

# Pacemaker Italian Registry Bulletin 1999

IRCAB FOUNDATION

October 11, 2000

### **Registro Italiano Pacemaker**

È proseguita anche nel 1999 l'attività di registrazione dei pacemaker impiantati in Italia. Hanno fattivamente collaborato 233 dei centri dei circa 300 Laboratori di Elettrostimolazione italiani e le schede pervenute sono state 25599. Il numero dei centri collaboranti e dei pacemaker registrati ha subito un incremento significativo rispetto al 1998 (rispettivamente più 18.8% e più 6.43%). Vi sono ancora alcune Regioni con un livello di collaborazione non ottimali o anche del tutto insoddisfacente, come si può osservare dalla Tab.1. Come per il 1998 abbiamo effettuato l'analisi dei dati soltanto per quanto riguarda gli impianti rigorosamente effettuati nell'anno solare 1999 e non sulle schede pervenute al registro nello stesso periodo.

### **Registro Italiano Defibrillatori**

Il terzo bollettino include l'attività di impianto dei cardioverter defibrillatori automatici svolta nell'intero arco del 1999. Hanno collaborato 208 centri per un totale di 2112 nuovi casi, con un incremento rispetto al 1998 rispettivamente del 41.5% e del 111.6%. Si riconferma un'importante collaborazione su scala nazionale per quanto riguarda questo nuovo Registro, pur ancora ottimizzabile per quanto riguarda la completezza delle schede. Vengono riportate le principali caratteristiche clinico-strumentali e tecniche in accordo a quanto richiesto dalla tessera europea (EURID).

Per uniformare la presentazione e l'analisi dei dati con gli altri paesi europei, si è deciso di utilizzare la lingua inglese. Ci scusiamo per questo ma nel contempo riteniamo che ciò permetterà una maggior diffusione dei dati italiani a livello internazionale, con inevitabile ricaduta positiva per tutti i componenti dell'A.I.A.C. I dati riguardanti il Registro Italiano Pacemaker ed il Registro Italiano Defibrillatori vengono infatti trasmessi al centro di raccolta europeo coordinato dall'European Working Group on Cardiac Pacing e dal Working Group on Arrhythmias. Si ringraziano i colleghi, il personale tecnico infermieristico e le ditte produttrici per la collaborazione.

**Dr Alessandro Proclemer**

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## Chapter 1

# Italian Registry of Pacemakers (RIP) and Implantable Defibrillators (RID)

### 1.1 The organization of the RIP & RID Registries

Registry data are collected on a centralized basis, at a single Center, the IRCAB Foundation. It is located in Udine, in north-east of Italy, operating since 1975. Cards related to pacemakers or implantable defibrillators arrive on a daily basis to the Foundation, located in northern Italy, in the Friuli-Venezia Giulia region.

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**I.R.C.A.B. Foundation Chairman:** Paolo Maria Fioretti

**A.I.A.C. President:** Antonio Raviele (Mestre)

### Statistical analysis of implants of pacemaker

The total number of the first pacemaker implants registered in 1999 was 21693 equivalent to about 380 per million inhabitants. The smallest center performed 1 and the largest center 470 implants with a median of 89 per center.



Figure 1.1: *The IRCAB Location*

**Age and sex distribution** There were 13011 male patients with a median age of 76 years and 9989 female patients with a median age of 79 years.

**ECG indication for pacing** The indication was coded according to the European Pacemaker Patient Identification Card. Atrioventricular block (code C1-C7) was the indication in 45%, sick sinus syndrome (code E1-E5) in 43%, atrial fibrillation/futter + bradycardia (code E6) in 20% of the patients.

**Symptom prior to implantation** Among the patients 6968 (36%) had syncope and 4372 (23%) dizzy spells. Heart failure was coded in 1947 (10%) of the patients.

**Aetiology** A large proportion of patients was coded as aetiology unknown (31%). Carotid sinus syndrome was the indication in 604 patients, cardiomyopathy in 567 patients and ablation in 229 patients.

## Statistical analysis of implants of Defibrillators

The total number of first defibrillators implants registered in 1999 was 1319 equivalent to about 25 per million inhabitants.

*CHAPTER 1. THE ITALIAN REGISTRIES*

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**Age and sex distribution** There were 242 male patients and 1384 female patients. Median age was 65 years.

**ECG indication for pacing** The indication was coded according to the European Defibrillators Patient Identification Card. Ventricular tachycardia was the indication in 61%, ventricular fibrillation in 24%, both were present in 9% of the patients.

**Symptom prior to implantation** Among the patients 542 (38%) had syncope and 156 (11%) dizzy spells.

1.1. RIP & RID ORGANIZATION

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## Chapter 2

# Statistical data for the Italian Pacemaker Registry in year 1999

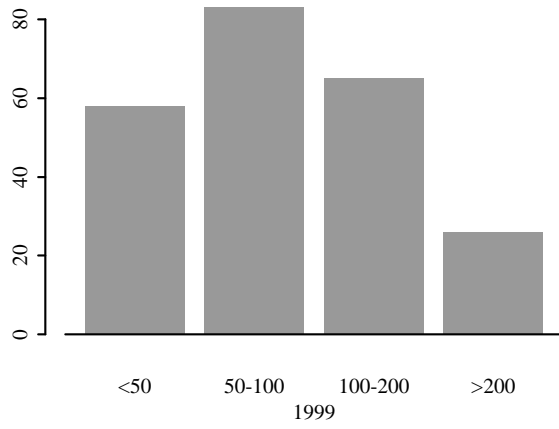


Figure 2.1: *Distribution of implants by center in 1999.*

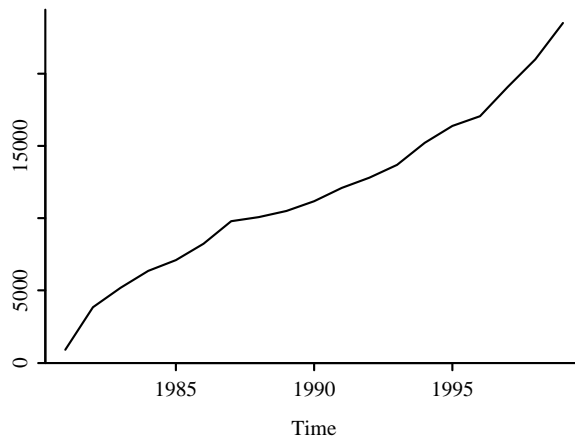


Figure 2.2: *Distribution of implants from 1981 to 1999.*

CHAPTER 2. RIP DATA AND STATISTICS 1999

Table 2.1: *Distribution of implants by italian region. FI= First implants, R= replacement.*

	FI ( $N = 16329$ )	S ( $N = 5364$ )	Combined ( $N = 21693$ )
Region : Abruzzo	4% ( 618)	4% ( 211)	4% ( 829)
Basilicata	0% ( 0)	0% ( 0)	0% ( 0)
Calabria	2% ( 381)	3% ( 148)	2% ( 529)
Campania	3% ( 543)	4% ( 198)	3% ( 741)
Emilia-Romagna	6% ( 990)	8% ( 424)	7% (1414)
Friuli-Venezia Giulia	6% ( 915)	6% ( 304)	6% (1219)
Lazio	9% (1356)	9% ( 464)	9% (1820)
Liguria	5% ( 790)	5% ( 260)	5% (1050)
Lombardia	19% (3036)	15% ( 816)	18% (3852)
Marche	4% ( 582)	5% ( 264)	4% ( 846)
Molise	0% ( 0)	0% ( 0)	0% ( 0)
Piemonte	11% (1806)	9% ( 487)	11% (2293)
Puglia	5% ( 838)	4% ( 195)	5% (1033)
Rep. San Marino	0% ( 0)	0% ( 0)	0% ( 0)
Sardegna	3% ( 512)	3% ( 152)	3% ( 664)
Sicilia	4% ( 586)	4% ( 204)	4% ( 790)
Toscana	7% (1056)	11% ( 564)	8% (1620)
Trentino-Alto Adige	2% ( 276)	2% ( 85)	2% ( 361)
Umbria	2% ( 340)	3% ( 141)	2% ( 481)
Valle d'Aosta	0% ( 0)	0% ( 2)	0% ( 2)
Veneto	8% (1319)	7% ( 355)	8% (1674)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.2: *Descriptive statistics for age by region, all implants. N=23093, 415 Missing*

	N	Median	Lower	Upper
<b>Region</b>				
Abruzzo	867	77.94	52.45	92.50
Basilicata	0			
Calabria	629	76.67	50.81	91.16
Campania	772	75.65	54.50	91.40
Emilia-Romagna	1524	78.11	52.26	93.55
Friuli-Venezia Giulia	1203	77.45	56.57	92.78
Lazio	1859	76.91	30.58	92.37
Liguria	1050	78.08	56.16	93.17
Lombardia	4099	76.29	47.18	92.33
Marche	868	77.84	48.89	92.05
Molise	0			
Piemonte	2367	76.92	50.86	92.92
Puglia	1095	76.66	50.70	91.80
Rep. San Marino	0			
Sardegna	696	76.34	46.67	92.37
Sicilia	836	75.58	46.01	91.21
Toscana	1901	78.31	52.04	93.24
Trentino-Alto Adige	441	76.65	37.17	94.57
Umbria	495	77.53	53.13	91.17
Valle d'Aosta	56	76.07	55.07	94.67
Veneto	1859	77.35	52.01	93.65
Missing	476	78.16	52.69	91.51
<b>Overall</b>	<b>23090</b>	<b>77.12</b>	<b>49.16</b>	<b>92.72</b>

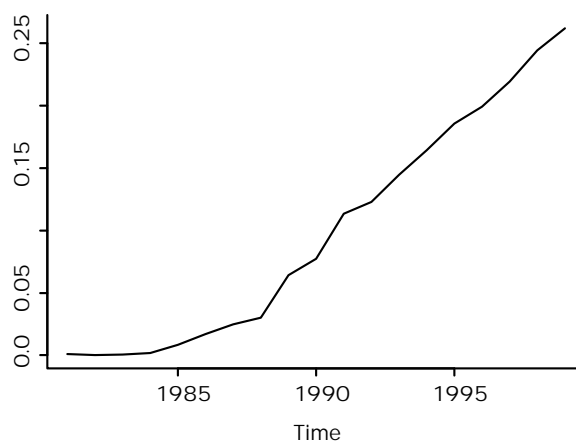


Figure 2.3: *Distribution of rate modulation from 1981 to 1999.*

Table 2.3: *Descriptive statistics for age by region, new implants. N=16138, 2006 Missing*

	N	Median	Lower	Upper
<b>Region</b>				
Abruzzo	609	77.83	52.68	92.32
Basilicata	0			
Calabria	377	76.43	52.78	91.19
Campania	533	75.26	54.51	91.59
Emilia-Romagna	988	77.80	52.31	92.60
Friuli-Venezia Giulia	901	77.10	56.99	92.54
Lazio	1346	76.81	37.13	92.12
Liguria	774	77.45	55.79	92.77
Lombardia	2988	75.97	47.09	92.31
Marche	576	78.04	50.49	91.91
Molise	0			
Piemonte	1791	76.28	51.00	91.77
Puglia	823	76.11	51.15	91.63
Rep. San Marino	0			
Sardegna	510	76.34	49.96	92.18
Sicilia	583	74.77	45.79	89.77
Toscana	1039	77.47	51.76	92.07
Trentino-Alto Adige	274	76.28	41.92	94.22
Umbria	335	76.33	52.19	90.89
Valle d'Aosta	0			
Veneto	1309	76.72	50.98	92.62
Missing	382	77.84	52.14	91.20
<b>Overall</b>	16140	76.66	49.60	92.25

Table 2.4: *Descriptive statistics for age by region, substitutions only. N=5287, 1892 Missing*

	N	Median	Lower	Upper
<b>Region</b>				
Abruzzo	207	77.79	52.36	91.28
Basilicata	0			
Calabria	148	76.88	50.50	91.43
Campania	197	76.18	47.43	90.58
Emilia-Romagna	422	79.21	45.35	94.42
Friuli-Venezia Giulia	289	79.48	54.40	93.49
Lazio	459	77.19	15.92	92.62
Liguria	252	81.38	59.06	94.78
Lombardia	802	77.35	50.10	92.32
Marche	260	77.31	45.39	93.33
Molise	0			
Piemonte	479	78.46	52.31	94.80
Puglia	191	78.36	52.44	92.52
Rep. San Marino	0			
Sardegna	151	76.70	48.61	92.43
Sicilia	201	77.63	48.39	92.88
Toscana	561	79.41	52.68	93.78
Trentino-Alto Adige	84	78.65	33.08	95.65
Umbria	139	79.12	61.20	91.61
Valle d'Aosta	2	82.76	77.08	88.44
Veneto	354	79.06	58.68	96.07
Missing	89	78.89	57.13	91.81
<b>Overall</b>	5287	78.29	48.68	93.57

Table 2.5: *Descriptive statistics for age by sex, all implants. FI= First implants, R= replacement. N=23093, 415 Missing*

	N	Median	Lower	Upper
<b>Gender</b>				
F	9827	78.58	50.44	93.73
M	12820	76.02	48.54	91.67
Missing	446	76.87	48.91	93.47
<b>Overall</b>	23090	77.12	49.16	92.72

Table 2.6: *Descriptive statistics for age by sex, new implants.*  $N=16138$ , 2006 Missing

	N	Median	Lower	Upper
<b>Gender</b>				
F	6791	78.22	51.14	93.15
M	9097	75.50	48.71	91.14
Missing	250	76.59	53.43	91.80
<b>Overall</b>	16140	76.66	49.60	92.25

Table 2.7: *Descriptive statistics for age by sex, substitutions only.*  $N=5287$ , 1892 Missing

	N	Median	Lower	Upper
<b>Gender</b>				
F	2333	79.44	50.16	94.74
M	2829	77.44	47.84	92.55
Missing	125	77.63	48.65	93.39
<b>Overall</b>	5287	78.29	48.68	93.57

Table 2.8: *Distribution of age by sex, all implants.*

	F ( $N = 9989$ )	M ( $N = 13011$ )
Age groups : [ 0, 10)	0% ( 30)	0% ( 49)
[ 10, 20)	0% ( 15)	0% ( 28)
[ 20, 30)	0% ( 33)	0% ( 30)
[ 30, 40)	0% ( 35)	0% ( 60)
[ 40, 50)	1% ( 123)	2% ( 197)
[ 50, 60)	3% ( 336)	5% ( 653)
[ 60, 70)	12% (1227)	18% (2271)
[ 70, 80)	38% (3773)	43% (5463)
[ 80, 90)	35% (3443)	28% (3537)
[ 90,120]	8% ( 812)	4% ( 532)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.9: *Distribution of age by sex, new implants.*

	F ( $N = 6871$ )	M ( $N = 9179$ )
Age groups : [ 0, 10)	0% ( 18)	0% ( 31)
[ 10, 20)	0% ( 9)	0% ( 12)
[ 20, 30)	0% ( 19)	0% ( 16)
[ 30, 40)	0% ( 19)	0% ( 42)
[ 40, 50)	1% ( 87)	2% ( 157)
[ 50, 60)	4% ( 243)	6% ( 512)
[ 60, 70)	13% ( 885)	18% (1675)
[ 70, 80)	40% (2694)	44% (3981)
[ 80, 90)	34% (2329)	26% (2343)
[ 90,120]	7% ( 488)	4% ( 328)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.10: *Distribution of age by sex, substitutions only.*

	F ( $N = 2358$ )	M ( $N = 2870$ )
Age groups : [ 0, 10)	0% ( 8)	1% ( 16)
[ 10, 20)	0% ( 5)	0% ( 14)
[ 20, 30)	0% ( 9)	0% ( 11)
[ 30, 40)	0% ( 11)	0% ( 12)
[ 40, 50)	1% ( 25)	1% ( 27)
[ 50, 60)	3% ( 73)	4% ( 104)
[ 60, 70)	11% ( 263)	16% ( 440)
[ 70, 80)	35% ( 828)	40% (1120)
[ 80, 90)	37% ( 859)	33% ( 931)
[ 90,120]	11% ( 252)	5% ( 154)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

CHAPTER 2. RIP DATA AND STATISTICS 1999

Table 2.11: *Distribution of implants by ECG indications, all categories: FI = First implant, R=replacement*

	FI ( $N = 16329$ )	S ( $N = 5364$ )	Combined ( $N = 21693$ )
ECG indications : A1-Rhythm unspecified	1% ( 209)	5% ( 200)	2% ( 409)
A2-Rhythm uncoded	1% ( 88)	1% ( 32)	1% ( 120)
B1-Normal sinus rhythm	2% ( 354)	2% ( 107)	2% ( 461)
B2-NSR+abnormal EPS	0% ( 9)	0% ( 5)	0% ( 14)
C1-1 heartblock	2% ( 308)	1% ( 44)	2% ( 352)
C2-2 heartblock unspecified	3% ( 435)	3% ( 143)	3% ( 578)
C3-2 heartblock Wenckebach	3% ( 388)	2% ( 99)	3% ( 487)
C4-2 heartblock Mobitz	10% (1473)	10% ( 441)	10% (1914)
C5-CHB QRS unspecified	5% ( 781)	8% ( 356)	6% (1137)
C6-CHAB narrow QRS	10% (1541)	10% ( 440)	10% (1981)
C7-CHB wide QRS	11% (1681)	16% ( 697)	12% (2378)
C8-Chronic Afb + AV block	0% ( 10)	0% ( 4)	0% ( 14)
D1-BBB unspecified	0% ( 16)	0% ( 6)	0% ( 22)
D2-RBBB incomplete	0% ( 23)	0% ( 6)	0% ( 29)
D3-RBBB complete	0% ( 47)	0% ( 10)	0% ( 57)
D4-LBBB	1% ( 118)	1% ( 32)	1% ( 150)
D5-LAHB	0% ( 34)	0% ( 6)	0% ( 40)
D6-LPHB	0% ( 3)	0% ( 2)	0% ( 5)
D7-RBBB+LAHB+normal PR	1% ( 138)	1% ( 48)	1% ( 186)
D8-RBBB+LPHB+normal PR	0% ( 24)	0% ( 9)	0% ( 33)
D9-RBBB+LAHB+long PR	3% ( 373)	2% ( 73)	2% ( 446)
D10-RBBB+LPHB+long PR	0% ( 55)	0% ( 11)	0% ( 66)
D11-LBBB+long PR	1% ( 191)	1% ( 35)	1% ( 226)
E1-SSS unspecified	2% ( 258)	2% ( 100)	2% ( 358)
E2-SSS SA exit block	2% ( 338)	3% ( 119)	2% ( 457)
E3-SSS SA arrest	4% ( 598)	3% ( 128)	4% ( 726)
E4-SSS bradycardia	7% (1009)	6% ( 277)	7% (1286)
E5-SSS +brady tachy	8% (1202)	6% ( 274)	8% (1476)
E6-Chronic A fib+brady	20% (2904)	15% ( 637)	18% (3541)
E7-Interatrial block	0% ( 1)	0% ( 0)	0% ( 1)
E8-Chronotropic incompetence	0% ( 3)	0% ( 0)	0% ( 3)
E27-SSS+BAV	0% ( 48)	0% ( 16)	0% ( 64)
F1-Atrial tachy unspecified	0% ( 53)	0% ( 11)	0% ( 64)
F2-AV reentrant tachycardia	0% ( 5)	0% ( 3)	0% ( 8)
G1-Ventricular extrasystoles	0% ( 15)	0% ( 3)	0% ( 18)
G2-Non sustained VT FT	0% ( 18)	0% ( 8)	0% ( 26)
G3-Sustained VT FT	0% ( 15)	0% ( 4)	0% ( 19)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.12: *Distribution of implants by ECG indications, main categories. FI= First implants, R= replacement.*

	FI (N = 16329)	S (N = 5364)	Combined (N = 21693)
ECG groups : AV block	45% (9617)	51% (2224)	46% (8841)
Atrial-tachy	0% ( 58)	0% ( 14)	0% ( 72)
Bundle branch block	7% (1022)	5% ( 238)	7% (1260)
Sinus node disease and atrium	43% (6361)	35% (1551)	41% (7912)
Sinus rhythm	2% ( 363)	3% ( 112)	2% ( 475)
Unspecified	2% ( 297)	5% ( 232)	3% ( 529)
Ventricular-tachy	0% ( 48)	0% ( 15)	0% ( 63)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.13: *Distribution of implants by symptoms at implant, all categories. FI= First implants, R= replacement.*

	FI (N = 16329)		S (N = 5364)		Combined (N = 21693)	
Symptoms : A1-Unspecified	5%	( 800)	11%	( 496)	7%	(1296)
A2-Un-coded	1%	( 199)	2%	( 67)	1%	( 266)
B1-Syncope	36%	(5264)	39%	(1704)	36%	(6968)
B2-Dizzy spells	23%	(3391)	22%	( 981)	23%	(4372)
B3-Brady Cardia	18%	(2659)	14%	( 633)	17%	(3292)
C1-Tachycardia	2%	( 226)	1%	( 27)	1%	( 253)
D1-None Prophylactic	4%	( 552)	3%	( 118)	3%	( 670)
D2-Dyspnea Heart Failure	11%	(1615)	8%	( 332)	10%	(1947)
D3-Cerebral dysfunction	1%	( 83)	0%	( 16)	1%	( 99)
D4-Chest pain	0%	( 2)	0%	( 0)	0%	( 2)
D5-Aborted sudden death	0%	( 2)	0%	( 0)	0%	( 2)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.14: *Distribution of implants by symptoms at implant, main categories. FI= First implants, R= replacement.*

	FI ( $N = 16329$ )	S ( $N = 5364$ )	Combined ( $N = 21693$ )
Symptoms groups : Other	15% ( 2254)	11% ( 466)	14% ( 2720)
Syncope	76% (11314)	76% ( 3318)	76% (14632)
Tachycardia	2% ( 226)	1% ( 27)	1% ( 253)
Unspecified	7% ( 999)	13% ( 563)	8% ( 1562)

$N$  is the number of non-missing values.

Numbers after percents are frequencies.

Table 2.15: *Distribution of implants by aetiology, all categories. FI= First implants, R= replacement.*

	FI ( $N = 16329$ )	S ( $N = 5364$ )	Combined ( $N = 21693$ )
Aetiology : A1-Unspecified	18% (2516)	22% ( 927)	18% (3443)
A2-Uncoeded	1% ( 215)	1% ( 62)	1% ( 277)
B1-Unknown	12% (1768)	13% ( 577)	13% (2345)
B2-Conduction tissues disease	47% (6752)	44% (1887)	46% (8639)
C1-Ischaemic	7% (1018)	7% ( 280)	7% (1298)
C2-Post infarction	2% ( 297)	2% ( 75)	2% ( 372)
D1-Congenital	0% ( 46)	1% ( 38)	0% ( 84)
E1-Surgical complications	1% ( 83)	1% ( 38)	1% ( 121)
E2-Surgical	1% ( 123)	1% ( 61)	1% ( 184)
E3-Ablation	1% ( 202)	1% ( 27)	1% ( 229)
E4-Drug induced	0% ( 8)	0% ( 1)	0% ( 9)
F1-Carotid sinus syncope	3% ( 481)	3% ( 123)	3% ( 604)
F2-Vasovagal syndrome	0% ( 3)	0% ( 0)	0% ( 3)
G1-Cardiomyopathy unspecified	3% ( 475)	2% ( 88)	3% ( 563)
G2-Myocarditis	0% ( 17)	0% ( 7)	0% ( 24)
G3-Valvular heart disease	3% ( 362)	3% ( 115)	3% ( 477)
G8-Ionizing radiation	0% ( 1)	0% ( 0)	0% ( 1)
G1A-Cardiomyopathy ipertrophic	0% ( 0)	0% ( 0)	0% ( 0)
G1B-Cardiomyopathy dilated	0% ( 4)	0% ( 0)	0% ( 4)

$N$  is the number of non-missing values.

Numbers after percents are frequencies.

Table 2.16: *Distribution of implants by aetiology, main categories. FI= First implants, R= replacement.*

	FI (N = 16329)	S (N = 5364)	Combined (N = 21693)
Aetiology groups : Autonomic nervous system	3% ( 484)	3% ( 123)	3% ( 607)
Cardiomyopathies	0% ( 4)	0% ( 0)	0% ( 4)
Congenital	0% ( 46)	1% ( 38)	0% ( 84)
Iatrogenic therapeutic	3% ( 416)	3% ( 127)	3% ( 543)
Ischemic	9% ( 1315)	8% ( 355)	9% ( 1670)
Unknown	59% ( 8520)	57% ( 2464)	59% ( 10984)
Unspecified	19% ( 2731)	23% ( 989)	20% ( 3720)
Valvular and heart transplant	6% ( 855)	5% ( 210)	6% ( 1065)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.17: *Distribution of implants by mode of pacing. FI= First implants, R= replacement.*

	FI ( $N = 16329$ )	S ( $N = 5364$ )	Combined ( $N = 21693$ )
Mode of pacing : AAI	0% ( 59)	1% ( 47)	1% ( 106)
AAIR	1% ( 88)	1% ( 46)	1% ( 134)
DDD	31% (4490)	27% (1256)	30% (5746)
DDDR	16% (2249)	9% ( 413)	14% (2662)
VDD	10% (1497)	8% ( 354)	10% (1851)
VDDR	3% ( 480)	2% ( 78)	3% ( 558)
VVI	27% (3937)	37% (1746)	30% (5683)
VVIR	11% (1639)	16% ( 767)	13% (2406)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

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Table 2.18: *Distribution of electrodes by pacing. U=unipolar, B=bipolar.*

	N	
Ventricula catheter: U	5891	74% (4364)
B		26% (1527)
Atrial catheter: U	11930	63% (7476)
B		37% (4453)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.19: *Distribution of epicardial electrodes.*

	N	
Atrial position: Endo	387	99% (385)
Epi		1% ( 2)
Ventricular Position: Endo	1668	99% (1656)
Epi		1% ( 12)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 2.20: *Distribution of implants by mode of pacing and ECG indications. U = unspecified, S = sinus rhythm, AV = AV block, BBB = bundle brunch block, SNA = sinus node disease and atrium, AT = atrial tachy, VT = ventricular tachy.*

Mode of pacing :	AAI	AV	BBB	S	SNA	U	VT
	AT (N = 58)	AV (N = 6617)	BBB (N = 1022)	S (N = 363)	SNA (N = 6361)	U (N = 297)	VT (N = 48)
AAIR	0% ( 0)	0% ( 2)	0% ( 1)	1% ( 3)	1% ( 51)	0% ( 1)	0% ( 0)
DDD	30% ( 16)	33% (2063)	41% ( 381)	43% (139)	1% ( 82)	0% ( 0)	0% ( 0)
DDDR	21% ( 11)	11% ( 686)	17% ( 160)	24% ( 77)	26% (1505)	41% (100)	42% ( 18)
VDD	2% ( 1)	20% (1258)	10% ( 91)	2% ( 5)	19% (1085)	20% ( 48)	16% ( 7)
VDDR	0% ( 0)	7% ( 404)	2% ( 19)	0% ( 1)	1% ( 39)	3% ( 8)	7% ( 3)
VVI	32% ( 17)	22% (1356)	25% ( 231)	25% ( 83)	0% ( 14)	2% ( 6)	0% ( 0)
VVIR	15% ( 8)	7% ( 405)	5% ( 46)	3% ( 15)	34% (1958)	25% ( 62)	25% ( 11)
					18% (1057)	8% ( 20)	9% ( 4)

N is the number of non-missing values.  
 Numbers after percents are frequencies.

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Table 2.21: *Crude estimates of the distribution of time from first implant to substitution by gender, symptoms, mode of pacing, aetiology and ECG indications. N=5062, 18446 Missing*

	N	Quantiles.25%	Quantiles.50%	Quantiles.75%
<b>Gender</b>				
F	2233	5.74	7.47	10.39
M	2705	5.42	7.28	10.05
Missing	124	5.62	7.83	10.98
<b>Symptoms groups</b>				
Other	435	5.17	7.03	9.35
Syncope	3113	5.58	7.37	10.24
Tachycardia	23	5.39	6.82	10.37
Unspecified	534	5.97	7.69	10.63
Missing	957	5.58	7.28	10.46
<b>Mode of pacing</b>				
AAI	47	6.41	8.09	11.50
AAIR	44	6.06	7.25	9.22
DDD	1146	5.09	6.76	8.53
DDDR	375	4.20	6.22	8.63
VDD	332	5.00	5.61	6.34
VDDR	73	3.59	5.59	6.42
VVI	1674	6.37	8.55	11.43
VVIR	734	5.84	7.85	11.34
Missing	637	6.17	8.25	10.94
<b>Aetiology groups</b>				
Autonomic nervous system	116	5.63	7.62	9.85
Congenital	38	4.55	7.78	10.32
Iatrogenic therapeutic	115	5.11	6.42	9.30
Ischemic	328	5.38	7.24	9.59
Unknown	2330	5.64	7.41	10.22
Unspecified	922	5.70	7.54	10.48
Valvular and heart transplant	197	5.23	7.09	10.04
Missing	1016	5.58	7.29	10.39
<b>ECG groups</b>				
AV block	2112	5.58	7.35	10.39
Atrial-tachy	11	6.63	8.75	10.77
Bundle branch block	215	5.59	7.43	10.30
Sinus node disease and atrium	1437	5.43	7.30	9.92
Sinus rhythm	103	6.08	7.62	9.66
Unspecified	226	6.04	7.75	11.21
Ventricular-tachy	14	6.12	8.48	9.45
Missing	944	5.58	7.28	10.45
<b>Overall</b>				
	5062	5.59	7.36	10.25



## Chapter 3

# Statistical data for the Italian Defibrillator Registry in year 1999

Table 3.1: *Distribution of type of implant by gender and age. FI = First implants, R = Replacements.*

	N	FI (N = 1319)	R (N = 205)	NA (N = 116)	Combined (N = 1640)
Age	1525	57 66 72	53 61 68	41 52 63	56 65 72
Gender : Female	1640	85% (1123)	82% (169)	79% (92)	84% (1384)
Male		14% (184)	17% (35)	20% (23)	15% (242)
NA		1% (12)	0% (1)	1% (1)	1% (14)

$a$   $b$   $c$  represent the lower quartile  $a$ , the median  $b$ , and the upper quartile  $c$  for continuous variables.  
 $N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.2: *Distribution of implants by symptoms.*

Symptoms : Unknown	1% ( 18)
Syncope	38% (542)
Dizzy spells	11% (156)
Cardiac Arrest	19% (273)
Prophylactic	4% ( 64)
Palpitations	24% (341)
Other	3% ( 37)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.3: *Distribution of implants by ECG indications.*

ECG : Unknown	1% ( 8)
None	3% ( 49)
Ventr. Tachycardia	61% (885)
Ventr. Fibrillation	24% (343)
Ventr. Tach. and Fibr.	9% (131)
Other	2% ( 34)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.4: *Distribution of implants by aetiology.*

Aetiology : Unknown	2% ( 32)
Post MI- 1 Vessel CAD	13% (184)
Post MI- 2 Vessel CAD	12% (172)
Post MI- 3 Vessel CAD	12% (165)
Post MI- Coronary Anatomy Unknown	11% (152)
Post Multiple MI- 1 Vessel CAD	1% ( 8)
Post Multiple MI- 2 Vessel CAD	1% ( 13)
Post Multiple MI- 3 Vessel CAD	1% ( 19)
Post Multiple MI- Coronary Anatomy Unknown	1% ( 8)
No MI-1 Vessel CAD	1% ( 7)
No MI-2 Vessel CAD	0% ( 1)
No MI-3 Vessel CAD	0% ( 2)
No MI- Coronary Anatomy Unknown	0% ( 5)
Valvular Heart Disease	2% ( 34)
Cardiomiopathy- dilated	25% (347)
Cardiomiopathy- Hypertrophic	3% ( 45)
Cardiomiopathy- RV Displasia	3% ( 42)
Cardiomiopathy- Other	3% ( 46)
Other	3% ( 36)
Ideopathic	2% ( 25)
Long QT	1% ( 10)
Other	2% ( 30)

$N$  is the number of non–missing values.  
 Numbers after percents are frequencies.

Table 3.5: *Distribution of implants by aetiology group.*

Aetiology Groups : No MI	1% ( 15)
Other	47% (647)
Post MI	52% (721)

$N$  is the number of non–missing values.  
 Numbers after percents are frequencies.

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Table 3.6: *Distribution of implants by patient's NYHA class.*

NYHA : I	21%	(280)
II	56%	(763)
III	22%	(293)
IV	2%	( 26)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.7: *Distribution of implants by patient's ejection fraction.*

Ejection Fraction : >50	15%	(226)
30-50	53%	(782)
<30	31%	(454)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.8: *Distribution of implants by NYHA class and symptoms.*

	I (N = 280)	II (N = 763)	III (N = 293)	IV (N = 26)	Combined (N = 1362)
Symptoms : Unknown	0% ( 1)	0% ( 3)	1% ( 2)	0% ( 0)	0% ( 6)
Syncope	40% (102)	38% (262)	38% (103)	32% ( 8)	38% (475)
Dizzy spells	7% ( 18)	13% ( 92)	12% ( 32)	12% ( 3)	12% (145)
Cardiac Arrest	22% ( 56)	16% (113)	23% ( 63)	20% ( 5)	19% (237)
Prophylactic	7% ( 18)	4% ( 28)	3% ( 9)	8% ( 2)	5% ( 57)
Palpitations	21% ( 55)	26% (177)	21% ( 56)	20% ( 5)	23% (293)
Other	3% ( 8)	3% ( 18)	2% ( 6)	8% ( 2)	3% ( 34)

*N* is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.9: *Distribution of implants by ejection fraction and symptoms.*

	>50 ( $N = 226$ )	30-50 ( $N = 782$ )	<30 ( $N = 454$ )	Combined ( $N = 1462$ )
Symptoms : Unknown	0% ( 1)	2% ( 13)	1% ( 4)	1% ( 18)
Syncope	42% ( 88)	35% (251)	37% (155)	37% (494)
Dizzy spells	6% ( 12)	13% ( 95)	11% ( 46)	11% (153)
Cardiac Arrest	22% ( 46)	17% (119)	22% ( 92)	19% (257)
Prophylactic	7% ( 15)	5% ( 33)	3% ( 14)	5% ( 62)
Palpitations	20% ( 43)	25% (181)	22% ( 93)	24% (317)
Other	2% ( 5)	3% ( 18)	3% ( 13)	3% ( 36)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.10: *Distribution of implants by site of generator.*

Generator Site : Unknown	0% ( 2)
Sub-rectus	3% ( 38)
Supra-rectus	3% ( 45)
Intrathoracic	0% ( 1)
Pre-pectoral	62% (929)
Sub-pectoral	32% (481)
Axillary	0% ( 3)
Other	0% ( 3)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.11: *Distribution of implants by type of prior intervention.*

Prior Intervention : Unknown	0% ( 4)
Coronary artery bypass grafting	15% (174)
Aneurismectomy	1% ( 11)
Endocardial resection	0% ( 1)
Cryosurgery	0% ( 0)
Other surgical	3% ( 38)
Direct current	1% ( 6)
Radiofrequency	3% ( 41)
Alcohol	0% ( 0)
Tachycardia terminating	1% ( 12)
Other Pacing	1% ( 12)
Other	2% ( 26)
None	73% (862)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.12: *Distribution of implants by type of concomitant surgery.*

Surgery : Unknown	1% ( 12)
Coronary artery bypass grafting	1% ( 9)
Valve replacement	0% ( 4)
Valvotomy/valve repair	0% ( 2)
Other Valve	0% ( 0)
Aneurysmectomy	0% ( 0)
Other Arrhythmia	0% ( 1)
Other	1% ( 14)
None	97% (1276)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.13: *Distribution of implants by type of lead.*

Leads : Ventricular unipolar - epicardial	0% ( 5)
Ventricular unipolar - endocardial	0% ( 7)
Ventricular bipolar - endocardial	5% ( 71)
Atrial unipolar - endocardial	0% ( 0)
Atrial bipolar - endocardial	6% ( 81)
Other ACE/Sense only	0% ( 3)
LVpatch epicardial	0% ( 2)
Other patch - epicardial	0% ( 1)
Array subcutaneous	0% ( 1)
RA/SVC coil -endocardial	2% ( 33)
Coronary sinus coil - endocardial	0% ( 0)
RV coil - endocardial	35% (508)
RV coil + RA/SVC coil endocardial	51% (743)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

Table 3.14: *Distribution of implants by generator type. S = single chamber, D = dual chamber.*

	FI ( $N = 1319$ )	R ( $N = 205$ )	Combined ( $N = 1524$ )
Generator Type : D	67% ( 886)	87% ( 178)	70% (1064)
S	33% ( 433)	13% ( 27)	30% ( 460)

$N$  is the number of non-missing values.  
 Numbers after percents are frequencies.

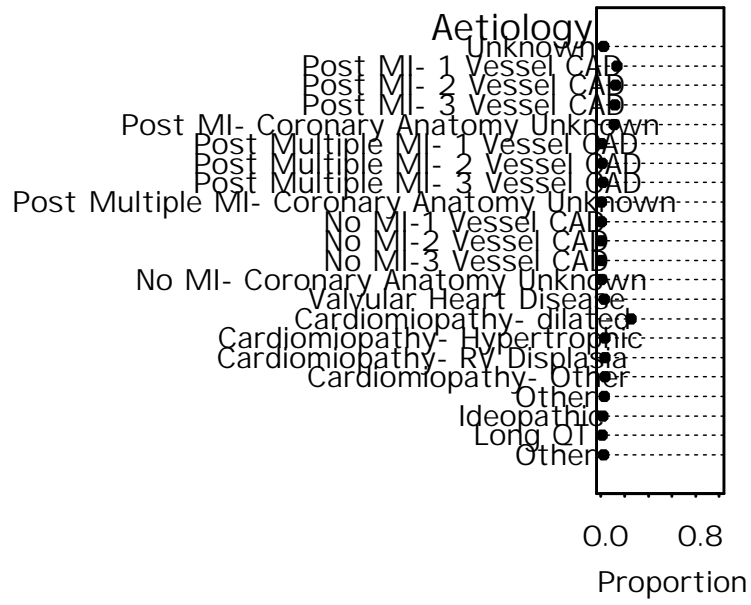


Figure 3.1: Distribution of implants by aetiology.

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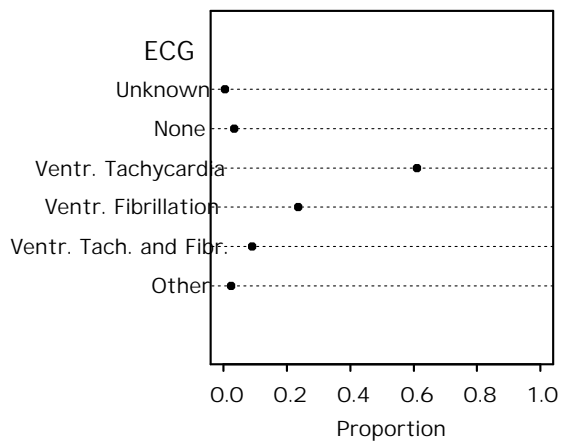


Figure 3.2: *Distribution of implants by ECG.*

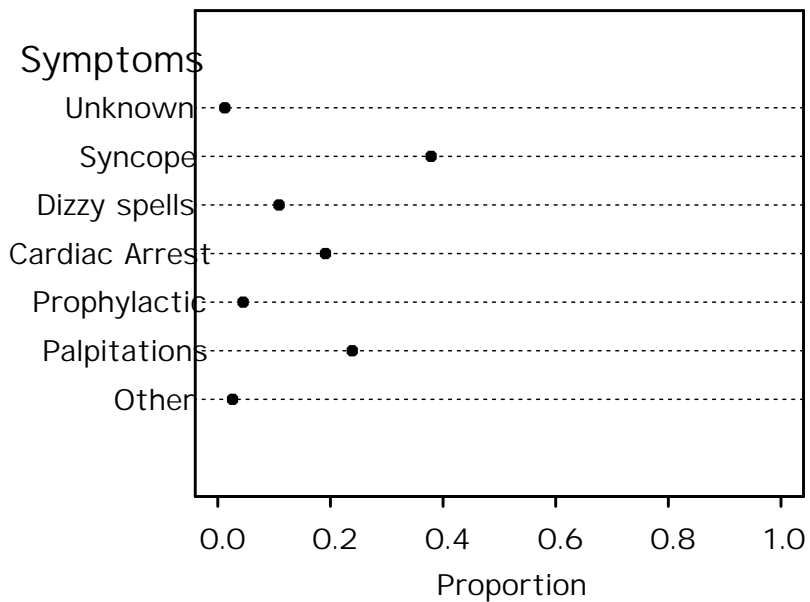


Figure 3.3: *Distribution of implants by symptoms.*

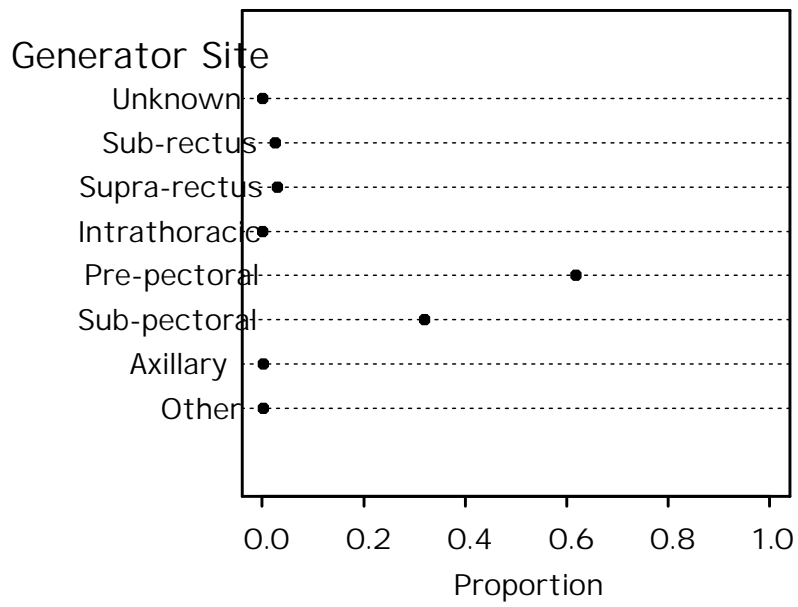


Figure 3.4: *Distribution of implants by generator site.*

## Chapter 4

# List of Participating Centers

**001** - AZ. OSP. S.M. DELLA MISERICORDIA UDINE **002** - OSPEDALE MAGGIORE TRIESTE **003** - AZ. OSP. S.M. DEGLI ANGELI PORDENONE **004** - ASL N.2 ISONTINA GORIZIA **005** - P. O. DI MONFALCONE MONFALCONE (GO) **006** - ENTE OSPEDALIERO S. CORONA GARBAGNATE MILANESE (MI) **007** - 27 OSP. PEDIATRICO BAMBIN GESU' ROMA **008** - VILLA MAFALDA ROMA **009** - 80 CENTRO CARDIOLOGICO MONZINO MILANO **010** - OSPEDALE CIVILE BELLUNO **011** - OSPEDALE A. DI SUMMA BRINDISI **012** - POLICLINICO UNIVERSITARIO PADOVA **013** - ULSS 3 BASSANO DEL GRAPPA BASSANO DEL GRAPPA (VI) **014** - S. GIOVANNI DI DIO E D'ARAGON SALERNO **015** - OSPEDALI RIUNITI DI MATERA MATERA **016** - VILLA DEI GERANI NAPOLI **017** - OSPEDALE PROV. DEGLI INFERMI BIELLA (VC) **018** - OSPEDALE CIVILE BENEVENTO **019** - OSP. MAGGIORE DELLA CARITA' NOVARA **020** - POLICLINICO UNIV. BARI **021** - OSPEDALE S. CAMILLO ROMA **022** - OSPEDALE S. TIMOTEO TERMOLI (CB) **023** - OSPEDALE S. MARTINO DI GENOVA GENOVA **024** - II POLICLINICO FEDERICO II NAPOLI **025** - OSPEDALE GENERALE PROVINCIALE SAN REMO (IM) **026** - OSPEDALE GENERALE PROVINCIALE CIVITAVECCHIA (ROMA) **027** - OSP. PREDABISSI MELEGNANO VIZZOLO PREDASSI MELEGNANO **028** - AZIENDA N. 3 BUSTO ARSIZIO (VA) **029** - OSPEDALE M. BUFALINI CESENA (FO) **030** - ASL. PROVINCIA DI LODI LODI **031** - OSPEDALE CIVILE G. FORNAROLI MAGENTA (MI) **032** - A. O. CARLO POMA MANTOVA **033** - ENTE OSP. NIGUARDA MILANO NIGUARDA **034** - OSPEDALE MAGGIORE MILANO **035** - OSPEDALE S. CARLO BORROMEO MILANO **036** - OSPEDALE S. GERARDO MONZA (MI) **037** - POLICLINICO S. MATTEO PAVIA **038** - ENTE OSPEDALIERO RHO (MI) **039** - AZ. USSL 4 PRESIDIO OSPEDAL. SARONNO (VA) **040** - CIRCOLO E FONDAZIONE MACCHI VARESE **041** - OSP. SS. GIACOMO E CRISTOFORO MASSA CARRARA **042** - OSPEDALE S. ANNA FERRARA **043** - OSPEDALE CIVILE TRANI (BA) **044** - OSPEDALE CIVILE S. AGOSTINO MODENA **045** - OSPEDALE CIVILE VIGEVANO (PV) **046** - OSPEDALE S. MARIA DELLE CROCI RAVENNA **047** - OSPEDALE S. MARIA NUOVA REGGIO EMILIA **048** - OSPEDALE S. ANDREA VERCELLI **049** - OSPED. S. MARIA NUOVA FIRENZE **050** - ENTE OSPED. CITTA' DI SESTO SESTO SAN GIOVANNI (MI) **051** - PRESIDIO OSPEDAL. DI LUCCA LUCCA **052** - 87 OSPEDALE TABARRACCI VIAREGGIO (LU) **053** - OSPEDALE CIVILE DI PRATO PRATO (FI) **054** - OSPED. RIUNITI DI FINALE E P. PIETRA LIGURE (SV) **055** - OSPEDALE MADONNA DEL SOCCORSO SAN BENEDETTO DEL TRONTO (AP) **056** - OSPEDALE SILVESTRINI PERUGIA **057** - OSPEDALE CIVILE S.TA MARIA TERNI **058** - OSPEDALE S. CAMILLO FORLANINI ROMA **059** - OSPEDALE GRANDE DEGLI INFERMI VITERBO **060** - OSPEDALE CALAI GUALDO TADINO (PG) **061** - CASA DI CURA OLTRARNO FIRENZE **062** - CASA DI CURA PINNA PINTOR TORINO **063** - OSPEDALE CIVILE TERAMO **064** - OSPEDALE

CIVILE PESCARA **065** - O.C.SS.ANTONIO E BIAGIO E ARR ALESSANDRIA **066** - OSPEDALE GENERALE PROVINCIALE CASERTA **067** - AZ. OSPEDALIERA POLICLINICO BARI **068** - OSPEDALE GENERALE DI VENERE CARBONARA (BA) **069** - OSP. CIVILE SPEDALI RIUNITI LIVORNO **070** - OSPED. CIVILE DELL'ANNUNZIATA COSENZA **071** - OSP. CIVILE S. DONATO AREZZO **072** - CASA DI CURA CELLINI TORINO **073** - POLICLINICO UNIVERSITARIO MESSINA **074** - OSPEDALE UNIVERSITA' CATANIA **075** - OSP. PROV. SPEC. V. CERVELLO PALERMO **076** - OSPEDALE CIVICO E BENFRATELLI PALERMO **077** - OSPEDALE M. P. AREZZO RAGUSA **078** - OSPEDALE GARIBALDI CATANIA **079** - 43 UNIVERSITA' DI SASSARI SASSARI **080** - OSPEDALE CIVILE BRESCIA **081** - OSPED. GEN. REG. A. PUGLIESE CATANZARO **082** - OSPEDALE REGIONALE PARMA **083** - II POLICLINICO NAPOLI **084** - OSPED. GEN. PROV. L. BONOMO ANDRIA (BA) **085** - OSPEDALE CIVILE POTENZA **086** - OSPEDALE CIVILE PIACENZA **087** - USL DI SIENA Z.VAL DI CHIAN SARTEANO (SI) **088** - OSPEDALE SANT'ANNA COMO **089** - OSPED. GEN. DI ZONA P. ALPINO MAROSTICA (VI) **090** - II POLICLINICO DELL'UNIV. NAPOLI **091** - OSPEDALE V. MONALDI NAPOLI **092** - OSPEDALE S. ANTONIO ABATE GALLARATE (VA) **093** - OSPEDALE CIVILE A. MURRI FERMO (AP) **094** - OSPEDALI RIUNITI LAVAGNA (GE) **095** - OSP. GRAVINA E S. PIETRO CALTAGIRONE (CT) **096** - OSPEDALE GENERALE DI ZONA GENZANO (ROMA) **097** - OSPEDALE G. M. LANCISI ANCONA **098** - VILLA DEL ROSARIO ROMA **099** - CLINICA MADONNA DI FATIMA ROMA **100** - CLINICA VILLA FLAMINIA ROMA **101** - OSPEDALE L. SACCO MILANO **102** - OSPEDALE DI ZONA M. MELLINI CHIARI (BS) **103** - OSPEDALE S. MICHELE CAGLIARI **104** - OSPEDALE SS. ANNUNZIATA TARANTO **105** - OSPEDALE S. CATERINA NOVELLA GALATINA (LE) **106** - CASA DI CURA CITTA' DI APRILIA APRILIA (LT) **107** - CLINICA CHIRURGICA ADD. ROMA **108** - OSPEDALE GEN. PROV. UMBERTO I FROSINONE **109** - PRES. OSP. DI TRADATE AZ.USSL3 TRADATE (VA) **110** - OSPEDALE SAN GIOVANNI DI DIO CROTONE (CZ) **111** - OSPEDALE CIVILE MIRANO MIRANO (VE) **112** - OSPEDALE UMBERTO I BARLETTA (BA) **113** - OSPEDALE S. MARIA ANNUNZIATA BAGNO A RIPOLI (FI) **114** - CASA DI CURA VILLA MOSCA COTIGNOLA (RA) **115** - OSP. CELESIA USL 3 GENOVESE GENOVA RIVAROLO **116** - OSPEDALE DI CAREGGI FIRENZE **117** - OSP. SAN PAOLO ALLA BARONA MILANO **118** - ASL N.5 PISA VOLTERRA (PI) **119** - CASA DI CURA PIO IX ROMA **120** - ISTITUTO DI ANESTESIOLOGIA ROMA **121** - CLINICA MADONNINA MILANO **122** - OSPEDALE CIVILE CASTELFRANCO VENETO (TV) **123** - CLINICA VILLA STUART ROMA **124** - NUOVO OSP. S. GIOVANNI DI DIO FIRENZE **125** - OSPEDALE PROVINCIALE AVELLINO **126** - OSPEDALE CIVILE F. FERRARI CASARANO (LE) **127** - OSPEDALE L.PARODI DELFINO COLLEFERRO (ROMA) **128** - OSPEDALE PER GLI INFERMI FAENZA (RA) **129** - OSPEDALI RIUNITI FOGGIA **130** - OSP. M. SS. ADDOLORATA EBOLI (SA) **131** - OSPEDALE DI ZONA M. CHIELLO PIAZZA ARMERINA (EN) **132** - OSP.S. MARIA DEGLI ANGELI SACILE (PN) **133** - OSPEDALE REGIONALE SASSARI **134** - P. O. DI IMPERIA IMPERIA **135** - CLINICA COLUMBUS ROMA **136** - PRESIDIO OSPEDALIERO CERNUSCO SUL NAVIGLIO (MI) **137** - CASA DI CURA VILLA SERENA SAN REMO (IM) **138** - OSPEDALE CIVILE DI CODOGNO CODOGNO (LO) **139** - P. O. DI DESENZANO DEL GARDA DESENZANO DEL GARDA (BS) **140** - OSPEDALE CIVILE CITTADELLA (PD) **141** - VILLA DEL SOLE NAPOLI **142** - AZ. REGIONALE SANITARIA N.11 BORGOSIESA (VC) **143** - 11 CASA SOLLIEVO DELLA SOFFER. SAN GIOVANNI ROTONDO (FG) **144** - OSPEDALE C. E G. MAZZONI ASCOLI PICENO **145** - OSPEDALE SAN PIETRO ROMA **146** - OSPEDALE SAN BIAGIO DOMODOSSOLA (VB) **147** - OSPEDALE FATEBENEFRATELLI MILANO **148** - CLINICA ANNUNZIATELLA ROMA **149** - OSP.CIVILE PIETRO COSMA CAMPOSAMPIERO (PD) **150** - OSPEDALE S. ORSOLA - MALPIGI BOLOGNA **151** - OSPEDALE CIVILE THIENE (VI) **152** - I.N.R.C.A. ANCONA **153** - OSPEDALE GALLIERA GENOVA **154** - OSPEDALE G.M. LANCISI ANCONA **155** - OSP. DI MARIA - VILLA CHERUB. FIRENZE **156** - 71 P. O. DI MONTEBELLUNA MONTEBELLUNA (TV) **157** - OSPEDALE DELLE MOLINETTE TORINO **158** - ISTITUTO G. GASLINI GENOVA - QUARTO **159** - OSPEDALE BOLOGNINI SERIATE (BG) **160** - AZ. OSP. FONDAZIONE MACCHI LUINO (VA) **161** - OSPEDALE S. ORSOLA BOLOGNA **162** - OSPEDALE DELL'ANNUNZIATA SULMONA (AQ) **163** - OSP. PROV.SPEC. S.FRANCESCO PESCOPIAGANO (PZ) **164** - IST. CLINICO VILLA RUESCH NAPOLI **165** - OSPEDALE DELLA MERCEDE ROMA **166** - CASA DI CURA MORGAGNI CATANIA **167** - OSP. CIVILE S. ANTONIO ABATE PONTREMOLI (MS) **168** - A.S.L. 01 AVEZZANO-SULMONA AVEZZANO (AQ) **169** - CASA DI CURA CITTA' DI ROMA ROMA **170** - OSPEDALE

**CHAPTER 4. PARTICIPATING CENTERS**

CIVILE LECCO (CO) **171** - CLINICA CENTRO CUORE COLUMBUS MILANO **172** - CLINICA VILLA BIANCA  
ROMA **173** - OSPEDALE FATEBENEFRATELLI ROMA **174** - OSP. S. MARIA DELLA MISERIC. URBINO  
(PS) **175** - OSPEDALE SAN RAFFAELE MILANO **176** - OSPEDALE SAN SALVATORE L'AQUILA **177**  
- OSPEDALE SANTO SPIRITO CASALE MONFERRATO (AL) **178** - OSPEDALE S. PAOLO SAVONA **179** -  
OSPEDALE GEN. REG. A. MIULLI ACQUAVIVA DELLE FONTI (BA) **180** - OSPEDALE VITO FAZZI LECCE  
**181** - IST. CLINICI DI PERFEZION. MILANO **182** - OSPEDALE INFERMI RIMINI **183** - OSPEDALE DI  
SIRAI CARBONIA (CA) **184** - POLICLINICO MADONNA DELLA C. REGGIO CALABRIA **185** - POLICLINICO  
PALERMO **186** - OSPEDALE ASCOLI-TOMASELLI CATANIA **187** - OSPEDALE GEN. PROV. UMBERTO  
I SIRACUSA **188** - OSPEDALE CIVILE E. MORELLI SONDALO (SO) **189** - OSP. CIVILE DI LEGNANO  
LEGNANO (MI) **0** - OSPEDALE CIVILE S.M. DI LEUCA ROMA **1** - OSPEDALE G. CIACCIO CATANZARO **2**  
- OSPEDALE GENERALE DI ZONA SAN GIOVANNI BIANCO (BG) - AZ. OSPEDALIERA S. SALVATORE PESARO  
**4** - OSPEDALE CIVILE G. BERNABEO ORTONA (CH) **5** - OSPEDALE MAURIZIANO UMBERTO I TORINO  
**6** - OSPEDALE CIVILE SONDRIO **7** - OSPEDALE CIVILE ROVIGO **8** - OSPEDALE MILITARE PADOVA  
- OSP. S. MICHELE MONTE LAURETO PUTIGNANO (BA) **200** - 24 OSPEDALE LORETO CRISPI NAPOLI  
**201** - OSPEDALE CIVILE ROVERETO (TN) **202** - OSPED. S. CURRO' E S. LUIGI G. CATANIA **203** -  
I.N.R.C.A. COSENZA **204** - 55 CASA DI CURA BUCCHERI PALERMO **205** - CASA DI CURA SANTA RITA  
MILANO **206** - CLINICA CAPITANIO MILANO **207** - 32 PRES. OSPED. SS. ANNUNZIATA CHIETI **208**  
- OSPEDALE SAN LIBERATORE ATRI (TE) **209** - OSPEDALE DI CISANELLO PISA **210** - 81 OSPEDALE  
CIVILE DI ESTE ESTE (PD) **211** - OSPEDALE S. CHIARA TRENTO **212** - OSPEDALE S. ANTONIO ABATE  
TRAPANI **213** - OSPEDALE NUOVO IMOLA (BO) **214** - OSPEDALE CIVILE D. MISERIC. GROSSETO **215**  
- OSPEDALE CIVILE S. ANDREA LA SPEZIA **216** - CASA DI CURA VILLA LUCE SANTO SPIRITO (BA) **217**  
- CLINICA MEDITERRANEA NAPOLI **218** - OSPED. CIV. S. CUORE DI GESU' GALLIPOLI (LE) **219** - 56  
POLICLINICO MATER DOMINI CATANZARO **220** - CASA DI CURA VILLA VERDE BOLOGNA **221** - CASA  
DI CURA VILLA S. ANNA CATANZARO **222** - OSPEDALE SANTA CROCE CASTELNUOVO GARFAGNASNA  
(LU) **223** - CLINICA S. PAOLO TORINO **224** - OSP. CLINICIZZATO SAN DONATO SAN DONATO MILANESE  
(MI) **225** - OSPEDALE CIVILE POLISTENA (RC) **226** - 23 POLICLINICO DI BARI BARI **227** - OSP.  
CIVILE S.S. ANNUNZIATA CENTO (FE) **228** - 79 OSPEDALE GENERALE PROVINCIALE CARRARA **229** -  
37 PRESIDIO POPOLI USLL PESCARA POPOLI (PE) **230** - CASA DI CURA QUISISANA ROMA **231** -  
OSPEDALE DI BARGA-S.FRANCESCO BARGA (LU) **232** - OSPEDALE S.S. TRINITA' CAGLIARI **233** -  
OSPEDALE CIVILE S. DONA' DI PIAVE (VE) **234** - 60 OSPEDALE CIVILE LUGO (RA) **235** - PRES. OSP. DI  
VIMERCATE USSLS28 VIMERCATE (MI) **236** - OSPEDALE E. AGNELLI PINEROLO (TO) **237** - OSPEDALE  
CIVILE FORMIA (LT) **238** - 17 EUROPEAN HOSP. - UNIV. II ROMA **239** - 65 AZ. OSP. DESENZANO DEL  
GARDA MANERBIO (BS) **240** - 21 OSPEDALE S. SPIRITO ROMA **241** - 51 OSPEDALE CIVILE ARIANO  
IRPINO (AV) **242** - OSPEDALE CIVILE CONEGLIANO (TV) **243** - OSPEDALE S. MASSIMO PENNE (PE)  
**244** - OSPEDALI RIUNITI VERBANIA **245** - OSPEDALE S. SEBASTIANO FRASCATI (ROMA) **246** -  
OSPEDALE G. PANICO TRICASE (LE) **247** - PRESIDIO OSPEDALIERO S. GIOVANNI VALDARNO (AR) **248**  
- OSPED. G.B. GRASSI OSTIA (ROMA) **249** - OSPEDALE CIVILE ASTI **250** - OSPEDALE U. BARBERINI  
NETTUNO (ROMA) **251** - 88 OSPEDALE REGIONALE DI AOSTA AOSTA **252** - 57 OSPEDALE SANTA MARIA  
BIANCA MIRANDOLA (MO) **253** - OSPEDALE C. RENZETTI LANCIANO (CH) **254** - S.ORSOLA BRESCIA  
**255** - OSPEDALE DI STATO CAILUNGO BORGO MAGGIORE (RSM) **256** - 6 CAREGGI FIRENZE **257** -  
0 OSPEDALE CIVILE VASTO (CH) **258** - 1 OSPEDALE BASSA VAL DI CECINA CECINA (LI) **259** - CASA  
DI CURA LA VIALARDA BIELLA (VC) **260** - 4 SANDRO PERTINI ROMA **261** - 0 O. C. IMMACOLATA  
CONCEZIONE PIOVE DI SACCO (PD) **262** - OSPEDALE CIVILE ACQUI TERME (AL) **263** - 48 OSP.  
FERRAROTTO ALESSI CATANIA **264** - 6 POLICLINICO MATER DOMINI CATANZARO **265** - CASA DI  
CURA SANTA RITA BARI **266** - CASA DI CURA VILLA DEL SOLE BARI **267** - 6 OSPEDALE MILITARE  
CELIO ROMA **268** - 30 OSP. CIVILE S. GIUSEPPE ALBANO LAZIALE (ROMA) **269** - 62 OSPEDALE DI VALLE  
CAMONICA ESINE (BS) **270** - 6 OSP. S. CAMILLO DE LELLIS CHIETI **271** - OSPEDALE CIVILE DI IVREA  
IVREA (TO) **272** - 63 OSP. S. TOMMASO DEI BATTUTI PORTOGRUARO (VE) **273** - 76 OSP. SS. GIACOMO  
E CRISTOFORO MASSA **274** - CL. S. ROCCO DI FRANCIACORTA OME (BS) **275** - OSPEDALE SS TRINITA'  
BORGOMANERO **276** - CASA DI CURA S. ANNA BRESCIA **277** - 58 OSP. SAN GIOVANNI ROMA **278**

- 54 CASA DI CURA VILLA DEI FIORI MUGNANO (NA) **279** - 84 IST. EUROPEO DI ONCOLOGIA MILANO **280** - 78 PRESIDIO OSPEDALIERO PONTEDERA (PI) **281** - CASA DI CURA PEDERZOLI PESCHIERA DEL GARDA (VR) **282** - 29 OSP. S. CAMILLO DE LELLIS RIETI **283** - 2 OSP. LORETO NUOVO NAPOLI **284** - OSP. TREVIGLIO TREVIGLIO (BG) **285** - OSP. DI RIVOLI RIVOLI (TO) **286** - PRESIDIO OSPEDALIERO FELTRE (BL) **287** - OSP. S. GIOVANNI DI DIO CAGLIARI **288** - S. LUCA VALLO DELLA LUCANIA **289** - OSPEDALE CIVILE LAMEZIA TERME **290** - VILLA MARIA ELEONORA PALERMO **291** - ISTITUTO CLINICO HUMANITAS ROZZANO **292** - CASA DI CURA MATER DOMINI CASTELLANZA **293** - UMBERTO I VENEZIA MESTRE **294** - AURELIA HOSPITAL ROMA **295** - S. SPIRITO PESCARA **296** - S. FILIPPO NERI ROMA **297** - POLICLINICO GEMELLI ROMA **298** - CANIZZARO CATANIA **299** - 0 SPEDALI RIUNITI PISTOIA **300** - PRESIDIO OSPEDALIERO MORGAGNI FORLI' **301** - MAGGIORE BOLOGNA **302** - USL 6 LIVORNO PIOMBINO **303** - OSPEDALE CIVILE MAGGIORE VERONA **304** - SAN PIETRO IGNEO FUCECCHIO **305** - AZ. OSP. SENESE SIENA **306** - 46 SANTA CHIARA PISA **307** - OSPEDALE SANTA CROCE CUNEO **308** - SANTA CROCE MONCALIERI **309** - 14 OSPEDALE MAGGIORE DI CREMA CREMA (CR) **310** - SS. COSMA E DAMIANO PESCIA **311** - OSP. CIVILE S. BORTOLO VICENZA **312** - P. O. OGLIO PO CASAL MAGGIORE **313** - CENTRO NUOVA POLIAMBULANZA BRESCIA **314** - OSPEDALE REGIONALE DI BOLZANO BOLZANO **315** - CASA DI CURA S. MICHELE MADDALONI **316** - POLICLINICO DI MODENA MODENA **317** - 2 USL OSP. P. ANTERO MICONE GENOVA SESTRI **318** - CASA DI CURA VILLA TIBERIA ROMA **319** - OSPEDALI RIUNITI REGGIO CALABRIA **320** - 6 CENTRO CUORE MORGAGNI PEDARA **321** - POLICLINICO PONTE SAN PIETRO PONTE SAN PIETRO **322** - P.O. F. VENEZIALE ISERNIA **323** - C.D.C. TRICARICO-IST. ROSSANO MARINA DI BELVEDERE MARITT. **324** - SAG GIOVANNI DI DIO AGRIGENTO **325** - O. S. LUCA I.R.C.C.S. - AUXOL MILANO **326** - MARIA SS. DELLO SPLENDORE GIULIANOVA **327** - 25 OSPEDALE SANTA BARBARA IGLESIAS **328** - OSPEDALE VILLA SOFIA PALERMO **329** - OSPEDALE CIVILE SANTA CROCE FANO **330** - OSPEDALE G. CECCARINI RICCIONE **331** - OSPEDALE CIVILE VENEZIA **332** - MULTIMEDICA SESTO SAN GIOVANNI **333** - VILLA BIANCA BARI **334** - OSPEDALE NUOVO PELLEGRINI NAPOLI **335** - OSPEDALE S. GIACOMO NOVI LIGURE **336** - OSPEDALE VITTORIO EMANUELE II CATANIA **337** - OSP. RIUNITI S. G. BATTISTA FOLIGNO **338** - OSPEDALE CIVILE A. AIELLO MAZARA DEL VALLO **339** - OSPEDALE CIVILE CHIVASSO **340** - PRESIDIO OSP. CA' FONCELLI TREVISO **341** - POLICLINICO CASILINO ROMA **342** - OSPEDALE DI CREMONA CREMONA **343** - CASA DI CURA GAVEZZANI BERGAMO **344** - OSPEDALE CIVILE DI CANOSA CANOSA **345** - I POLICLINICO DI NAPOLI NAPOLI **346** - CASA DI CURA CITTA' DI PAVIA PAVIA **347** - OSPEDALE DI BENTIVOGLIO BENTIVOGLIO **348** - OSPEDALE VALDUCE COMO **349** - SAN GIOVANNI BATTISTA TORINO **001** - **350** - 0 S. GIACOMO ROMA **351** - MARIA VITTORIA TORINO **352** - BELLARIA BOLOGNA **353** - 0 T. RUSSO CERIGNOLA **354** - 0 VILLA SCASSI GENOVA SAMPIERDARENA **355** - 0 S. MARTINO ORISTANO ORISTANO **356** - TORTONA TORTONA **357** - DI VALLECAMONICA VALLECAMONICA **359** - S. LEOPOLDO MANDIC MERATE **360** - CASA DI CURA MONTEVERGINE MERCUGLIANO **361** - PIEMONTE EMARGHERITA MESSINA **362** - CIVILE VELLETRI **363** - ADDOLORATA ROMA **358** - RIUNITI ANZIO-NETTUNO ANZIO **364** - OSP. MULTIZONALE MOSCATI AVELLINO **365** - G.F. INGRASSIA PALERMO **366** - OSP. DI LEGNAGO AULSS 21 LEGNAGO **367** - POLICLINICO UMBERTO I ROMA **368** - A.O. O.C.R. DI SCIACCA SCIACCA **369** - OSP. SANT'ELIA CALTANISSETTA **370** - USL 6 CIRIE' CIRIE' **371** - FATEBENEFRAPELLI ERBA **372** - SAN FRANCESCO NUORO **373** - POLICLINICO DI MONZA MONZA **374** - POLICLINICO LE SCOTTE SIENA **375** - CASA DI CURA ALESSANDRIA **376** - MELEGNANO MELEGNANO **377** - 26 S. Annunziata Frazione Antella Bagno a Ripoli **378** - 26 Desio Desio **379** - 26 SS. TRINITA' Cagliari **380** - 26 S. Maria della Misericordia Rovigo **381** - 26 S. Donato S. Donato Milanese **382** - 26 Casa di Cura Villa Verde Taranto **383** - 26 S. Giovanni Calabita Roma **384** - 26 San Vincenzo Taormina