electrophysiology

Number of performing catheter ablation centres

13

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 3.481 | 4.368 |
| Mean number (ablations/centres) | 268 | 336 |
| Number of AF ablations | 1.052 | 1.536 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input checked="" type="checkbox"/> |
| U.S. | <input 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 checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

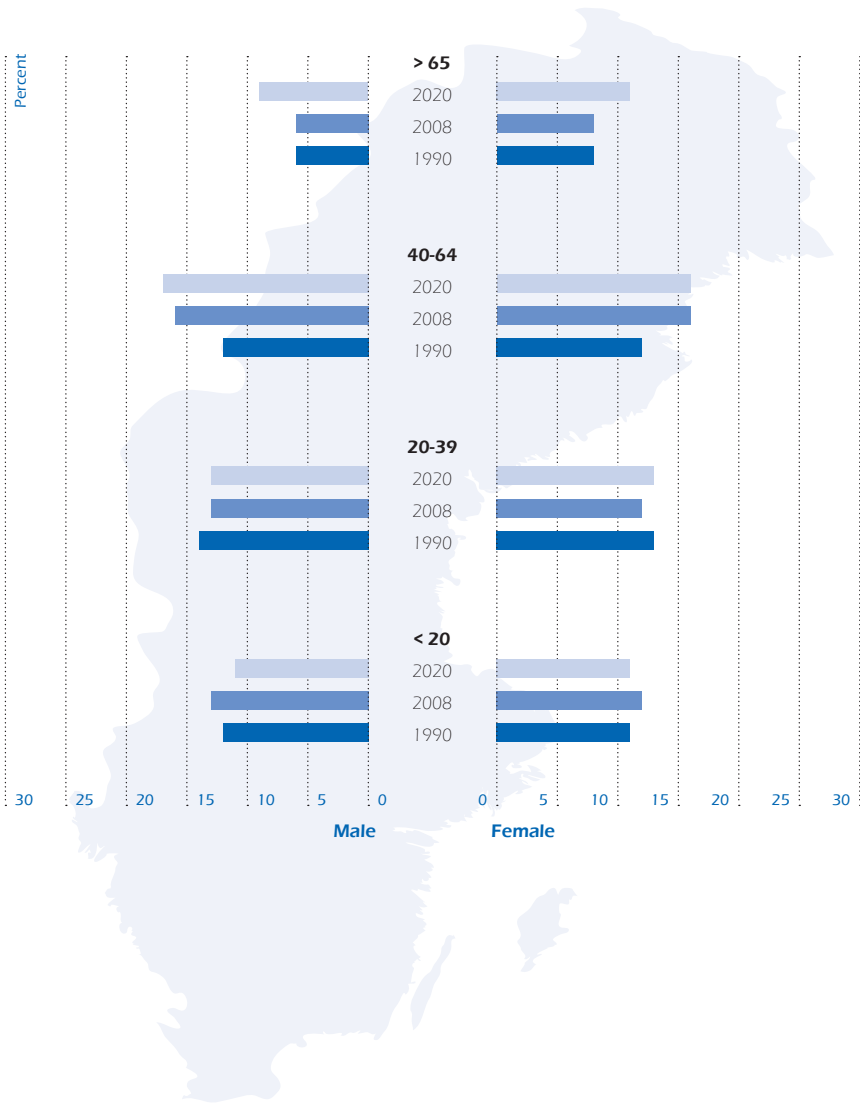
5 = great obstacle

NORWAY



1. Statistics

Age pyramid for Norway





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,5 | 2006 |
| Beds (per 100.000 population) | 391,19 | 2007 |
| Number of physicians | 18.143 | 2007 |
| Density of physicians (per 1.000 population) | 3,8 | 2007 |
| Number of nurses | 73.768 | 2007 |
| Density of nurses (per 1.000 population) | 15,47 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.393.591 | 2.442.865 | 4.836.456 |
| 2008 | 2.303.071 | 2.341.386 | 4.644.457 |
| 1990 | 2.107.177 | 2.154.556 | 4.261.733 |

Economic information

| | | |
|---|-------------|------|
| Gross domestic product (U.S dollar-billions) | 481.148* | 2008 |
| Gross domestic product per capita | 102.524,55* | 2008 |
| Total expenditure on health as % of GDP | 8,7 | 2006 |
| General government expenditure on health as % of total expenditure on health | 83,6 | 2006 |
| Private expenditure on health as % of total expenditure on health | 16,4 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 189 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 21%* |
| 2008 | not available |



* not including vascular disease

3. Healthcare System




National Health System

Basic insurance availability **Yes**

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |
| | | 0 50 100 |

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 0% |  |
| Private co-payment | 0% |  |
| | | 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 to perform EP **No**

National Society supporting EHRA accreditation system **No**

Specialty required for catheter ablation **No**

No formal rules but in practice only qualified electrophysiologists perform.

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


No formal rules

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



Required period of training to perform implantations**No****Training centres availability**

| | |
|--|---|
| Pacemaker | 5 |
| ICD implantation | 5 |
| Electrophysiological studies and catheter ablation | 5 |
| CRT implantation | 4 |
| Atrial fibrillation ablation | 1 |

Number of medical faculties**4****Percentage of academic facilities among practicing EP and implant centres****20%****5. Pacemakers****Pacemaker units implanted**

| | | |
|--------------------------|---------------|---|
| 2007 | 2,730* |  |
| 2008 | not available | |
| * including replacements | | |
| | | 0 2,000 4,000 |

Pacemaker units implanted and number of implanting centres

| | | |
|--------------------|---------------|---|
| | | 2007 |
| Implanting centres | 25 | |
| New implants | 2,121 |  |
| Replacements | 609 |  |
| | | 2008 |
| Implanting centres | not available | |
| New implants | not available | |
| Replacements | not available | |
| | | 0 1,200 2,400 |

Specialty performing implants

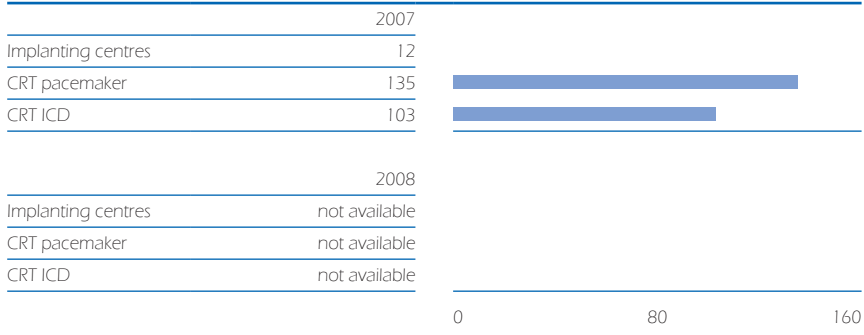
| | |
|---------------|-----|
| Cardiologists | 98% |
| Surgeons | 2%* |

* approx.



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

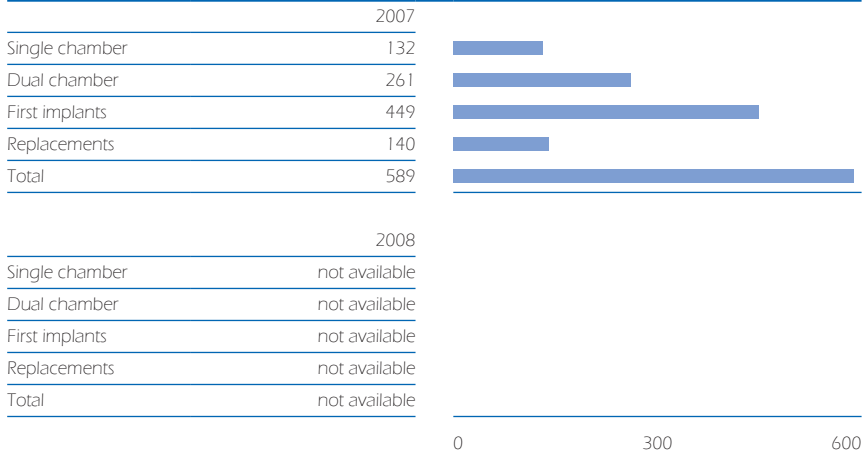
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

12

ICD units implanted and number of implanting centres

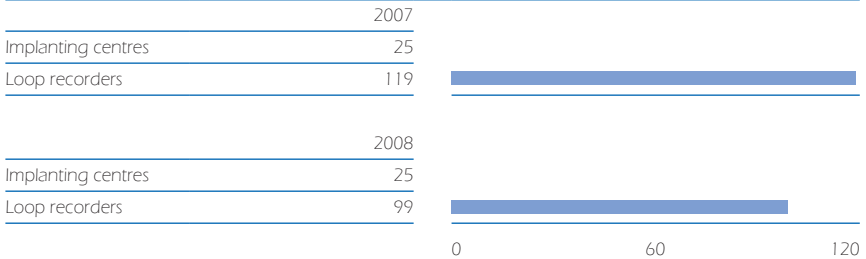


Specialty performing implants

| | |
|---------------|------|
| 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"/> |
| Norsk Pacemakerregister | |

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

5

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.157 | 1.201 |
| Mean number (ablations/centres) | 231 | 240 |
| Number of AF ablations | 295 | 359 |

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 checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

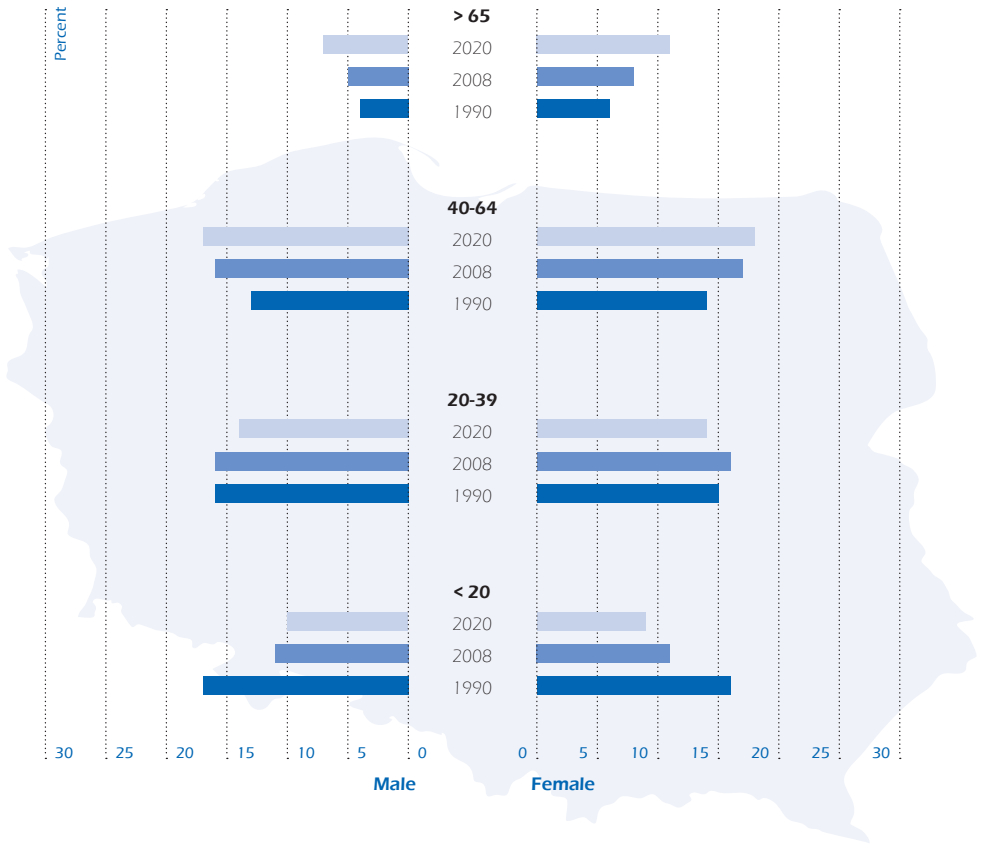
5 = great obstacle

POLAND



1. Statistics

Age pyramid for Poland





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 2,08 | 2006 |
| Beds (per 100.000 population) | 516,17 | 2006 |
| Number of physicians | 77.479 | 2006 |
| Density of physicians (per 1.000 population) | 2,03 | 2006 |
| Number of nurses | 178.781 | 2006 |
| Density of nurses (per 1.000 population) | 4,69 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 18.329.087 | 19.620.041 | 37.949.128 |
| 2008 | 18.659.067 | 19.841.629 | 38.500.696 |
| 1990 | 18.577.268 | 19.542.140 | 38.119.408 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 567.413* | 2008 |
| Gross domestic product per capita | 14.892,80* | 2008 |
| Total expenditure on health as % of GDP | 6,2 | 2006 |
| General government expenditure on health as % of total expenditure on health | 69,9 | 2006 |
| Private expenditure on health as % of total expenditure on health | 30,1 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------------------|
| 2007 | 200 per 100.000 citizens* |
| 2008 | not available |

* Male only

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 44% |
| 2008 | not available |



3. Healthcare System

Poland has the healthcare system (NHS Found) based on general health insurance (on compulsory basis).

Basic insurance availability

Yes




Percentage of insured and uninsured citizens

| | | |
|--------------------|-----|---|
| Insured citizens | 98% |  |
| Uninsured citizens | 2%* |  |

* approx.

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 90%* |  |
| Private insurance company | 1%* |  |
| Private co-payment | 10%* |  |

* approx.

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 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"/> |

Polish Cardiac Society and Heart Rhythm Division

Heart Rhythm Division's accreditation in process of acceptance of the Board of Polish Cardiac Society

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

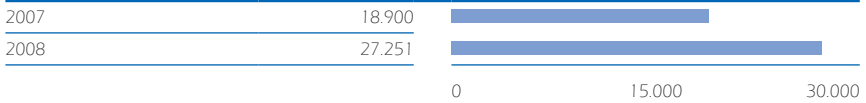
| | |
|--|----|
| Pacemaker | 50 |
| ICD implantation | 30 |
| Electrophysiological studies and catheter ablation | 10 |
| CRT implantation | 10 |
| Atrial fibrillation ablation | 5 |

Number of medical faculties 15

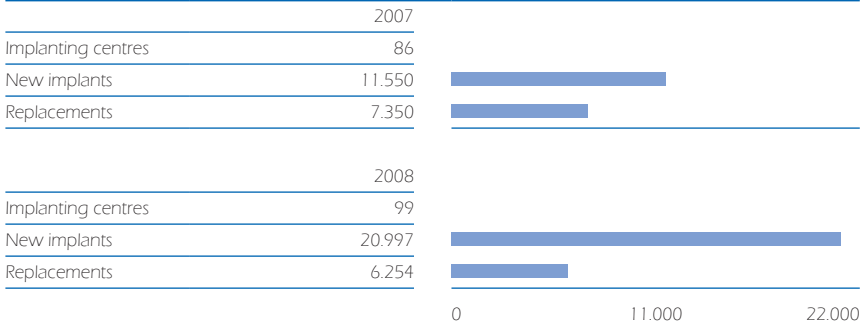
Percentage of academic facilities among practicing EP and implant centres 28%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



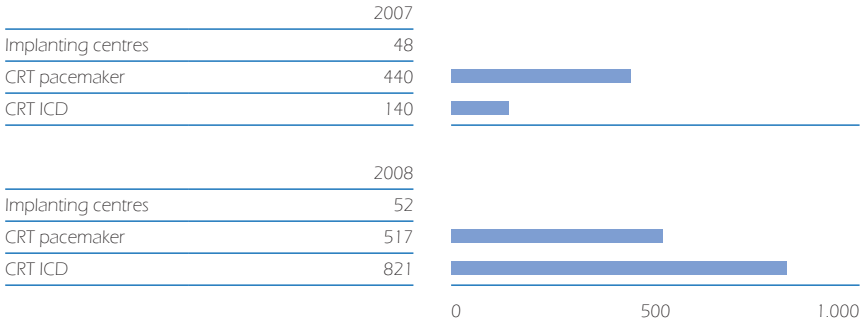
Specialty performing implants

| | |
|--------------------|-----|
| Cardiologists | 98% |
| Surgeons | 1% |
| Other (Pediatrics) | 1% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

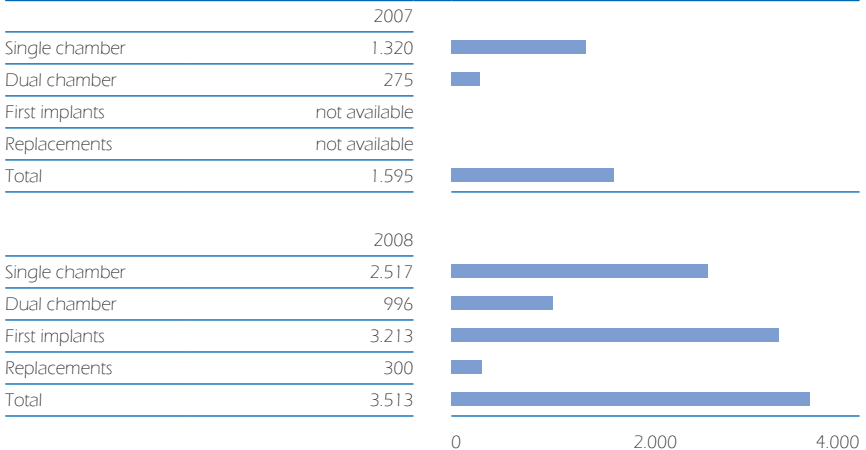
| | |
|--------------------|------|
| Cardiologists | >99% |
| Surgeons | 0% |
| Other (Pediatrics) | <1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

63

ICD units implanted and number of implanting centres

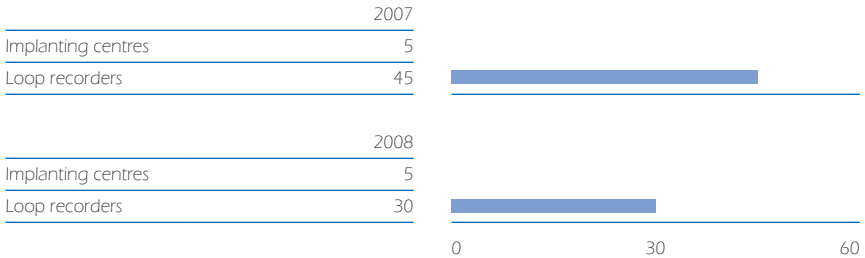


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 0% |
| Other | 1% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



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 **38**

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 3,100 | 4,716 |
| Mean number (ablations/centres) | 82 | 124 |
| Number of AF ablations | 228 | 236 |

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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of reimbursement, limited financial resources | <input type="checkbox"/> | <input checked="" 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 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

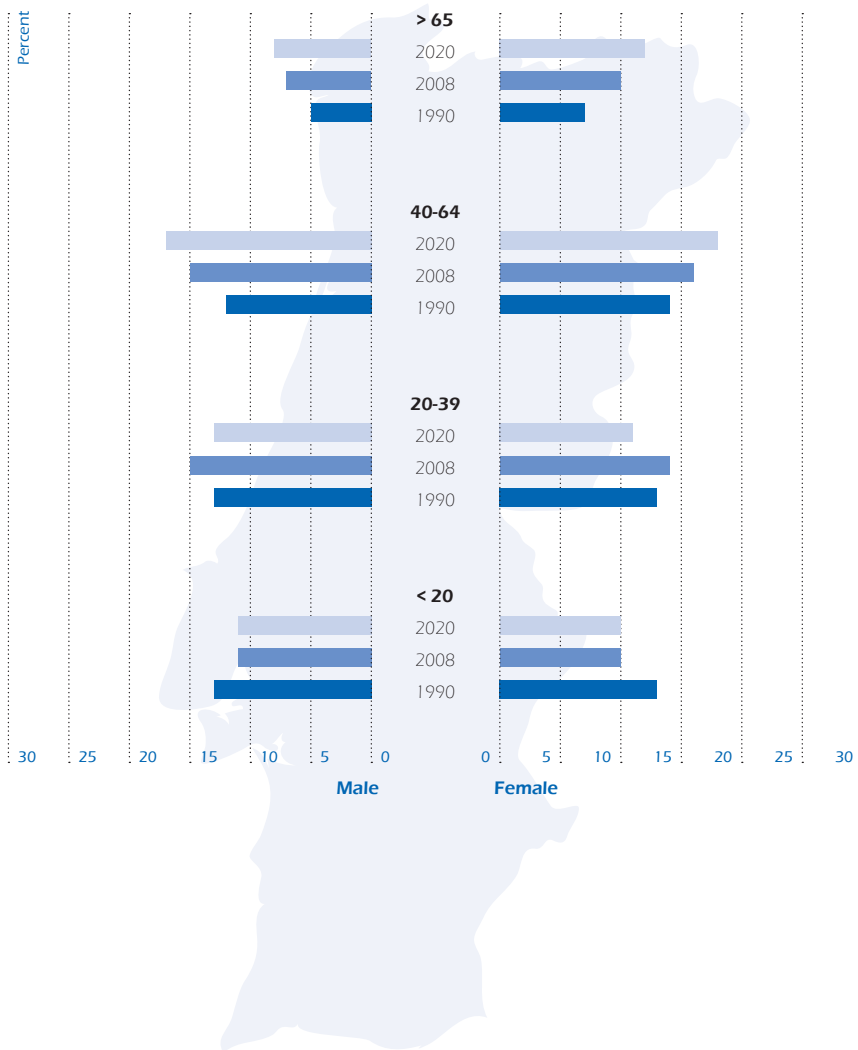
5 = great obstacle

PORTUGAL



1. Statistics

Age pyramid for Portugal





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,93 | 2005 |
| Beds (per 100.000 population) | 345,44 | 2006 |
| Number of physicians | 36.138 | 2005 |
| Density of physicians (per 1.000 population) | 3,43 | 2005 |
| Number of nurses | 50.955 | 2006 |
| Density of nurses (per 1.000 population) | 4,81 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 5.306.576 | 5.535.462 | 10.842.038 |
| 2008 | 5.192.343 | 5.484.567 | 10.676.910 |
| 1990 | 4.772.282 | 5.146.727 | 9.919.009 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 255.483* | 2008 |
| Gross domestic product per capita | 24.031,24* | 2008 |
| Total expenditure on health as % of GDP | 10 | 2006 |
| General government expenditure on health as % of total expenditure on health | 71,8 | 2006 |
| Private expenditure on health as % of total expenditure on health | 28,2 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 310 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 32,2% |
| 2008 | not available |

3. Healthcare System



The Portuguese healthcare system is characterised by three coexisting schemes. The National Health Service (NHS), the special social health schemes for certain professionals and the voluntary private health insurance. The NHS provides universal coverage. The Ministry of Health is responsible for developing healthcare policies as well as managing NHS.

(Highlights on health. WHO 2004)

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|-----|---|
| Public insurance company | 85% |  |
| Private insurance company | 15% |  |
| Private co-payment | 0% |  |

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"/> |
| According to guidelines | |

4. Education

National accreditation availability

| | |
|--|-------------------------------------|
| Device therapy | <input type="checkbox"/> |
| Invasive electrophysiology | <input checked="" type="checkbox"/> |
| Sub-specialty in Cardiac Electrophysiology | |

National accreditation for physicians

Yes

Under the Medical Board (Cardiology Sub-specialty)

National accreditation for centres to perform EP

No

But there are defined center requirements

National Society supporting EHRA accreditation system

Yes

Specialty required for catheter ablation

Yes

Required to have the Cardiac Electrophysiology Sub-specialty

Specialty required for ICD or pacemaker implants

Yes

For ICD Cardiac Electrophysiology Sub-specialty required

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Sub-specialty in Cardiac Electrophysiology

Required period of training to perform implantations

2 years

Training centres availability

| | |
|--|----|
| Pacemaker | 19 |
| ICD implantation | 5 |
| Electrophysiological studies and catheter ablation | 5 |
| CRT implantation | 5 |
| Atrial fibrillation ablation | 4 |

Number of medical faculties

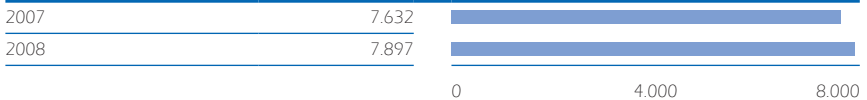
7

Percentage of academic facilities among practicing EP and implant centres

25%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 40 |
| New implants | not available |
| Replacements | not available |
| 2008 | |
| Implanting centres | 41 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-----|
| Implanting centres | 20 |
| CRT pacemaker | 96 |
| CRT ICD | 289 |
| 2008 | |
| Implanting centres | 21 |
| CRT pacemaker | 117 |
| CRT ICD | 329 |

Specialty performing implants

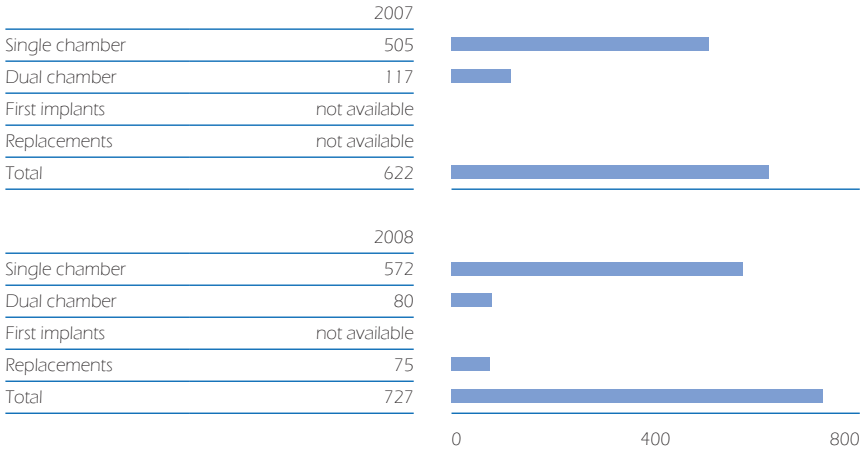
| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

20

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

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | | 2008 |
| Implanting centres | not available | |
| Loop recorders | not available | |



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"/> |
| 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**

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 1.480 | 1.594 |
| Mean number (ablations/centres) | 93 | 100 |
| Number of AF ablations | 150 | 233 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle



REPUBLIC OF MOLDOVA

There will be information in the next edition.

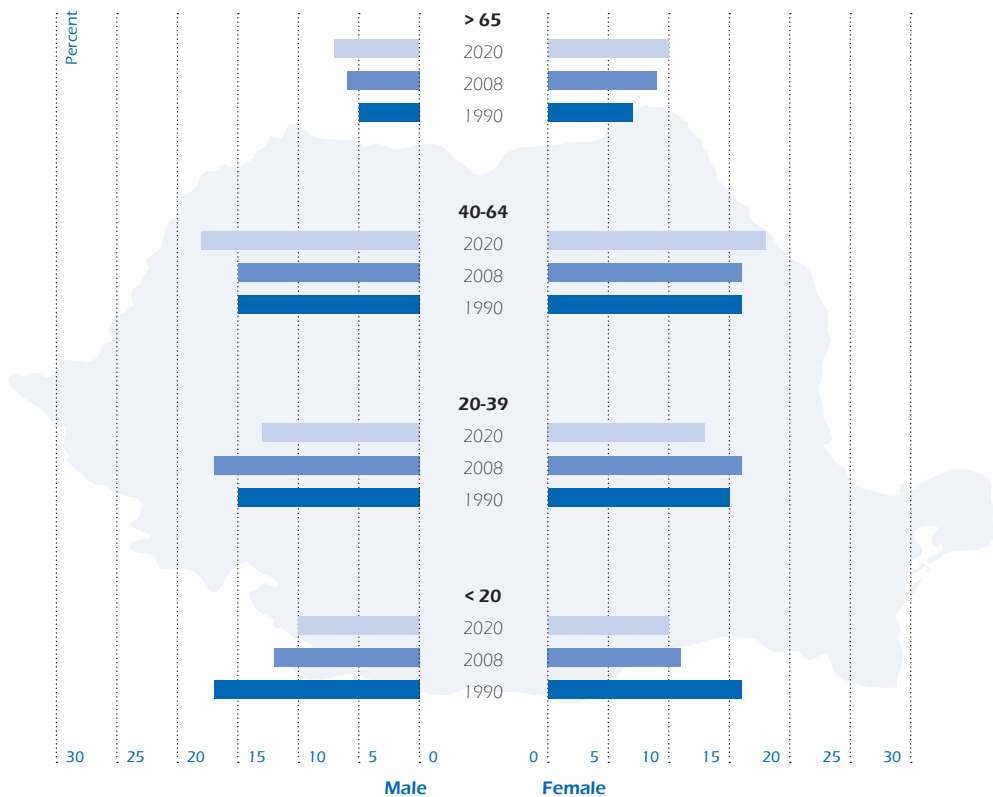


ROMANIA



1. Statistics

Age pyramid for Romania





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,94 | 2006 |
| Beds (per 100.000 population) | 654,29 | 2006 |
| Number of physicians | 41.455 | 2006 |
| Density of physicians (per 1.000 population) | 1,92 | 2006 |
| Number of nurses | 85.785 | 2006 |
| Density of nurses (per 1.000 population) | 3,97 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 10.508.310 | 11.139.718 | 21.648.028 |
| 2008 | 10.834.904 | 11.411.958 | 22.246.862 |
| 1990 | 11.203.286 | 11.593.741 | 22.797.027 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 213.891* | 2008 |
| Gross domestic product per capita | 9.953,33* | 2008 |
| Total expenditure on health as % of GDP | 5,7 | 2006 |
| General government expenditure on health as % of total expenditure on health | 71 | 2006 |
| Private expenditure on health as % of total expenditure on health | 29 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 30% |
| 2008 | not available |



3. Healthcare System

The adoption of the Law on Social Health Insurance in 1997 initiated the transformation of the Romanian healthcare 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

| | | |
|--------------------|-----|---|
| Insured citizens | 98% |  |
| Uninsured citizens | 2% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|-----|---|
| Public insurance company | 57% |  |
| Private insurance company | 14% |  |
| Private co-payment | 29% |  |

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 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 to perform EP **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

| | |
|--|----|
| Pacemaker | 12 |
| ICD implantation | 7 |
| Electrophysiological studies and catheter ablation | 7 |
| CRT implantation | 5 |
| Atrial fibrillation ablation | 0 |

Number of medical faculties

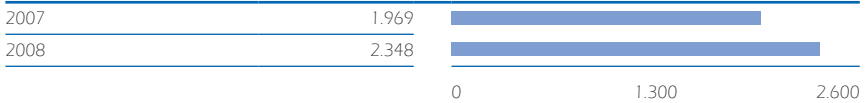
11

Percentage of academic facilities among practicing EP and implant centres

100%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | |
|--------------------|---------------|
| 2007 | |
| Implanting centres | 17 |
| New implants | not available |
| Replacements | not available |
| 2008 | |
| Implanting centres | 18 |
| New implants | not available |
| Replacements | not available |

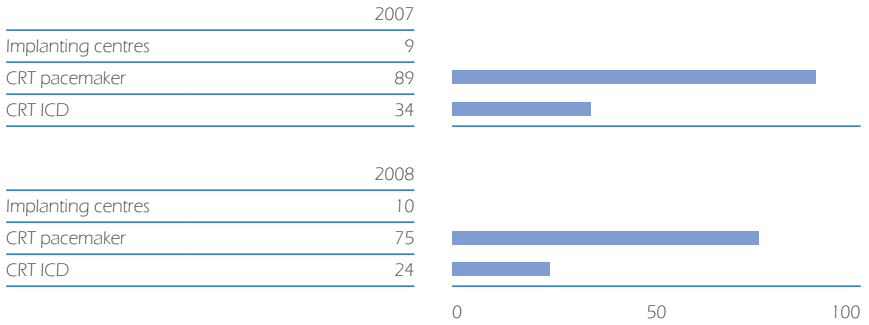
Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

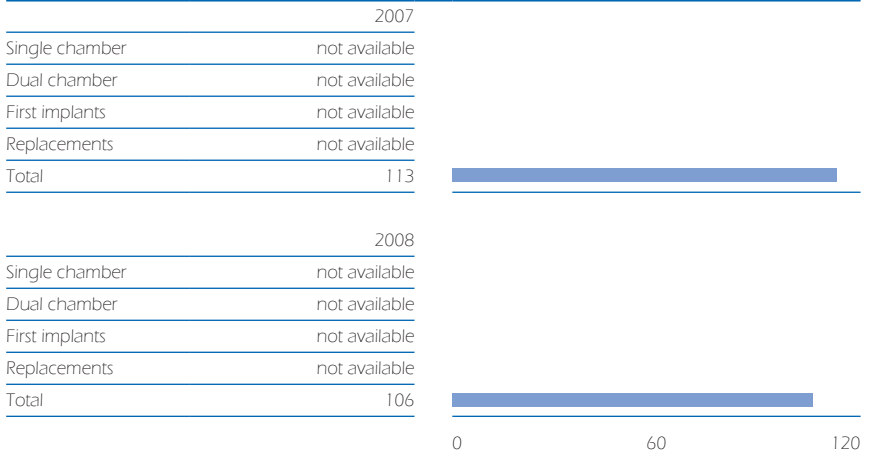
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

12

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

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | | 2008 |
| 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

10

| | 2007 | 2008 |
|---------------------------------|---------------|------|
| Number of ablations performed | 550 | 780 |
| Mean number (ablations/centres) | not available | 70 |
| Number of AF ablations | 0 | 0 |

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 type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input checked="" 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

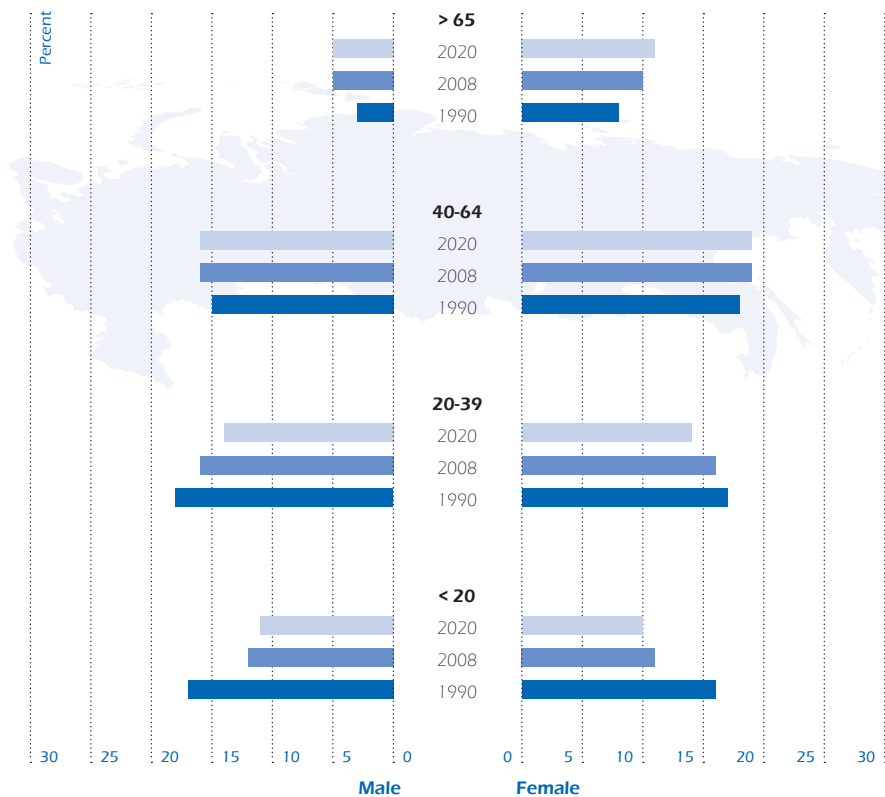
5 = great obstacle

RUSSIAN FEDERATION



1. Statistics

Age pyramid for Russian Federation





Healthcare data

| | | |
|--|-----------|------|
| Hospitals (per 100.000 population) | 4,5 | 2006 |
| Beds (per 100.000 population) | 965,85 | 2006 |
| Number of physicians | 614.183 | 2006 |
| Density of physicians (per 1.000 population) | 4,31 | 2006 |
| Number of nurses | 1.148.755 | 2006 |
| Density of nurses (per 1.000 population) | 8,06 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|-------------|
| 2020 | 60.294.465 | 71.947.652 | 132.242.117 |
| 2008 | 64.928.065 | 75.774.029 | 140.702.094 |
| 1990 | 69.231.611 | 78.741.465 | 147.973.076 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 1.778.693* | 2008 |
| Gross domestic product per capita | 12.578,52* | 2008 |
| Total expenditure on health as % of GDP | 5,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 63,2 | 2006 |
| Private expenditure on health as % of total expenditure on health | 36,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|----------------------------|
| 2007 | 1.460 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 50,3% |
| 2008 | not available |

3. Healthcare System

National and Private healthcare systems.

Basic insurance availability

No

Percentage of insured and uninsured citizens

| | |
|--------------------|----|
| Insured citizens | 0% |
| Uninsured citizens | 0% |

Distribution of insurance modality

| | |
|---------------------------|----|
| Public insurance company | 0% |
| Private insurance company | 0% |
| Private co-payment | 0% |

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 type="checkbox"/> |
| ICD primary prevention | <input 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"/> |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **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


| | |
|--|---|
| Pacemaker | 7 |
| ICD implantation | 7 |
| Electrophysiological studies and catheter ablation | 7 |
| CRT implantation | 5 |
| Atrial fibrillation ablation | 5 |

Number of medical faculties not available

Percentage of academic facilities among practicing EP and implant centres not available

5. Pacemakers

Pacemaker units implanted

| | | |
|------|---------------|---|
| 2007 | 20,401 |  |
| 2008 | not available | |
| | | 0 12,000 24,000 |

Pacemaker units implanted and number of implanting centres

| | | 2007 |
|--------------------|--|---------------|
| Implanting centres | | 110 |
| New implants | | not available |
| Replacements | | not available |
| | | 2008 |
| Implanting centres | | not available |
| New implants | | not available |
| Replacements | | not available |

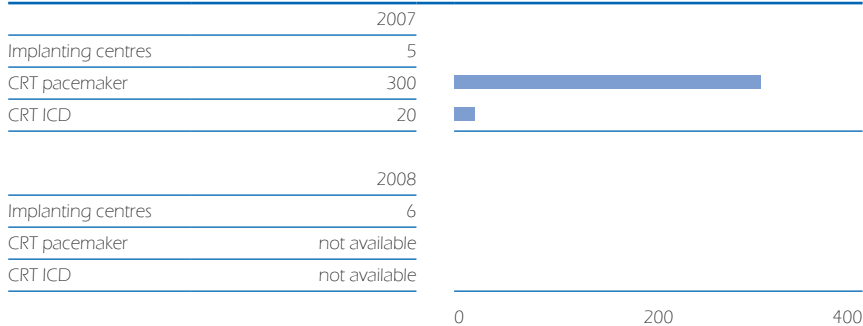
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 70% |
| Surgeons | 30% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

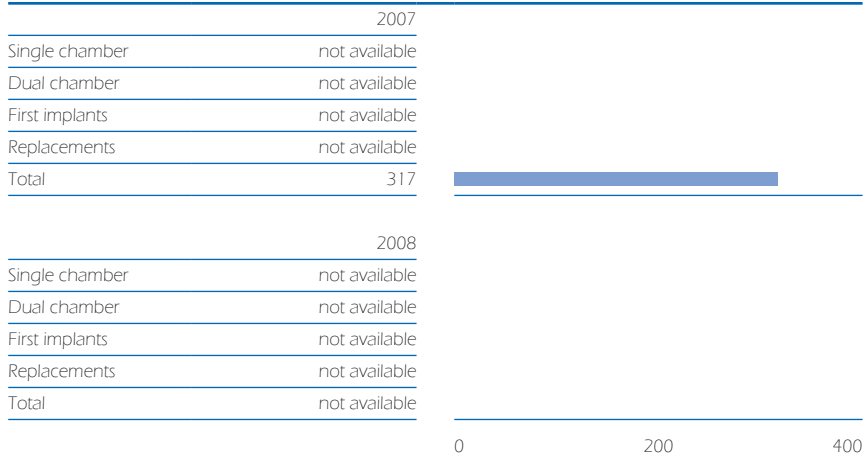
| | |
|---------------|-----|
| Cardiologists | 70% |
| Surgeons | 30% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

39

ICD units implanted and number of implanting centres

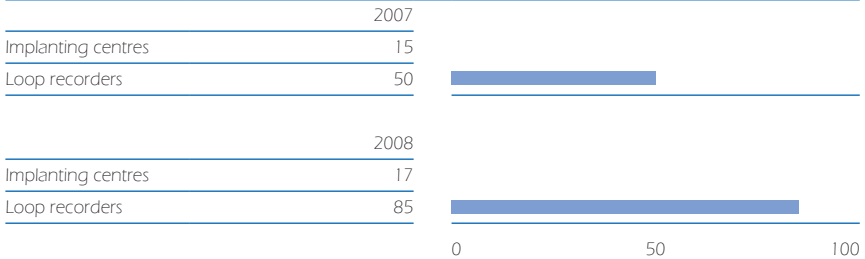


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 70% |
| Surgeons | 30% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 40% |
| Surgeons | 60% |

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"/> |

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

| | 2007 | 2008 |
|---------------------------------|-------|---------------|
| Number of ablations performed | 9.022 | not available |
| Mean number (ablations/centres) | 158 | not available |
| Number of AF ablations | 1.426 | 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

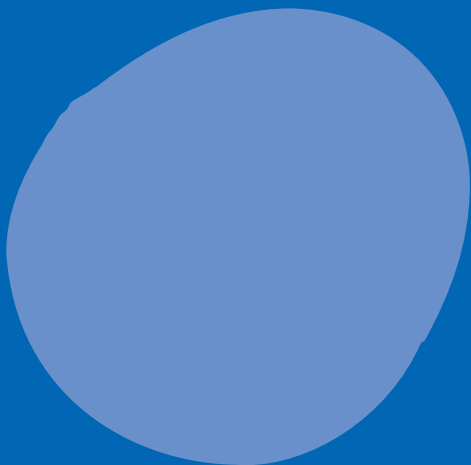
Yes

Obstacles to guideline implementation

| | 1 | 2 | 3 | 4 | 5 |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| Lack of centres | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of trained personnel | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle



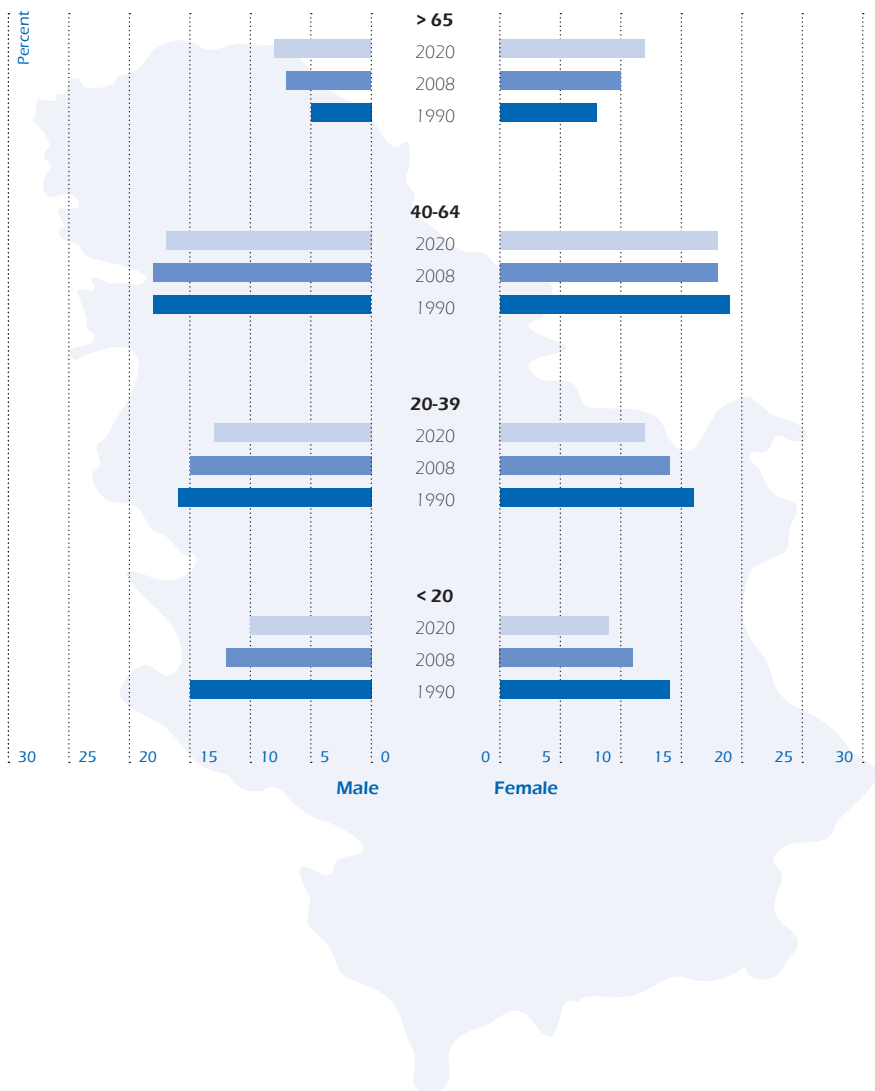
SAN MARINO

There will be information in the next edition.



1. Statistics

Age pyramid for Serbia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,4 | 2007 |
| Beds (per 100.000 population) | 540,26 | 2007 |
| Number of physicians | 20.013 | 2007 |
| Density of physicians (per 1.000 population) | 2,71 | 2007 |
| Number of nurses | 41.144 | 2007 |
| Density of nurses (per 1.000 population) | 5,57 | 2007 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 3.417.676 | 3.594.489 | 7.012.165 |
| 2008 | 3.615.651 | 3.798.231 | 7.413.882 |
| 1990 | 3.825.272 | 3.961.125 | 7.786.397 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 52.183* | 2008 |
| Gross domestic product per capita | 7.054,06* | 2008 |
| Total expenditure on health as % of GDP | 7,6 | 2006 |
| General government expenditure on health as % of total expenditure on health | 71 | 2006 |
| Private expenditure on health as % of total expenditure on health | 29 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | not available |
| 2008 | 304 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

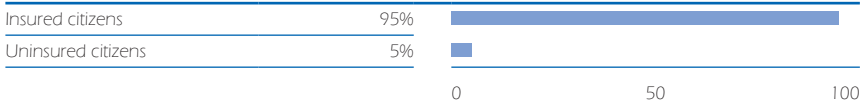
3. Healthcare System

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. Private healthcare is not incorporated to the national healthcare system.

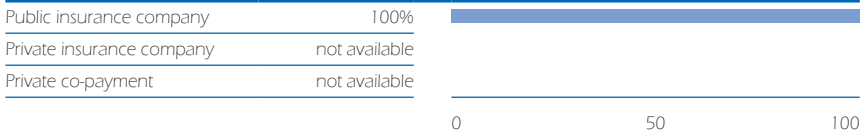
Basic insurance availability

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 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 to perform EP **No**

WG on Cardiac Pacing gives the suggestion on the necessity for new pacing centers in country to the Ministry of Health for the approval

National Society supporting EHRA accreditation system **Yes**

Specialty required for catheter ablation **Yes**

Cardiologist

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

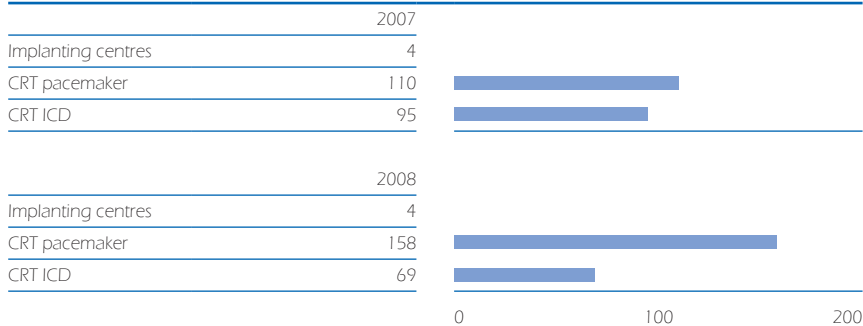
Cardiologist

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



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

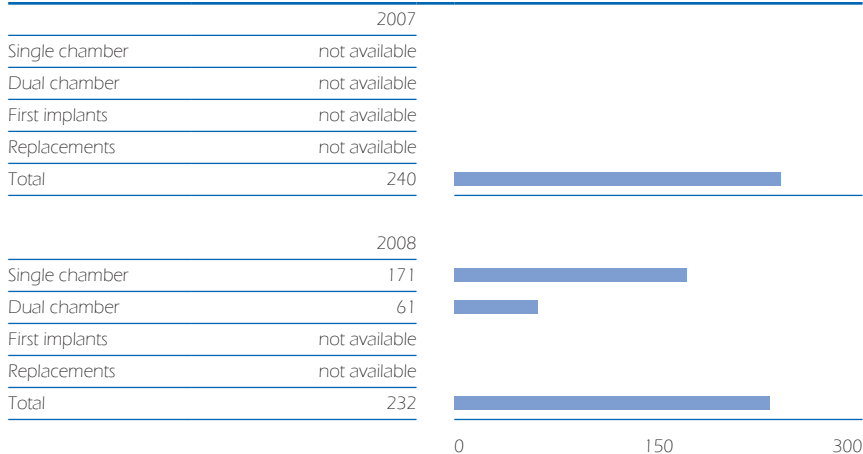
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

5

ICD units implanted and number of implanting centres

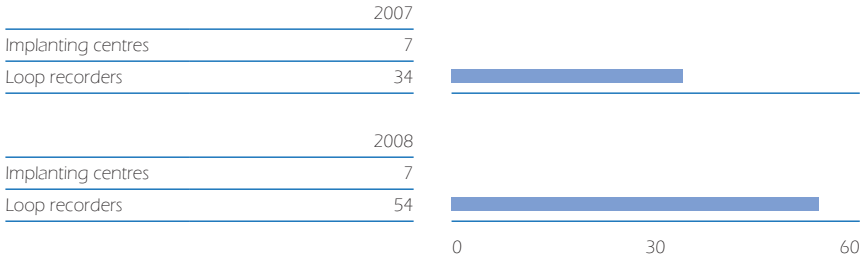


Specialty performing implants

| | |
|---------------|------|
| 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 checked="" type="checkbox"/> |

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

| | 2007 | 2008 |
|---------------------------------|---------------|------|
| Number of ablations performed | 650 | 610 |
| Mean number (ablations/centres) | 217 | 203 |
| Number of AF ablations | not available | 55 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input 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 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of trained personnel | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

1 = no obstacle

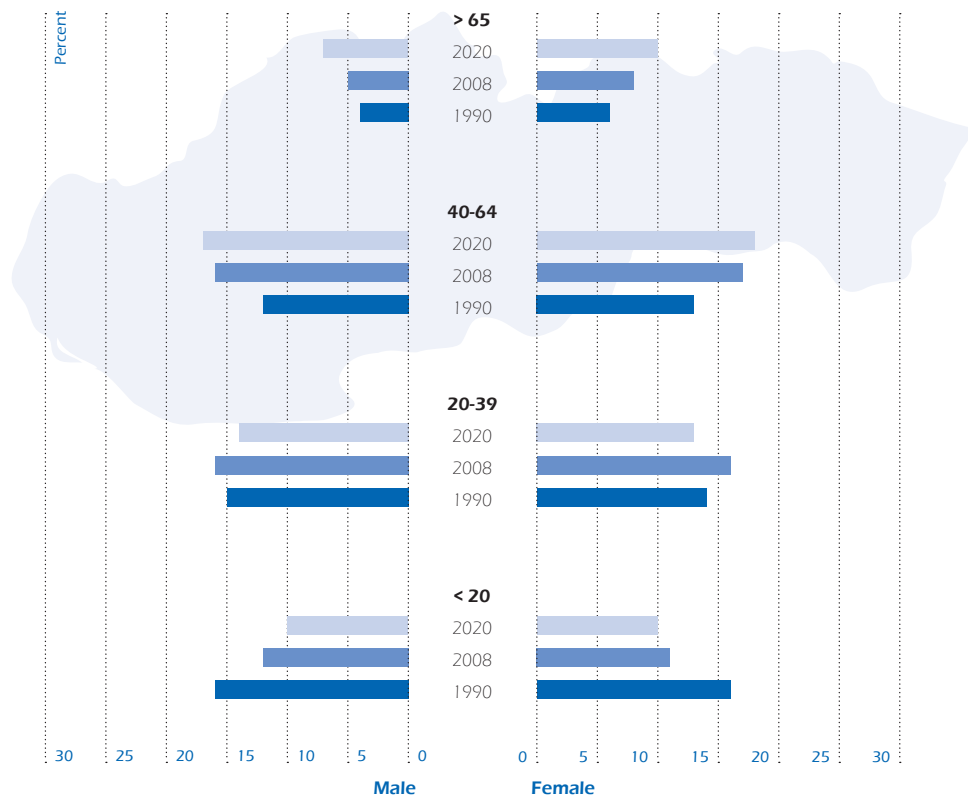
5 = great obstacle

SLOVAKIA



1. Statistics

Age pyramid for Slovakia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 2,65 | 2007 |
| Beds (per 100.000 population) | 678,84 | 2007 |
| Number of physicians | 16.868 | 2004 |
| Density of physicians (per 1.000 population) | 3,13 | 2004 |
| Number of nurses | 34.038 | 2005 |
| Density of nurses (per 1.000 population) | 6,32 | 2005 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 2.660.218 | 2.833.910 | 5.494.128 |
| 2008 | 2.645.982 | 2.809.425 | 5.455.407 |
| 1990 | 2.577.022 | 2.704.588 | 5.281.610 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 100.569* | 2008 |
| Gross domestic product per capita | 18.584,56* | 2008 |
| Total expenditure on health as % of GDP | 7 | 2006 |
| General government expenditure on health as % of total expenditure on health | 73,9 | 2006 |
| Private expenditure on health as % of total expenditure on health | 26,1 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 485 per 100.000 citizens |
| 2008 | 461 per 100.000 citizens |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 53% |
| 2008 | 53% |

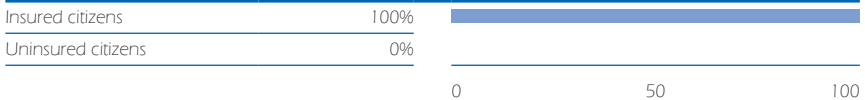
3. Healthcare System

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.

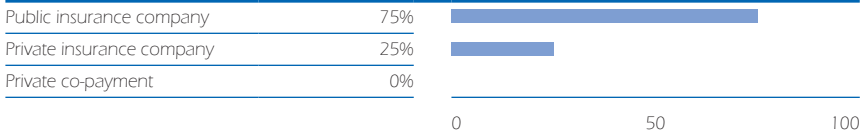
Basic insurance availability

Yes

Percentage of insured and uninsured citizens



Distribution of insurance modality



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 checked="" type="checkbox"/> |
| Invasive electrophysiology | <input checked="" type="checkbox"/> |
| Certified clinical activity in implantation and management of Pacemakers | |
| Certified clinical activity in diagnostic and interventional electrophysiology | |

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

Cardiologist

Specialty required for ICD or pacemaker implants

Yes

Cardiologist, surgeon

Official national competency guidelines for electrophysiological studies or catheter ablation

Yes

Slovak Medical University, Faculty of medical specialty studies, Chair for Cardiology and Angiology (elaborated in cooperation with Slovak Heart Rhythm Association)

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

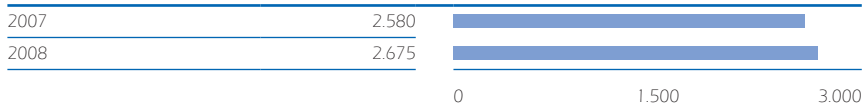
4

Percentage of academic facilities among practicing EP and implant centres

50%

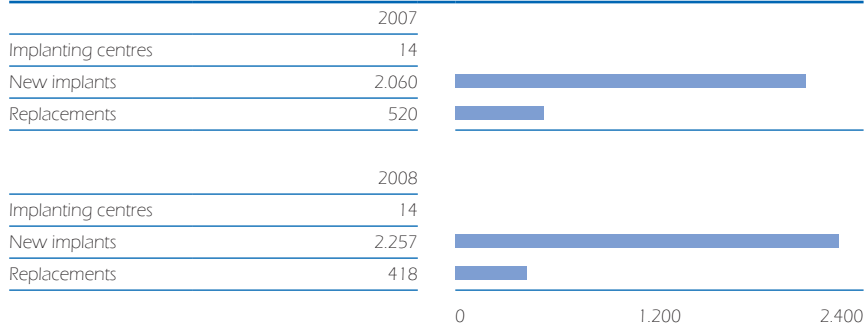
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

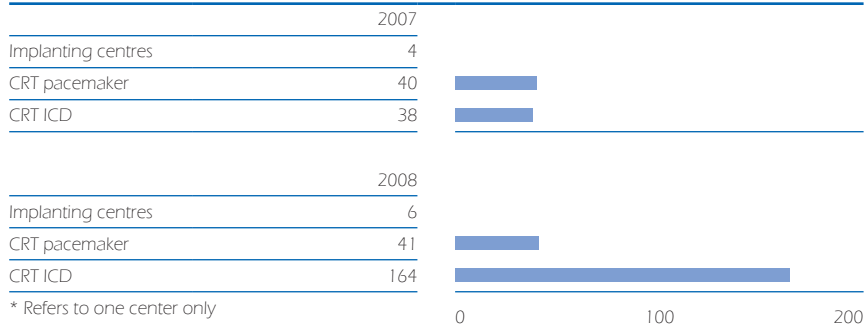


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 75% |
| Surgeons | 25% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

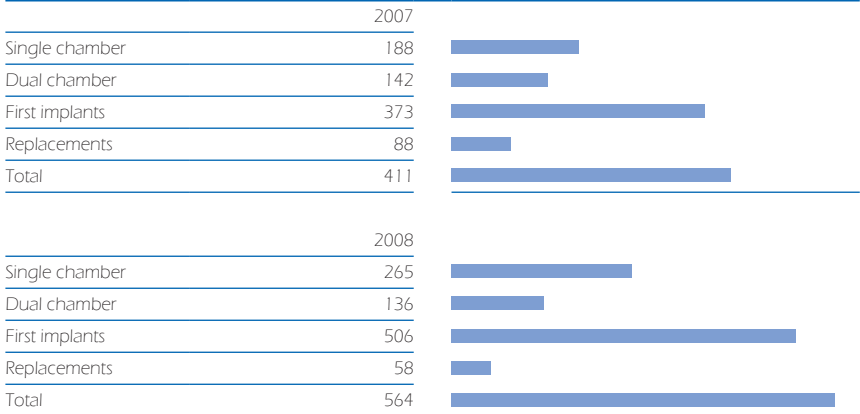
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

4

ICD units implanted and number of implanting centres



* Refers to one center only

0 300 600

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 75% |
| Surgeons | 25% |



8. Loop recorders

Loop recorders implanted and number of implanting centres

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | | 3 |
| Loop recorders | not available | |

| | | 2008 |
|--------------------|---------------|------|
| Implanting centres | | 3 |
| Loop recorders | not available | |

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"/> |
| Dr.Gabriela KALISKA | |

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

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 640 | 878 |
| Mean number (ablations/centres) | 160 | 220 |
| Number of AF ablations | 109 | 118 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

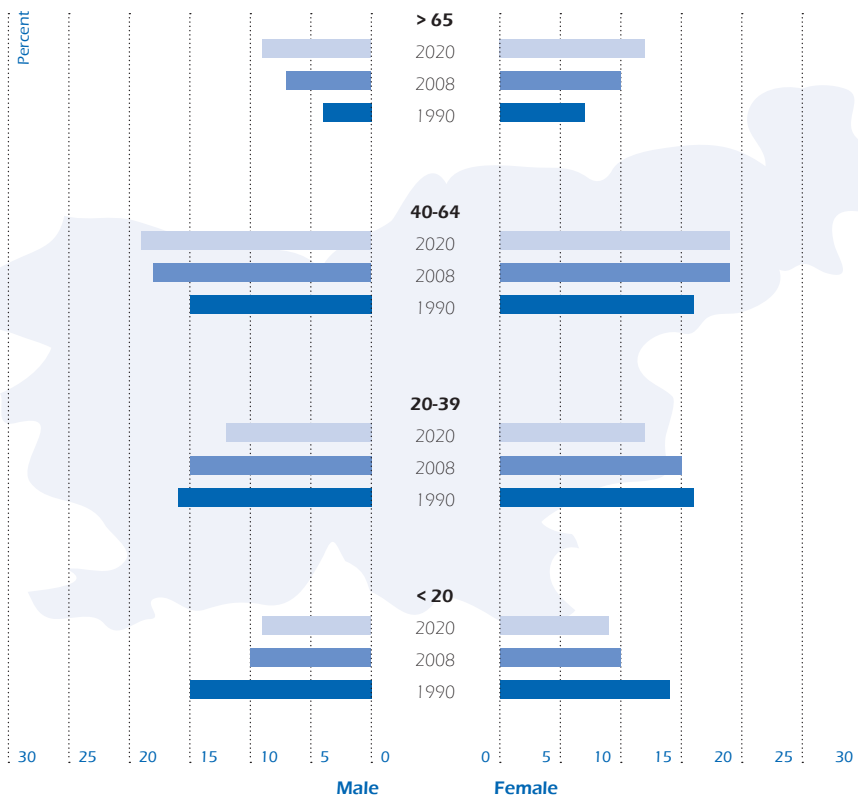
5 = great obstacle

SLOVENIA



1. Statistics

Age pyramid for Slovenia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,44 | 2007 |
| Beds (per 100.000 population) | 466,18 | 2007 |
| Number of physicians | 4.766 | 2006 |
| Density of physicians (per 1.000 population) | 2,37 | 2006 |
| Number of nurses | 15.361 | 2006 |
| Density of nurses (per 1.000 population) | 7,65 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|---------|-----------|-----------|
| 2020 | 949.486 | 1.001.872 | 1.951.358 |
| 2008 | 977.688 | 1.030.023 | 2.007.711 |
| 1990 | 970.157 | 1.029.323 | 1.999.480 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 57.013* | 2008 |
| Gross domestic product per capita | 28.328,22* | 2008 |
| Total expenditure on health as % of GDP | 8,4 | 2006 |
| General government expenditure on health as % of total expenditure on health | 73 | 2006 |
| Private expenditure on health as % of total expenditure on health | 27 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|----------------------------|
| 2007 | 259,2 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 36% |
| 2008 | not available |

3. Healthcare System

In Slovenia, there is a Public healthcare system. The National health insurance institute is an autonomous fund.




Basic insurance availability

No

Percentage of insured and uninsured citizens

| | |
|--------------------|---------------|
| Insured citizens | not available |
| Uninsured citizens | not available |

Distribution of insurance modality

| | | |
|---------------------------|-----|---|
| Public insurance company | 85% |  |
| Private insurance company | 13% |  |
| Private co-payment | 2% |  |

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 to perform EP **No**

National Society supporting EHRA accreditation system **No**

Specialty required for catheter ablation **Yes**

Internist

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

Surgeon or internist

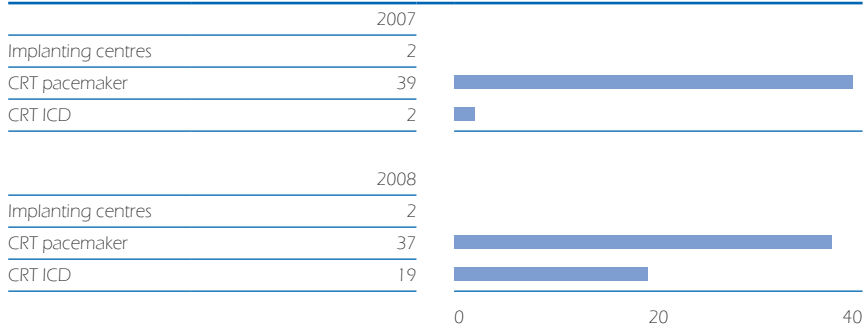
Official national competency guidelines for electrophysiological studies or catheter ablation **No**

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



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

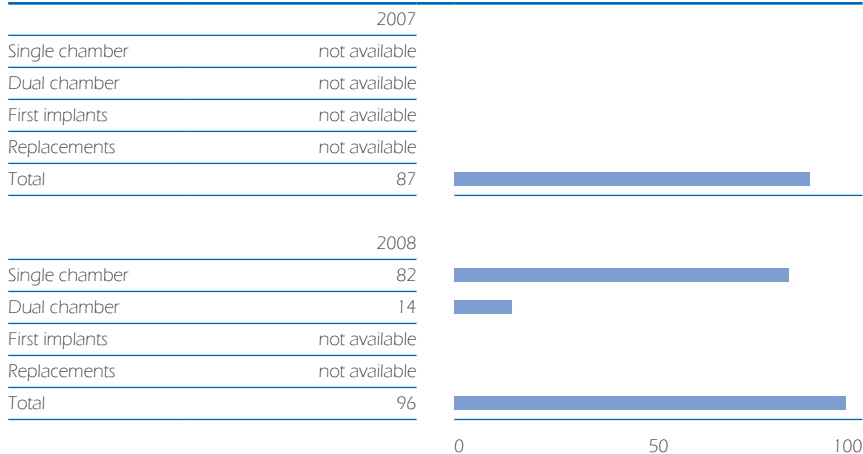
| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

2

ICD units implanted and number of implanting centres

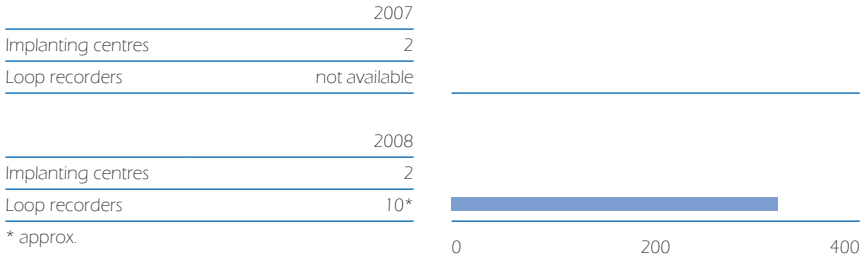


Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 31% |
| Surgeons | 69% |

8. Loop recorders

Loop recorders implanted and number of implanting centres



Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 50% |
| Surgeons | 50% |

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

Yes

Public Agency for Medicinal Products and Medical Devices of the Republic of Slovenia



10. Interventional electrophysiology

Number of performing catheter ablation centres

2

| | 2007 | 2008 |
|---------------------------------|---------------|------|
| Number of ablations performed | 262 | 296 |
| Mean number (ablations/centres) | 131 | 148 |
| Number of AF ablations | not available | 50 |

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

No

Obstacles to guideline implementation

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

1 = no obstacle

5 = great obstacle

SPAIN



1. Statistics

Age pyramid for Spain





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 1,72 | 2006 |
| Beds (per 100.000 population) | 337,03 | 2006 |
| Number of physicians | 163.800 | 2007 |
| Density of physicians (per 1.000 population) | 3,76 | 2007 |
| Number of nurses | 322.600 | 2006 |
| Density of nurses (per 1.000 population) | 7,44 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 19.571.227 | 20.548.664 | 40.119.891 |
| 2008 | 19.784.905 | 20.706.146 | 40.491.051 |
| 1990 | 19.350.660 | 20.110.758 | 39.461.418 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 1.683.232* | 2008 |
| Gross domestic product per capita | 36.970,46* | 2008 |
| Total expenditure on health as % of GDP | 8,1 | 2006 |
| General government expenditure on health as % of total expenditure on health | 72,5 | 2006 |
| Private expenditure on health as % of total expenditure on health | 27,5 | 2006 |

* 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"/> |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **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

Yes

Sociedad Española de Cardiología

Required period of training to perform implantations

No

Training centres availability

| | |
|--|----|
| Pacemaker | 43 |
| ICD implantation | 36 |
| Electrophysiological studies and catheter ablation | 37 |
| CRT implantation | 31 |
| Atrial fibrillation ablation | 14 |

Number of medical faculties

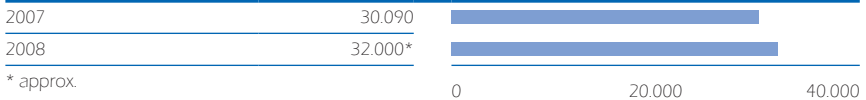
26

Percentage of academic facilities among practicing EP and implant centres

50%

5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

| 2007 | |
|--------------------|---------------|
| Implanting centres | 105 |
| New implants | not available |
| Replacements | not available |

| 2008 | |
|--------------------|---------------|
| Implanting centres | 114 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 75% |
| Surgeons | 20% |
| Other | 5% |

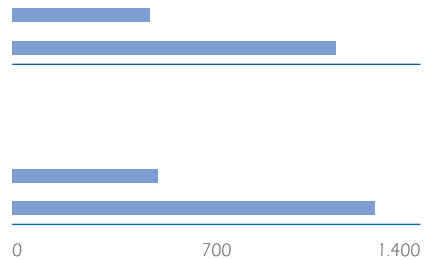
6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres

| 2007 | |
|--------------------|-------|
| Implanting centres | 37 |
| CRT pacemaker | 473 |
| CRT ICD | 1.108 |

| 2008 | |
|--------------------|-------|
| Implanting centres | 37 |
| CRT pacemaker | 500* |
| CRT ICD | 1.244 |

* approx.



Specialty performing implants

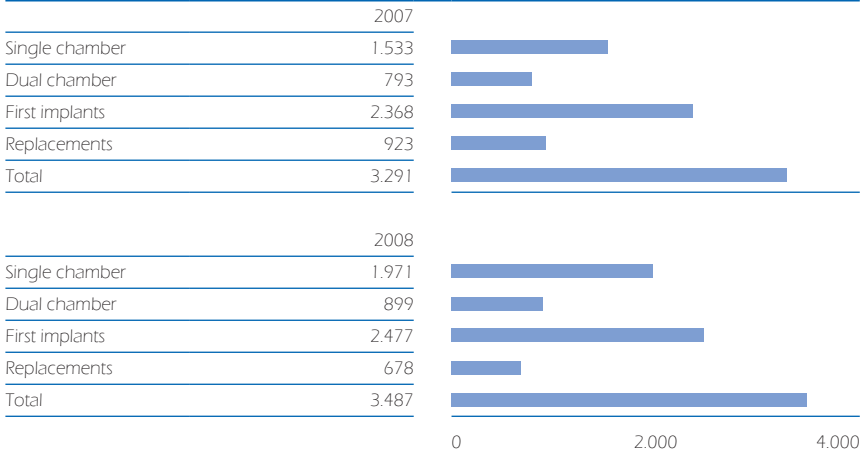
| | |
|---------------|-----|
| Cardiologists | 98% |
| Surgeons | 2% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

114

ICD units implanted and number of implanting centres



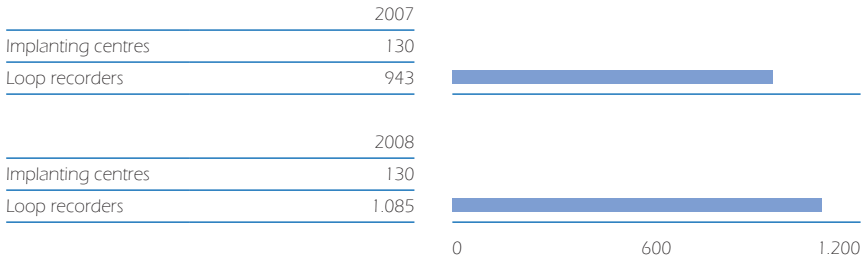
Specialty performing implants

| | |
|---------------|-------|
| Cardiologists | 70% |
| Surgeons | 25,3% |
| Other | 4,7% |



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"/> |

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)

10. Interventional electrophysiology

Number of performing catheter ablation centres

50

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 7.062 | 7.063 |
| Mean number (ablations/centres) | 141 | 146 |
| Number of AF ablations | 659 | 622 |

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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" 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

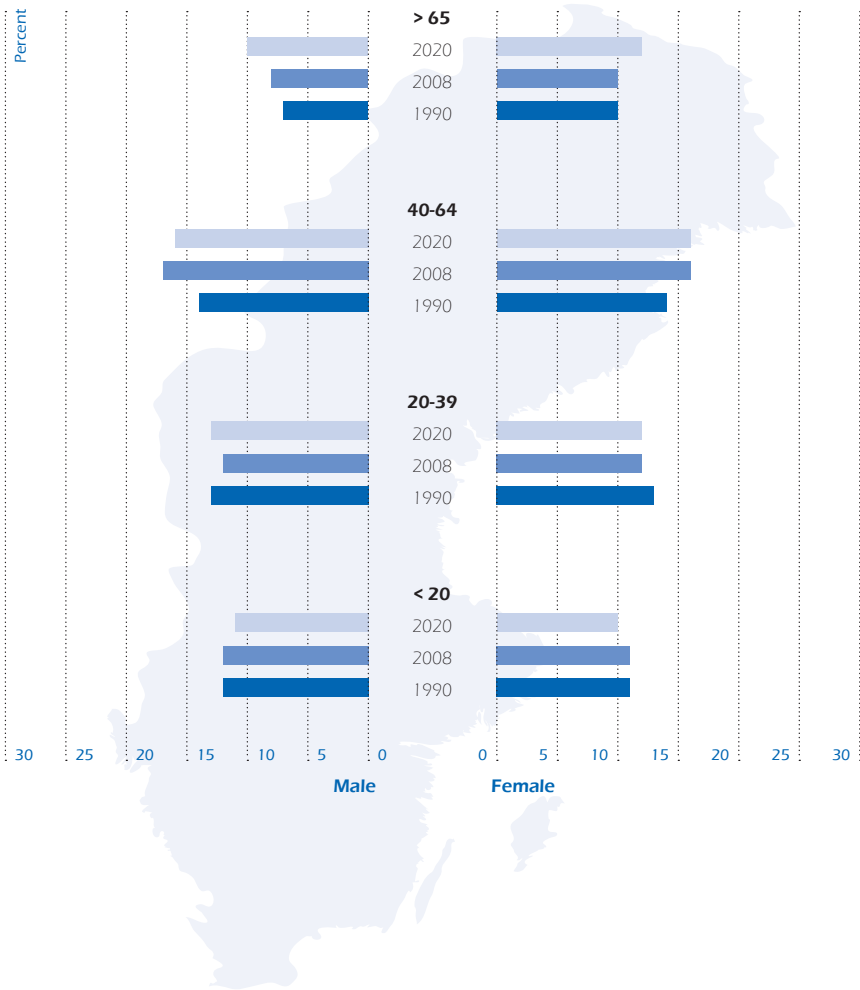
5 = great obstacle

SWEDEN



1. Statistics

Age pyramid for Sweden





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 0,9 | 2004 |
| Beds (per 100.000 population) | 3,7 | 2004 |
| Number of physicians | 32.495 | 2006 |
| Density of physicians (per 1.000 population) | 3,58 | 2006 |
| Number of nurses | 98.378 | 2006 |
| Density of nurses (per 1.000 population) | 10,83 | 2006 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 4.575.708 | 4.669.206 | 9.244.914 |
| 2008 | 4.482.758 | 4.562.631 | 9.045.389 |
| 1990 | 4.282.627 | 4.385.485 | 8.668.112 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 512.889* | 2008 |
| Gross domestic product per capita | 55.623,77* | 2008 |
| Total expenditure on health as % of GDP | 8,9 | 2006 |
| General government expenditure on health as % of total expenditure on health | 81,2 | 2006 |
| Private expenditure on health as % of total expenditure on health | 18,8 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------------------|
| 2007 | 423 per 100.000 citizens* |
| 2008 | not available |

* 2006

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 34%* |
| 2008 | not available |

* 2006



3. Healthcare System

Sweden's health system is compulsory and tax based. It covers all Sweden's residents. Voluntary health insurance is very limited and normally provides only supplementary coverage. The healthcare system is region based, but publicly operated. There are three levels of organisation: national, regional and local. The National sets the fundamental objectives and assures it runs efficiently, the regional level provides and finance the health services and the local level (290 municipalities) is responsible for delivering and financing social welfare services. (Highlights on health. WHO 2004)

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|------|---|
| Insured citizens | 100% |  |
| Uninsured citizens | 0% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|------|---|
| Public insurance company | 100% |  |
| Private insurance company | 1% |  |
| Private co-payment | 10% |  |

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 to perform EP **No**

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

| | |
|--|---|
| Pacemaker | 7 |
| ICD implantation | 7 |
| Electrophysiological studies and catheter ablation | 6 |
| CRT implantation | 6 |
| Atrial fibrillation ablation | 6 |

Number of medical faculties

7

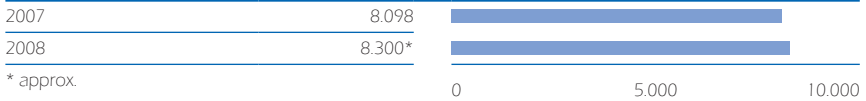
Percentage of academic facilities among practicing EP and implant centres

97%*

* EP: 97%; implant 36%

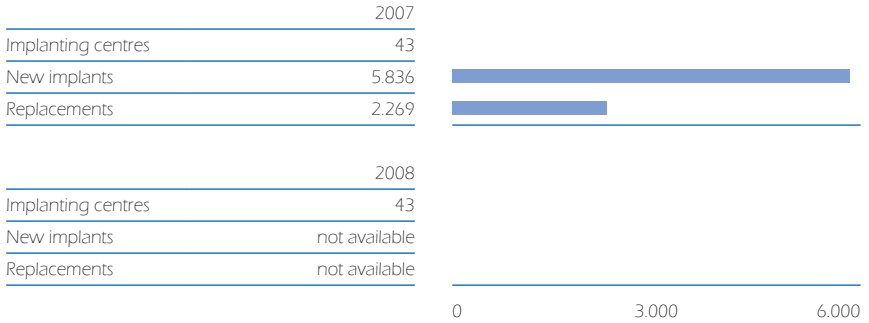
5. Pacemakers

Pacemaker units implanted





Pacemaker units implanted and number of implanting centres

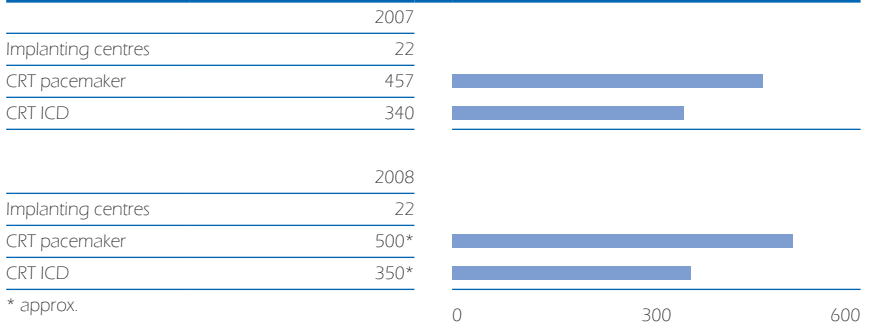


Specialty performing implants

| | |
|--|-----|
| Cardiologists | 90% |
| Surgeons | 5% |
| Other (Anaesthesiologists, specialists in internal medicine) | 5% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

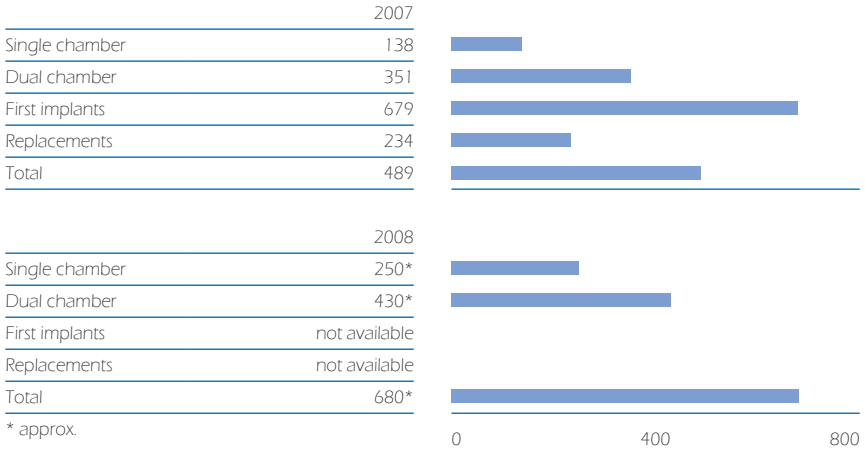
| | |
|---------------|-----|
| Cardiologists | 98% |
| Surgeons | 2% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

15

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

| | | 2007 |
|--------------------|---------------|------|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | | 2008 |
| 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"/> |

Swedish Pacemaker and ICD registry, National Ablation Registry

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

Both registries 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 **8**

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 2.314 | 2.594 |
| Mean number (ablations/centres) | 289 | 324 |
| Number of AF ablations | 514 | 608 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

Necessity of guideline translation to national language No

Obstacles to guideline implementation

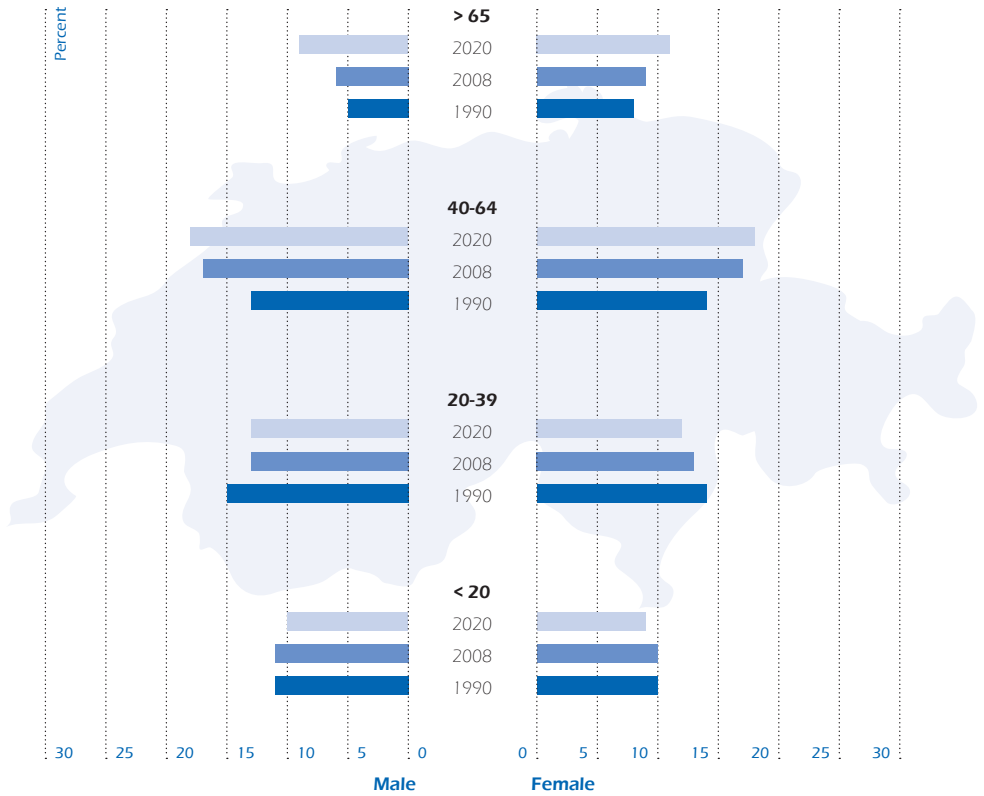
| | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| Lack of centres | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/>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

1. Statistics

Age pyramid for Switzerland





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100 000 population) | 4,53 | 2005 |
| Beds (per 100 000 population) | 553,92 | 2005 |
| Number of physicians | 28.812 | 2006 |
| Density of physicians (per 1 000 population) | 3,85 | 2006 |
| Number of nurses | 77.120 | 2002 |
| Density of nurses (per 1 000 population) | 10,75 | 2002 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|-----------|
| 2020 | 3.810.745 | 3.939.991 | 7.750.736 |
| 2008 | 3.729.956 | 3.851.564 | 7.581.520 |
| 1990 | 3.414.936 | 3.505.626 | 6.920.562 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S. dollar-billions) | 492.553* | 2008 |
| Gross domestic product per capita | 67.378,87* | 2008 |
| Total expenditure on health as % of GDP | 11,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 60,3 | 2006 |
| Private expenditure on health as % of total expenditure on health | 39,7 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 37,1% |
| 2008 | not available |

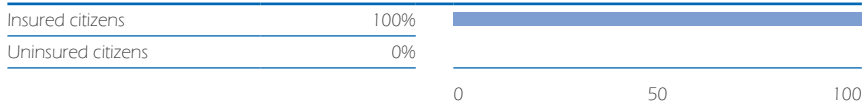
3. Healthcare System

In Switzerland, there is a National insurance for congenital diseases/defects until the age of 20 years old. Private insurance companies are available in addition and after the age of 20 years old.

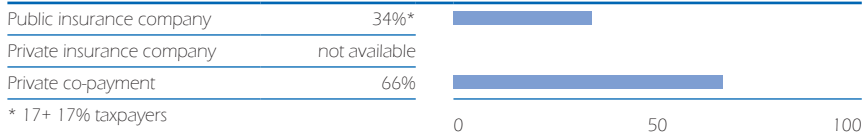
Basic insurance availability

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 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 to perform EP **No**

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**

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

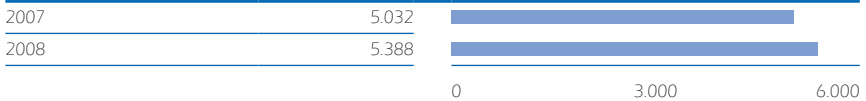
Percentage of academic facilities among practicing EP and implant centres

8-50%

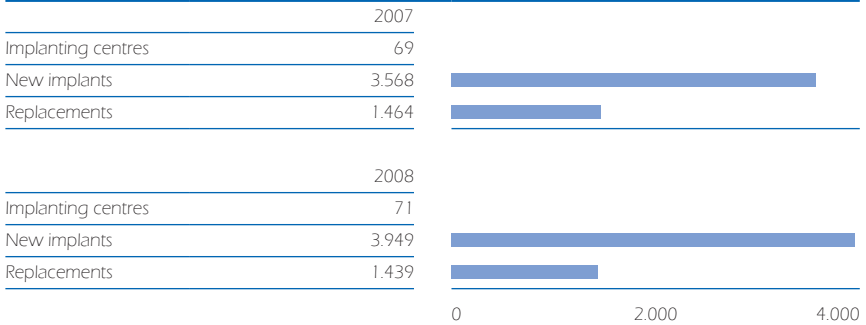
Depending on which devices and ablation procedures

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres



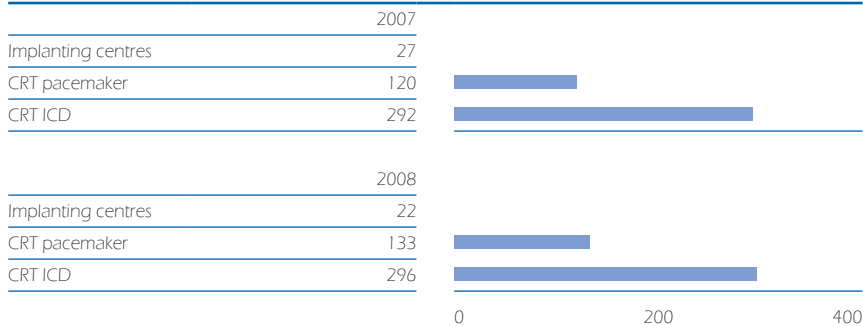
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 95% |
| Surgeons | 5% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

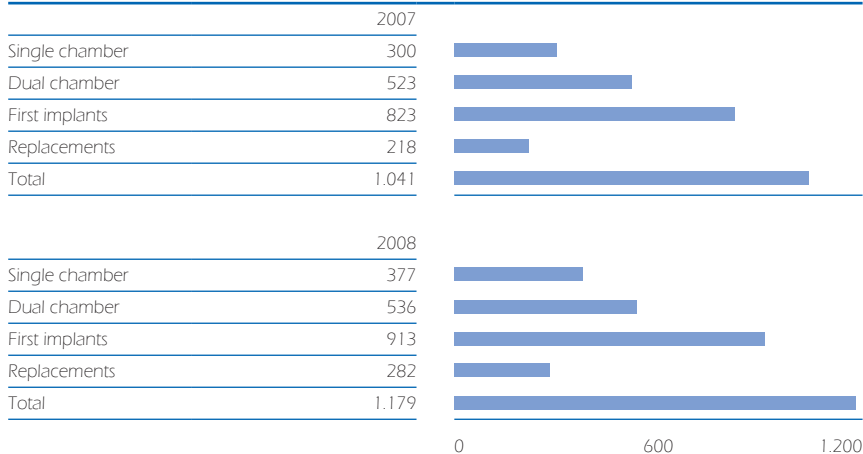
| | |
|---------------|-----|
| Cardiologists | 99% |
| Surgeons | 1% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

28

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

| | 2007 | |
|--------------------|---------------|--|
| Implanting centres | not available | |
| Loop recorders | not available | |
| | 2008 | |
| 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 **Yes**

Swissmedic (national institution)



10. Interventional electrophysiology

Number of performing catheter ablation centres

19

| | 2007 | 2008 |
|---------------------------------|-------|-------|
| Number of ablations performed | 3.123 | 3.497 |
| Mean number (ablations/centres) | 173 | 184 |
| Number of AF ablations | 829 | 999 |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

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

1 = no obstacle

5 = great obstacle



SYRIA

There will be information in the next edition.

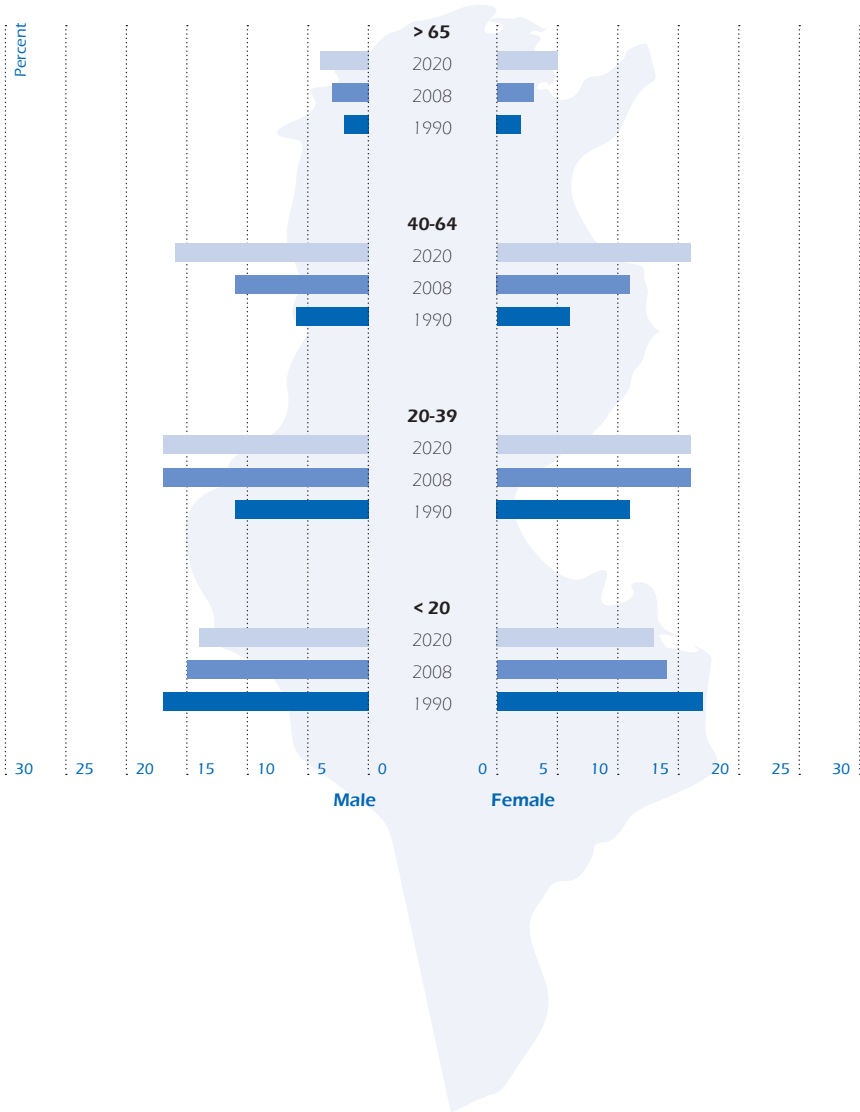


TUNISIA



1. Statistics

Age pyramid for Tunisia





Healthcare data

| | | |
|--|--------|------|
| Hospitals (per 100.000 population) | 1,76 | 2004 |
| Beds (per 100.000 population) | 190 | 2006 |
| Number of physicians | 13.330 | 2004 |
| Density of physicians (per 1.000 population) | 1,3 | 2004 |
| Number of nurses | 28.537 | 2004 |
| Density of nurses (per 1.000 population) | 2,9 | 2004 |

Population by age and sex

| | Male | Female | Total |
|------|-----------|-----------|------------|
| 2020 | 5.816.763 | 5.741.967 | 11.558.730 |
| 2008 | 5.229.757 | 5.153.820 | 10.383.577 |
| 1990 | 4.147.279 | 4.063.726 | 8.211.005 |

Economic information

| | | |
|---|-----------|------|
| Gross domestic product (U.S dollar-billions) | 41.769* | 2008 |
| Gross domestic product per capita | 4.032,36* | 2008 |
| Total expenditure on health as % of GDP | 5,3 | 2006 |
| General government expenditure on health as % of total expenditure on health | 43,7 | 2006 |
| Private expenditure on health as % of total expenditure on health | 56,3 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|--------------------------|
| 2007 | 437 per 100.000 citizens |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|---------------|
| 2007 | 23% |
| 2008 | not available |



3. Healthcare System

National Health System

Basic insurance availability




Yes

Percentage of insured and uninsured citizens

| | | |
|--------------------|-----|---|
| Insured citizens | 90% |  |
| Uninsured citizens | 10% |  |

0 50 100

Distribution of insurance modality

| | | |
|---------------------------|-----|---|
| Public insurance company | 80% |  |
| Private insurance company | 15% |  |
| Private co-payment | 5% |  |

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 checked="" type="checkbox"/> |

* Ablation of AF



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"/> |
| Reimbursement is not total for ablation of AF | |

4. Education

National accreditation availability

| | |
|--|-------------------------------------|
| Device therapy | <input checked="" type="checkbox"/> |
| Invasive electrophysiology | <input checked="" type="checkbox"/> |
| CEC de Rythmologie et de Stimulation Cardiaque | |

National accreditation for physicians **Yes**

National accreditation for centres to perform EP **Yes**

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

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

Training centres availability

| | |
|--|----|
| Pacemaker | 15 |
| ICD implantation | 8 |
| Electrophysiological studies and catheter ablation | 7 |
| CRT implantation | 10 |
| Atrial fibrillation ablation | 1 |

Number of medical faculties

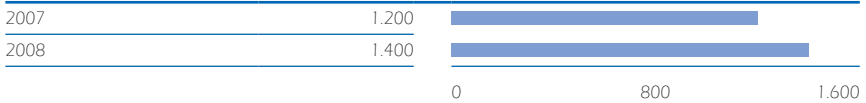
4

Percentage of academic facilities among practicing EP and implant centres

70%

5. Pacemakers

Pacemaker units implanted



Pacemaker units implanted and number of implanting centres

| | | |
|--------------------|---------------|------|
| | | 2007 |
| Implanting centres | | 8 |
| New implants | not available | |
| Replacements | not available | |
| | | 2008 |
| Implanting centres | | 8 |
| New implants | not available | |
| Replacements | not available | |

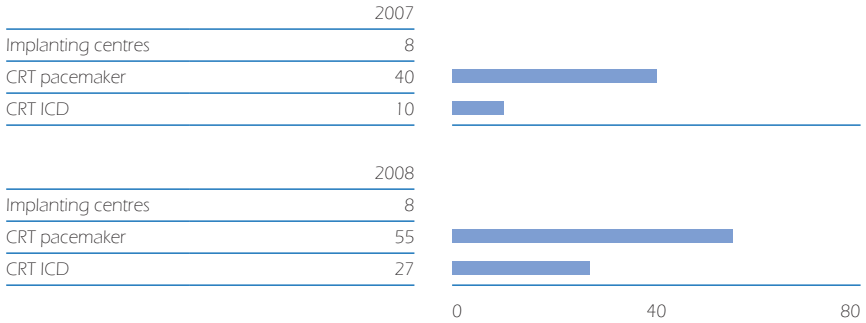
Specialty performing implants

| | |
|---------------|-----|
| Cardiologists | 90% |
| Surgeons | 10% |



6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

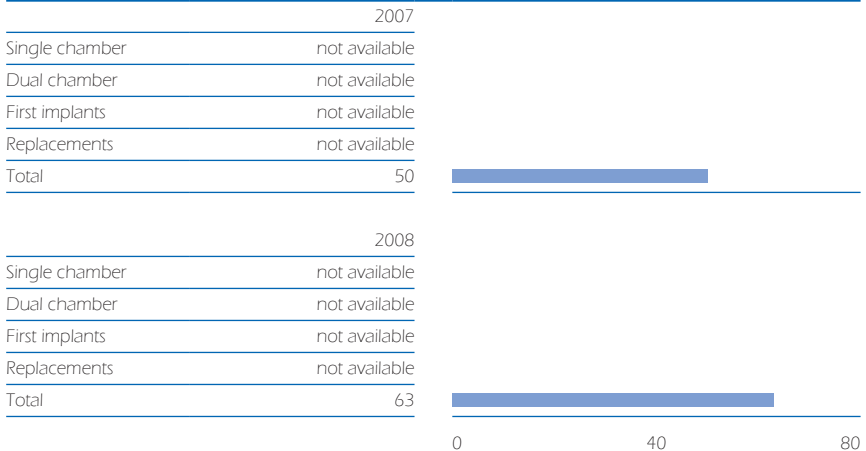
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

8

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

| | 2007 | |
|--------------------|---------------|--|
| Implanting centres | not available | |
| Loop recorders | not available | |

| | 2008 | |
|--------------------|---------------|--|
| 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

7

| | 2007 | 2008 |
|---------------------------------|------|------|
| Number of ablations performed | 400 | 450 |
| Mean number (ablations/centres) | 50 | 60 |
| Number of AF ablations | 0 | 17 |

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

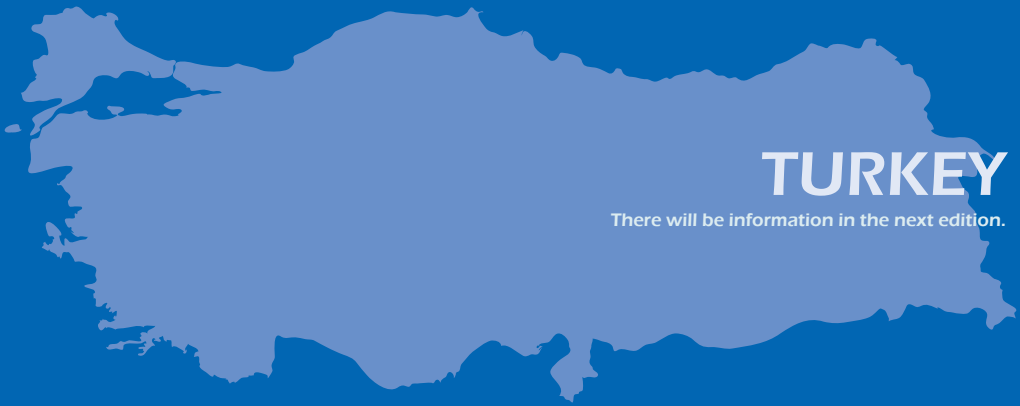
Yes

Obstacles to guideline implementation

| | 1 | 2 | 3 | 4 | 5 |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| Lack of centres | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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



TURKEY

There will be information in the next edition.





UKRAINE

There will be information in the next edition.

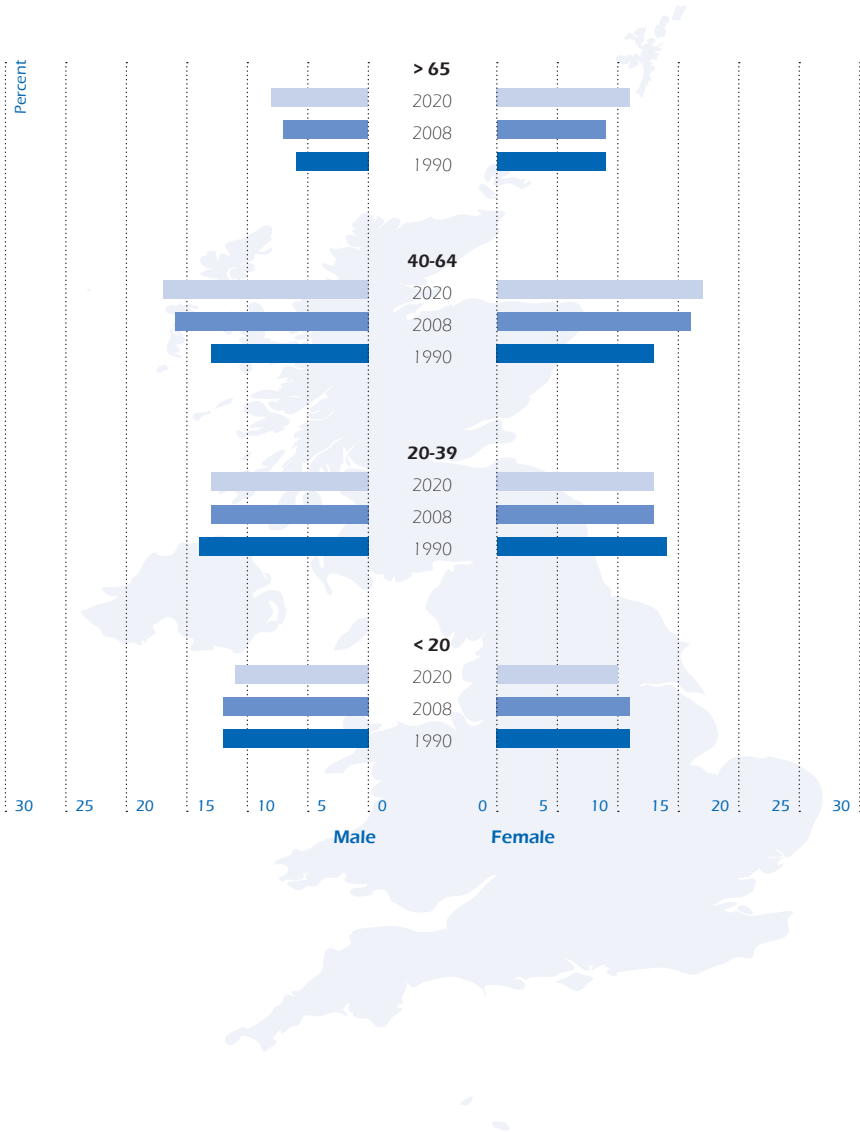


UNITED KINGDOM



1. Statistics

Age pyramid for United Kingdom





Healthcare data

| | | |
|--|---------|------|
| Hospitals (per 100.000 population) | 1.400 | 2004 |
| Beds (per 100.000 population) | 389,72 | 2004 |
| Number of physicians | 126.126 | 2002 |
| Density of physicians (per 1.000 population) | 2,13 | 2002 |
| Number of nurses | 548.730 | 2004 |
| Density of nurses (per 1.000 population) | 9,3 | 2004 |

Population by age and sex

| | Male | Female | Total |
|------|------------|------------|------------|
| 2020 | 31.289.657 | 31.778.359 | 63.068.016 |
| 2008 | 30.172.796 | 30.771.116 | 60.943.912 |
| 1990 | 28.181.737 | 29.483.909 | 57.665.646 |

Economic information

| | | |
|---|------------|------|
| Gross domestic product (U.S dollar-billions) | 2.787.371* | 2008 |
| Gross domestic product per capita | 45.681,00* | 2008 |
| Total expenditure on health as % of GDP | 8,4 | 2006 |
| General government expenditure on health as % of total expenditure on health | 87,4 | 2006 |
| Private expenditure on health as % of total expenditure on health | 12,6 | 2006 |

* IMF estimative

2. Country

Proportion of deaths resulting from cardiovascular disease

| | |
|------|---------------|
| 2007 | not available |
| 2008 | not available |

Proportion cardiac mortality over total mortality of the country

| | |
|------|-----|
| 2007 | 15% |
| 2008 | 15% |

3. Healthcare System

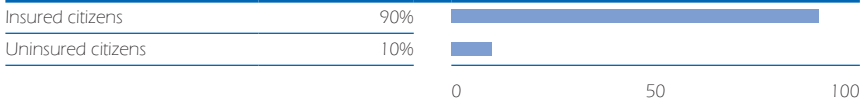
In United Kingdom, a National Health System (NHS) covers 100% of the population. It is mainly funded through national taxation. All legal residents of the United Kingdom, residents of the European economic area and citizens of other countries with which the UK has reciprocal agreements are covered under the United Kingdom NHS. Therefore, the subscription to private health insurance is very low.

(WHO 2004)

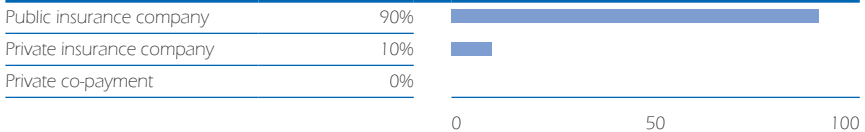
Basic insurance availability

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 type="checkbox"/> |
| Pacemakers | <input type="checkbox"/> |
| Ablation | <input type="checkbox"/> |
| National guidelines | |

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 type="checkbox"/> |

4. Education

National accreditation availability

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

National accreditation for physicians **No**

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



Pacemaker units implanted and number of implanting centres

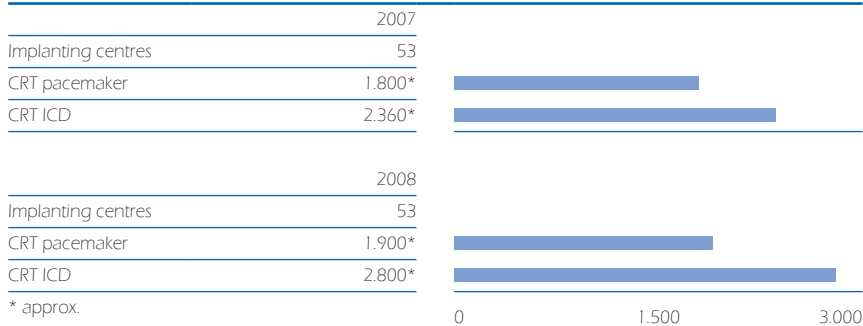
| 2007 | |
|--------------------|---------------|
| Implanting centres | 120 |
| New implants | not available |
| Replacements | not available |
| 2008 | |
| Implanting centres | 120 |
| New implants | not available |
| Replacements | not available |

Specialty performing implants

| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

6. Cardiac resynchronization therapy devices

CRT units implanted and number of implanting centres



Specialty performing implants

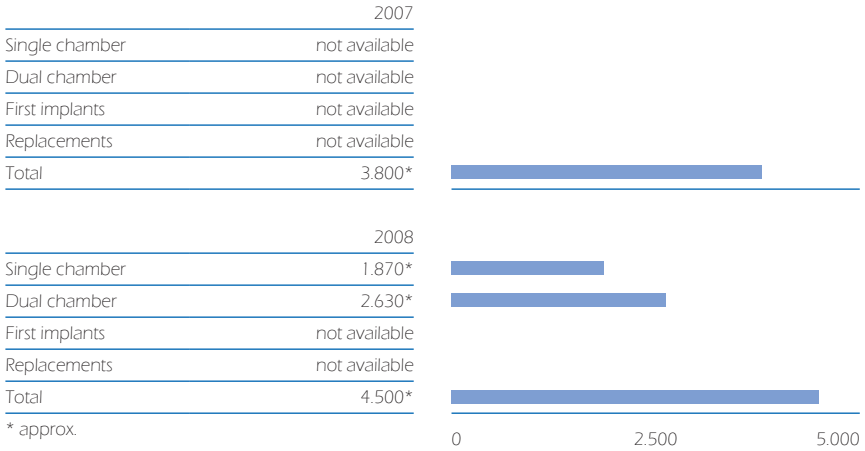
| | |
|---------------|------|
| Cardiologists | 100% |
| Surgeons | 0% |

7. Implantable Cardiac Defibrillator

Number of implanting centres

53

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

| | | 2007 | |
|--------------------|---------------|------|--|
| Implanting centres | not available | | |
| Loop recorders | not available | | |
| | | 2008 | |
| Implanting centres | not available | | |
| Loop recorders | not available | | |



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"/> |
| CCAD | |

Availability of a national quality insurance system or complication registry

Yes

CCAD

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

38

| | 2007 | 2008 |
|---------------------------------|-------|---------------|
| Number of ablations performed | 7.300 | not available |
| Mean number (ablations/centres) | 192 | not available |
| Number of AF ablations | 1.200 | not available |

11. Guidelines

Guidelines adhered to ICD implants and pacemaker implants

| | |
|----------|-------------------------------------|
| National | <input checked="" type="checkbox"/> |
| U.S. | <input type="checkbox"/> |
| European | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> |
| Lack of referral | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of operators | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1 = no obstacle

5 = great obstacle

3. Sources

Main Sources

The data in the White Book has been collected from a wide number of sources. Most important are the National Societies and National Working Groups. Every data published was authorised by the National Societies or National Working Groups of each participating country.

The National Societies and National Working Groups are listed below:

- Working Group on Arrhythmias – Armenia
- Working Group of Cardiac Pacing & Electrophysiology – Armenia
- Working Group of Electrophysiology – Austria
- Scientific Laboratory of Heart Arrhythmias – Belarus
- Belgian Heart Rhythm Association (BeHRA) – Belgium
- Working Group on Arrhythmias, Society of Cardiology – Bulgaria
- Working Group on Arrhythmias and Cardiac Pacing – Croatia
- Cyprus Society of Cardiology - Cyprus
- National Working Group on Arrhythmias and Cardiac Pacing – Czech Republic
- Working Group on Arrhythmias – Denmark
- National Working Group of Arrhythmias – Estonia
- Working Group on Arrhythmias and Cardiac Pacing – Finland
- Working Group on Electrophysiology and Cardiac Pacing – Former Yugoslav Republic of Macedonia
- Working Group on Arrhythmias and Cardiac Pacing – France

Main Sources

- Working Group on Arrhythmias of the Georgian College of Cardiology – Georgia
- Working Group on Cardiac Pacing and Arrhythmia – Germany
- Hellenic Working Group on Electrophysiology and Pacing – Greece
- Hungarian Society of Cardiology - Hungary
- Working Group on Arrhythmias and Cardiac Pacing – Hungary
- Icelandic Society of Cardiology - Iceland
- Working Group on Electrophysiology and Cardiac Pacing – Israel
- Italian Association on Arrhythmias and Cardiac Pacing – Italy
- The registry of the European Working Group on Cardiac Pacing (EWGCP) – Latvia
- Working Group on Arrhythmology and Cardiac Pacing – Latvia
- Working Group on Electrophysiology – Lebanon
- Working Group on Arrhythmias Pacing and Electrophysiology – Lithuania
- National Institute of Cardiac Surgery and Interventional Cardiology (INCCI) – Luxembourg
- National Society of Cardiology - Luxembourg
- Dutch Working Group on Cardiac Pacing – Netherlands
- Working Group on Pacing and Electrophysiology – Norway
- Heart Rhythm Division Polish Cardiac Society – Poland

3. Sources

Main Sources

- Portuguese Association of Arrhythmology, Pacing and Electrophysiology (APAPE) - Portugal
- Arrhythmia Working Group, Romanian Society of Cardiology – Romania
- Clinical Electrophysiology, Arrhythmology and Cardiac Pacing – Russian Federation
- National Working Group on Cardiac Pacing – Serbia
- Slovak Heart Rhythm Association (SHRA) – Slovakia
- Working Group on Arrhythmias and Pacing – Slovenia
- Working Group on Arrhythmias – Sweden
- Working Group on Cardiac Pacing and Electrophysiology – Switzerland
- Working Group on Arrhythmias – Tunisia
- Heart Rhythm UK – United Kingdom

Additional Sources

- Arrhythmology Cardiology Group (ACG) - Armenia
- Armenian Ministry of Health
- Austrian National Ablation Registry
- Bulgarian Ministry of Health
- Bulgarian National Statistical Institute
- Federal Statistical Office (FSO) - Swiss Statistics
- Georgian Ministry of Labour

Additional Sources

- Greek Pacemaker and ICD Registry
- Health and Social Affairs of Georgia
- 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
- Hungarian National Health Insurance Fund
- Ministry of Health of the Republic of Belarus
- Norway Pacemaker Register
- International Monetary Fund (IMF), Washington DC, USA. <http://www.imf.org>
- Italian Association of Rhythmology and Cardiac Stimulation (A.I.A.C.)
- Revista española de cardiología. Sociedad Española de Cardiología 2007; 60 (12): 129–1301 3
- Sección de Estimulación Cardíaca. Madrid, Spain. <http://www.marcapasossec.org/>
- 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

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 2005, 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

| | | |
|-------------------|---------------|------|
| ABEDIN | Zainul | (US) |
| ARBELO LAINEZ | Elena | (ES) |
| AVELLA | Andrea | (IT) |
| BARRERA CORDERO | Alberto | (ES) |
| BELOTTI | Giuseppina | (IT) |
| BRUGADA | Josep | (ES) |
| BURRI | Haran | (CH) |
| DAVOODI | Gholamreza | (IR) |
| DURAY | Gabor Zoltan | (DE) |
| FERNANDEZ LOZANO | Ignacio | (ES) |
| GARCIA MORAN | Emilio | (ES) |
| GONZALEZ VASSEROT | Maria del Mar | (ES) |
| GRECU | Mihaela | (RO) |
| HERREROS GUILARTE | Benito | (ES) |

Invasive Cardiac Electrophysiology

EHRA EP Accredited professionals

| | | |
|-------------------|---------------------|------|
| JASTRZEBSKI | Marek | (PL) |
| KEMME | Michiel | (NL) |
| LAURENZI | Francesco | (IT) |
| LUBINSKI | Andrzej | (PL) |
| MADRID | Antonio | (ES) |
| MARTINEZ ALDAY | Jesus Daniel | (ES) |
| MAZUR | Alexander | (US) |
| MORENO PLANAS | Javier | (ES) |
| MOYA I MITJANS | Angel | (ES) |
| NAVARRETE CASAS | Antonio Javier | (US) |
| ORMAETXE MERODIO | José Miguel | (ES) |
| PASTOR FUENTES | Agustin | (ES) |
| PEINADO | Rafael | (ES) |
| PEREZ CASTELLANO | Nicasio | (ES) |
| PEREZ-VILLACASTIN | Julian | (ES) |
| POZZETTI | Daniela | (IT) |
| SABATE DE LA CRUZ | Francisco Xavier | (ES) |
| SALGUERO BODES | Rafael | (ES) |
| SAUSE | Armin | (DE) |
| SEOW | Swee-Chong | (SG) |
| TOQUERO RAMOS | Jorge | (ES) |
| TRINES | Serge Alexander Ivo | (NL) |
| VOSS | Frederik | (DE) |
| ZOPPO | Franco | (IT) |

4. Appendix



EHRA Accreditation

Invasive Cardiac Electrophysiology

EP Accreditation candidates successful to exam

| | | |
|---------------------|--------------|------|
| AL BUNNI | Muhamad | (IT) |
| ANGUERA CAMOS | Ignacio | (ES) |
| AYALA PAREDES | Felix | (CA) |
| BERRUEZO SANCHEZ | Antonio | (ES) |
| BUERKLE | Gerd | (AT) |
| CATANCHIN | Andrei | (UK) |
| DEL CASTILLO ARROJO | Silvia | (ES) |
| EISENBERGER | Martin | (UK) |
| GONZALEZ-ENRIQUEZ | Susana | (SP) |
| HOBBS | William | (UK) |
| HOGLUND | Niklas | (SE) |
| HUYBRECHTS | Wim | (BE) |
| LETSAS | Konstantinos | (GR) |
| MARTINEK | Martin | (AT) |
| MATIELLO | Maria | (ES) |
| MUELLER | Dirk | (DE) |
| OSCA ASENSI | Joaquin | (ES) |
| PAISEY | John | (UK) |
| PAPIASHVILI | Giorgi | (GE) |
| RAMANNA | Hemanth | (NL) |
| ROTEN | Laurent | (CH) |
| SCHOONDERWOERD | Bas | (NL) |
| SIELSKI | Slawomir | (PL) |
| SKODA | Jan | (CZ) |
| SMIT | Jaap Jan | (NL) |
| SPADACINI | Gianmario | (IT) |
| SUMAN HORDUNA | Irina | (CA) |
| TOMLINSON | D | (UK) |
| VATASESCU | Radu-Gabriel | (RO) |
| ZUCHELLI | Giulio | (IT) |

«Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

EHRA CP Accredited professionals

| | | |
|-------------------|---------------|------|
| AL BUNNI | Muhamad | (IT) |
| APOSTOLOPOULOS | Theodoros | (GR) |
| AVELLA | Andrea | (IT) |
| BELOTTI | Giuseppina | (IT) |
| BISSINGER | Andrzej | (PL) |
| BÖHM | Ádám | (HU) |
| BOOS | Christopher | (UK) |
| BURRI | Haran | (CH) |
| CALZOLARI | Vittorio | (IT) |
| CURNIS | Antonio | (IT) |
| DAVOODI | Gholamreza | (IR) |
| DILAVERIS | Polychronis E | (GR) |
| DUREY | Gábor Zoltán | (DE) |
| EIVINDSON | Gunvald | (NO) |
| GARCIA BOLAO | Jose Ignacio | (ES) |
| GARCIA MORAN | Emilio | (ES) |
| GJESTVANG | Finn Tore | (NO) |
| GRADAUS | Rainer | (DE) |
| HERREROS GUILARTE | Benito | (ES) |
| HORNSTEN | Jonas | (SE) |
| IONNIDIS | Panagiotis | (GR) |
| JASTRZEBSKI | Marek | (PL) |
| KLEIN | Gunnar | (DE) |
| KÖPP | Ulf | (NO) |
| LIPCHENCA | Igor Ariel | (IL) |
| LUEDORFF | Guido | (DE) |
| MACIAG | Aleksander | (PL) |
| MARINI | Massimiliano | (IT) |
| MASCIOLI | Giosue | (IT) |

4. Appendix

EHRA Accreditation

«Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

EHRA CP Accredited professionals

| | | |
|------------------|------------------|------|
| MERKELY | Bela | (HU) |
| MITKOWSKI | Przemyslaw Piotr | (PL) |
| MORENO PLANAS | Javier | (ES) |
| NEVEN | Kars | (NL) |
| OSMAN | Faizel | (UK) |
| PAULUSSEN | Guido | (NL) |
| PEREZ CASTELLANO | Nicasio | (ES) |
| POZZETTI | Daniela | (IT) |
| PRZYBYLSKI | Andrzej | (PL) |
| PUGH | Peter | (UK) |
| RAO | Archana | (UK) |
| SEOW | Swee-Chong | (SG) |
| SGARITO | Giuseppe | (IT) |
| SIMEONIDOU | Eftihia | (GR) |
| SJOBLOM | Johanna | (SE) |
| SPIERENBURG | Han | (NL) |
| VACCARI | Diego | (IT) |
| VAN OPSTAL | Jurren | (NL) |
| VASILOPOULOS | Charalabos | (GR) |
| VATASESCU | Radu- Gabriel | (RO) |
| VOSS | Frederik | (DE) |
| WESTENDORP | Iris | (NL) |
| ZAKY | Hosam | (AE) |
| ZERVOPOULOS | George | (GR) |
| ZOPPO | Franco | (IT) |

«Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

CP Accreditation candidates successful to exam

| | | |
|---------------------|-----------------|------|
| AARDEMA | Margriet W. | (NL) |
| ALDERGARD | Niklas | (SE) |
| ANNE | Wim | (NL) |
| AYALA PAREDES | Felix Alejandro | (CA) |
| BACCHIONI | Giuseppe | (IT) |
| BENCSIK | Gabor | (HU) |
| BORGER VAN DER BURG | Alida Elisabeth | (NL) |
| BOUWELS | Leon H.R. | (NL) |
| BUERKLE | Gerd | (AT) |
| CANDEIAS | Rui | (PT) |
| CROSATO | Martino | (IT) |
| DE JONG | Richard M | (NL) |
| DE JONG | Jeroen | (NL) |
| DE LEEUW | Martin | (NL) |
| DE POTTER | Tom | (BE) |
| DE WAARD | Daan | (NL) |
| EISENBERGER | Martin | (UK) |
| ERCKERT | Martin | (IT) |
| FLEVARI | Panayota | (GR) |
| FOLKERINGA | Richard | (NL) |
| FRANCA PEREIRA | Roberto | (US) |
| FRYKMAN | Viveka | (SE) |
| GEBETSBERGER | Franz | (AT) |
| GIANNOLA | Gabriele | (IT) |
| GONZALEZ-ENRIQUEZ | Susana | (ES) |

4. Appendix

EHRA Accreditation

«Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

CP Accreditation candidates successful to exam

| | | |
|---------------|-----------|------|
| GRECU | Mihaela | (RO) |
| HJORTSHOJ | Soren | (DK) |
| HUYBRECHTS | Wim | (BE) |
| IORGULESCU | Corneliu | (RO) |
| JANSEN | Annemieke | (NL) |
| JANSSENS | Cornelis | (NL) |
| JOHANSSON | Peter | (SE) |
| KARABINOS | Ilias K | (GR) |
| KEMME | Michiel | (NL) |
| KETELS | Stefan | (BE) |
| KJELLMAN | Bjorn | (SE) |
| KNOPS | Reinoud | (NL) |
| KOEPFLI | Pascal | (CH) |
| KOULOOURIS | Spyridon | (GR) |
| KOURGIANNIDIS | Georgios | (GR) |
| KRAVCHUK | Borys | (UA) |
| KRUPA | Wojciech | (PL) |
| LINDELL | Peter | (SE) |
| LINDGREEN | Ulf | (SE) |
| LITTERFELDT | Ingrid | (SE) |
| LUZI | Mario | (IT) |
| MAASS | Alexander | (NL) |
| MAC GILLAVRY | Melvin | (NL) |
| MAGNUSSON | Peter | (SE) |
| MARICONTI | Barbara | (IT) |
| MARTINEK | Martin | (AT) |
| MASSA | Thomas | (DE) |
| MEINE | Mathias | (NL) |
| MELANDER | Kjell | (SE) |
| MOLHOEK | Sander G | (NL) |

«Accreditation in Cardiac Pacing & Implantable Cardioverter Defibrillators (ICDs)»

CP Accreditation candidates successful to exam

| | | |
|----------------|--------------|------|
| MUELLER | Dirk | (DE) |
| MUNDEL | Markus | (DE) |
| NAGARAJAN | Darbhamulla | (UK) |
| NERI | Gianfilippo | (IT) |
| NICOLAIDES | Eleftherios | (UK) |
| OIKARINEN | Lasse | (FI) |
| OSTROWSKA | Bozena | (SE) |
| PAISEY | John | (UK) |
| PARAVOLIDAKIS | Konstantinos | (GR) |
| PENA HERNANDEZ | Jose Luis | (ES) |
| PETKAR | Sanjiv | (UK) |
| RAMANNA | Hemanth | (NL) |
| ROTEN | Laurent | (CH) |
| SCHEFFER | Michael G | (NL) |
| SCHOONDERWOERD | Bas | (NL) |
| SCHWAGTEN | Bruno | (BE) |
| SIELSKI | Slawomir | (PL) |
| STEEN | Torkel | (NO) |
| STERLINSKI | Maciej | (PL) |
| STEVENHAGEN | Jeroen | (NL) |
| TRINES | Serge | (NL) |
| VAN DER WEERDT | Arno Peter | (NL) |
| VAN NOORD | Trudeke | (NL) |
| VET | Thijs | (NL) |
| ZALEVSKY | Valery P | (UA) |
| ZUCHELLI | Giulio | (IT) |

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



European Heart Rhythm Association

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The EHRA White Book 2009 was made possible with the aid of unrestricted educational grant from BIOTRONIK GmbH & Co. KG

