

Registr REPACE

Výsledky za rok 2017

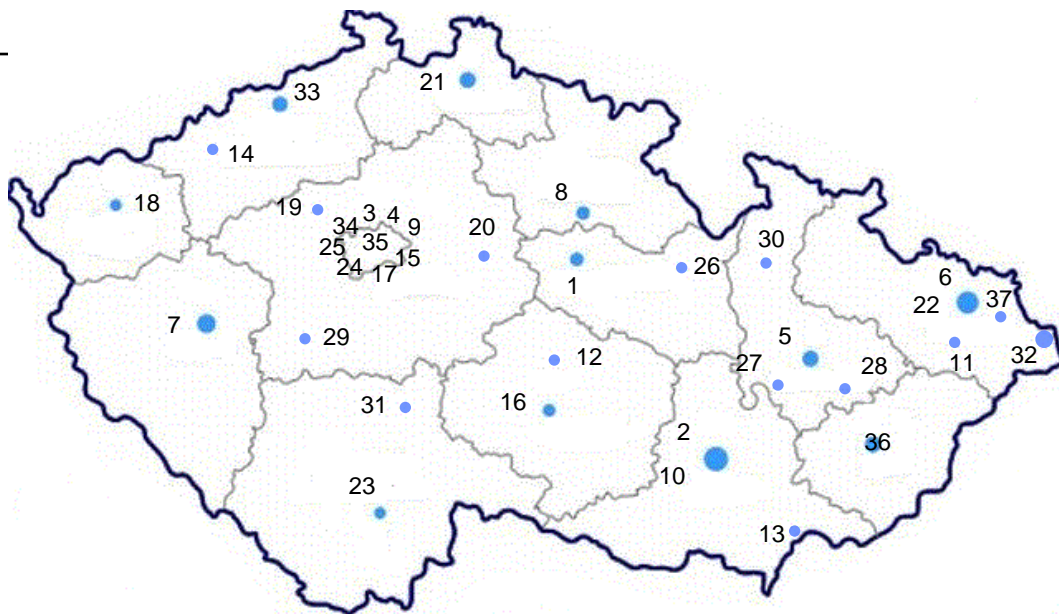
Miloš Tábořský

Ostrava 11.11.2018



PM centres

- 1 Kardiologické centrum AGEL a.s.
- 2 The University Hospital Brno – Dep. of Cardiology
- 3 The University Hospital Motol – Children´ Cardiocentre
- 4 The University Hospital Motol – Dep. of Cardiology
- 5 The University Hospital Olomouc – 1st Dep. of Medicine
- 6 The University Hospital Ostrava – Dep. of Cardiovascular Medicine
- 7 The University Hospital Plzeň – Dep. of Cardiology, arytmology
- 8 The University Hospital Hradec Králové – 1st Dep. of Internal Medicine
- 9 The University Hospital Královské Vinohrady – 3rd Dep. of Internal Medicine – Cardiology
- 10 The St. Anne's University Hospital Brno – Dep. of Cardiology
- 11 Hospital in Frýdek-Místek – Dep. of Internal Medicine
- 12 Hospital in Havlíčkův Brod – Dep. of Internal Medicine
- 13 TGM Hospital Hodonín – Centre of Cardiac Stimulation
- 14 Chomutov – Dep. of Internal Medicine
- 15 The Institute of Clinical and Experimental Medicine – Department of Cardiology
- 16 Jihlava – Dep. of Cardiology
- 17 The University Hospital Bulovka – Cardiology
- 18 Karlovy Vary – Kardiocentrum
- 19 Kladno – Dep. of Internal Medicine
- 20 Kolín – Dep. of Internal Medicine
- 21 Liberec – Cardio Centre
- 22 Ostrava City Hospital – Cardiology
- 23 Hospital in České Budějovice – Cardio Centre
- 24 (Hospital of Merciful Sisters – Dep. of Internal Medicine) – residual activity
- 25 Hospital „Na Homolce“ – Dep. of Cardiology
- 26 Hospital in Ústí nad Orlicí – Dep. of Internal Medicine



- 27 Prostějov – Dep. of Internal Medicine
- 28 Přerov – Dep. of Internal Medicine
- 29 Příbram – Dep. of Internal Medicine
- 30 Šumperk – Dep. of Internal Medicine
- 31 Tábor – Dep. of Internal Medicine
- 32 Třinec – Cardio Centre
- 33 Ústí nad Labem – Dep. of Cardiology
- 34 ÚVN – Dep. of Cardiology
- 35 The General University Hospital in Prague – 2nd Dep. of Internal Cardiovascular Medicine
- 36 Zlín – Dep. of Internal Medicine
- 37 Havířov Hospital – Dep. of Internal Medicine



PM centres – number of records

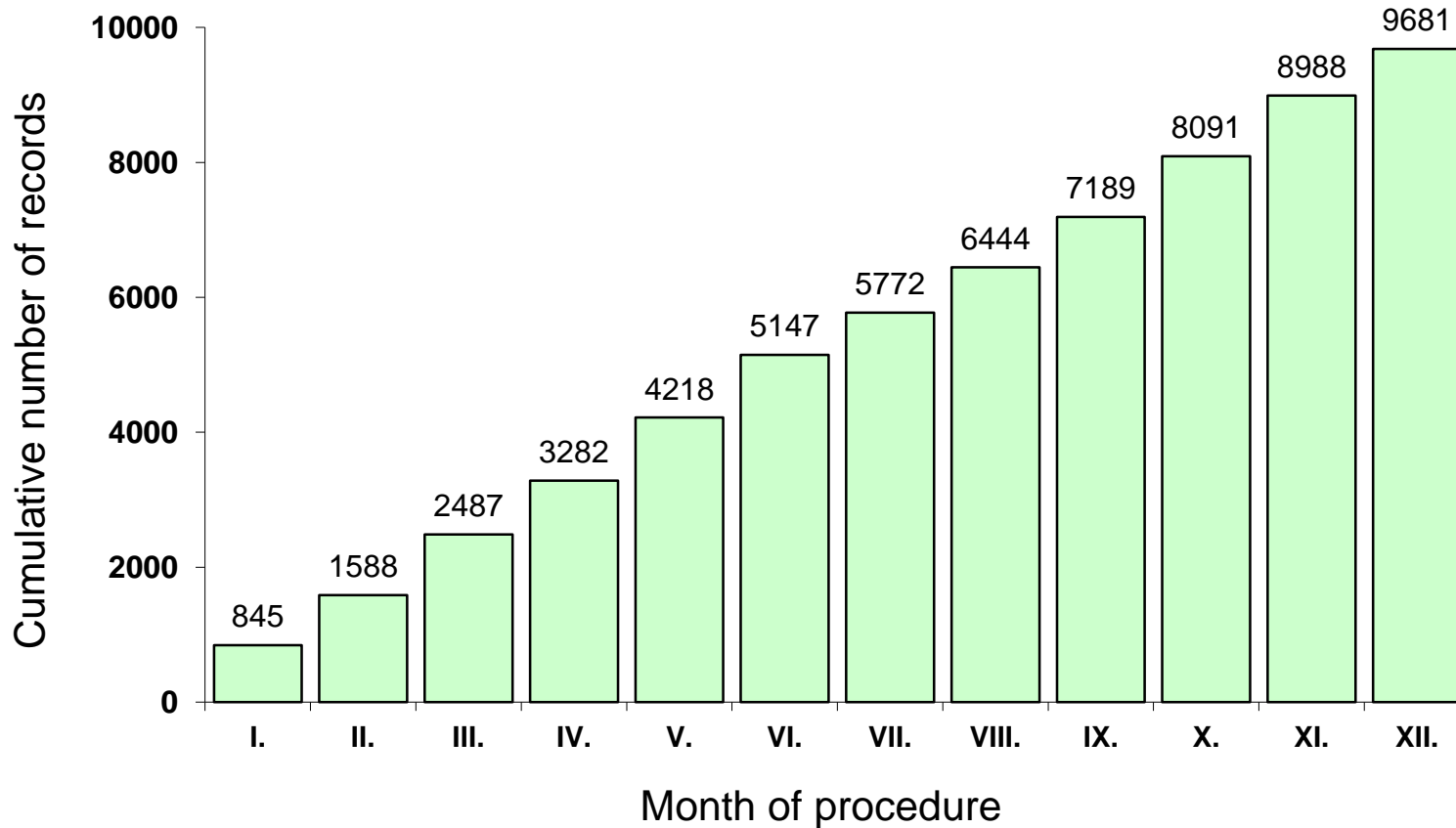
Base: All records 2017 (N = 9 681)

Centre/procedure type	Primo-implantation (N = 7 125)	Re-implantation (N = 2 298)	Upgrade (N = 133)	Explantation (N = 29)	Electrode surgery (N = 87)	Other surgery (N = 9)	Total (N=9 681)
Nemocnice Na Homolce - Kardiologické odd.	392	152	4	8	5	–	561
FN Brno - Kardiologická klinika	412	138	3	–	–	–	553
IKEM Praha - Kardiologická klinika	330	132	29	14	13	2	520
FNUSA Brno - Kardiologická klinika	334	133	3	–	–	–	470
FN Plzeň - Kardiologické odd.	328	131	1	1	1	–	462
Liberec - Kardiocentrum	344	69	6	1	4	–	424
FN Ostrava - Kardiovaskulární odd.	336	84	2	–	1	–	423
FNHK - 1. IK	300	88	18	–	2	2	410
Třinec - Podlesí - kardiocentrum	356	43	1	1	–	–	401
FN Olomouc - I. interní klinika - kardiologická	314	63	13	–	–	–	390
FNKV Praha – III.interní - kardiologická klinika	291	72	13	2	–	–	378
Kardiologické centrum AGEL a.s.	258	92	2	1	14	–	367
Nemocnice České Budějovice - kardiocentrum	244	95	5	–	–	–	344
Zlín - Interní klinika	272	53	8	–	3	–	336
VFN Praha - II.IK - Kardiologická klinika	181	131	9	–	1	–	322
Kardiologie na Bulovce, s.r.o.	201	80	–	–	14	1	296
Městská nemocnice Ostrava - Kardiologie	216	52	5	–	3	2	278
ÚnL - Kardiologické odd.	177	55	1	–	2	–	235
ÚVN - Kardiologické odd.	126	99	4	–	5	–	234
FN Motol - Kardiologické oddělení	162	54	4	–	7	1	228
Kladno - Interní odd.	153	56	–	–	–	–	209
Karlovy Vary nemocnice - Kardiocentrum	170	38	–	–	–	–	208
Kolín - Interní odd.	127	67	–	–	2	–	196
Tábor - Interní odd.	131	55	1	–	3	–	190
Jihlava - Kardiologické odd.	143	30	–	–	3	–	176
Přerov - Interní odd.	134	19	–	–	–	–	153
Hodonín - Kardiostimul.centrum Nem. TGM p.o.	114	36	–	–	1	–	151
Frýdek Místek - Interní oddělení	118	23	–	–	1	–	142
Orlickoústecká nemocnice - interní odd.	118	17	–	–	–	–	135
Chomutov - Interní odd.	75	36	–	–	–	–	111
Šumperk - Interní odd.	91	15	–	–	1	–	107
Prostějov - Interní odd.	69	29	–	–	1	–	99
Příbram - Interní oddělení	44	33	–	1	–	1	79
Havlíčkův Brod - Interní oddělení	52	20	–	–	–	–	72
FN Motol - Dětské kardiocentrum	12	8	1	–	–	–	21



Cumulative number of records in time

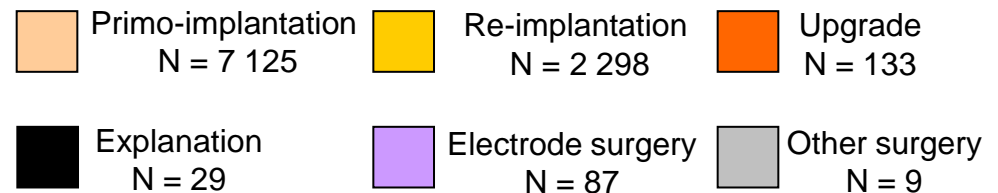
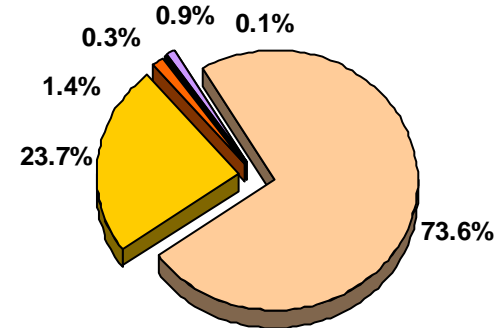
There are **9 681** records for year 2017.



Number of records according to procedure type

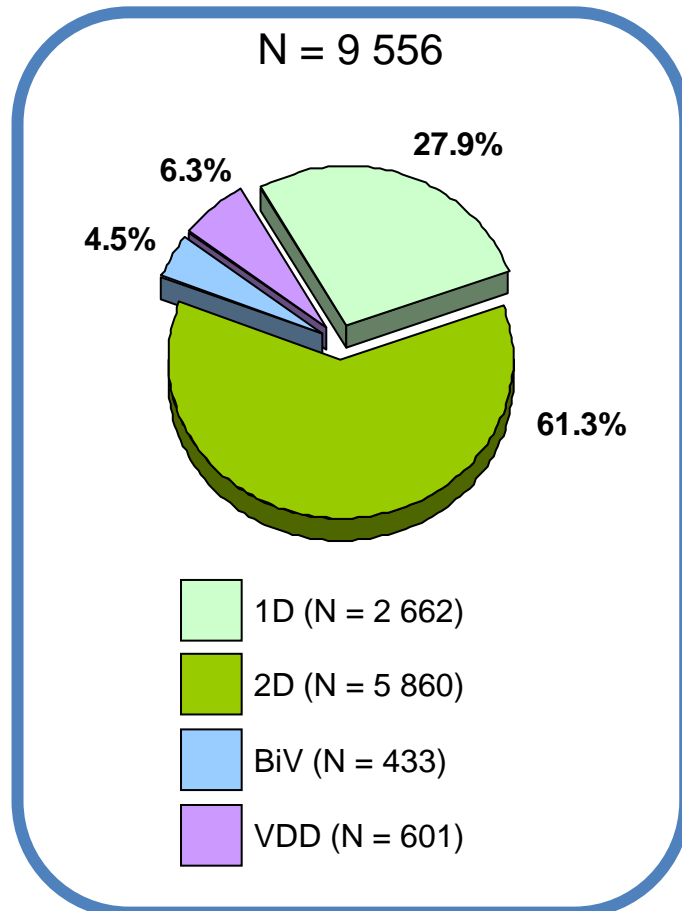
Procedure type	N	%
<i>Primo-implantation</i>	7 125	73.6
<i>Re-implantation</i>	2 298	23.7
<i>Upgrade</i>	133	1.4
<i>Explantation</i>	29	0.3
<i>Electrode substitution</i>	43	0.4
<i>Electrode reposition</i>	28	0.3
<i>Electrode extraction</i>	16	0.2
<i>Other surgery</i>	9	0.1
Total	9 681	100.0

Procedure type aggregation

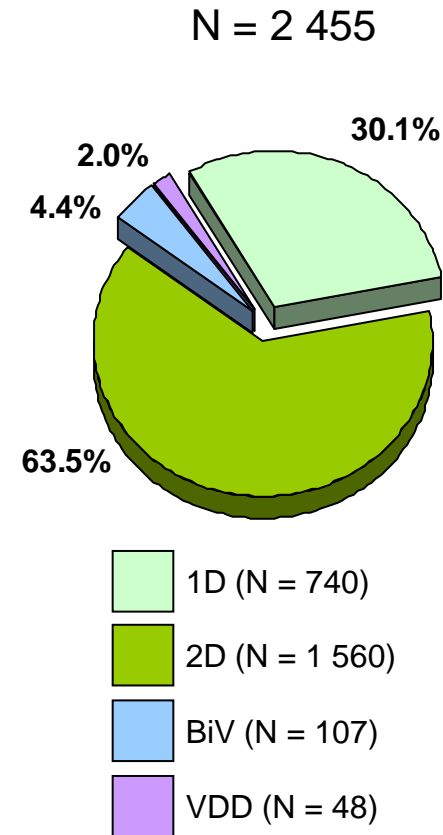


Implanted and explanted devices – device type

Implanted devices



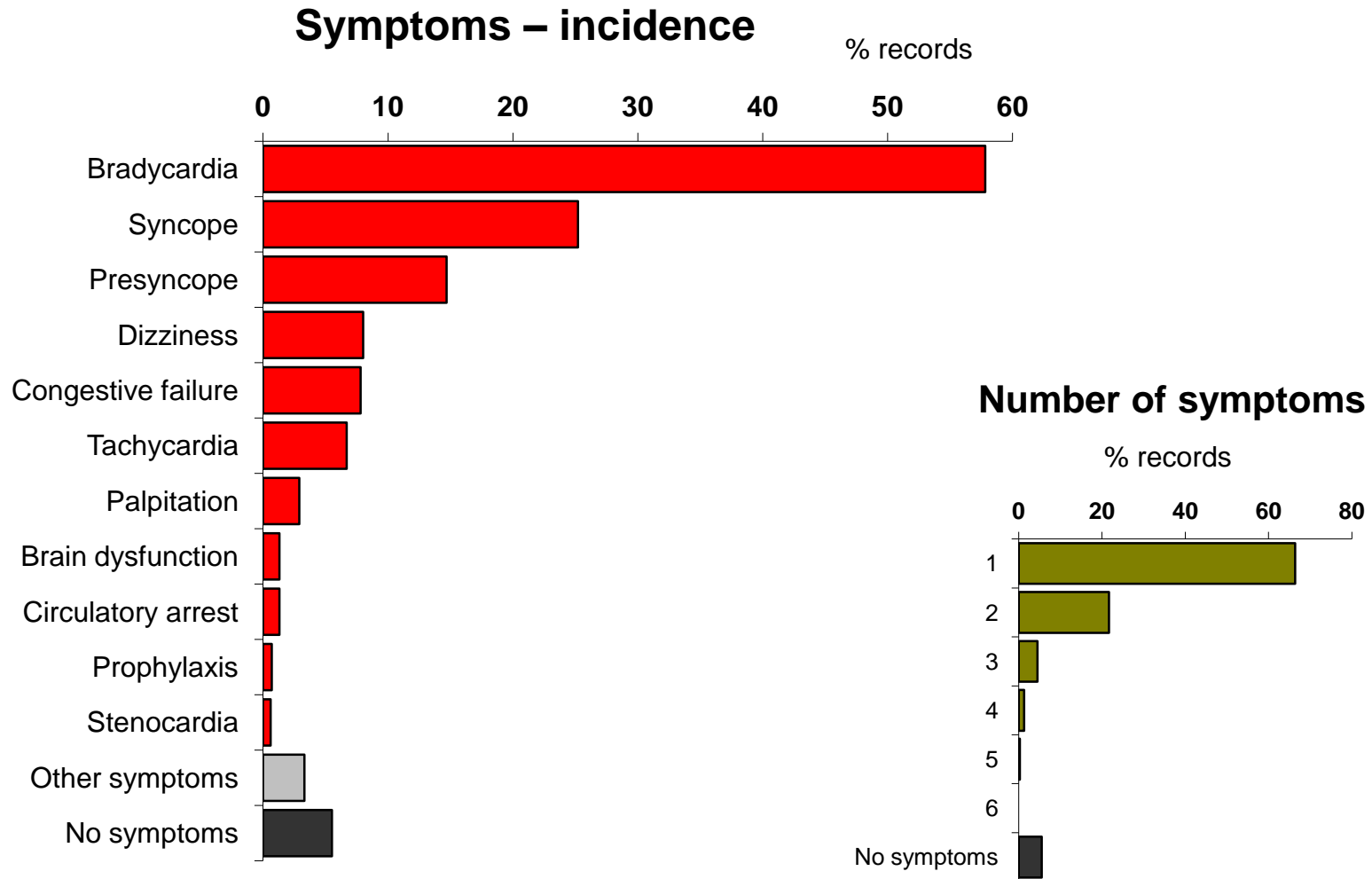
Explanted devices



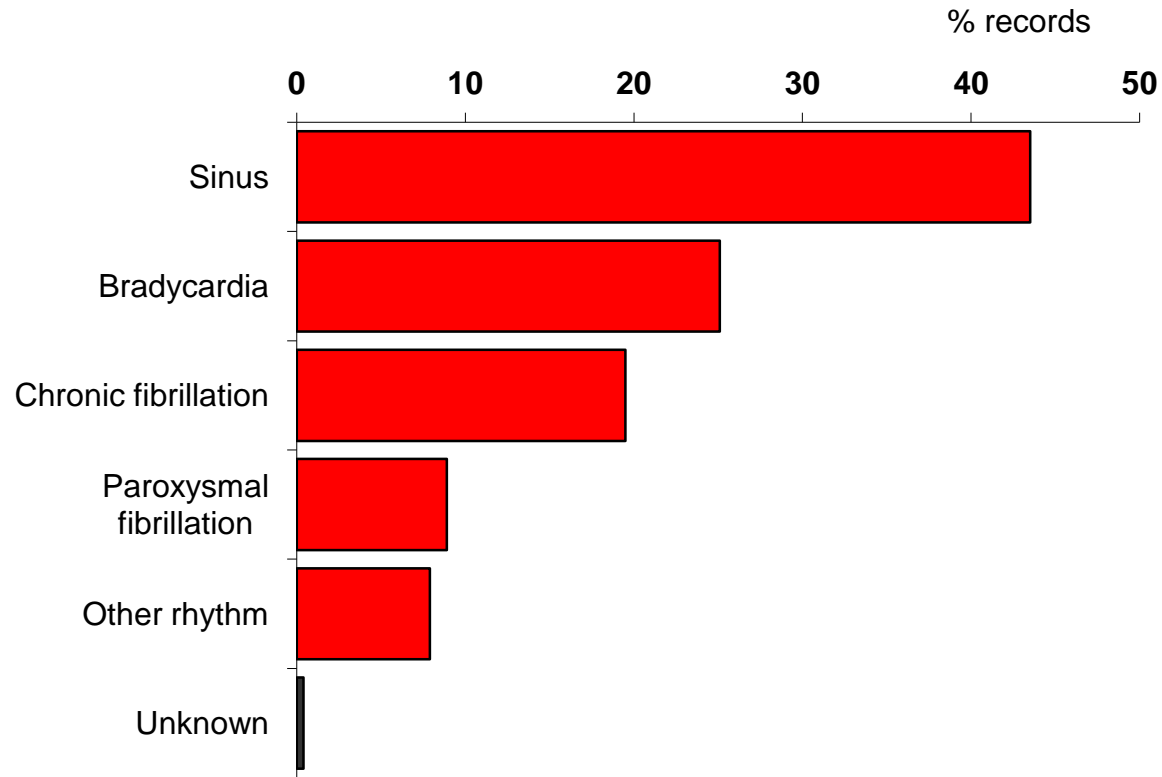
2D pacemaker is the most used device. It prevails among implanted also explanted devices.



Indications for implantable PM – symptoms

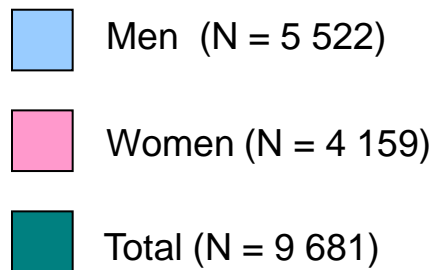
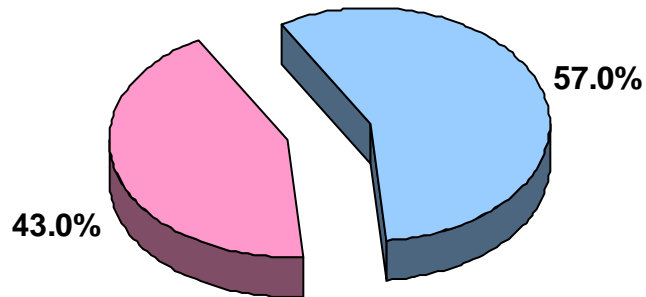


Indications for implantable PM – heart rhythm before procedure

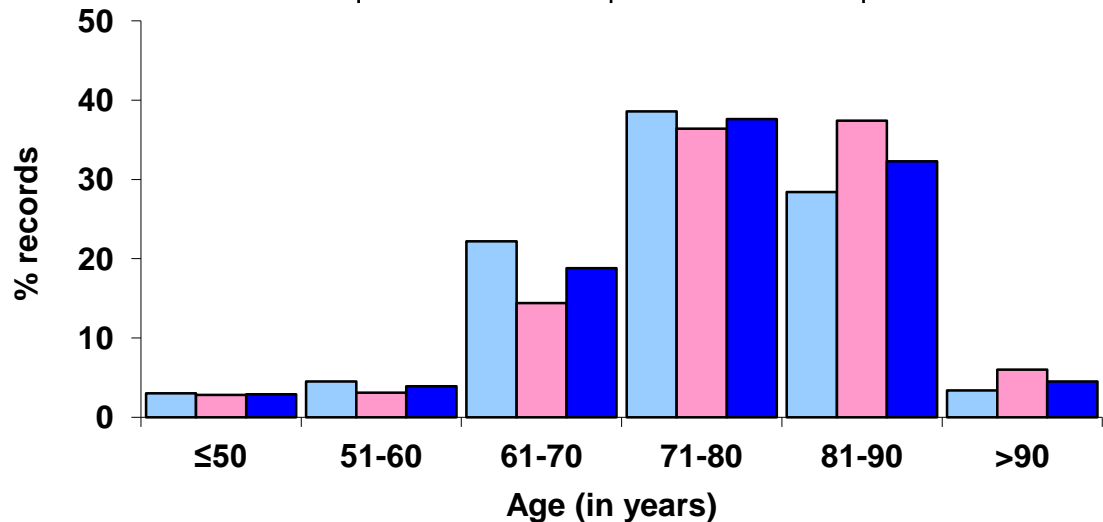


Patients sex and age in time of surgery

Patients according to sex



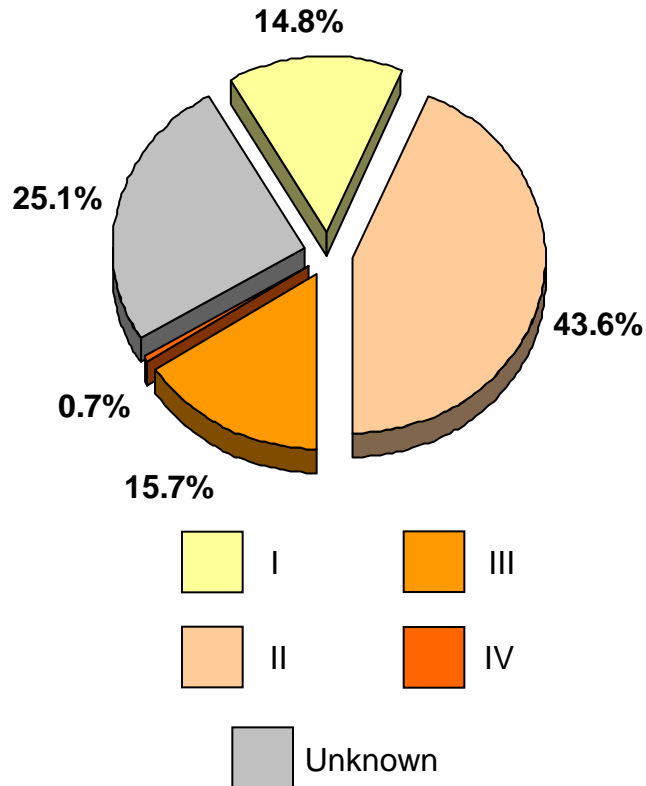
Age in time of surgery	Total	Women	Men
Mean (95% CI)	75.8 (75.6–76.0)	77.2 (76.8–77.5)	74.7 (74.4–75.0)
Median (5–95% percentile)	77 (58–90)	79 (59–91)	76 (57–89)
Minimum	0	0	0
Maximum	104	104	98



NYHA class and LV EF

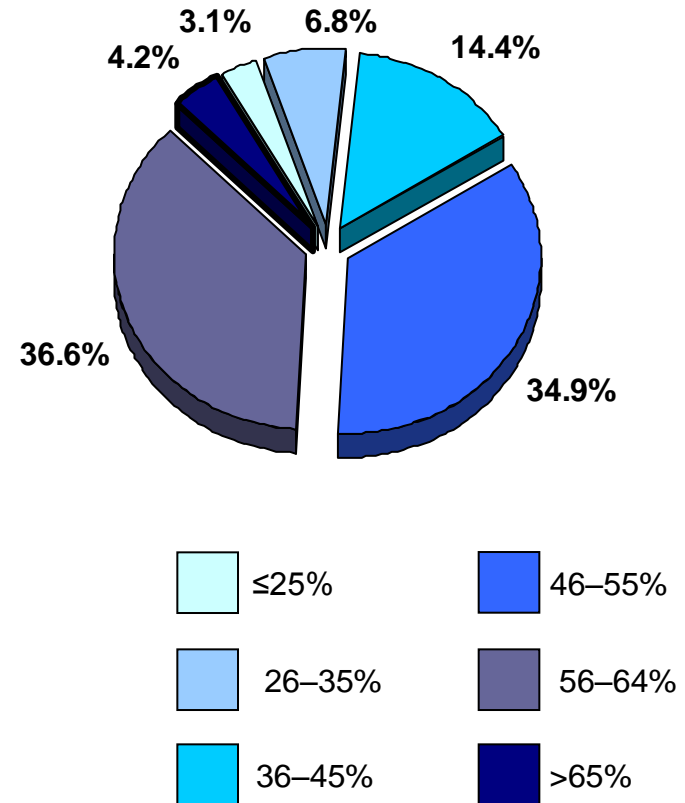
NYHA

N = 9 681



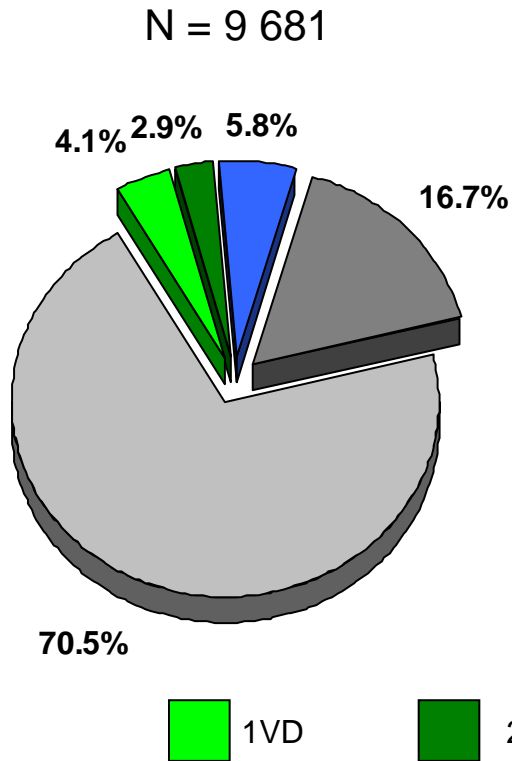
Ejection fraction (without unknown)

N = 2 714

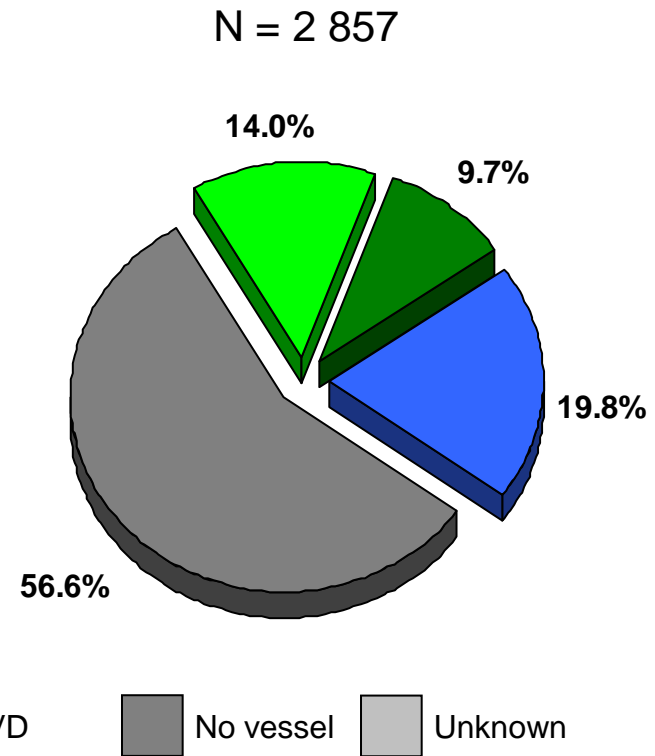


CAD

Vessel disease (with unknown)

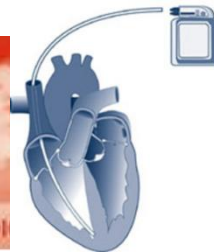
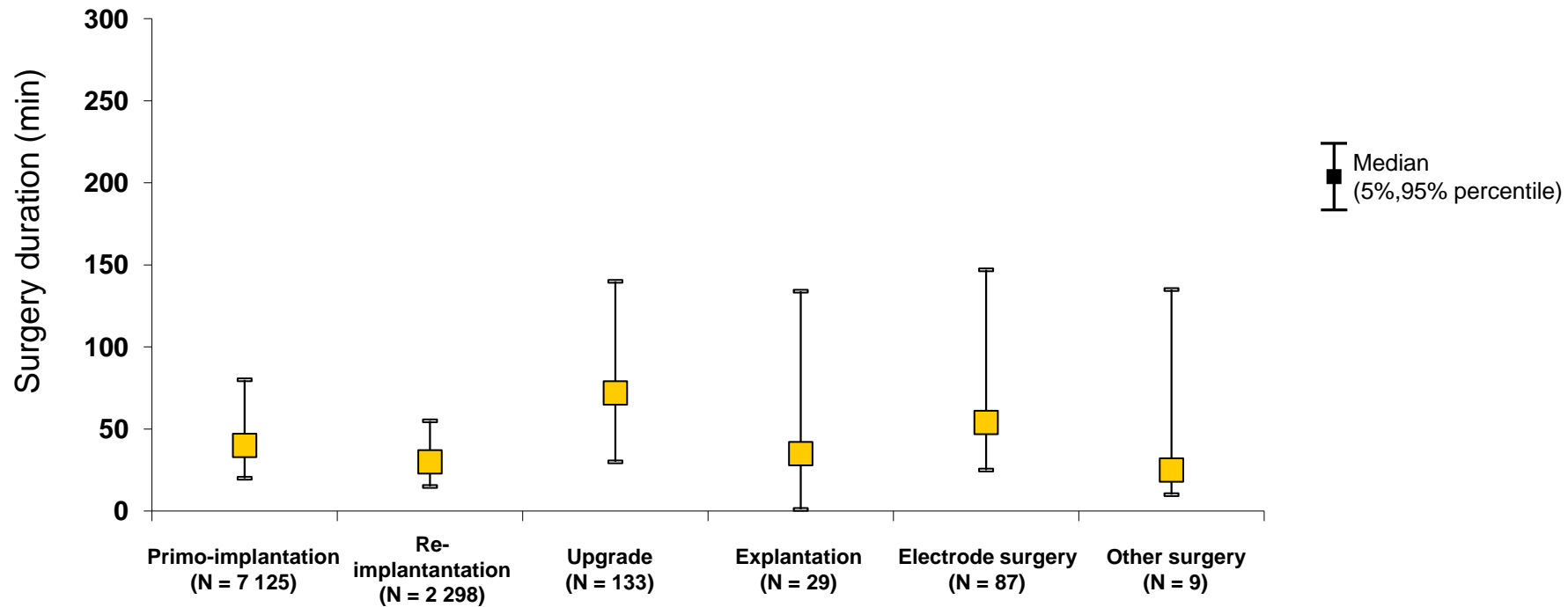


Vessel disease (without unknown)



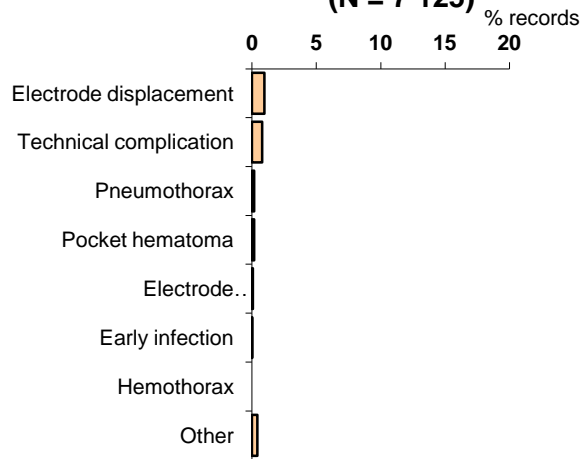
Procedure duration

Time (minutes)	Primo-implantation (N = 7 125)	Re-implantation (N = 2 298)	Upgrade (N = 133)	Explantation (N = 29)	Electrode surgery (N = 87)	Other surgery (N = 9)
5% percentile	20	15	30	1	25	10
Median	40	30	72	35	54	25
95% percentile	80	55	140	134	147	135

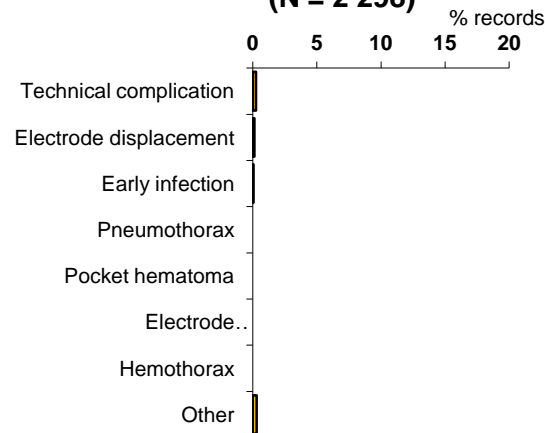


Procedure complications

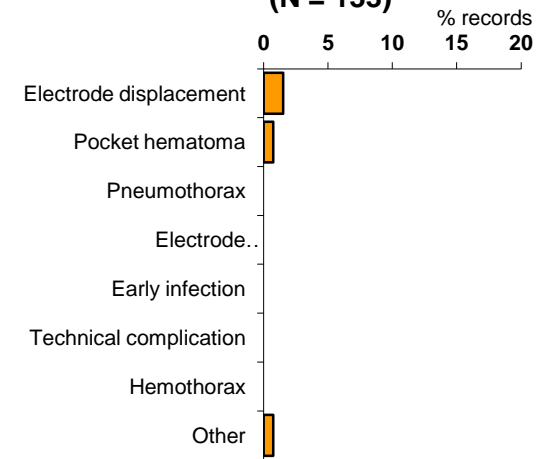
Primo-implantation
(N = 7 125)



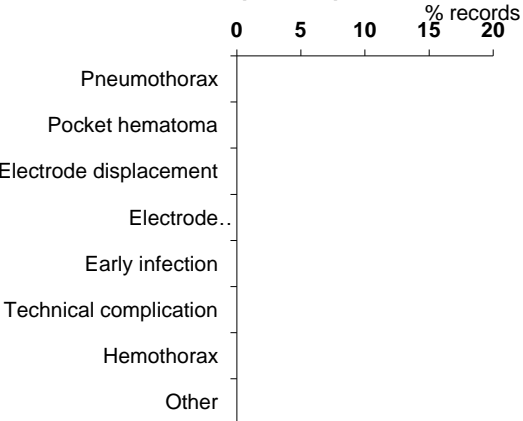
Re-implantation
(N = 2 298)



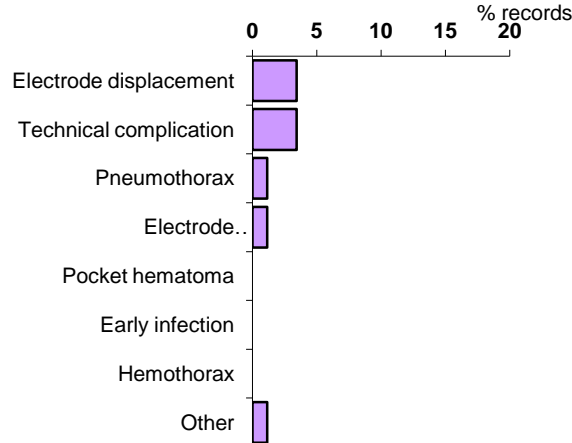
Upgrade
(N = 133)



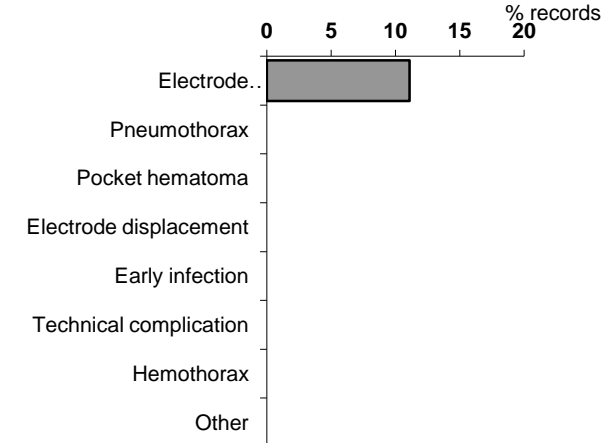
Explantation
(N = 29)



Electrode surgery
(N = 87)



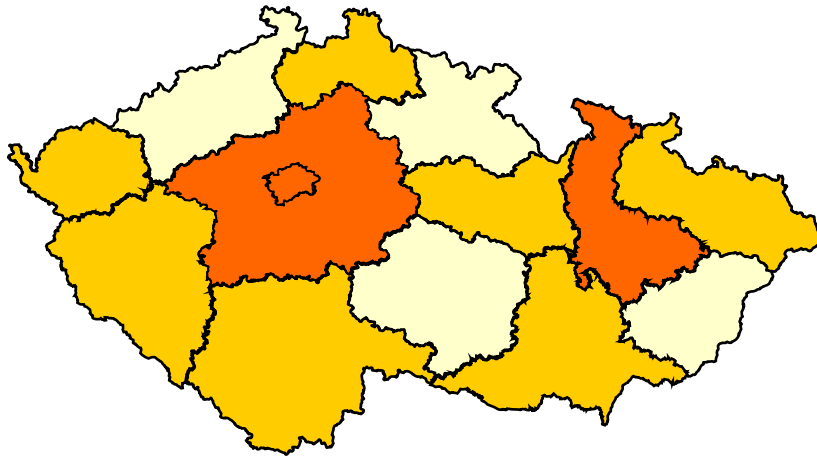
Other surgery
(N = 9)



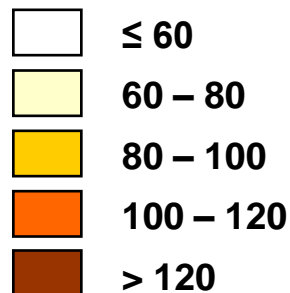
Surgery complications are quite rare. There are almost no complications during primo- or re-implantation.



Incidence according to patients region



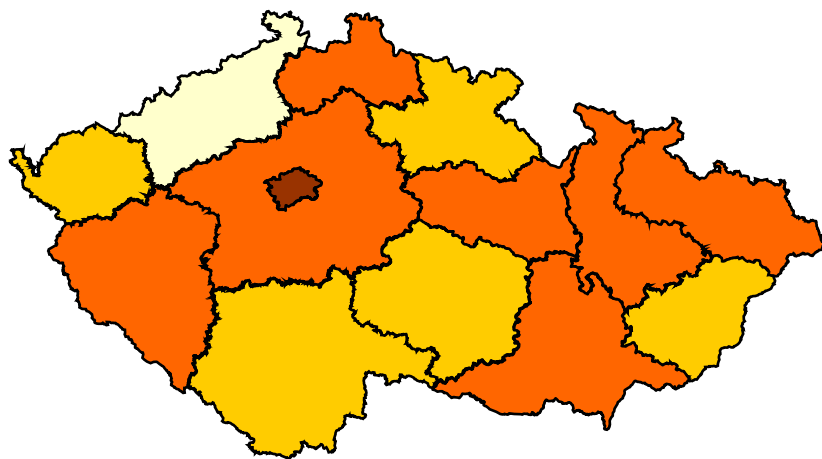
Incidence
(per 100 000 population per year):



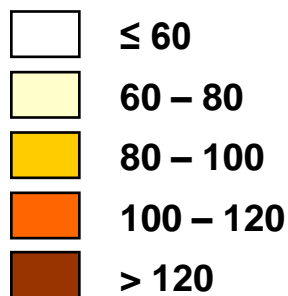
Region	Records		
	N	%	N/100 000 popul.
Praha hl. m.	1370	14.3	108 / 7
Olomoucký	653	6.8	103/ 3
Středočeský	1355	14.1	102
Pardubický	512	5.3	99
Moravskoslezský	1187	12.4	98
Liberecký	411	4.3	93
Jihomoravský	1079	11.2	92
Karlovarský	246	2.6	83
Jihočeský	516	5.4	81
Plzeňský	464	4.8	80
Zlínský	444	4.6	76
Královehradecký	414	4.3	75
Vysočina	376	3.9	74
Ústecký	513	5.3	62
Abroad / unknown	54	0.6	
Total	9 594	100.0	



Incidence according to patients region - men



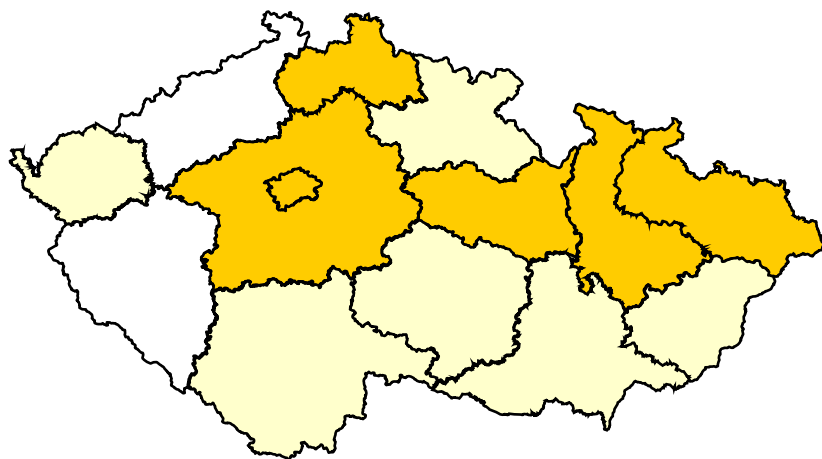
Incidence
(per 100 000 population per year):



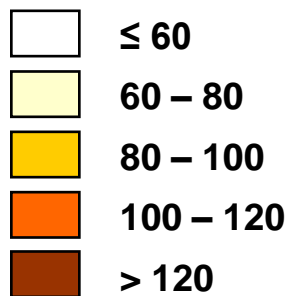
Region	Records		
	N	%	N/100 000 popul.
Praha hl. m.	798	14.6	129
Středočeský	780	14.3	119
Pardubický	297	5.4	116
Moravskoslezský	686	12.5	116
Olomoucký	356	6.5	115
Jihomoravský	619	11.3	107
Liberecký	226	4.1	105
Plzeňský	293	5.4	102
Karlovarský	140	2.6	95
Královehradecký	231	4.2	85
Jihočeský	262	4.8	83
Zlínský	231	4.2	81
Vysočina	201	3.7	80
Ústecký	310	5.7	76
Abroad / unknown	38	0.7	
Total	5 468	100	



Incidence according to patients region - women



**Incidence
(per 100 000 population per year):**



Region	Records		
	N	%	N/100 000 popul.
Olomoucký	297	7.2	92
Praha hl. m.	572	13.9	87
Středočeský	575	13.9	85
Liberecký	185	4.5	83
Pardubický	215	5.2	82
Moravskoslezský	501	12.1	81
Jihočeský	254	6.2	79
Jihomoravský	460	11.1	77
Zlínský	213	5.2	71
Karlovarský	106	2.6	70
Vysočina	175	4.2	68
Královesradercký	183	4.4	65
Plzeňský	171	4.1	59
Ústecký	203	4.9	49
Abroad / unknown	16	0.4	
Total	4 126	100	



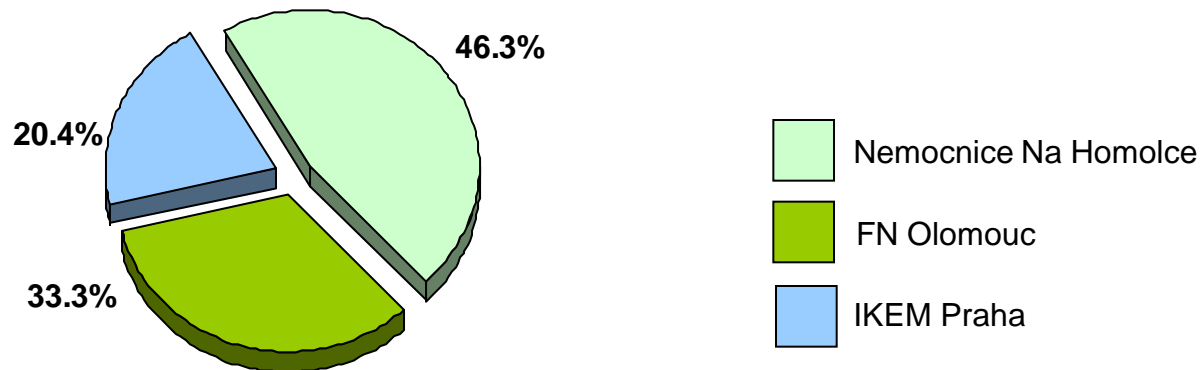
Leadless pacing



ČESKÁ KARDIOLOGICKÁ SPOLEČNOST

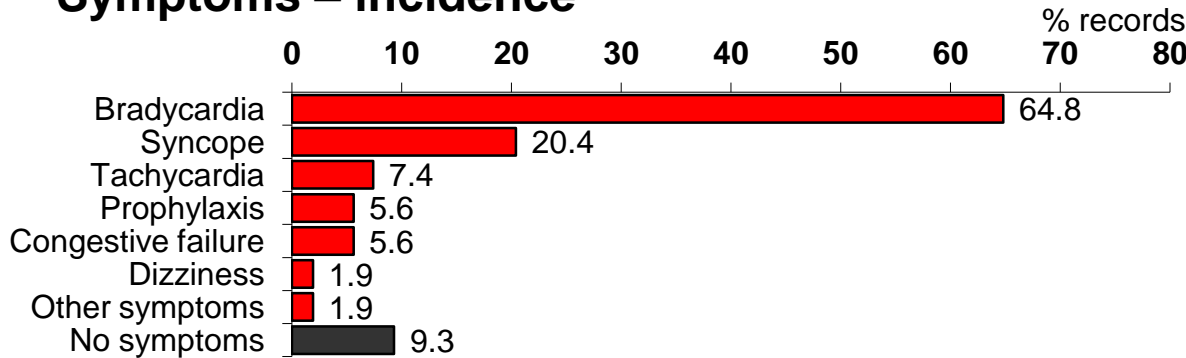
Implantation of leadless PM

Centre	N	%
Nemocnice Na Homolce - Kardiologické odd	25	46.3
FN Olomouc - I. interní klinika - kardiologická	18	33.3
IKEM Praha – Kardiologická klinika	11	20.4
Total	54	100.0

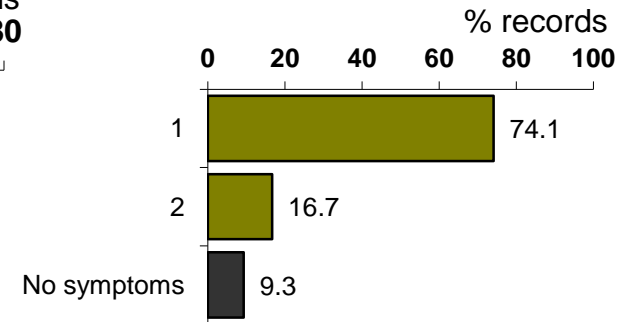


Indications for implantable Leadless PM

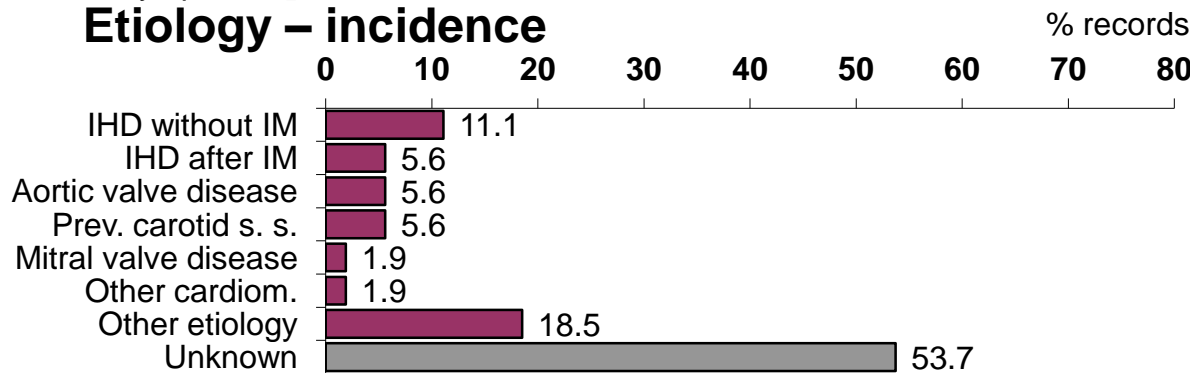
Symptoms – incidence



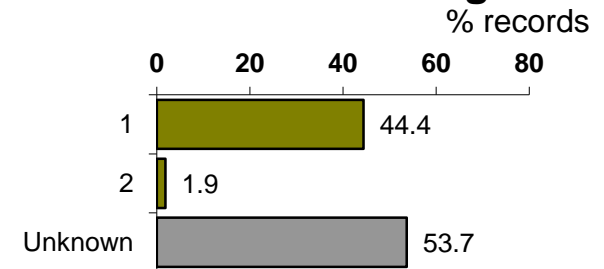
Number of symptoms



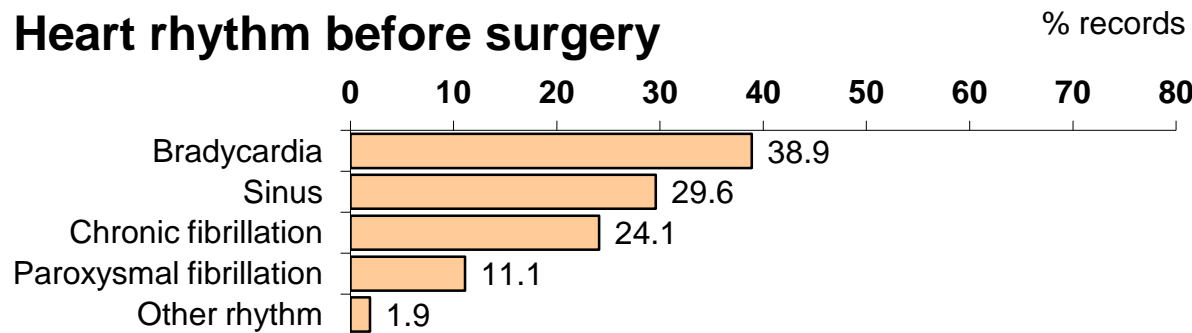
Etiology – incidence



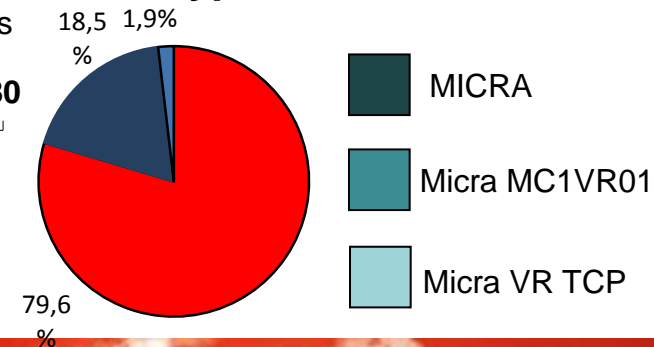
Number of etiologies



Heart rhythm before surgery

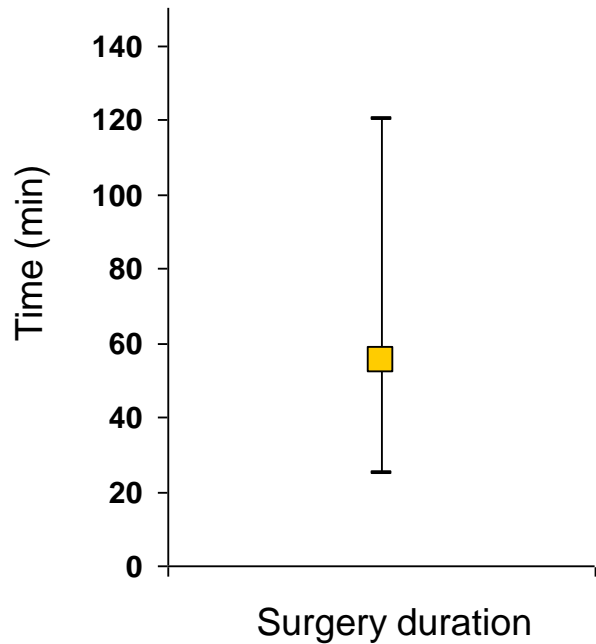


Type of PM

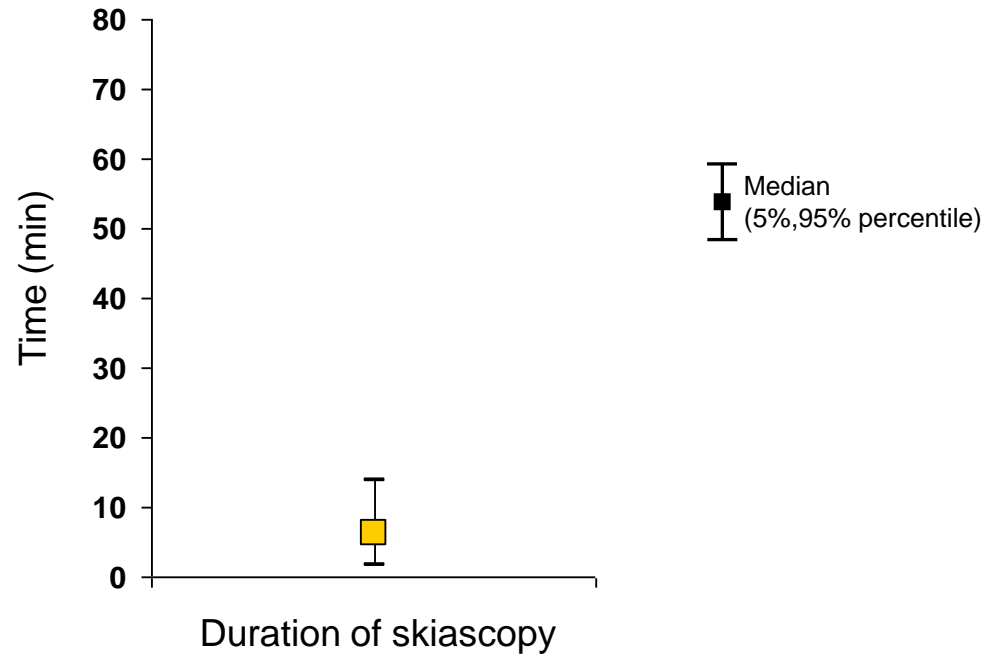


Procedure duration and duration of skiascopy

Time (minutes)	Surgery duration
N	54
5% percentile	25
Median	55
95% percentile	120

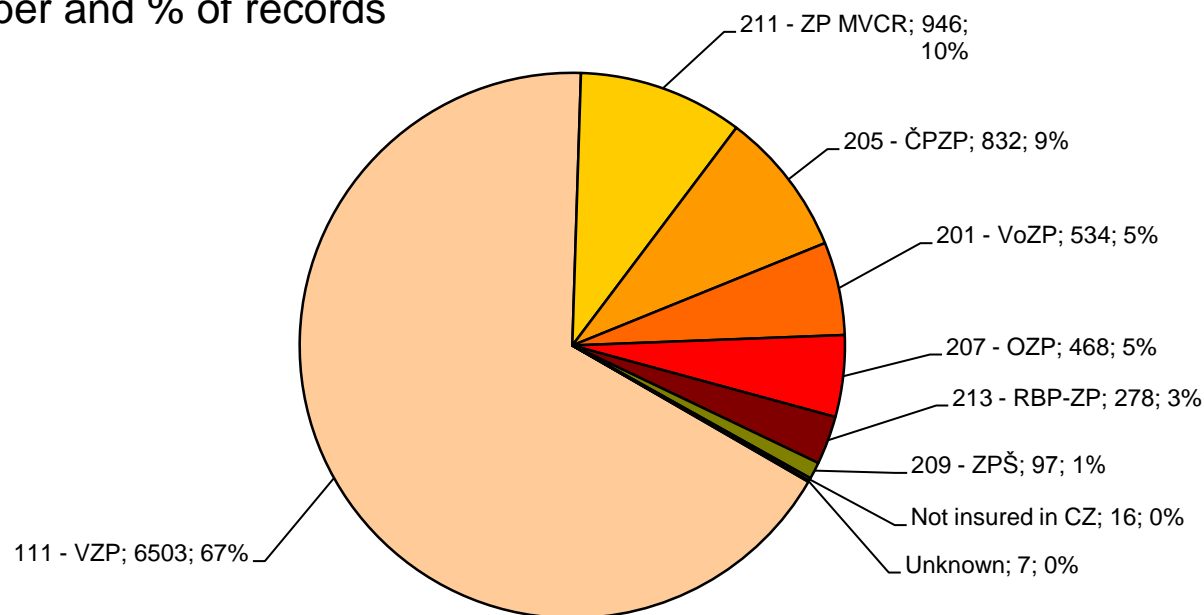


Time (minutes)	Duration of skiascopy
N	54
5% percentile	1.7
Median	6.1
95% percentile	13.9



Number of records according to insurance company

Number and % of records



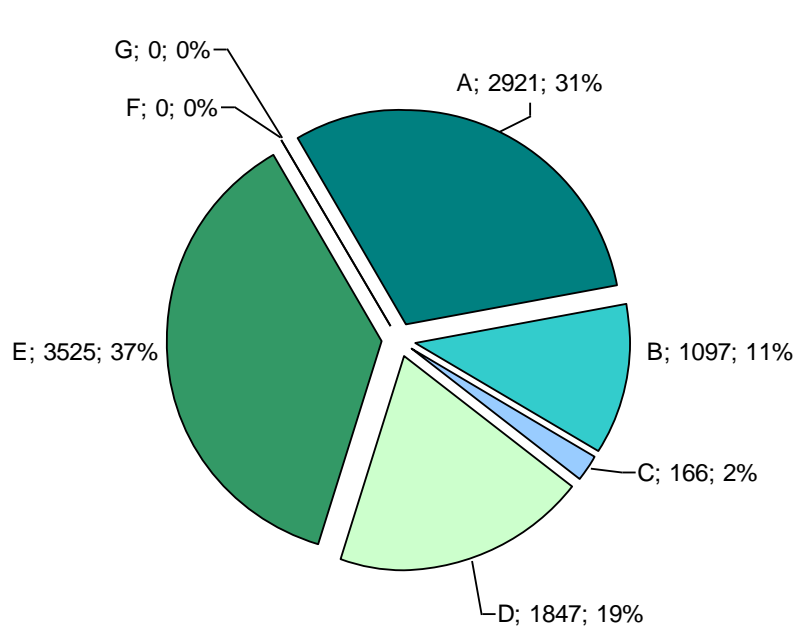
Insurance	N	%
111 - Všeobecná zdravotní pojišťovna	6 503	67.2
211 - Zdravotní pojišťovna Ministerstva vnitra ČR	946	9.8
205 - Česká průmyslová zdravotní pojišťovna	832	8.6
201 - Vojenská zdravotní pojišťovna	534	5.5
207 - Oborová pojišťovna zaměstnanců bank, pojišťoven a stavebnictví	468	4.8
213 - Revírní bratrská pokladna	278	2.9
209 - Zaměstnanecká pojišťovna Škoda	97	1.0
Not insured in CZ	16	0.2
Unknown	7	0.1



Manufacturers market share

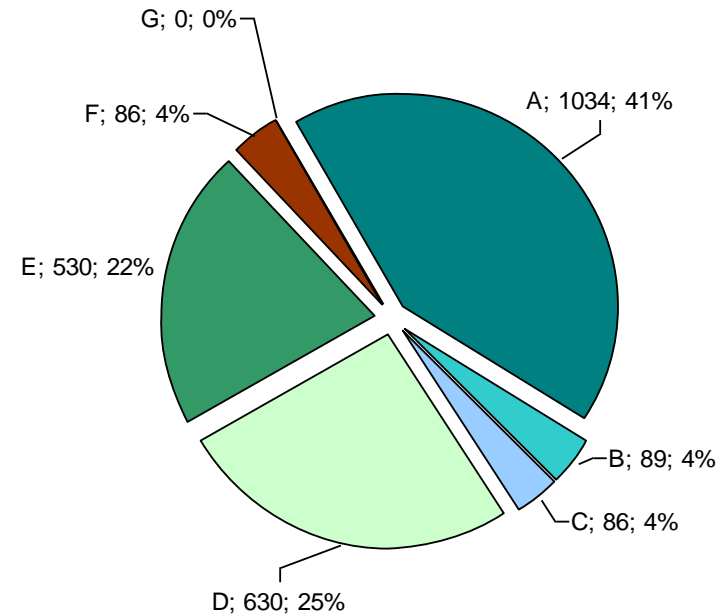
Implanted devices manufacturer

N = 9 556

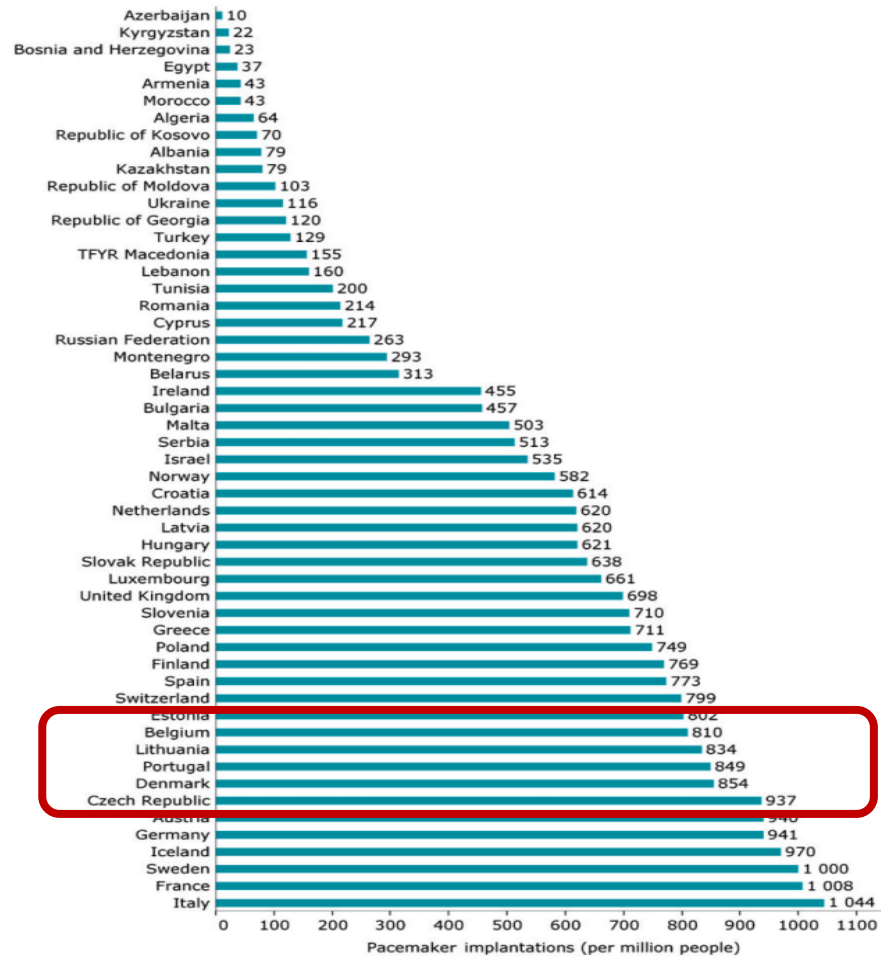


Explanted devices manufacturer

N = 2 455



ESC Atlas: Pozice ČR - Implantace KS / 1 mil obyvatel



Timmis A. *European Heart Journal* (2018) 39, 508–577.



ČESKÁ KARDIOLOGICKÁ SPOLEČNOST



Lékařská fakulta
Univerzity Palackého
v Olomouci



I. INTERNÍ KLINIKA
KARDIOLOGICKÁ
FAKULTNÍ NEMOCNICE OLOMOUČ

WWW.KARDIO

Děkuji za pozornost !



ČESKÁ KARDIOLOGICKÁ SPOLEČNOST

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