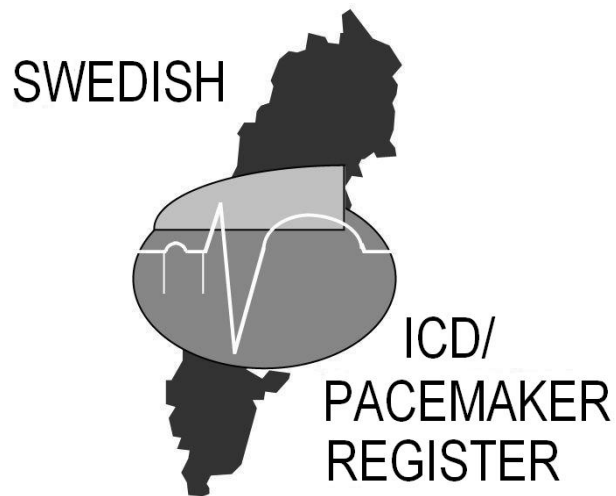


KAROLINSKA HOSPITAL  
DEPARTMENT OF CARDIOLOGY  
SWEDEN

# ANNUAL STATISTICAL REPORT 2005

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SWEDISH ICD REGISTER



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**STATISTICAL REPORT SWEDISH ICD REGISTRY 2005**

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The 2005 report from Swedish Pacemaker and ICD registry contains several new features.

We have specifically monitored the increase of use of ICD and CRT therapy in Sweden. The ICD usage is rapidly increasing with an average of 38/million inhabitants in 2004 to 55/million in 2005. The usage is also more evenly spread throughout Sweden this year. Primary prevention is still a minor indication with only 8% of implanted ICDs.

CRT therapy is also increasing over Sweden but is still concentrated to major implanting centres and there is a considerable regional difference.

We have included both new CRT implants and specifically looked at upgrades in this year's report. For the first time complications are shown for each individual participating hospital. Hospitals that have registered a complication rate below 2 % have been considered as not fully reporting and are thus not included in the statistics. There is a considerable variation in complications and one major factor behind this is probably a difference in registrations based on classification of complications. We hope to have a more uniform classification and registration in the future.

Fredrik Gadler, MD, PhD  
Registry director

Anita Fredenson  
Coordinator

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**ICD IMPLANTING HOSPITALS / REGION 2005**


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REGION	HOSPITALS / CITIES
Stockholm/Gotland	Stockholm: Danderyds sjukhus
	- ” - Karolinska Universitetssjukhuset Huddinge
	- ” - Karolinska Universitetssjukhuset Solna
	- ” - Södersjukhuset
Western Sweden	Göteborg: Sahlgrenska sjukhuset
	Varberg: Varbergs sjukhus
Northern Sweden	Umeå: Universitetssjukhuset Umeå
	Östersund: Östersunds sjukhus
Southern Sweden	Karlskrona: Blekinge sjukhuset
	Lund: Universitetssjukhuset Lund
Uppsala/Örebro	Bollnäs: Bollnäs sjukhus
	Uppsala: Uppsala Akademiska sjukhuset
	Örebro: Universitetssjukhuset Örebro
South-East Sweden	Kalmar: Länssjukhuset Kalmar
	Linköping: Universitetssjukhuset Linköping

All statistics (except pages 4 and 6) excluding Uppsala Akademiska sjukhuset

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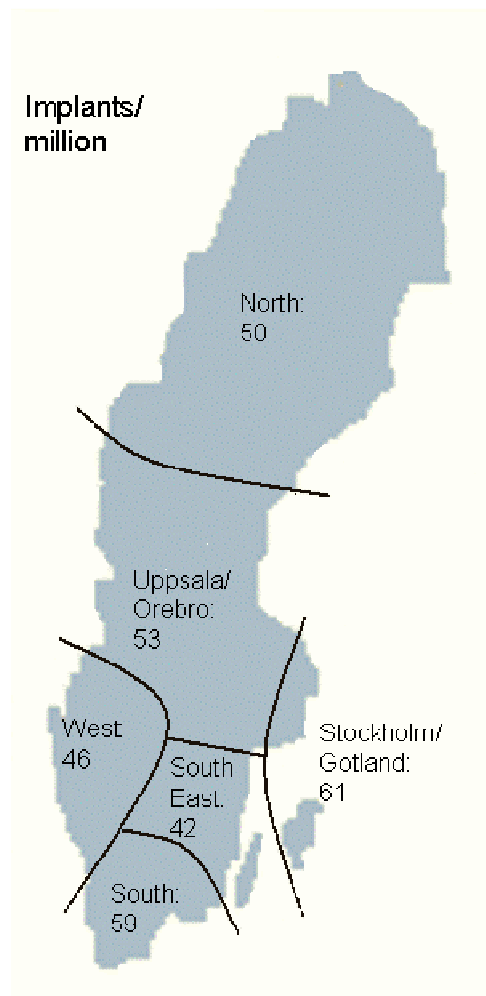
**ANNUAL IMPLANTATION RATE**


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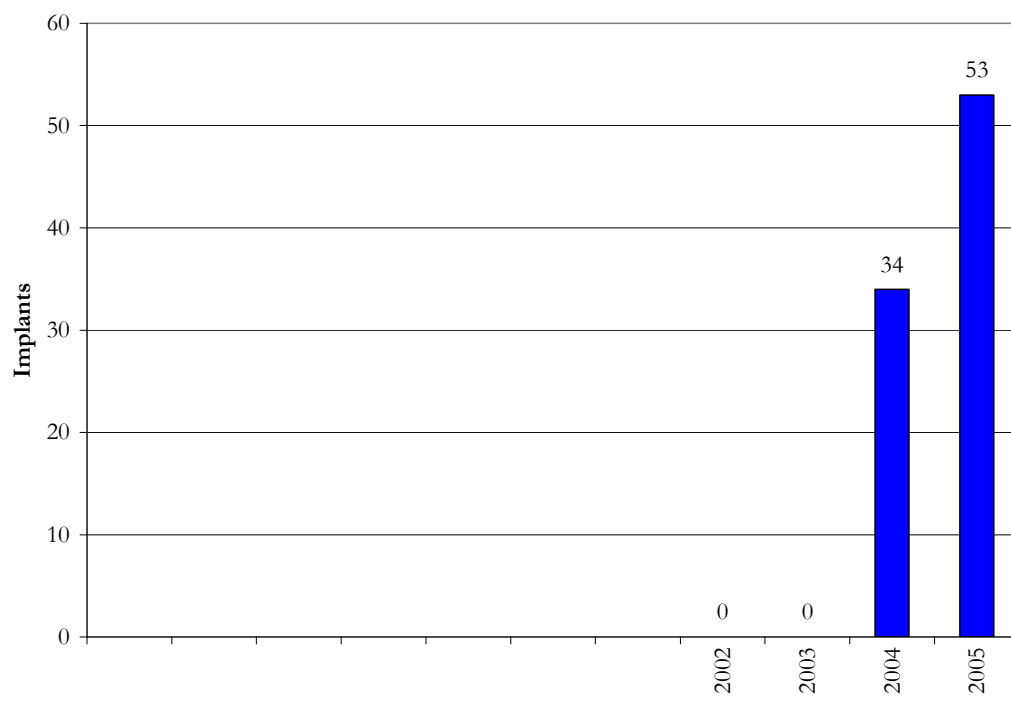
**NUMBER OF IMPLANTS LISTED PER REGION**

Region	Population	No of first implants	No / million	% BiV
Stockholm/Gotland	1 947 433	118	61	38,1
Western Sweden	1 692 694	78	46	25,6
Northern Sweden	880 156	44	50	22,7
Southern Sweden	1 620 232	95	59	26,3
Uppsala/Örebro	1 926 811	103*	53*	44,7*
Southeast Sweden	980 426	41	42	48,8
Total	9 047 752	479	53	34,7

\*including Uppsala



## NUMBER OF IMPLANTS / MILLION INHABITANTS 1970-2005



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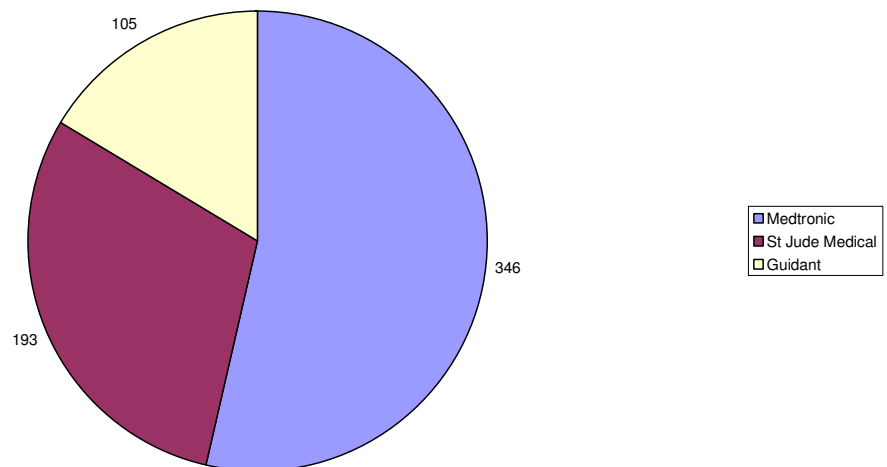
**DISTRIBUTION OF MANUFACTURERS**

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**ICD GENERATORS (% OF TOTAL)****ICD Generators**

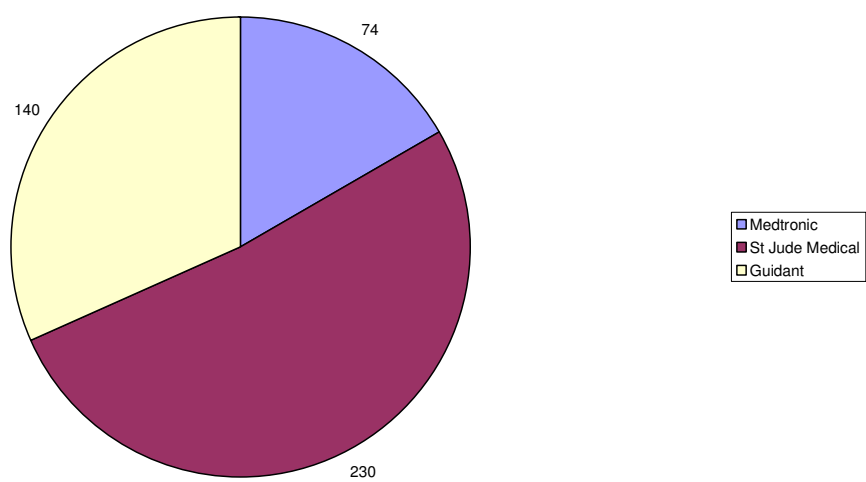
	2005	n=644*
	Numbers	%
Medtronic	346	53.7
St Jude Medical	193	30.0
Guidant	105	16.3

\* including Uppsala

**ICD Generators**

**ICD LEADS (% OF TOTAL)**

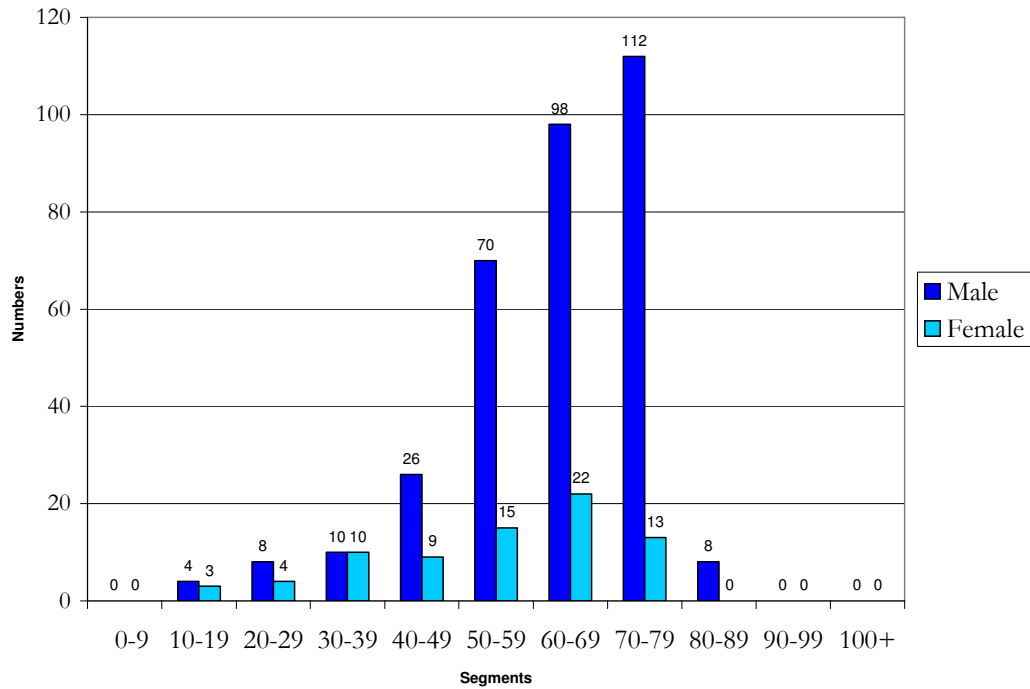
	2005	n=444
	Numbers	%
Guidant	74	16.7
Medtronic	230	51.8
St Jude Medical	140	31.5

**ICD Leads**

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**AGE DISTRUBITION - FIRST IMPLANT**


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**AGE DISTRIBUTION FOR MALES, FEMALES 2005**


Total number of implants 412

Age (Years)	Total no	%	Male	Female
0-9	0	0,0	0	0
10-19	7	1.7	4	3
20-29	12	2.9	8	4
30-39	20	4.8	10	10
40-49	35	8.5	26	9
50-59	85	20.6	70	15
60-69	120	29.1	98	22
70-79	125	30.3	112	13
80-89	8	1.9	8	0
90-99	0	0,0	0	0
100+	0	0,0	0	0
average	61,2		62,7	54,3

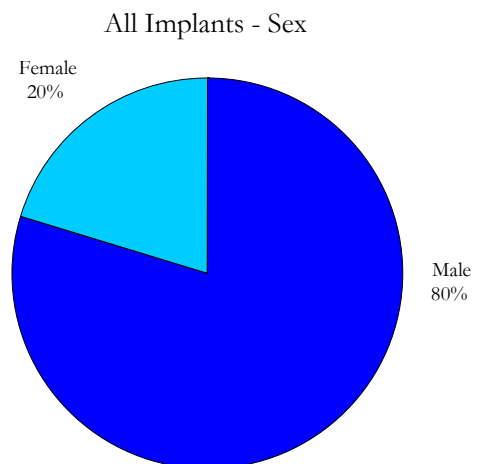
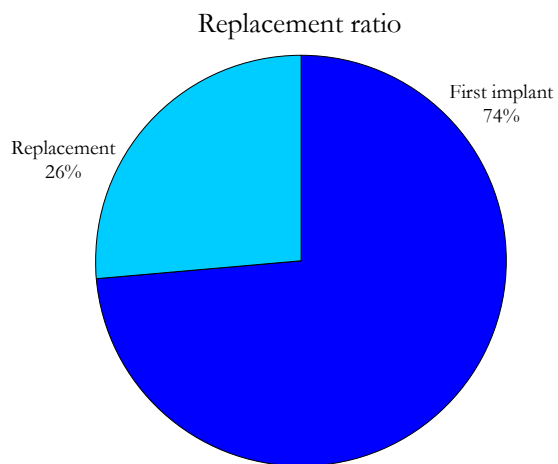
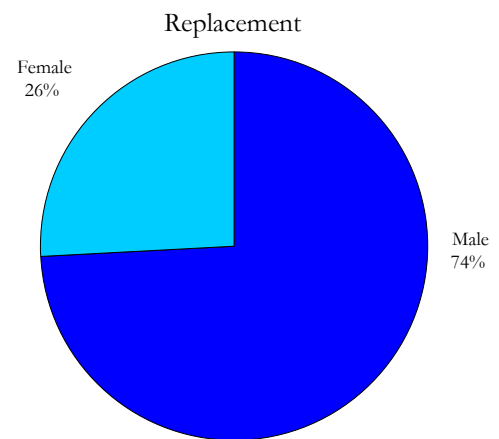
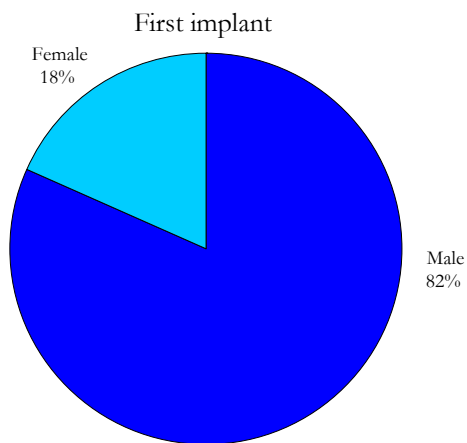


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**NUMBER OF IMPLANTS**


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	Total no	Male	Female
First implant	412	336	76
	73,7%	80%	20%
Replacement	147	109	38
	26,3%	75%	25%

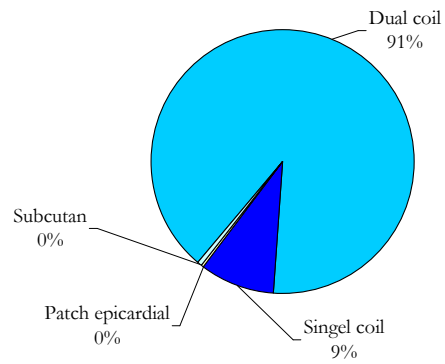


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**LEADS**

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Total number of implants 444		
	No	%
Dual coil	399	89,9
Singel coil	41	9,2
Patch epicardial	2	<1,0
Subcutan	2	<1,0
Passive fixation	214	48,2
Active fixation	230	51,8



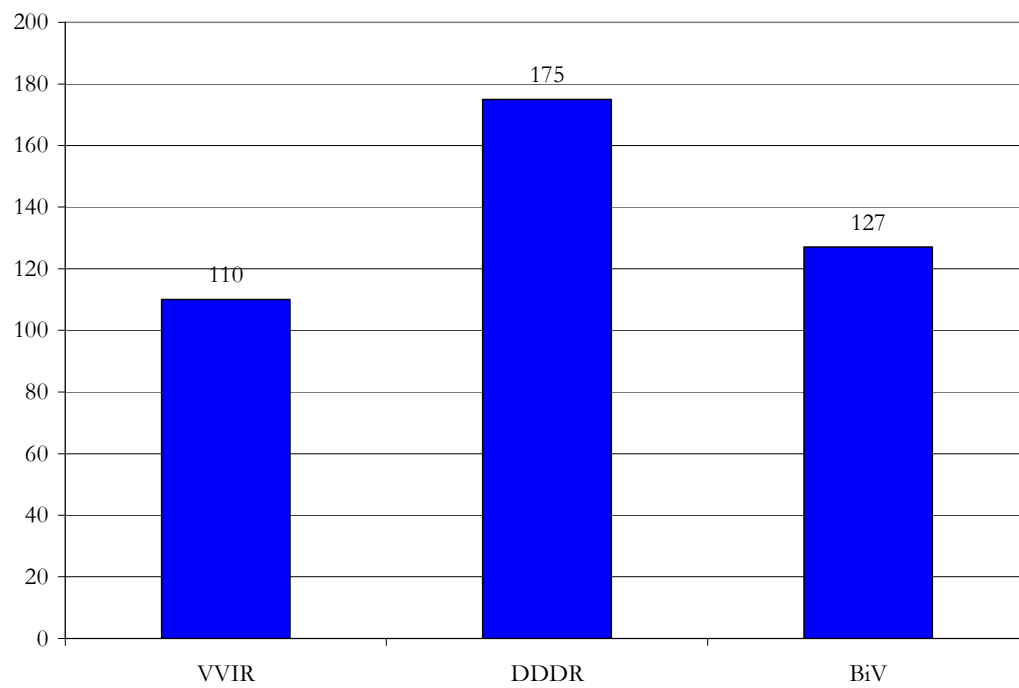
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**PACING MODE FIRST IMPLANT**

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Total number of implants 412

Mode	%	No
VVIR	26,7	110
DDDR	42,5	175
BiV	30,8	127



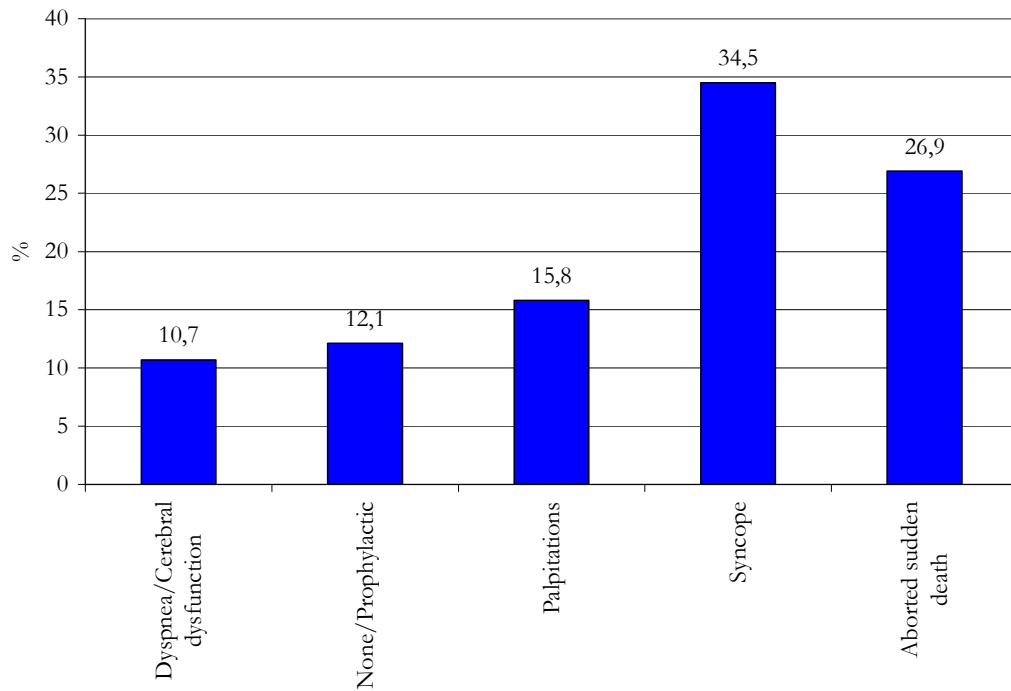
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**CLINICAL INDICATIONS - FIRST IMPLANT**

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Total number of implants 412

Indication	%
Dyspnea/Cerebral dysfunction	10,7
None/Prophylactic	12,1
Palpitations	15,8
Syncope	34,5
Aborted sudden death	26,9



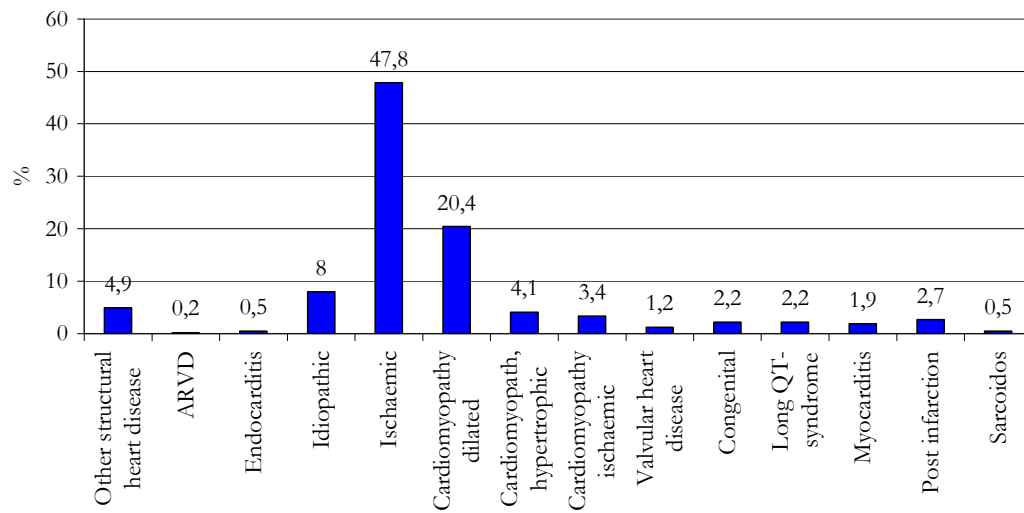
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**AETIOLOGY - FIRST IMPLANT**


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Total number of implants 412

Aetiology	%
Other structural heart disease	4,9
ARVD	0,2
Endocarditis	0,5
Idiopathic	8
Ischaemic	47,8
Cardiomyopathy dilated	20,4
Cardiomyopath, hypertrophic	4,1
Cardiomyopathy ischaemic	3,4
Valvular heart disease	1,2
Congenital	2,2
Long QT-syndrome	2,2
Myocarditis	1,9
Post infarction	2,7
Sarcoidos	0,5



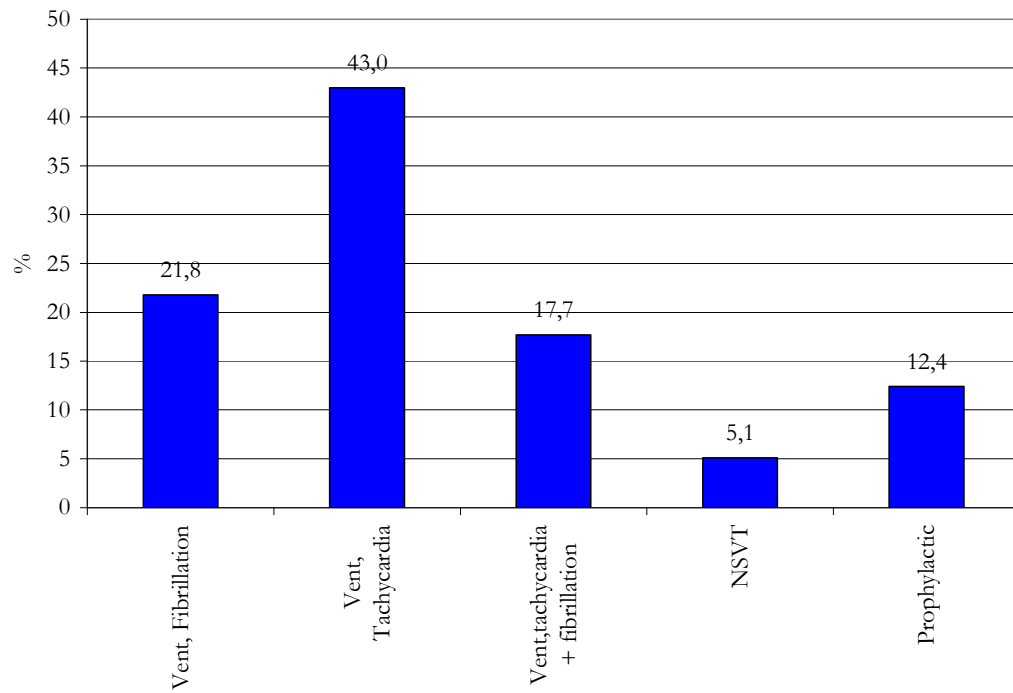
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**ECG INDICATIONS (TACHY) - FIRST IMPLANT**

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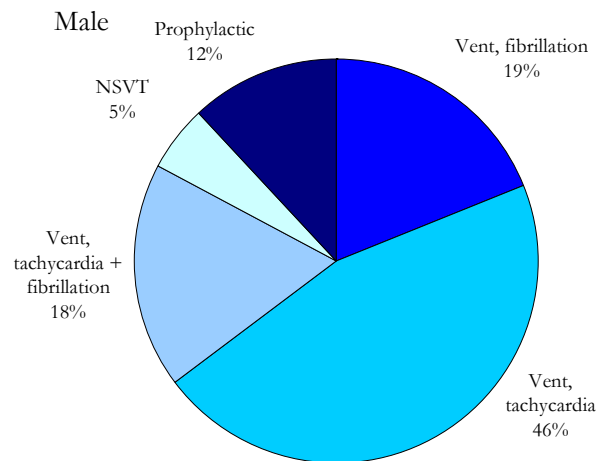
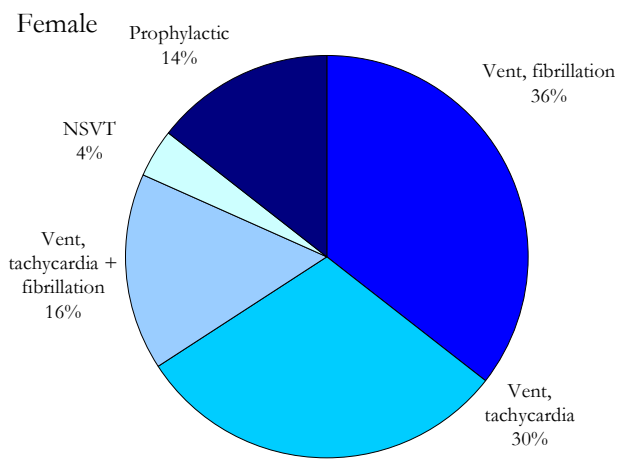
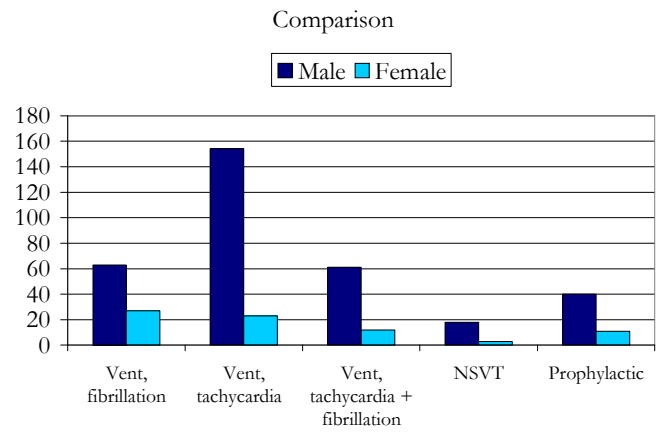
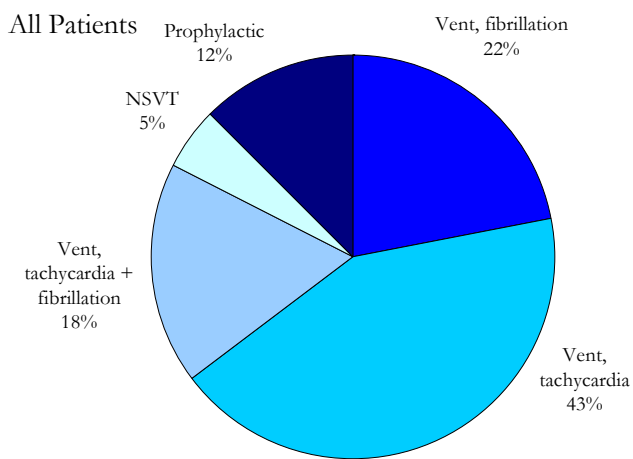
Total number of implants 412

indication	%
Vent, Fibrillation	21,8
Vent, Tachycardia	43,0
Vent,tachycardia + fibrillation	17,7
NSVT	5,1
Prophylactic	12,4



**PREPACING ECG (TACHY) – FIRST IMPLANT – SEX**

Prepacing ECG	No	%	Male	Female
Vent, fibrillation	90	21,8	63	27
Vent, tachycardia	177	43	154	23
Vent, tachycardia + fibrillation	73	17,7	61	12
NSVT	21	5,1	18	3
Prophylactic	51	12,4	40	11

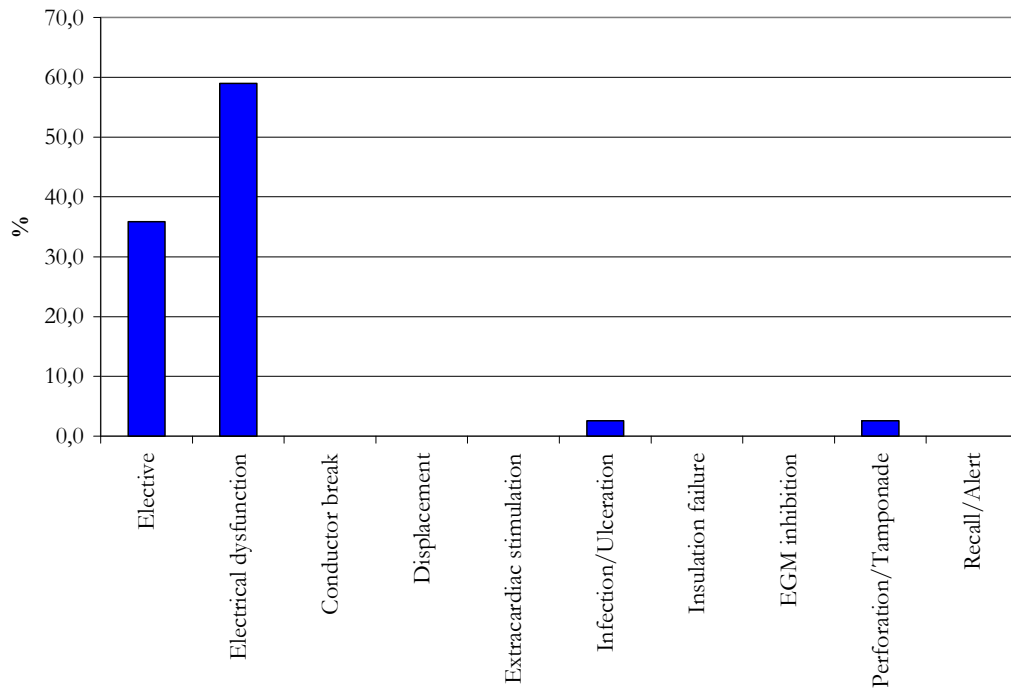


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**REASON FOR LEAD REPLACEMENT**


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Reason	%
Elective	35,9
Electrical dysfunction	59,0
Conductor break	-
Displacement	-
Extracardiac stimulation	-
Infection/Ulceration	2,6
Insulation failure	-
EGM inhibition	-
Perforation/Tamponade	2,6
Recall/Alert	-

**REASONS FOR LEAD REPLACEMENT - ALL HOSPITALS**


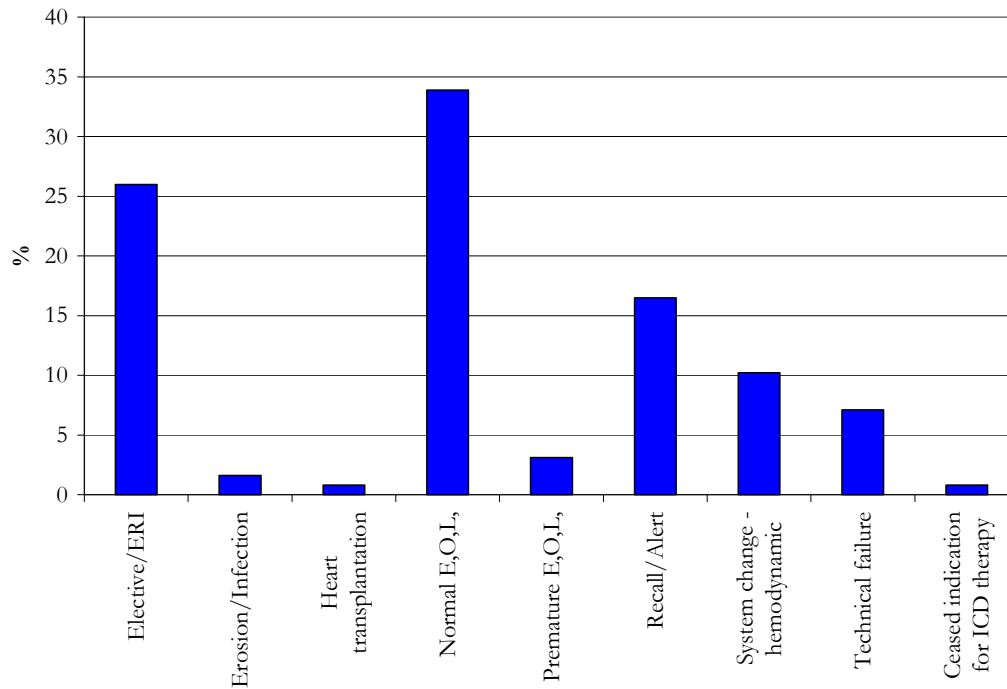


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**REASON FOR GENERATOR REPLACEMENT**


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Reason	%
Elective/ERI	26
Erosion/Infection	1,6
Heart transplantation	0,8
Normal E,O,L,	33,9
Premature E,O,L,	3,1
Recall/Alert	16,5
System change - hemodynamic	10,2
Technical failure	7,1
Ceased indication for ICD therapy	0,8

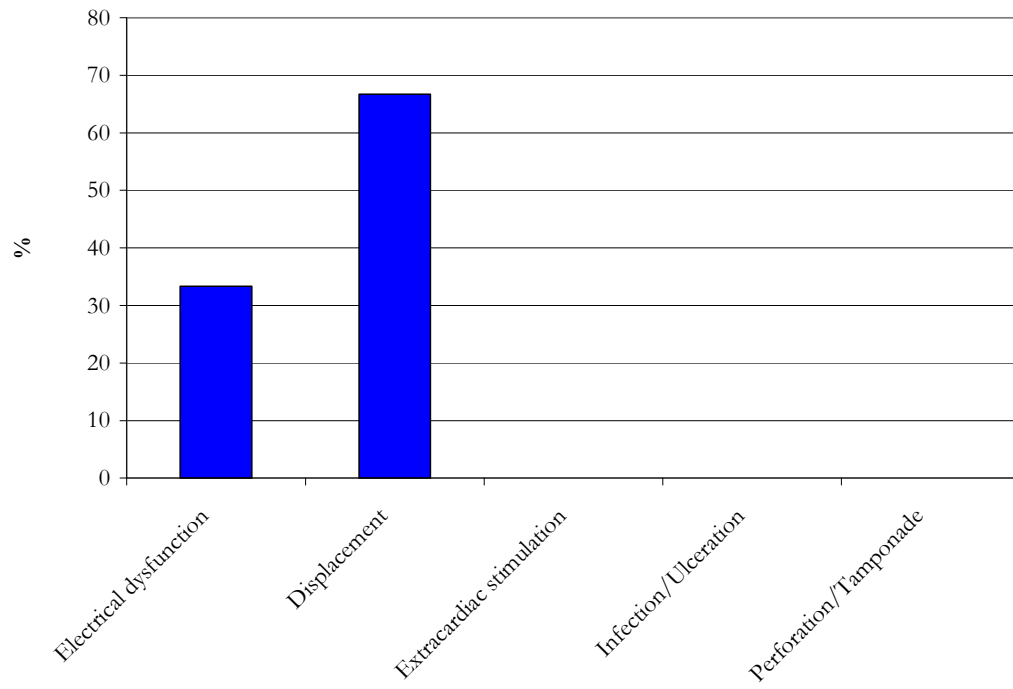
**REASON FOR GENERATOR REPLACEMENT- ALL HOSPITALS**


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**REASON FOR LEAD CORRECTION**

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REASON	ALL HOSPITALS	>200	75-200	<75
Electrical dysfunction	33,3	60	12,5	-
Displacement	66,7	40	87,5	-
Extracardiac stimulation	0,0	-	-	-
Infection/Ulceration	0,0	-	-	-

**REASON FOR LEAD CORRECTION - ALL HOSPITALS**

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**COMPLICATIONS TO INTERVENTIONS**

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Based on 634 (all implants) alternatively 446  
(first implant + lead replacement) validated events

COMPLICATION	%
Electrical dysfunction	2,9
Local bleeding	0,5
Perforation/Tamponad	0,2
Pneumothorax	0,9
Infection / Perforation	0,9
Electrode displacement	3,4
Other	2,7
Death	0,1
Total (58)	9,1

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**COMPLICATIONS TO INTERVENTIONS PER HOSPITAL**


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Hospital	Electrical dysfunction	Local bleeding	Perforation/Tamponad	Pneumothorax
Akademiska sjukhuset	-	-	-	-
Blekinge sjukhuset	-	-	-	-
Bollnäs sjukhus	-	-	-	-
Danderyds sjukhus	-	-	-	-
Karolinska Universitetssjukhuset Huddinge	4,3	-	-	-
Karolinska sjukhuset Solna	2,4	0,8	-	1,2
Linköpings Universitetssjukhus	-	-	-	3,2
Länssjukhuset Kalmar	-	-	-	-
Sahlgrenska sjukhuset	-	0,8	-	1,2
Södersjukhuset	-	-	-	-
Universitetssjukhuset Örebro	10,8	-	2,7	-
Universitetssjukhuset Lund	6,7	0,8	-	-
Universitetssjukhuset Umeå	-	-	-	2,2
Varbergs sjukhus	-	-	-	-
Östersunds sjukhus	-	-	-	-

Hospital	Infection/Perforation	Electrode displacement	Other	Death
Akademiska sjukhuset	-	-	-	-
Blekinge sjukhuset	-	-	-	-
Bollnäs sjukhus	-	-	-	-
Danderyds sjukhus	-	-	-	-
Karolinska Universitetssjukhuset Huddinge	-	4,3	8,8	2,9
Karolinska sjukhuset Solna	-	2,4	0,8	-
Linköpings Universitetssjukhus	-	3,2	2,6	-
Länssjukhuset Kalmar	-	7,7	-	-
Sahlgrenska sjukhuset	0,8	4,8	6,1	-
Södersjukhuset	-	-	-	-
Universitetssjukhuset Örebro	1,5	16,2	-	-
Universitetssjukhuset Lund	-	-	3,2	-
Universitetssjukhuset Umeå	3,9	-	-	-
Varbergs sjukhus	-	-	-	-
Östersunds sjukhus	-	-	-	-