

# The Geography of European Arrhythmology.



Panos E. Vardas MD, PhD  
Heraklion, Greece



# EUROPEAN ARRHYTHMOLOGY

## MAIN ISSUES

- Training in Pacing and Electrophysiology
- Facilities
- Usage
- Economics



## EUROPE

### TRAINING IN PACING & ELECTROPHYSIOLOGY

Training in Pacing and Electrophysiology is:

- Compulsory in **9** countries
- Non-compulsory in **27** countries

Average training duration is **14 months**

Training duration ranges from **3** to **24 months**

National Sub-specialty Exams

- 6** countries have registered exams
- 31** countries have none yet



# EUROPE

## TRAINING IN PACING & ELECTROPHYSIOLOGY

### OBSERVATIONS

- ❑ Exceptional variation exists concerning the level of expertise between the experts who practice electrophysiology in Europe.
- ❑ The ministries of health and the regulatory bodies show a minimum of interest in proof of proper training.
- ❑ Simulation is still in its infancy. The learning curve is based on mentoring or on the opinion “dare and proceed”



# European Pacing Centres per million population

Belgium	12.10
Germany	11.9
France	9.9
Switzerland	8.35
Italy	6.60
Greece	6.50
Netherlands	6.40
Spain	4.50
UK	3.17
Slovakia	2.59
Denmark	2.72
Russia	0.69

**The highest**

**The median**

**The lowest**



## European Pacing Centres Questions

- Hyper or under usage
  
- Is there an unusually increased number of pacing centres or are there countries which have a lack of facilities?
  
- Could the Industry contribute to the development of new facilities?



# Europe

## Facilities in pacing and electrophysiology

### Proposals

- ❑ A common European approach – Guidelines - is necessary for the creation and function of electrophysiology and pacing centres
- ❑ It is obvious that a hierarchy is necessary for the possibilities and the license of each centre. The same applies for the investment in these.
- ❑ Centre distribution per country could be organised by the national scientific bodies, since a certain logic needs to be followed.



# Implanted Pacemakers

European Countries with the highest rates  
of **implanted pacemakers**  
per million population, **in 2005**

Belgium	1086
Germany	1045
Italy	974
France	957
Czech Republic	853
Sweden	839





# Implanted Pacemakers

European Countries with the lowest rates  
of **implanted pacemakers**  
per million population, **in 2005**

Russia	121
Latvia	285
Slovakia	379
Slovenia	382
Croatia	391
Lithuania	434

# Macroeconomic Analysis\*

Market Management	United States	Canada	Europe
GDP (in billion US \$)	10.446	717	9.323
GDP Real Growth	2.4 %	3.2 %	0.9 %
Total Population (in millions)	287	32	737
Total Healthcare Spending (in billion US \$)	1.547	70	862
Health expenditure % of GDP	14.8	10	9.2
Geriatric population (60 yrs and over)	16.4	17.1	14.5

\* based on 2004 statistics



## Europe GDP / Health expenditure %

<b>Countries</b>	<b>1995</b>	<b>2004</b>
Switzerland	9.7	11.6
Greece	8.4	10.2
Germany	10.3	10.9
Italy	7.1	8.4
Netherlands	8.1	9.2
Poland	6.5	5.6
Spain	8.1	7.4
UK	8.3	7.0
France	10.5	9.4
Ireland	7.1	6.7

# Pacemaker Prices

Country	VVI	DDD
France	1650	3400
Germany	1800*	3500*
Greece	2000	3700
Israel	700	1350
Lebanon	1200	2500
Norway	1800	2900
Russia	700	2300
Spain	1800	3700
Sweden	2000	3000
Switzerland	3600	5200
Turkey	1050	2050
UK	1800	3500

\*Prices are average.

In certain countries  
final prices differ  
significantly following  
negotiation.

These prices  
include **neither**  
VAT, nor lead  
cost.

## Europe Revenue Forecasts 2002-2008

**Cardiac Rhythm Management Market (World), 2004**

Year	Revenue \$ million	Growth
2002	1,138.9	
<b>2003</b>	<b>1,479.2</b>	<b>29.9%</b>
2004	1,724.2	16.6%
2005	2,072.6	20.2%
2006	2,395.4	15.6%
2007	2,735.6	14.2%
2008	3,100.1	13.3%
<b>CAGR 2003-2008</b>		<b>15.9%</b>



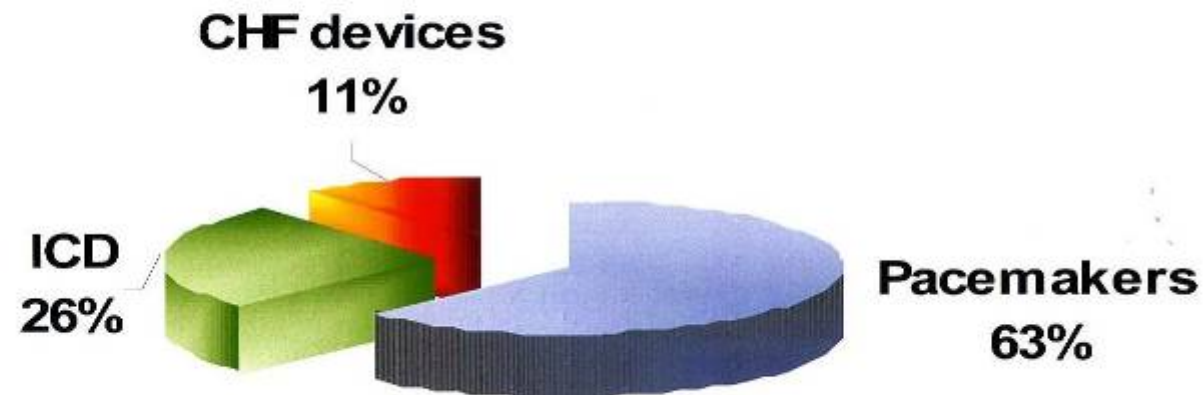
## Revenue Forecasts World Cardiac Rhythm Management Market

### Cumulative Average Growth Rate (2002 – 2008)

<b>Europe</b>	<b>15.9 %</b>
<b>USA</b>	<b>19.3 %</b>
<b>Asia</b>	<b>23.5 %</b>

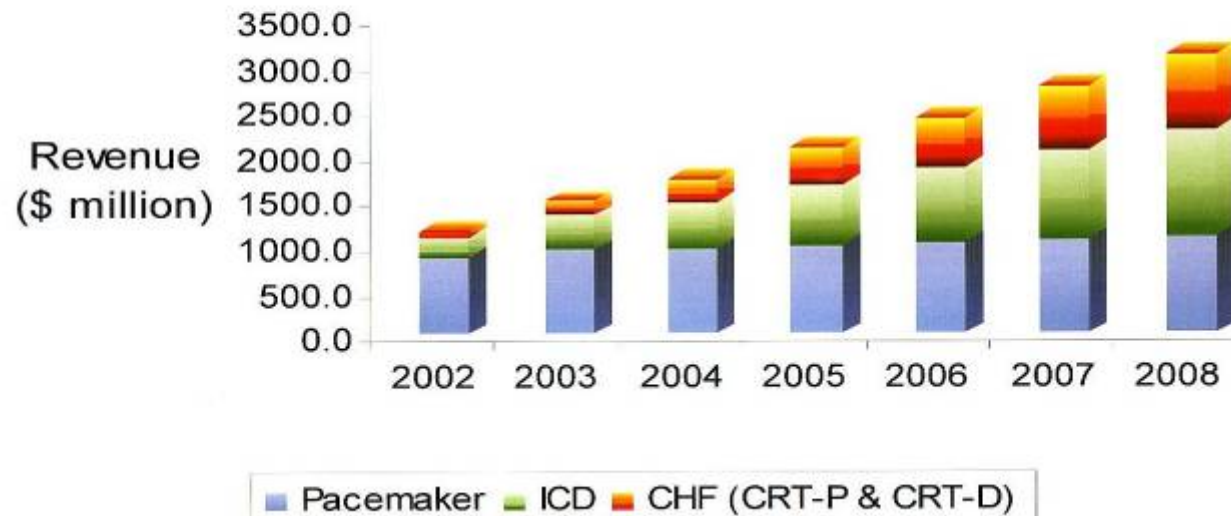
# Market share

## Market Share by Product Type – Europe Cardiac Rhythm Management Market (World), 2004



# Product Forecast

**Revenue Forecasts by Product Type— Europe 2002-2008**  
**Cardiac Rhythm Management Market (World), 2004**







# Forecast analysis Europe

## Cardiac Rhythm management Market (World), 2004

- ❑ The European CRM Market generated an estimated \$1479.2 million in 2003.
- ❑ The market is expected to grow at a CAGR of 15.9 % through 2008.
- ❑ It is expected to reach \$3100.1 million in 2008.
- ❑ Cardiac resynchronization therapy and MADIT II are driving ICD growth in Europe.

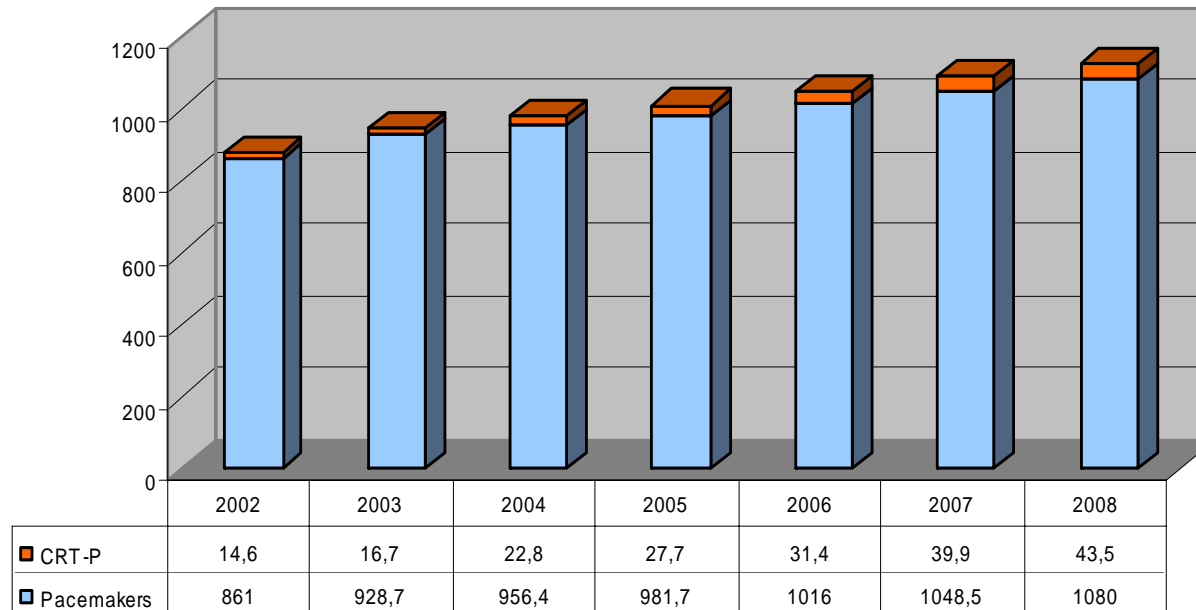


## Pacemaker Market- Europe 2002-2008 Cardiac Rhythm Management Market (World), 2004

Year	Revenue (\$ million)	Growth
2002	875.7	
<b>2003</b>	<b>945.4</b>	<b>8.0 %</b>
2004	979.2	3.6%
2005	1,009.3	3.1%
2006	1,047.9	3.8%
2007	1,088.4	3.9%
2008	1,123.5	3.2%
<b>CAGR 2003- 2008</b>		<b>3.5%</b>



# Pacemakers – Revenue (\$ million) Europe



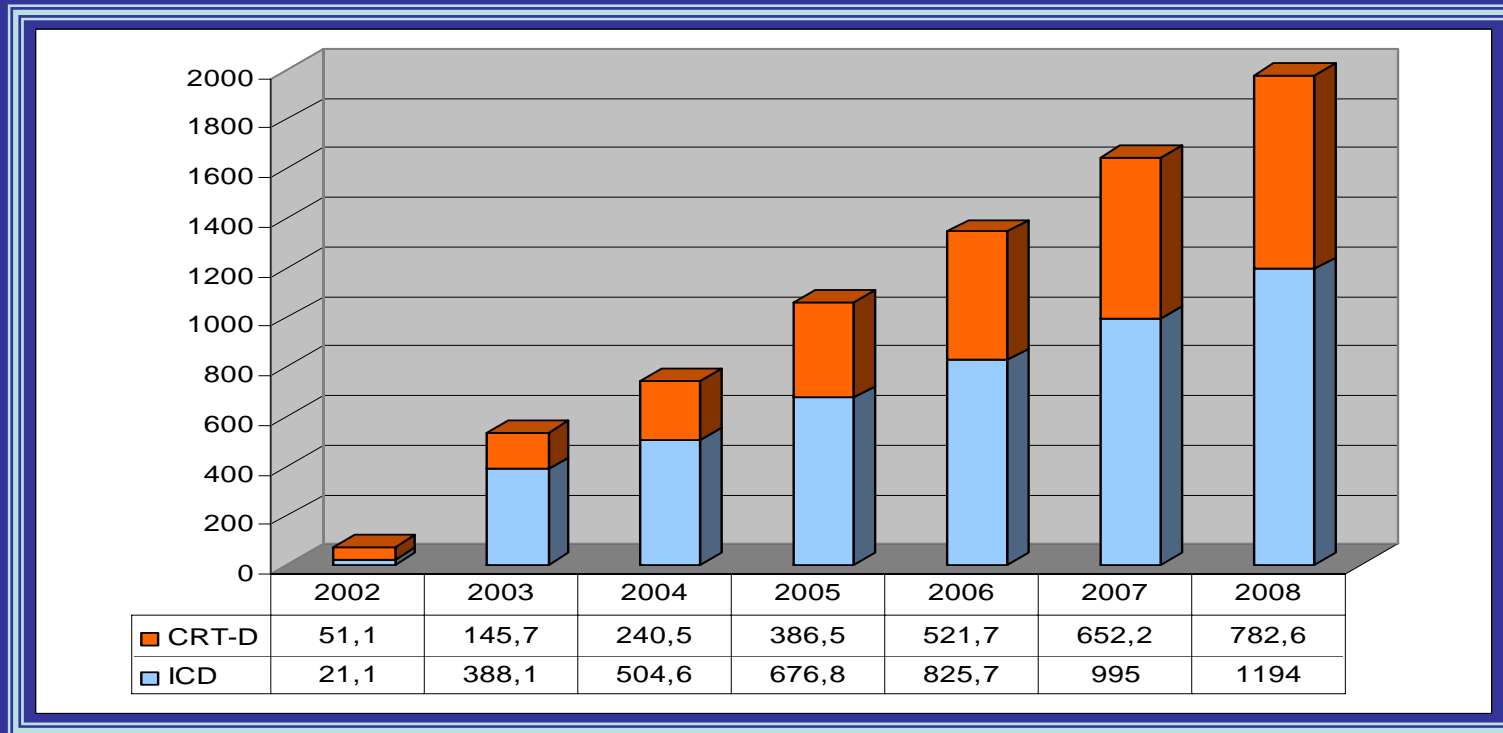


## ICD Market- Europe 2002-2008 Cardiac Rhythm Management (World), 2004

Year	Revenue \$ million	Growth
2002	263.2	
<b>2003</b>	<b>533.9</b>	<b>102.8%</b>
2004	745.0	39.6%
2005	1,063.3	42.7%
2006	1,347.5	26.7%
2007	1,647.2	22.2%
2008	1,976.6	20.0%
<b>CAGR 2003- 2008</b>		<b>29.9%</b>



# ICD – Revenue (\$ million) Europe





## Pacemaker and ICD Market Trends and Forecast Analysis Europe

- ❑ The European pacemaker market generated an estimate \$945.4 million in 2003 and is expected to reach \$1123.5 million in 2008.
- ❑ The market is expected to grow at a CAGR of 3.5 % through 2008.
- ❑ The European ICD market is expected to reach \$ 1976.6 million in 2008.
- ❑ The total ICD market in Europe is rapidly developing and is expected to grow at a CAGR of 29.9 % through 2008.

# Conclusions

- ❑ European arrhythmology is characterized by significant heterogeneity and is in need of orchestration.
- ❑ It is required of EHRA to play a vital role not only in creating scientific initiatives, but also to support national scientific bodies in the field.
- ❑ Industry will continue to enjoy satisfactory revenue as the use of ICD/CRT devices increases accordingly.



# Ευχαριστώ πολύ

<u>Thank you</u>	<u>Tesekkór ederim</u>	<u>Kiitos</u>
	<u>Κοszονοm</u>	<u>Blagodarya</u>
<u>Tack</u>	<u>Merci</u>	Aciu / de'koju
<u>Takk</u>	<u>Grazie</u>	<u>Danke</u>
<u>Tak</u>	<u>Gracias</u>	<u>Dziakuje</u>
<u>Dank u</u>	<u>Grücies</u>	<u>Dkkuji vam</u>
<u>Tðnan / Aitðh</u>	<u>Obrigado</u>	<u>Dβkujem vam</u>
<u>Multumesk</u>	Dziakuj	<u>Djakujo</u>
<u>Hvala</u>		<u>Dziakuje</u>