

# SWISS STATISTICS OF CATHETER ABLATIONS

2022



Schweizerische Stiftung für Rhythmologie  
Fondation Suisse de Rythmologie  
Fondazione Svizzera di Ritmologia

## Overview

<b>Ablation centers</b>	<b>33</b>
<b>Included in this statistic</b>	<b>30</b>
<b>Number of patients</b>	<b>8671</b>
<b>Number of interventions*</b>	<b>9091</b>
thereof number of EPS	<b>526</b>
<b>Number of ablations</b>	<b>10035</b>

*\* All completely recorded and non-aborted interventions are evaluated.*

## Ablation Centers

Clinic No.	Center	Interventions/ thereof incomplete	thereof aborted	Ablations*
101	Universitätsspital Basel	956 / 0 (0%)	1	989
102	Inselspital Bern	1356 / 0 (0%)	2	1494
103	Hôpital Cantonal Universitaire de Genève	297 / 0 (0%)	0	333
104	Centre Hospitalier Universitaire Vaudois (CHUV)	390 / 11 (3%)	0	424
105	Universitätsspital Zürich	469 / 0 (0%)	1	444
106	Universitäts-Kinderkliniken Zürich	38 / 0 (0%)	0	32
201	Kantonsspital Aarau	149 / 0 (0%)	3	141
202	Kantonsspital Baden	129 / 0 (0%)	2	139
209	Kantonsspital Graubünden, Chur	67 / 1 (1%)	0	75
211	Hôpital Fribourgeois	144 / 0 (0%)	0	151
214	HerzZentrum & Rhythmologie Hirslanden, Zürich	361 / 0 (0%)	1	514
216	Istituto Cardiocentro Ticino	202 / 4 (2%)	1	201
217	Kantonsspital Luzern, Sursee und Wolhusen	535 / 0 (0%)	0	626
218	Klinik St. Anna, Luzern	100 / 0 (0%)	0	103
220	Hôpital de la Tour	310 / 0 (0%)	0	339
228	Hôpital de Sion	68 / 0 (0%)	1	67
230	Solothurner Spitäler AG	244 / 0 (0%)	0	236
231	Kantonsspital St. Gallen	446 / 0 (0%)	1	449
233	GZO Spital Wetzikon	133 / 0 (0%)	0	134
234	Kantonsspital Winterthur	174 / 0 (0%)	0	228
236	Stadtspital Triemli, Zürich	469 / 0 (0%)	1	529
239	Klinik Beau-Site Bern	366 / 0 (0%)	3	365
241	HerzKlinik Hirslanden, Zürich	294 / 0 (0%)	0	296
246	Hirslandenklinik Aarau	250 / 0 (0%)	0	265
250	Klinik Im Park, Zürich	633 / 0 (0%)	3	862
267	Clinique Cécil	337 / 0 (0%)	0	381
278	Centre de Cardiologie du Valais	56 / 0 (0%)	1	58
284	Clinique de Genolier	105 / 1 (1%)	0	102
287	HerzGefässKlinik Bethanien	14 / 0 (0%)	0	26
292	HerzKlinik Kreuzlingen	37 / 0 (0%)	0	32
<b>Total</b>	<b>30</b>	<b>9129 / 17 (0%)</b>	<b>21</b>	<b>10035</b>

\* Only ablations of completely recorded and non-aborted interventions are evaluated.

## Omissions

**3 centers that did not report data to SwissEPnet and are therefore not included in the statistics**

No.	Center
251	Herzzentrum Bodensee, Kreuzlingen
268	Clinique des Grangettes
288	Herz&Rhythmus Zentrum
Total	3

## Ablation centers

### 14 centers with more than 250 interventions

#### Interventions and Ablations

according to number of interventions

No.	Center	Interventions	thereof aborted	Ablations
102	Inselspital Bern	1356	2	1494
101	Universitätsspital Basel	956	1	989
250	Klinik Im Park, Zürich	633	3	862
217	Kantonsspital Luzern, Sursee und Wolhusen	535	0	626
105	Universitätsspital Zürich	469	1	444
236	Stadtspital Triemli, Zürich	469	1	529
231	Kantonsspital St. Gallen	446	1	449
104	Centre Hospitalier Universitaire Vaudois (CHUV)	379	0	424
239	Klinik Beau-Site Bern	366	3	365
214	HerzZentrum & Rhythmologie Hirslanden, Zürich	361	1	514
267	Clinique Cécil	337	0	381
220	Hôpital de la Tour	310	0	339
103	Hôpital Cantonal Universitaire de Genève	297	0	333
241	HerzKlinik Hirslanden, Zürich	294	0	296
Total	14	7208	13	8045

## Ablation Procedures

according to number of interventions

No.	Center	AF	RAFlu	LAFlu	AT	AP	AVNRT	VT	PVC	AVN	AVN(R)	Other
102	Inselspital Bern	689	312	73	47	30	133	55	73	27	54	1
101	Universitätsspital Basel	488	167	8	46	29	120	40	40	5	45	1
250	Klinik Im Park, Zürich	392	232	31	49	15	87	23	5	3	24	1
217	Kantonsspital Luzern, Sursee und Wolhusen	260	121	13	30	15	88	20	41	14	23	1
105	Universitätsspital Zürich	155	67	13	11	19	68	31	55	9	14	2
236	Stadtspital Triemli, Zürich	269	110	20	15	23	47	0	10	4	30	1
231	Kantonsspital St. Gallen	233	58	9	13	15	68	6	14	1	30	2
104	Centre Hospitalier Universitaire Vaudois (CHUV)	142	86	16	16	22	38	30	35	11	27	1
239	Klinik Beau-Site Bern	214	59	8	17	4	36	6	5	2	14	0
214	HerzZentrum & Rhythmologie Hirslanden, Zürich	220	152	12	22	9	49	7	18	6	17	2
267	Clinique Cécil	156	72	9	15	10	42	2	14	22	39	0
220	Hôpital de la Tour	137	58	15	12	8	56	3	16	18	16	0
103	Hôpital Cantonal Universitaire de Genève	106	93	33	9	13	42	12	9	2	14	0
241	HerzKlinik Hirslanden, Zürich	132	69	5	4	15	36	0	20	3	12	0
Total	14	3593	1656	265	306	227	910	235	355	127	359	12

## Ablation centers

### 10 centers with 100 to 250 interventions

#### Interventions and Ablations

according to number of interventions

No.	Center	Interventions	thereof aborted	Ablations
246	Hirslandenklinik Aarau	250	0	265
230	Solothurner Spitäler AG	244	0	236
216	Istituto Cardiocentro Ticino	198	1	201
234	Kantonsspital Winterthur	174	0	228
201	Kantonsspital Aarau	149	3	141
211	Hôpital Fribourgeois	144	0	151
233	GZO Spital Wetzikon	133	0	134
202	Kantonsspital Baden	129	2	139
284	Clinique de Genolier	104	0	102
218	Klinik St. Anna, Luzern	100	0	103
Total	10	1625	6	1700

## Ablation Procedures

according to number of interventions

No.	Center	AF	RAFlu	LAFlu	AT	AP	AVNRT	VT	PVC	AVN	AVN(R)	Other
246	Hirslandenklinik Aarau	139	46	1	7	7	35	0	11	6	12	1
230	Solothurner Spitäler AG	116	36	2	13	2	37	5	22	2	1	0
216	Istituto Cardiocentro Ticino	90	42	2	9	8	23	9	2	2	13	1
234	Kantonsspital Winterthur	103	46	20	3	5	32	2	5	6	6	0
201	Kantonsspital Aarau	65	32	2	4	3	15	5	7	2	6	0
211	Hôpital Fribourgeois	54	28	1	7	8	28	3	5	4	13	0
233	GZO Spital Wetzikon	61	33	0	2	0	25	0	2	3	7	1
202	Kantonsspital Baden	75	26	4	4	3	23	0	0	0	4	0
284	Clinique de Genolier	41	47	1	1	3	6	0	0	1	2	0
218	Klinik St. Anna, Luzern	44	16	0	1	2	35	1	0	0	4	0
Total	10	788	352	33	51	41	259	25	54	26	68	3

## Ablation centers

### 6 centers with less than 100 interventions

#### Interventions and Ablations

*according to number of interventions*

No.	Center	Interventions	thereof aborted	Ablations
228	Hôpital de Sion	68	1	67
209	Kantonsspital Graubünden, Chur	66	0	75
278	Centre de Cardiologie du Valais	56	1	58
106	Universitäts-Kinderkliniken Zürich	38	0	32
292	Herzlinik Kreuzlingen	37	0	32
287	HerzGefässKlinik Bethanien	14	0	26
Total	6	279	2	290

## Ablation procedures

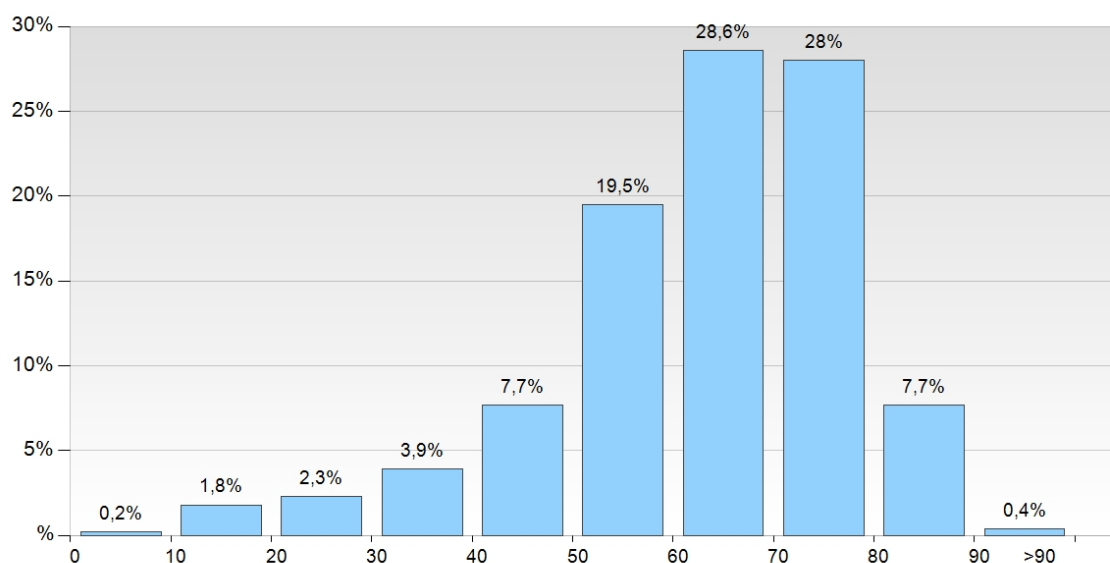
*according to number of interventions*

No.	Center	AF	RAFlu	LAFlu	AT	AP	AVNRT	VT	PVC	AVN	AVN(R)	Other
228	Hôpital de Sion	4	25	0	3	9	19	0	0	2	5	0
209	Kantonsspital Graubünden, Chur	32	20	5	1	4	11	0	0	0	2	0
278	Centre de Cardiologie du Valais	29	10	2	3	1	8	1	1	0	3	0
106	Universitäts-Kinderkliniken Zürich	0	0	0	3	19	8	1	1	0	0	0
292	Herzlinik Kreuzlingen	16	7	0	2	0	5	0	0	1	0	1
287	HerzGefässKlinik Bethanien	10	10	0	4	0	2	0	0	0	0	0
Total	6	91	72	7	16	33	53	2	2	3	10	1

## All ablation types

Number of ablations, not aborted: 10035

## Age distribution (years)



Age (years)	min.	Ø	max.
Female	7	64	96
Male	0	63	102
<b>All</b>	<b>0</b>	<b>63</b>	<b>102</b>

Number of patients	n	%
Females	3124	36,03
Males	5547	63,97
<b>Total</b>	<b>8671</b>	

Anesthesia	n	%
Local	6767	74,44
General	2324	25,56
<b>Total</b>	<b>9091</b>	



Combinations of ablations performed during one intervention

<b>Number of interventions</b>		<b>8565</b>		
AF		3278		
	AVNRT	1116		
	RAFlu	1032		
AF	RAFlu	862		
	AVN(R)	416		
	PVC	398		
	AP	286		
	VT	248		
	AT	211		
	AVN	138		
AF	LAFIu	114		
	LAFIu	93		
AF	AT	58		
AF	LAFIu	RAFlu	48	
AF	RAFlu	AT	33	
AF	AVNRT	28		
	LAFIu	RAFlu	27	
	RAFlu	AT	24	
	RAFlu	AVNRT	21	
	AT	AVNRT	19	
	AVN	AVN(R)	16	
AF	RAFlu	AVNRT	12	
	Other	11		
AF	LAFIu	AT	9	
	AP	AVNRT	8	
AF	AP	5		
AF	LAFIu	RAFlu	AT	4
	LAFIu	AT	4	
AF	RAFlu	AT	AVNRT	4
AF	RAFlu	VT	3	
AF	PVC	3		
	AVNRT	PVC	3	
	VT	PVC	3	
	AVNRT	Other	3	
AF	AVN(R)	2		
	LAFIu	RAFlu	AT	2
AF	VT	2		
	RAFlu	AVNRT	PVC	1
AF	LAFIu	AVNRT	1	
AF	AP	AVNRT	1	
	AT	PVC	1	
	VT	AVN(R)	1	
AF	Other	1		
	AT	AVN(R)	1	
	LAFIu	RAFlu	VT	1
AF	RAFlu	PVC	1	
	AVNRT	AVN(R)	1	
	VT	AVN	1	
	AT	VT	1	
	RAFlu	AT	AVNRT	1
	AVNRT	VT	1	
AF	AT	AVNRT	1	
AF	LAFIu	RAFlu	Other	1
	RAFlu	AP	1	
	RAFlu	PVC	1	
	RAFlu	VT	1	
	LAFIu	AVNRT	1	
AF	AVN	1		

Only completely documented and non-aborted interventions are counted.

## Ablation procedures or EPS

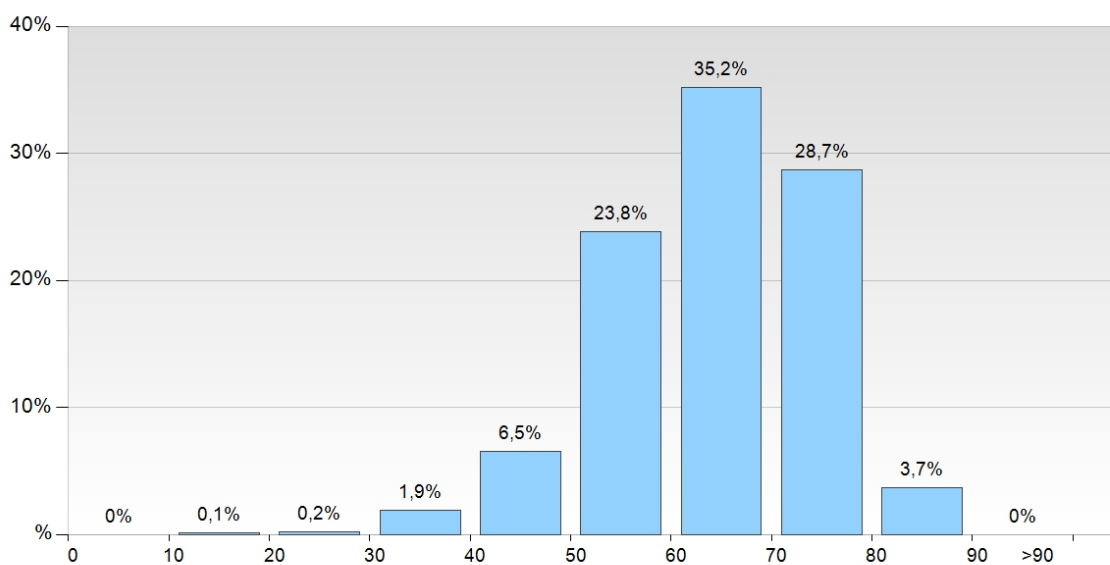
<b>Atrial Fibrillation</b>	<b>4472</b>	<b>Right Atrial Flutter</b>	<b>2080</b>
Paroxysmal	2940	Cavotricuspid	2026
Persistent	1451	Scar Related	60
Long-standing Persistent	81	Other	21
<b>Left Atrial Flutter</b>	<b>305</b>	<b>Atrial Tachycardia</b>	<b>373</b>
Roof-dependent	111	<b>AVNRT</b>	<b>1222</b>
Perimitral	142	Slow-Fast	1113
Peri-Incisional	10	Fast-Slow	56
Peri Ostial Pulm. Vein	31	Slow-Slow	63
Other	97	<b>VT</b>	<b>262</b>
<b>Accessory Pathway</b>	<b>301</b>	Monomorphic	221
Concealed	85	Polymorphic	43
WPW	184	RVOT / Cusp / PA	53
Asymptomatic Preexcitation	27	Tricuspid Annulus	11
Atrio-Fascicular	6	Right Pap Muscle	1
PJRT	3	Parahisian	3
Mahaim	3	BB Reentry	0
Other	7	LVOT / Cusp	42
<b>AVN (to Resync.)</b>	<b>156</b>	Mitral Annulus	29
<b>AVN (Rate Control)</b>	<b>437</b>	Fascicular	11
Paroxysmal	98	Left Pap Muscle	10
Persistent	226	Epicardial LV / RV	21
Long-standing Persistent	113	Other	125
<b>Other Arrhythmia</b>	<b>16</b>	<b>PVC</b>	<b>411</b>
PAC	4	Monomorphic	379
JET	3	Polymorphic	35
SNT	1	Ischemic	6
Other	8	RVOT	184
		LVOT / Aortic Cusp	143
		Left Fascicular VT	8
		HP System	20
		Other	90
		<b>EPS only</b>	<b>526</b>

## Atrial Fibrillation

Ablation of Atrial Fibrillation (AF)	n
All interventions	4472
AF combined with others	1194
AF combined with RAFLa	862
AF only	3278

The following statistics include AF only procedures

Age distribution (years)



Age (years)	min.	Ø	max.
Female	18	68	92
Male	18	63	89
<b>All</b>	<b>18</b>	<b>65</b>	<b>92</b>

Number of patients	n	%
Females	1012	31,76
Males	2174	68,24
<b>Total</b>	<b>3186</b>	

## Atrial Fibrillation

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	1996	60,89
Hypertensive Cardiomyopathy	397	12,11
Ischemic	257	7,84
Tachycardiomyopathy	251	7,66
Valvular	136	4,15
Dilated	88	2,68
H(O)CM	62	1,89
Other	51	1,56
Congenital	11	0,34
Post Valvular Surgery	9	0,27
Infiltrative	7	0,21
Angioplasty	3	0,09
RV Cardiomyopathy	2	0,06
Channelopathy short QT	2	0,06
Post Congenital Surgery	2	0,06
Channelopathy long QT	1	0,03
Early Repolarization Syndrome	1	0,03
CABG	1	0,03
Brugada Syndrome	1	0,03
Catecholaminergic Polymorphic VT	0	0
<b>Total</b>	<b>3278</b>	

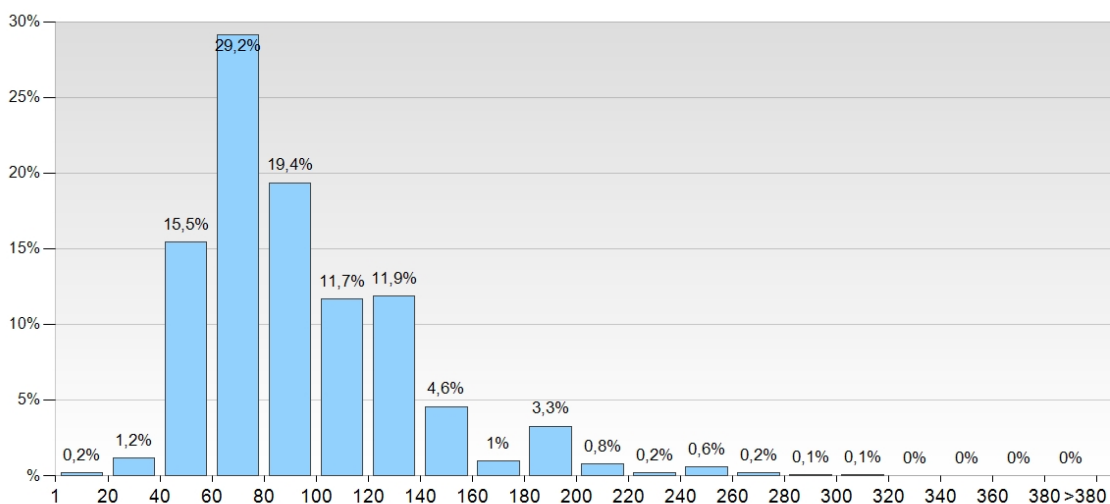
<b>Symptoms</b>	<b>n</b>
Palpitations	2719
Dyspnea	912
Fatigue	639
Dizziness	333
Other	189
None	133
Angina Pectoris	65
Syncope	55
SCD	2

### Atrial Fibrillation

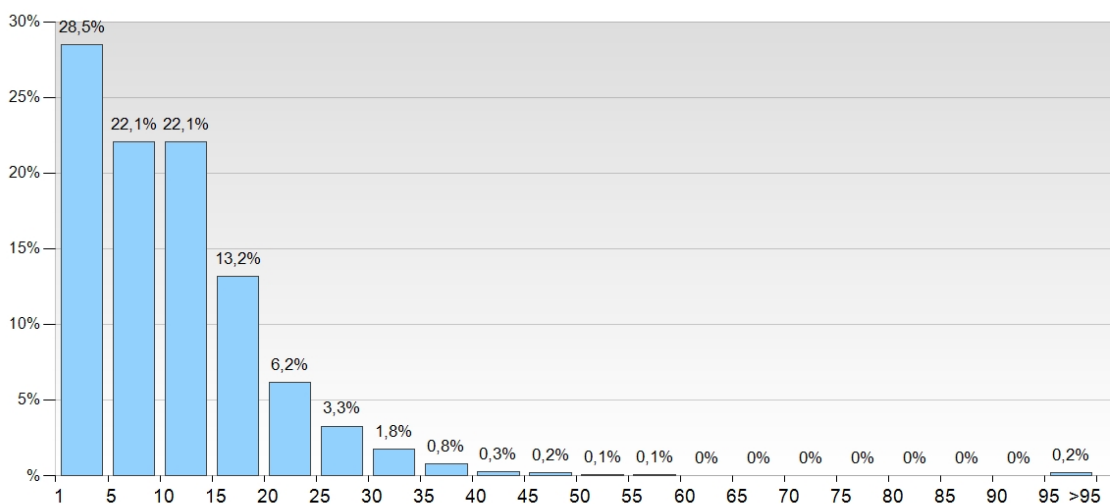
Anesthesia	n	%
Local	2025	61,78
General	1253	38,22
<b>Total</b>	<b>3278</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	1	91	330	3278	0
Fluoroscopy time	1	10,8	207	3244	34

Investigation time (minutes)



Fluoroscopy time (minutes)



## Atrial Fibrillation

Type of AF	n	%
Paroxysmal	2167	66,11
Persistent	1056	32,21
Long-standing Persistent (>1 Year)	55	1,68

EHRA-Score	n	%
Score I	299	9,12
Score II	1838	56,07
Score III	1075	32,79
Score IV	66	2,01

Type of Intervention	n	%
Percutaneous	3273	99,85
Hybrid (Epicardial + Endovascular)	0	0
Surgical Ablation	5	0,15

Intervention	n	%
Primary Intervention	2567	78,31
Redo	711	21,69

Antiarrhythmic Drugs	n
Beta Blocker	2279
None	562
Amiodarone	545
Flecainide	278
Calcium Antagonist	101
Sotalol	76
Other	27
Digitalis	17
Propafenone	13
Dronedarone	12

Thromboembolic Risk Factors	n
Hypertension	1499
Diabetes	238
Prior MI, Per. Artery Disease, Aortic Plaque	217
Congestive Heart Failure, LV dysfunction	172
Stroke, TIA, Other Embolic Event	142

## Atrial Fibrillation

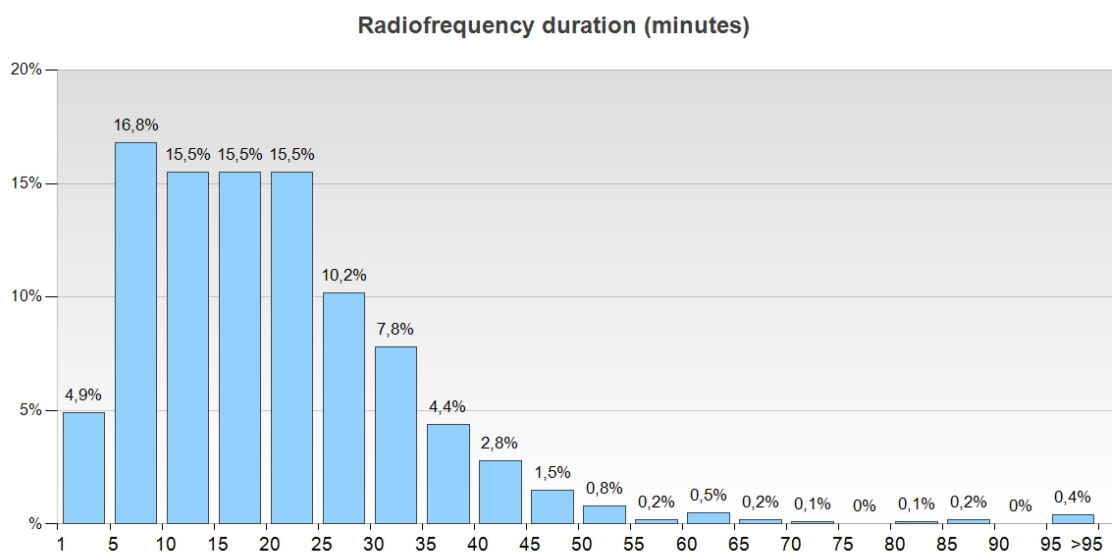
<b>Anticoagulation, Antiaggregation</b>	<b>n</b>
Factor Xa-Antagonist	2941
None	189
Vitamin K-Antagonist	80
Direct Thrombin Inhibitor	41
Aspirin	27
Clopidogrel	20
Other	17
Prasugrel	2
Ticagrelor	0

<b>CHA<sub>2</sub>DS<sub>2</sub>-VASc Score</b>	<b>n</b>
Score = 0	633
Score = 1	905
Score = 2	845
Score = 3	577
Score = 4	232
Score = 5	54
Score = 6	30
Score = 7	1
<b>Average Score</b>	<b>1,74</b>

<b>Site of Ablation</b>	<b>n</b>
RSPV	3026
LSPV	3001
LIPV	2977
RIPV	2972
Roof Line	155
Other Lines	127
Non-PV Focus	84
CFAE	84
SVC	39
Mitral Isthmus Line	37
RMPV	29
Septal Line	19
Vein of Marshall	18
Other Veins	14

## Atrial Fibrillation

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	20	240	1712	48
Irrigated Technology				1586	
RF Duty Cycled				486	





## Atrial Fibrillation

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	3	22	954	830	39

	<b>n</b>
Additional RF or Cryo Cath Needed	3

	<b>n</b>
Laser ablation	0

	<b>n</b>
Contact force	784

	<b>n</b>
Pulsed field	181

	<b>n</b>
Ethanol	1

	<b>n</b>
Radio ablation	0

<b>Access</b>	<b>n</b>	<b>%</b>
Trans-septal, Puncture	3044	92,86
Trans-septal, PFO	226	6,89
Other	6	0,18
Epicardial, Coronary Sinus	2	0,06
Venous	0	0
Arterial	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
<b>Total</b>	<b>3278</b>	

## Atrial Fibrillation

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	2181	66,53
Conventional	517	15,77
Lasso	500	15,25
Basket	50	1,53
Non Contact	16	0,49
Other	11	0,34
HD Mesh	3	0,09
<b>Total</b>	<b>3278</b>	

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	3263	99,54
Stereotaxis	14	0,43
Hansen	1	0,03
Other	0	0
<b>Total</b>	<b>3278</b>	

<b>Results</b>	<b>n</b>
All Veins Isolated	3256
Roof Line Block Confirmed	59
Not All Veins Isolated	18
Mitral Isthmus Line Block Confirmed	11
Roof Line Block Not Confirmed	5
Mitral Isthmus Line Block Not Confirmed	4

<b>Sinus Rhythm</b>	<b>n</b>
Spontaneous	1857
With Electrical Cardioversion / Stimulation	939
By Ablation	502
Not Achieved	28
AAD	7

## Atrial Fibrillation

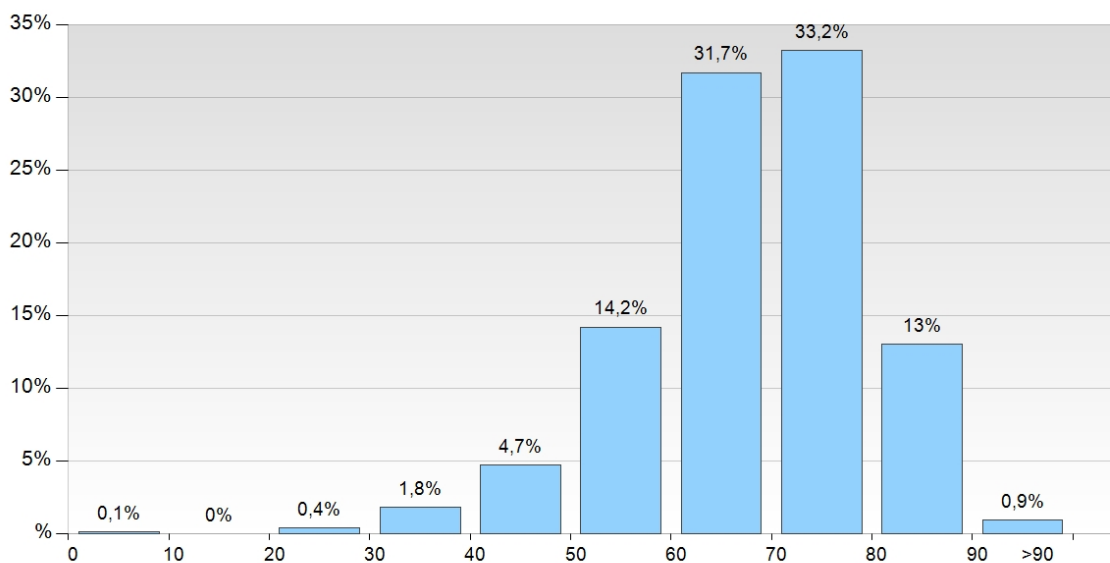
<b>Periprocedural Complications</b>	<b>n</b>
No complications	3234
Phrenic Nerve Paralysis	11
Inguinal Hematoma	7
Pericardial Effusion	7
Tamponade	7
Other	7
Pseudoaneurysm	2
Stroke	2
AV Fistula	1
Transient AV Block	1
Valvular Lesion	1
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Myocardial Infarction	0
Pneumothorax	0
Hemothorax	0
High Degree or Complete AV Block	0
Infection	0
PV Stenosis	0
Pulmonary Oedema	0
Death	0

## Right Atrial Flutter

Ablation of Right Atrial Flutter (RAFlu)	n
All interventions	2080
RAFlu combined with others	1048
RAFlu only	1032

The following statistics include RAFlu only procedures

Age distribution (years)



Age (years)	min.	Ø	max.
Female	31	70	96
Male	0	68	102
<b>All</b>	<b>0</b>	<b>69</b>	<b>102</b>

Number of patients	n	%
Females	249	24,56
Males	765	75,44
<b>Total</b>	<b>1014</b>	

## Right Atrial Flutter

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	514	49,81
Ischemic	127	12,31
Hypertensive Cardiomyopathy	103	9,98
Tachycardiomyopathy	78	7,56
Valvular	76	7,36
Dilated	30	2,91
Other	30	2,91
Congenital	26	2,52
Post Valvular Surgery	19	1,84
H(O)CM	13	1,26
Post Congenital Surgery	5	0,48
Infiltrative	4	0,39
Angioplasty	3	0,29
RV Cardiomyopathy	2	0,19
Brugada Syndrome	2	0,19
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
CABG	0	0
<b>Total</b>	<b>1032</b>	

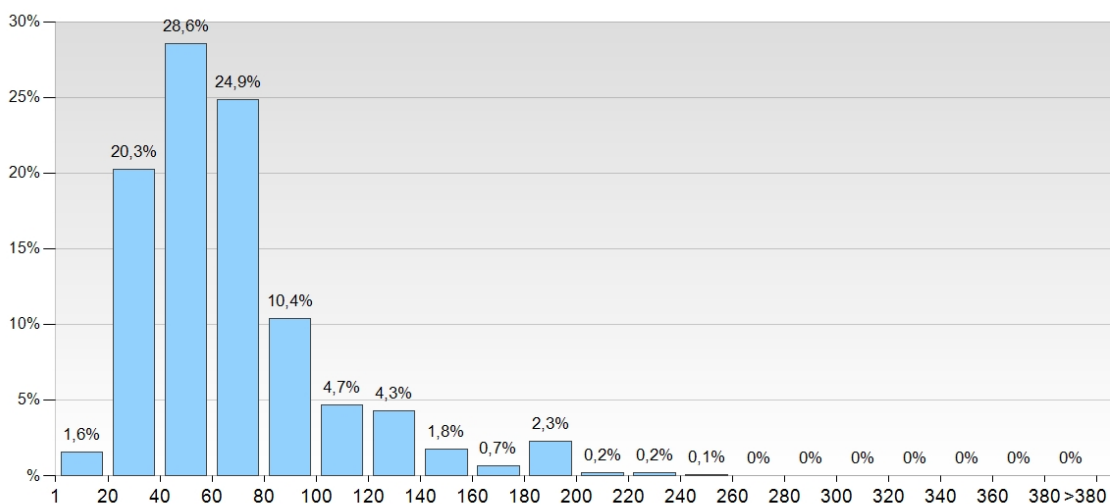
<b>Symptoms</b>	<b>n</b>
Palpitations	756
Dyspnea	341
Fatigue	224
Dizziness	85
None	56
Other	51
Angina Pectoris	23
Syncope	21
SCD	4

## Right Atrial Flutter

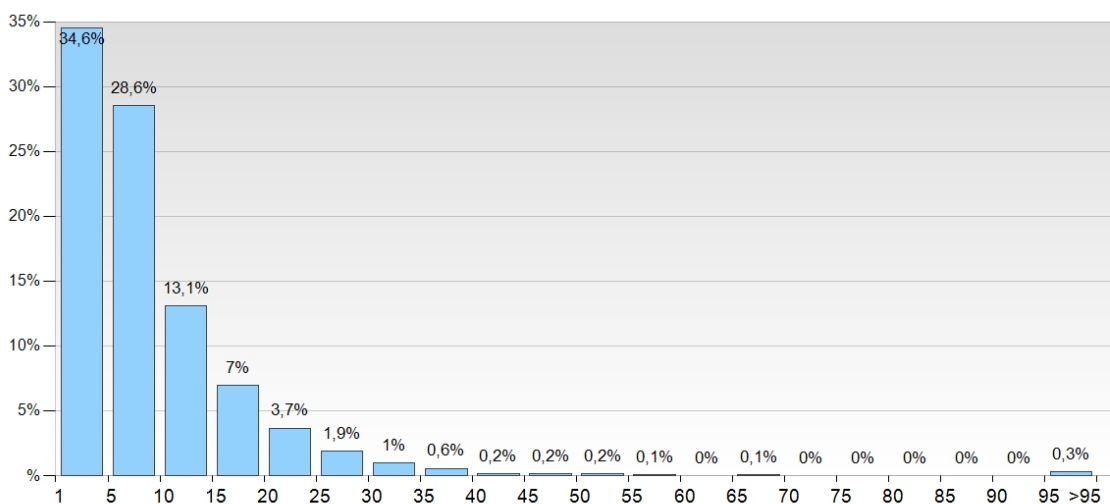
Anesthesia	n	%
Local	902	87,4
General	130	12,6
<b>Total</b>	<b>1032</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	2	64,2	240	1032	0
Fluoroscopy time	1	9	250	944	88

Investigation time (minutes)



Fluoroscopy time (minutes)



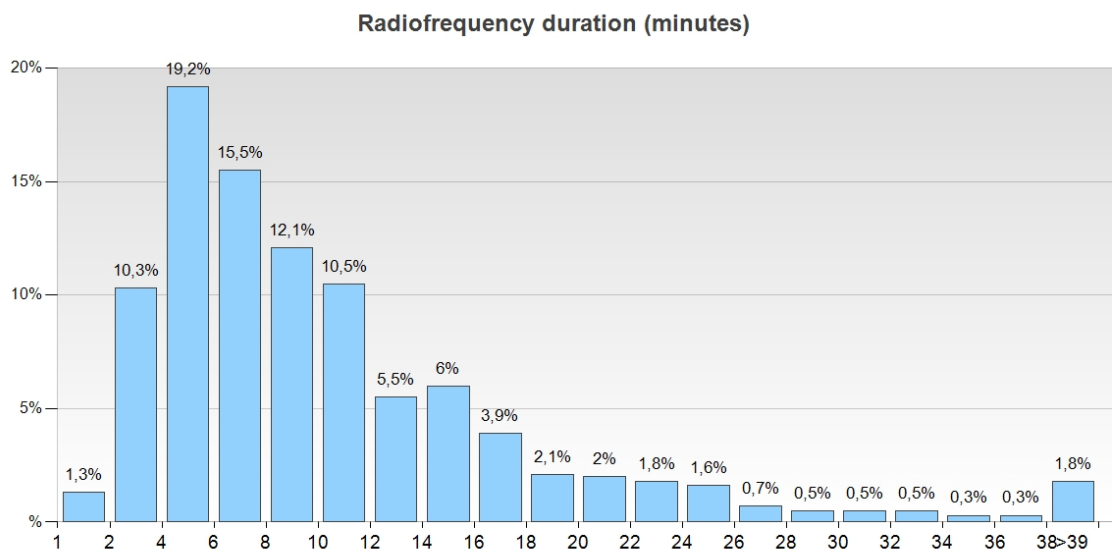
## Right Atrial Flutter

Type of Flutter	n
Cavotricuspid	996
Scar related	41
Other	13

Intervention	n	%
Primary Intervention	953	92,34
Redo	79	7,66

## Right Atrial Flutter

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	10	314	992	37
Irrigated Technology				769	





## Right Atrial Flutter

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	8	8	8	1	2

	<b>n</b>
Additional RF or Cryo Cath Needed	1

	<b>n</b>
Contact force	39

	<b>n</b>
Pulsed field	0

	<b>n</b>
Ethanol	0

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	1031	99,9
Epicardial, Thoracotomy	1	0,1
Arterial	0	0
Trans-septal, Puncture	0	0
Trans-septal, PFO	0	0
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
Other	0	0
<b>Total</b>	<b>1032</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	516	50
Conventional	508	49,22
Basket	3	0,29
Lasso	2	0,19
HD Mesh	1	0,1
Other	1	0,1
Non Contact	1	0,1
<b>Total</b>	<b>1032</b>	

## Right Atrial Flutter

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	1029	99,71
Stereotaxis	3	0,29
Hansen	0	0
Other	0	0
<b>Total</b>	<b>1032</b>	

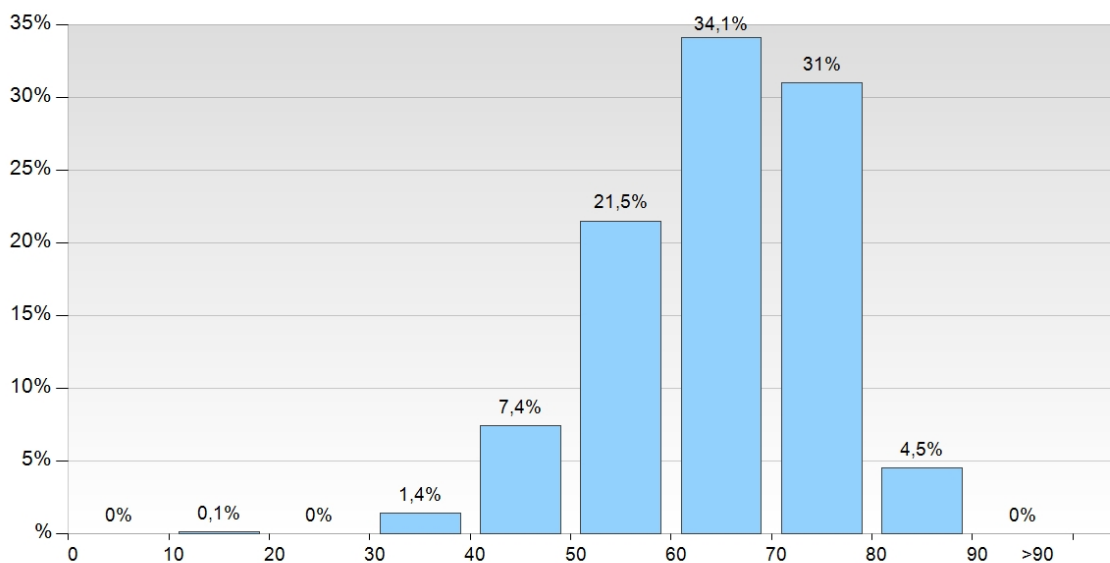
<b>Results</b>	<b>n</b>	<b>%</b>
Block confirmed	1011	97,97
Block not confirmed	21	2,03

<b>Periprocedural Complications</b>	<b>n</b>
No complications	1029
Pericardial Effusion	1
Tamponade	1
Other	1
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Atrial Fibrillation combined with Right Atrial Flutter

Number of interventions (AF with RAFlu): 862

Age distribution (years)



Age (years)	min.	Ø	max.
Female	34	68	86
Male	20	64	86
<b>All</b>	<b>20</b>	<b>65</b>	<b>86</b>

Number of patients	n	%
Females	236	27,6
Males	619	72,4
<b>Total</b>	<b>855</b>	

## Atrial Fibrillation combined with Right Atrial Flutter

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	509	59,05
Tachycardiomyopathy	73	8,47
Hypertensive Cardiomyopathy	71	8,24
Ischemic	60	6,96
Valvular	52	6,03
Other	33	3,83
Angioplasty	27	3,13
Dilated	18	2,09
H(O)CM	6	0,7
Congenital	5	0,58
Post Valvular Surgery	4	0,46
Infiltrative	2	0,23
Channelopathy long QT	1	0,12
CABG	1	0,12
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>862</b>	

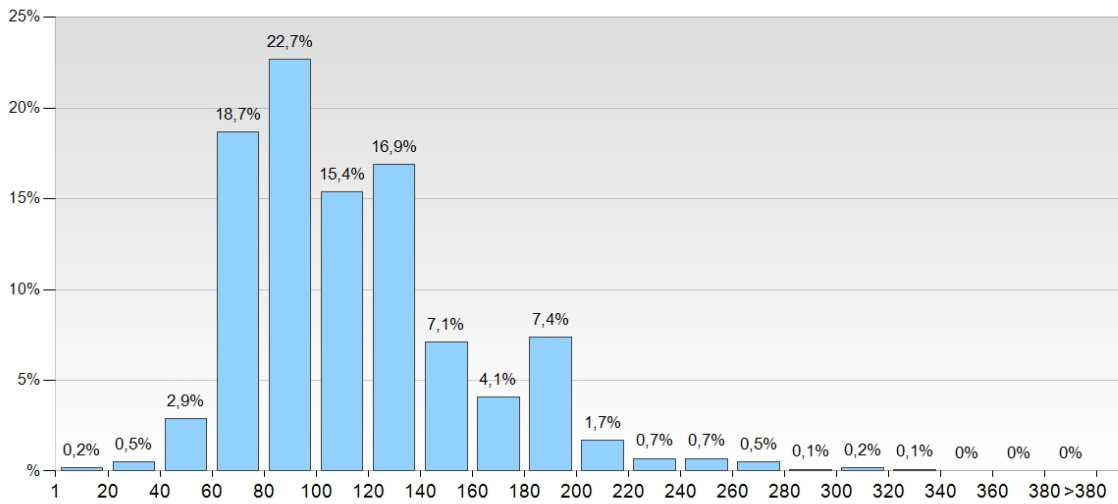
<b>Symptoms</b>	<b>n</b>
Palpitations	740
Fatigue	314
Dyspnea	200
Other	58
Dizziness	56
None	30
Angina Pectoris	16
Syncope	11
SCD	1

### Atrial Fibrillation combined with Right Atrial Flutter

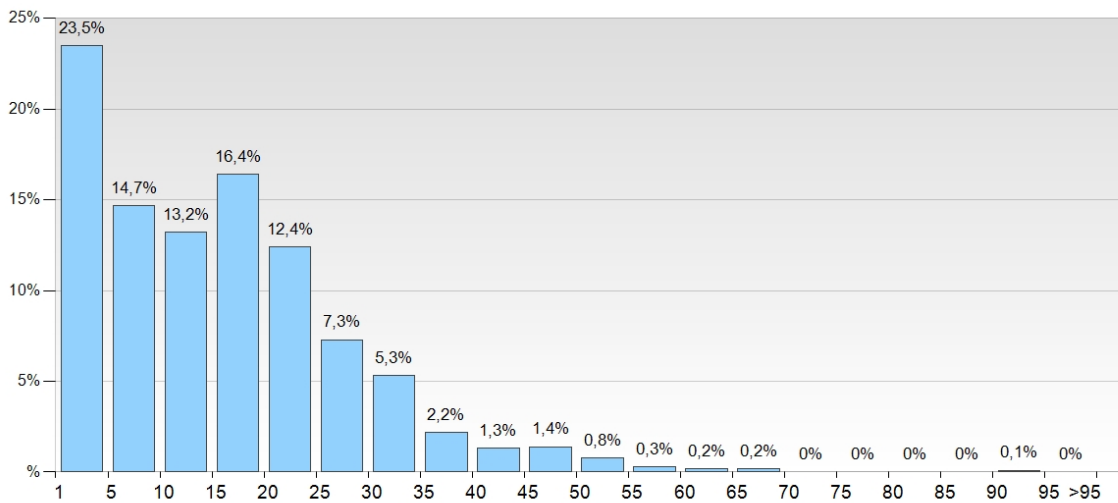
Anesthesia	n	%
Local	441	51,16
General	421	48,84
<b>Total</b>	<b>862</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	4	112	320	862	0
Fluoroscopy time	1	15,5	91	858	4

Investigation time (minutes)



Fluoroscopy time (minutes)



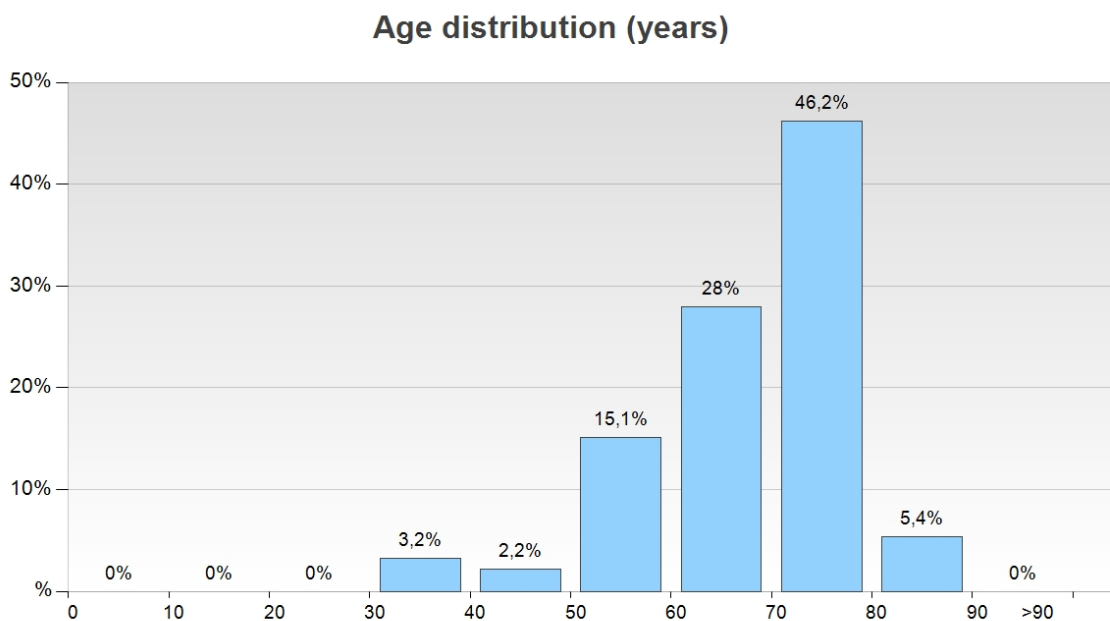
## Atrial Fibrillation combined with Right Atrial Flutter

<b>Periprocedural Complications</b>	<b>n</b>
No complications	850
Inguinal Hematoma	4
Pericardial Effusion	4
Tamponade	3
Stroke	1
Phrenic Nerve Paralysis	1
Other	1
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Myocardial Infarction	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Left Atrial Flutter

Ablation of Left Atrial Flutter (LAFlu)	n
All interventions	305
LAFlu combined with others	212
LAFlu only	93

The following statistics include LAFlu only procedures



Age (years)	min.	Ø	max.
Female	40	69	81
Male	39	68	84
<b>All</b>	<b>39</b>	<b>68</b>	<b>84</b>

Number of patients	n	%
Females	29	32,22
Males	61	67,78
<b>Total</b>	<b>90</b>	

## Left Atrial Flutter

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	35	37,63
Tachycardiomyopathy	13	13,98
Hypertensive Cardiomyopathy	11	11,83
Ischemic	10	10,75
Other	8	8,6
Valvular	7	7,53
Congenital	4	4,3
Dilated	3	3,23
H(O)CM	1	1,08
Post Valvular Surgery	1	1,08
Infiltrative	0	0
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
CABG	0	0
Angioplasty	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>93</b>	

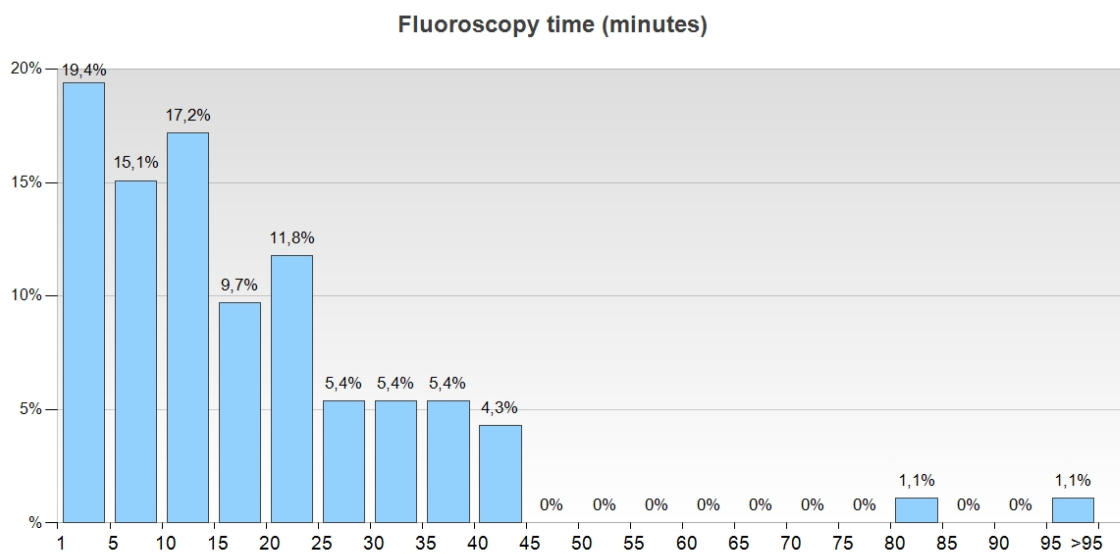
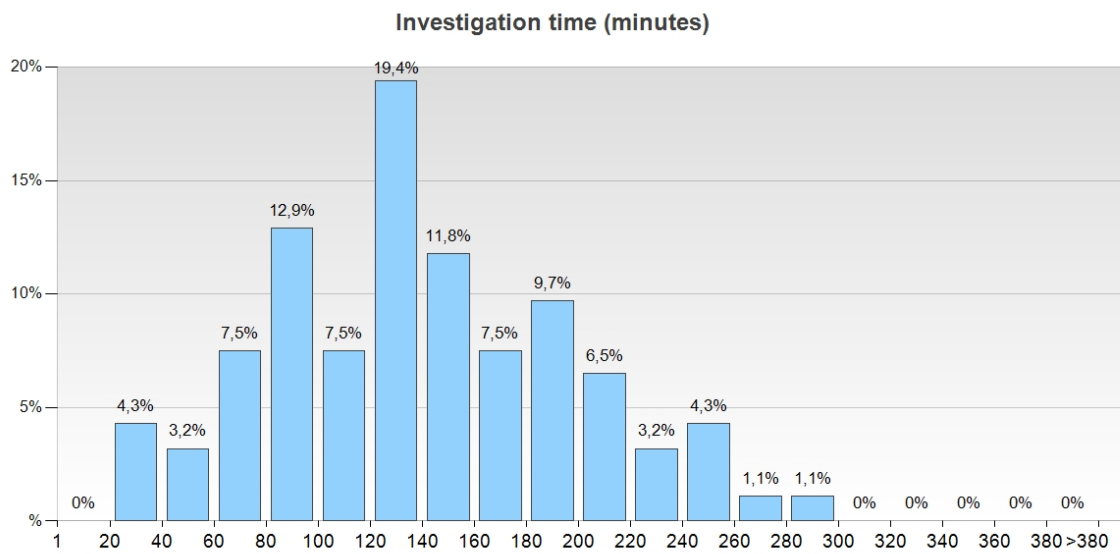
<b>Symptoms</b>	<b>n</b>
Palpitations	77
Dyspnea	37
Fatigue	26
Dizziness	5
Other	4
None	2
Syncope	1
Angina Pectoris	1
SCD	0



## Left Atrial Flutter

Anesthesia	n	%
Local	57	61,29
General	36	38,71
<b>Total</b>	<b>93</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	20	136,8	290	93	0
Fluoroscopy time	1	19,2	255	89	4



## Left Atrial Flutter

Type of Flutter	n
Roof-dependent	37
Perimitral	36
Other	30
Peri Ostial Pulmonary Vein	15
Peri-Incisional	4

EHRA-Score	n	%
Score I	8	8,6
Score II	47	50,54
Score III	36	38,71
Score IV	2	2,15

Type of Intervention	n	%
Percutaneous	92	98,92
Hybrid (Epicardial + Endovascular)	0	0
Surgical Ablation	1	1,08

Intervention	n	%
Primary Intervention	45	48,39
Redo	48	51,61

Antiarrhythmic Drugs	n
Beta Blocker	66
Amiodarone	14
None	9
Flecainide	6
Sotalol	4
Other	4
Calcium Antagonist	2
Dronedarone	2
Digitalis	1
Propafenone	0

## Left Atrial Flutter

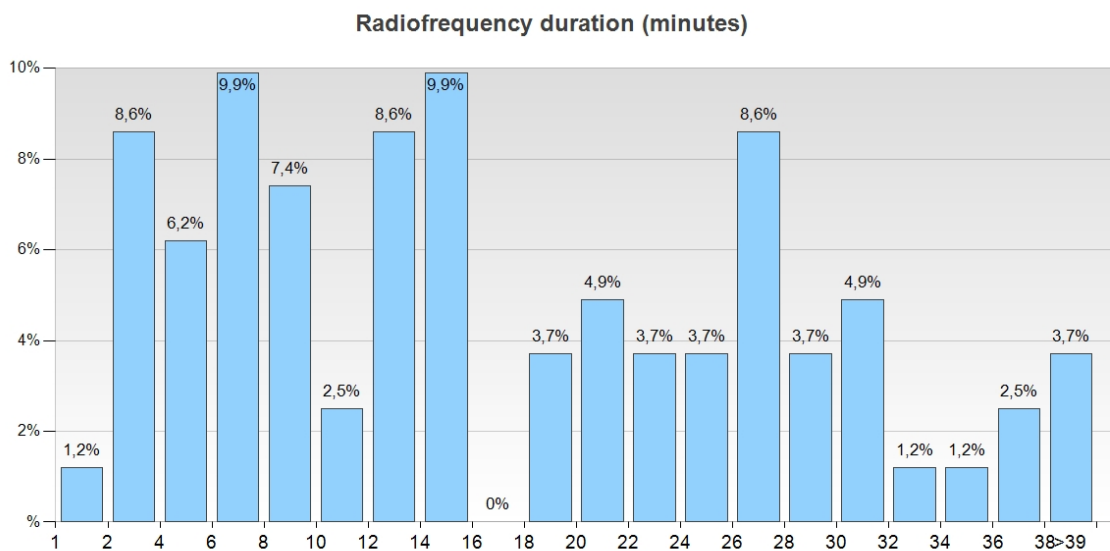
<b>Thromboembolic Risk Factors</b>	<b>n</b>
Hypertension	44
Congestive Heart Failure, LV dysfunction	14
Prior MI, Per. Artery Disease, Aortic Plaque	10
Diabetes	7
Stroke, TIA, Other Embolic Event	4

<b>Anticoagulation, Antiaggregation</b>	<b>n</b>
Factor Xa-Antagonist	76
Vitamin K-Antagonist	7
Other	5
None	4
Direct Thrombin Inhibitor	1
Clopidogrel	0
Prasugrel	0
Ticagrelor	0
Aspirin	0

<b>CHA<sub>2</sub>DS<sub>2</sub>-VASc Score</b>	<b>n</b>
Score = 0	7
Score = 1	23
Score = 2	25
Score = 3	24
Score = 4	9
Score = 5	4
Score = 6	1
Score = 7	0
<b>Average Score</b>	<b>2,23</b>

## Left Atrial Flutter

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	17	69	79	2
Irrigated Technology				69	
RF Duty Cycled				13	



## Left Atrial Flutter

<b>Cryoablation</b>	<b>min.</b>	<b>∅</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	0	0	0	0	0

	<b>n</b>
Laser ablation	0

	<b>n</b>
Contact force	4

	<b>n</b>
Pulsed field	2

	<b>n</b>
Ethanol	1

<b>Access</b>	<b>n</b>	<b>%</b>
Trans-septal, Puncture	81	87,1
Trans-septal, PFO	9	9,68
Arterial	2	2,15
Other	1	1,08
Venous	0	0
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
<b>Total</b>	<b>93</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	83	89,25
Non Contact	4	4,3
Conventional	3	3,23
Basket	2	2,15
Other	1	1,08
Lasso	0	0
HD Mesh	0	0
<b>Total</b>	<b>93</b>	

## Left Atrial Flutter

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	93	100
Stereotaxis	0	0
Hansen	0	0
Other	0	0
<b>Total</b>	<b>93</b>	

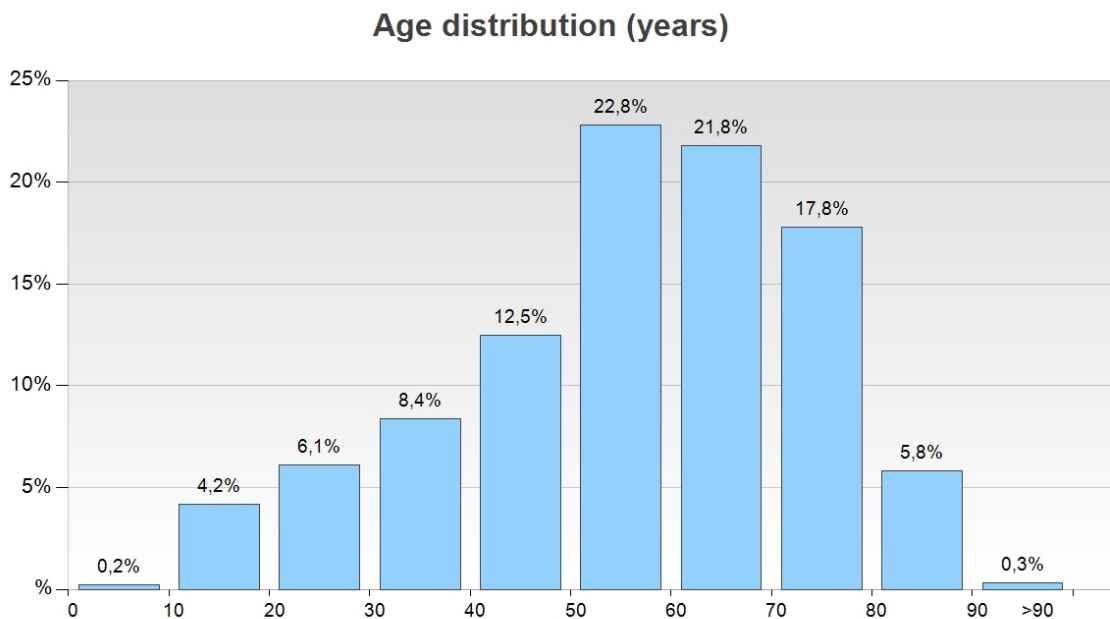
<b>Results</b>	<b>n</b>	<b>%</b>
Block confirmed	83	89,25
Block not confirmed	10	10,75

<b>Periprocedural Complications</b>	<b>n</b>
No complications	93
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0
Other	0

## Atrioventricular Nodal Reentry Tachycardia (AVNRT)

Ablation of AVNRT	n
All interventions	1222
AVNRT combined with others	106
AVNRT only	1116

The following statistics include AVNRT only procedures



Age (years)	min.	Ø	max.
Female	7	54	91
Male	11	60	94
<b>All</b>	<b>7</b>	<b>57</b>	<b>94</b>

Number of patients	n	%
Females	609	55,41
Males	490	44,59
<b>Total</b>	<b>1099</b>	

## Atrioventricular Nodal Reentry Tachycardia (AVNRT)

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	949	85,04
Hypertensive Cardiomyopathy	48	4,3
Ischemic	47	4,21
Valvular	18	1,61
Other	15	1,34
Tachycardiomyopathy	14	1,25
Dilated	8	0,72
H(O)CM	7	0,63
Congenital	5	0,45
Channelopathy long QT	2	0,18
Infiltrative	1	0,09
Angioplasty	1	0,09
Post Valvular Surgery	1	0,09
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
CABG	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>1116</b>	

<b>Symptoms</b>	<b>n</b>
Palpitations	1040
Dizziness	136
Dyspnea	119
Fatigue	90
Syncope	56
Other	48
Angina Pectoris	30
None	15
SCD	2

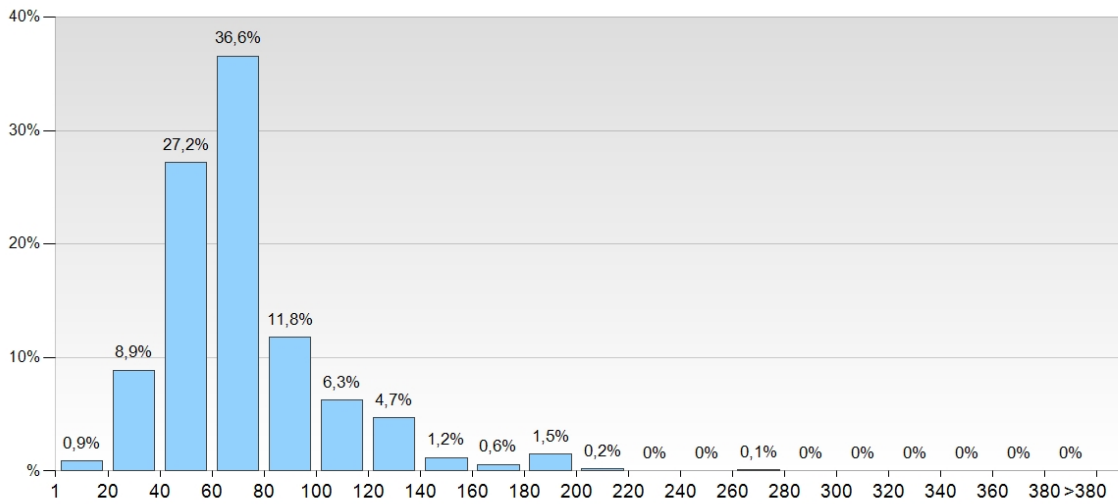


### Atrioventricular Nodal Reentry Tachycardia (AVNRT)

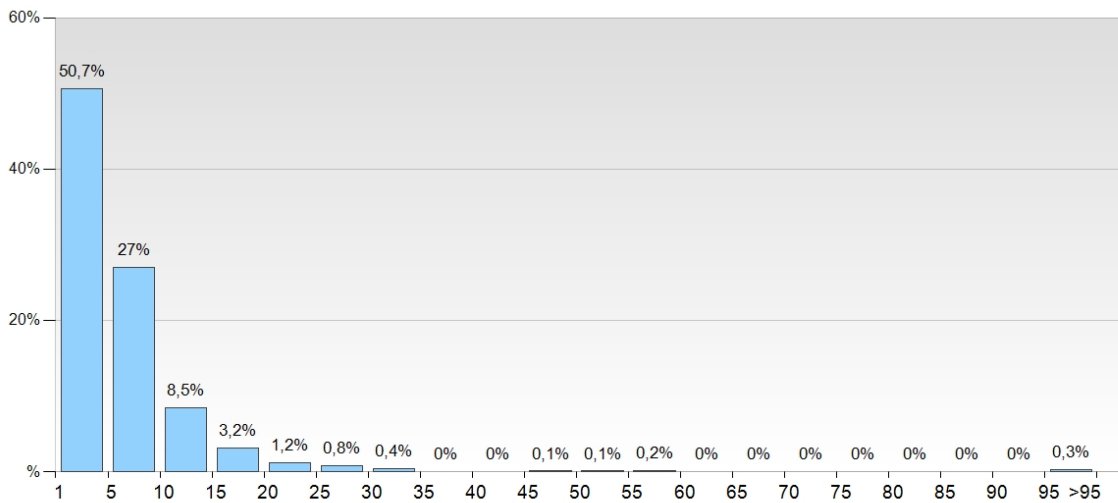
Anesthesia	n	%
Local	1078	96,59
General	38	3,41
<b>Total</b>	<b>1116</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	4	68,7	260	1115	1
Fluoroscopy time	1	6,2	290	1032	84

Investigation time (minutes)



Fluoroscopy time (minutes)

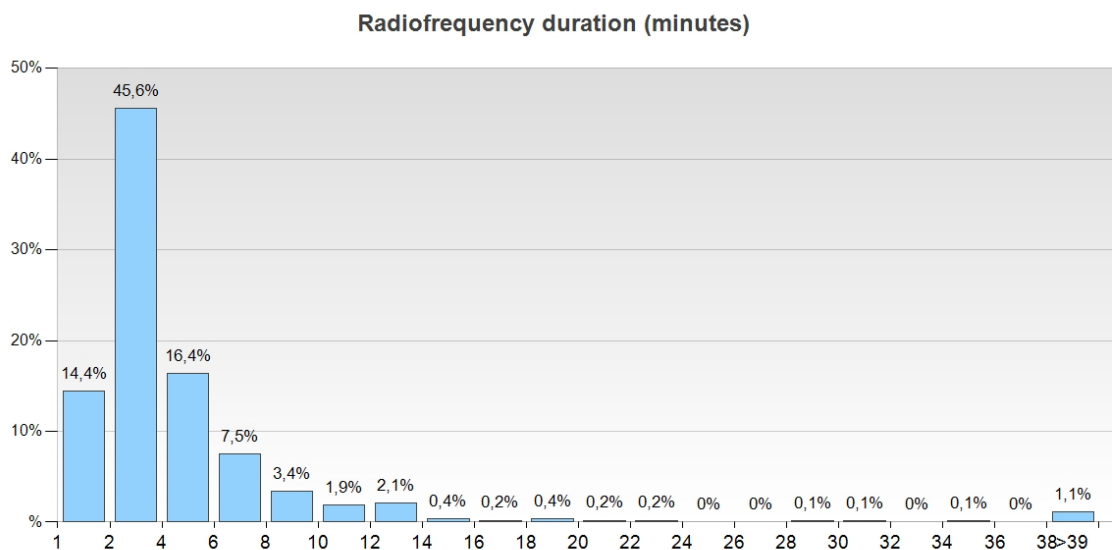


### Atrioventricular Nodal Reentry Tachycardia (AVNRT)

Type	n
Slow-Fast	1013
Slow-Slow	61
Fast-Slow	50

Intervention	n	%
Primary Intervention	1063	95,25
Redo	53	4,75

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	5	405	1047	66
Irrigated Technology				158	



## Atrioventricular Nodal Reentry Tachycardia (AVNRT)

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	7	19	30	3	0

	<b>n</b>
Contact force	10

	<b>n</b>
Pulsed field	0

	<b>n</b>
Ethanol	0

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	1114	99,82
Other	2	0,18
Arterial	0	0
Trans-septal, Puncture	0	0
Trans-septal, PFO	0	0
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
<b>Total</b>	<b>1116</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	639	57,26
Conventional	471	42,2
Basket	3	0,27
Lasso	1	0,09
Non Contact	1	0,09
Other	1	0,09
HD Mesh	0	0
<b>Total</b>	<b>1116</b>	

## Atrioventricular Nodal Reentry Tachycardia (AVNRT)

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	1111	99,55
Stereotaxis	5	0,45
Hansen	0	0
Other	0	0
<b>Total</b>	<b>1116</b>	

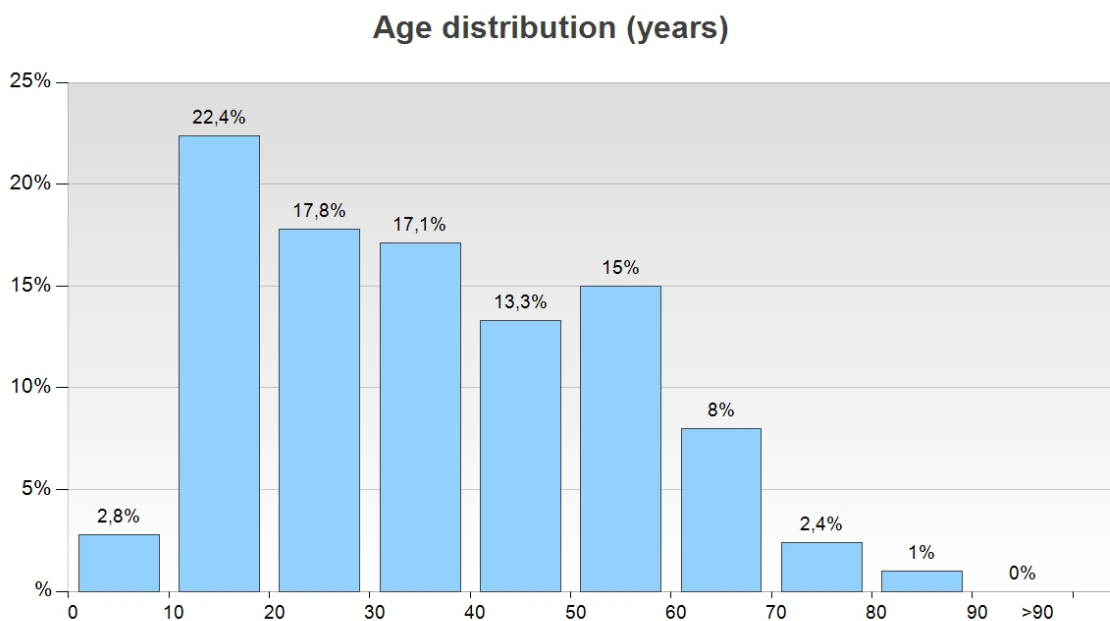
<b>Results</b>	<b>n</b>	<b>%</b>
Success	1102	98,75
No success	14	1,25

<b>Periprocedural Complications</b>	<b>n</b>
No complications	1109
Transient AV Block	4
High Degree or Complete AV Block	2
Other	1
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Accessory Pathway

Ablation of Accessory Pathway (AP)	n
All interventions	301
AP combined with others	15
AP only	286

The following statistics include AP only procedures



Age (years)	min.	Ø	max.
Female	9	41	83
Male	6	35	82
<b>All</b>	<b>6</b>	<b>37</b>	<b>83</b>

Number of patients	n	%
Females	98	35,25
Males	180	64,75
<b>Total</b>	<b>278</b>	

## Accessory Pathway

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	266	93,01
Tachycardiomyopathy	5	1,75
Congenital	5	1,75
Ischemic	3	1,05
Dilated	2	0,7
Hypertensive Cardiomyopathy	2	0,7
Valvular	1	0,35
Post Congenital Surgery	1	0,35
Brugada Syndrome	1	0,35
H(O)CM	0	0
Infiltrative	0	0
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
CABG	0	0
Angioplasty	0	0
Post Valvular Surgery	0	0
Other	0	0
<b>Total</b>	<b>286</b>	

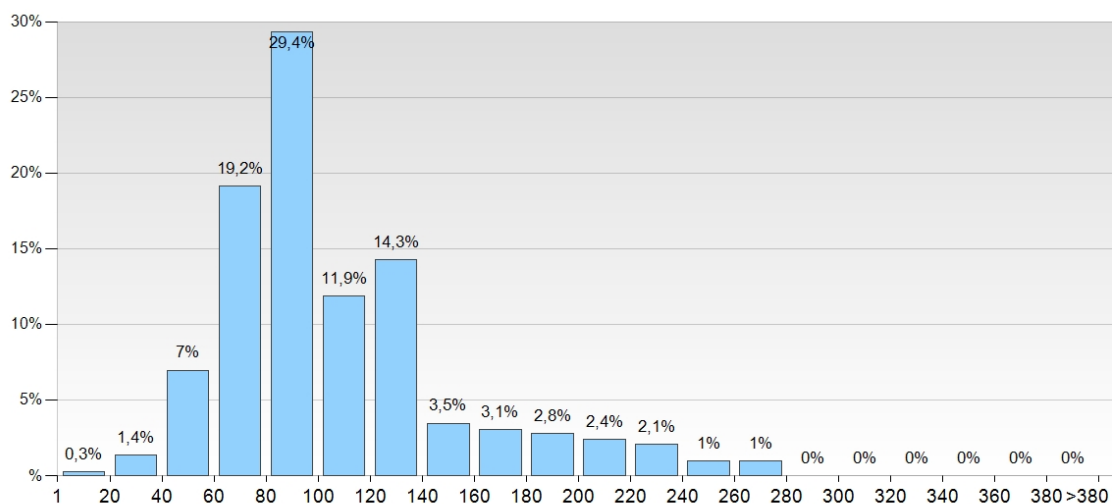
<b>Symptoms</b>	<b>n</b>
Palpitations	235
None	37
Dizziness	27
Syncope	17
Fatigue	16
Dyspnea	15
Other	11
Angina Pectoris	7
SCD	1

### Accessory Pathway

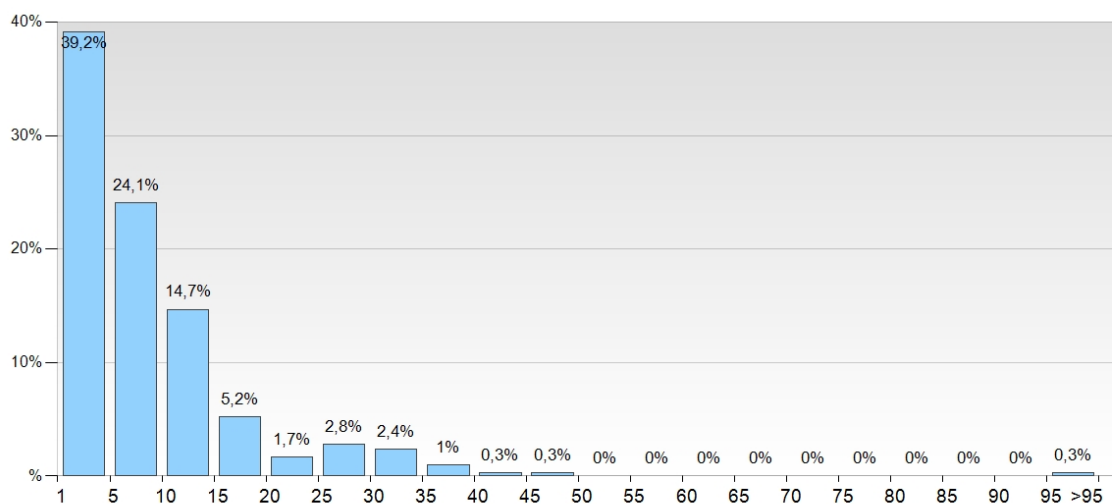
Anesthesia	n	%
Local	232	81,12
General	54	18,88
<b>Total</b>	<b>286</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	8	104,2	276	285	1
Fluoroscopy time	1	8,8	95	264	22

Investigation time (minutes)



Fluoroscopy time (minutes)



## Accessory Pathway

Type	n
WPW	177
Concealed	78
Asymptomatic Preexcitation	26
Other	7
Atrio-Fascicular	6
PJRT	3
Mahaim	3

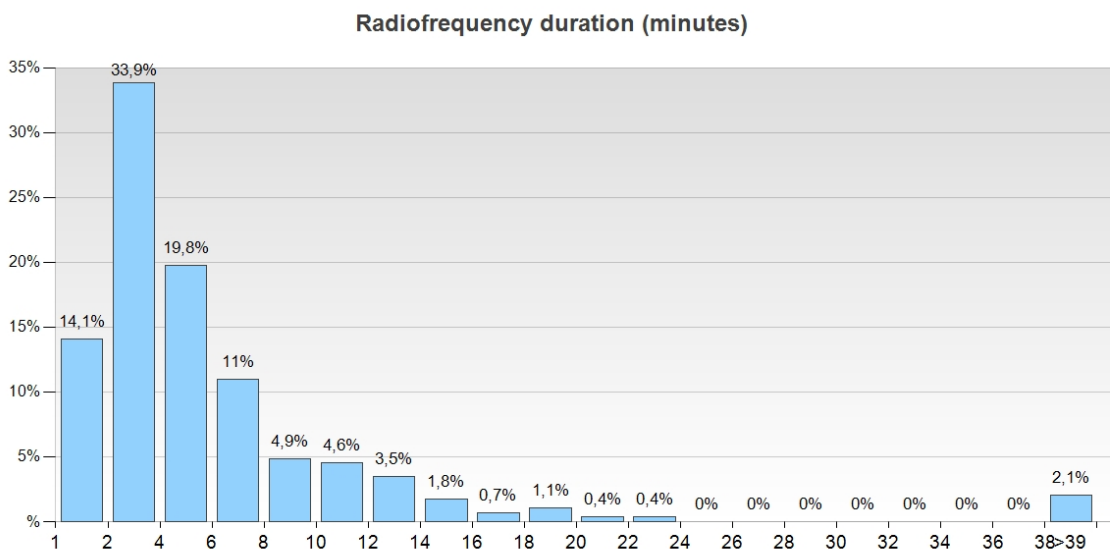
Intervention	n	%
Primary Intervention	253	88,46
Redo	33	11,54

Site of Ablation	n
left	173
right	126
left: Free Wall	96
right: Posteroseptal	63
left: Posteroseptal	56
left: Posterior	26
right: Free Wall	21
right: Anteroseptal	16
right: Parahisian	16
right: Midseptal	11
right: Coronary Sinus Aneurysm	4
right: Posterior	2



### Accessory Pathway

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	6	100	278	5
Irrigated Technology				203	



## Accessory Pathway

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	8	10	13	3	2

	<b>n</b>
Contact force	18

	<b>n</b>
Pulsed field	0

	<b>n</b>
Ethanol	0

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	149	52,1
Trans-septal, Puncture	108	37,76
Arterial	15	5,24
Trans-septal, PFO	12	4,2
Other	1	0,35
Epicardial, Coronary Sinus	1	0,35
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
<b>Total</b>	<b>286</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	208	72,73
Conventional	74	25,87
Lasso	3	1,05
Basket	1	0,35
Non Contact	0	0
HD Mesh	0	0
Other	0	0
<b>Total</b>	<b>286</b>	

## Accessory Pathway

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	285	99,65
Stereotaxis	1	0,35
Hansen	0	0
Other	0	0
<b>Total</b>	<b>286</b>	

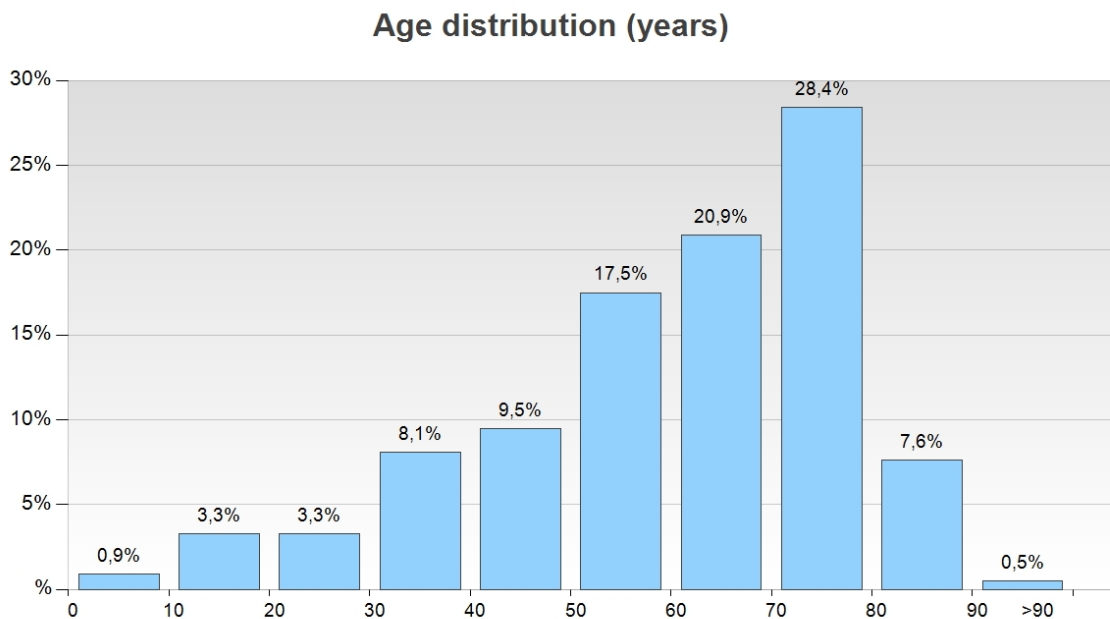
<b>Results</b>	<b>n</b>	<b>%</b>
Success	272	95,1
No success	14	4,9

<b>Periprocedural Complications</b>	<b>n</b>
No complications	282
Transient AV Block	2
Inguinal Hematoma	1
Other	1
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Atrial Tachycardia

Ablation of Atrial Tachycardia (AT)	n
All interventions	373
AT combined with others	162
AT only	211

The following statistics include AT only procedures



Age (years)	min.	Ø	max.
Female	9	60	90
Male	0	62	92
<b>All</b>	<b>0</b>	<b>61</b>	<b>92</b>

Number of patients	n	%
Females	122	59,51
Males	83	40,49
<b>Total</b>	<b>205</b>	

## Atrial Tachycardia

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	152	72,04
Ischemic	14	6,64
Hypertensive Cardiomyopathy	12	5,69
Other	8	3,79
Valvular	7	3,32
Congenital	6	2,84
Tachycardiomyopathy	5	2,37
Dilated	4	1,9
H(O)CM	1	0,47
CABG	1	0,47
Post Valvular Surgery	1	0,47
Infiltrative	0	0
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
Angioplasty	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>211</b>	

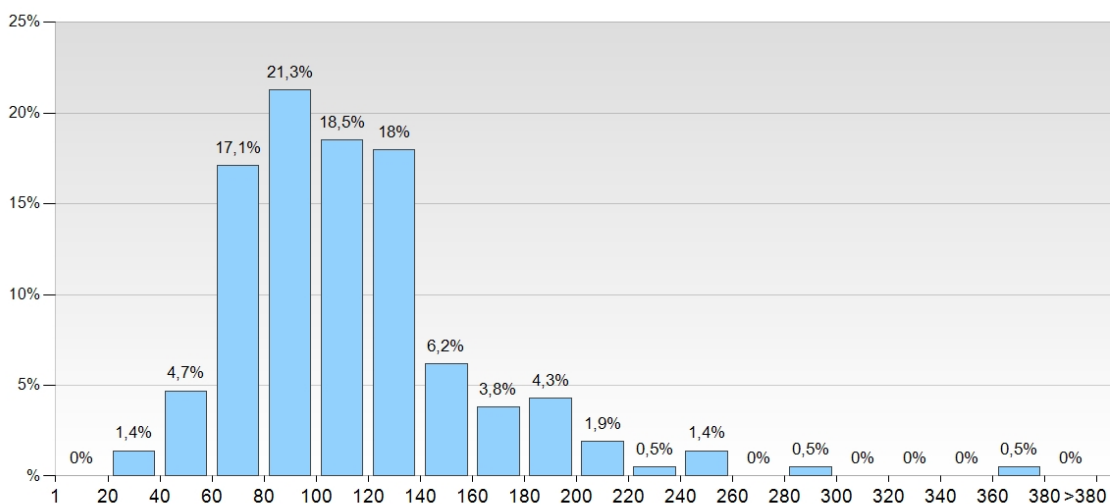
<b>Symptoms</b>	<b>n</b>
Palpitations	186
Dyspnea	34
Fatigue	31
Dizziness	24
Syncope	14
Other	11
None	5
Angina Pectoris	4
SCD	0

## Atrial Tachycardia

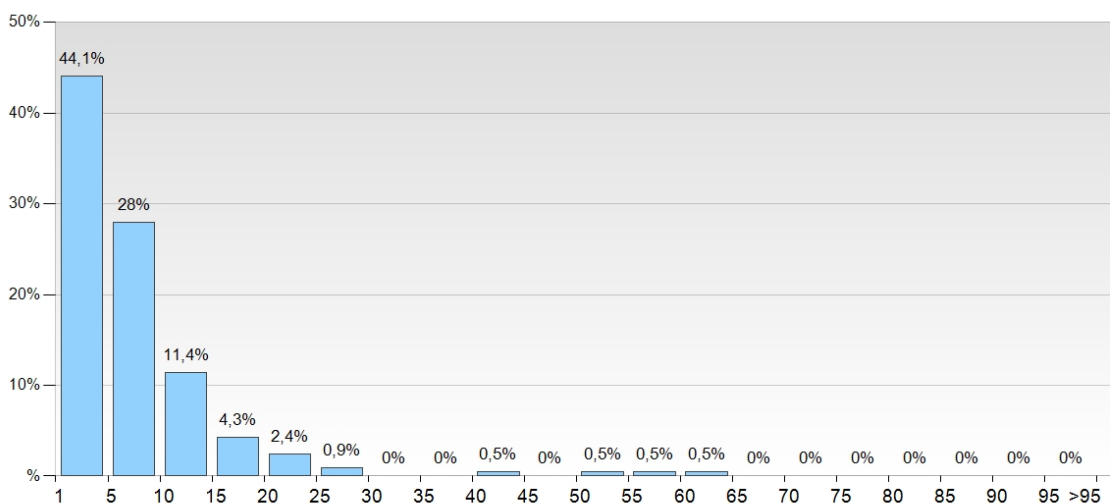
Anesthesia	n	%
Local	186	88,15
General	25	11,85
<b>Total</b>	<b>211</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	30	109,5	360	211	0
Fluoroscopy time	1	7,2	60	196	15

Investigation time (minutes)



Fluoroscopy time (minutes)



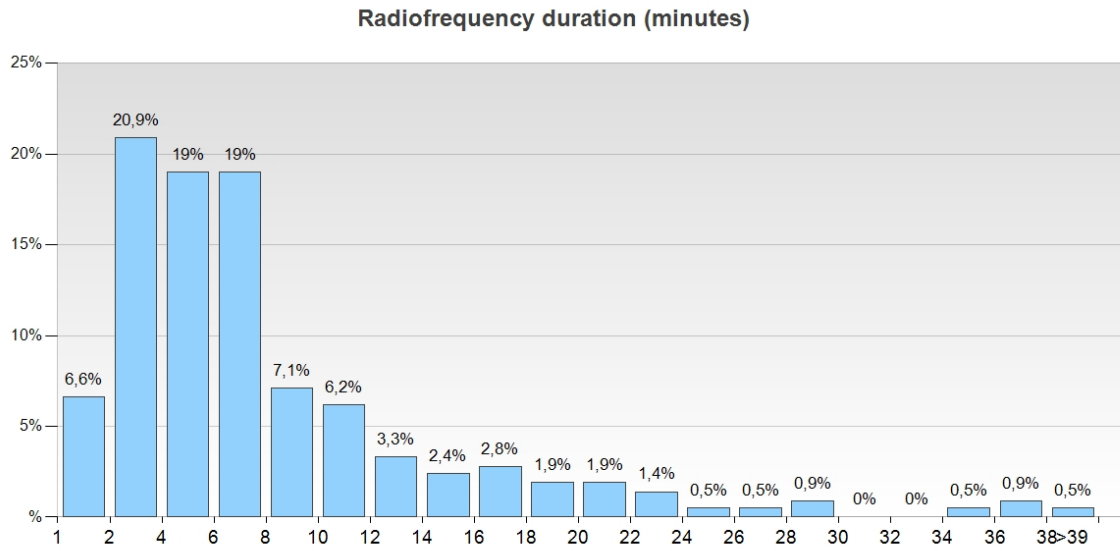
## Atrial Tachycardia

<b>Intervention</b>	<b>n</b>	<b>%</b>
Primary Intervention	183	86,73
Redo	28	13,27

<b>Site of Ablation</b>	<b>n</b>
right	172
right: Other Right	63
left	54
right: Septal Right	41
right: Crista Terminalis	40
right: Peritricuspid	36
left: Other Left	25
left: Septal Left	12
left: Perimitral	8
left: Left Atrial Appendage	8
right: Right Appendage	7
left: Periostial PV	7

## Atrial Tachycardia

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	8	100	203	8
Irrigated Technology				179	





## Atrial Tachycardia

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	0	0	0	0	0

	<b>n</b>
Contact force	11

	<b>n</b>
Pulsed field	0

	<b>n</b>
Ethanol	0

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	163	77,25
Trans-septal, Puncture	40	18,96
Arterial	5	2,37
Trans-septal, PFO	3	1,42
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
Other	0	0
<b>Total</b>	<b>211</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	187	88,63
Conventional	13	6,16
Non Contact	6	2,84
Other	3	1,42
Basket	2	0,95
Lasso	0	0
HD Mesh	0	0
<b>Total</b>	<b>211</b>	

## Atrial Tachycardia

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	211	100
Stereotaxis	0	0
Hansen	0	0
Other	0	0
<b>Total</b>	<b>211</b>	

<b>Results</b>	<b>n</b>	<b>%</b>
Success	197	93,36
No success	14	6,64

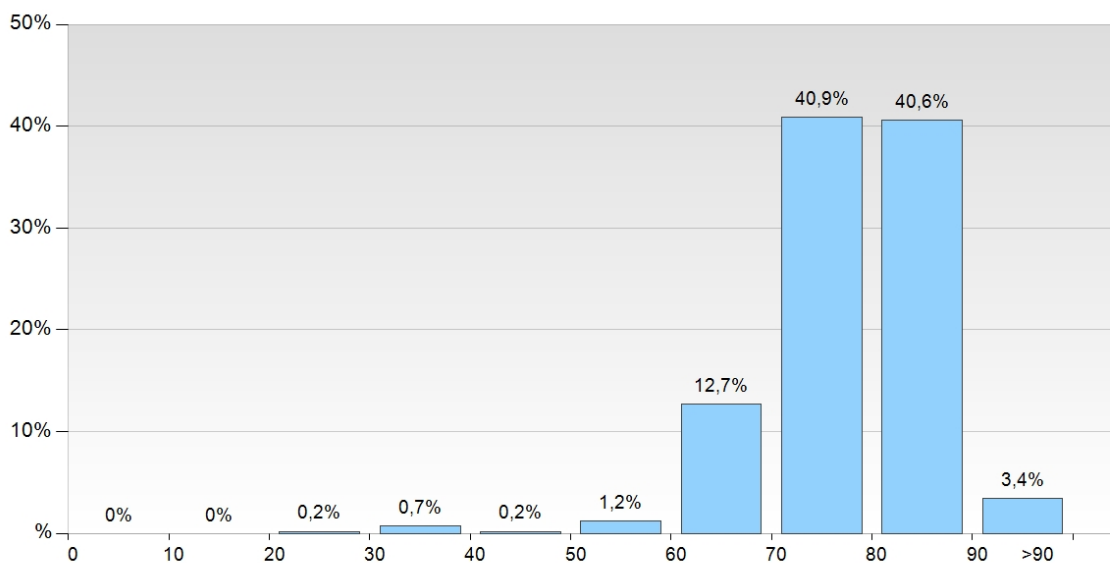
<b>Periprocedural Complications</b>	<b>n</b>
No complications	208
Other	3
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

### Atrioventricular Node (Rate Control in Atr. Fibrillation)

Ablation of AVN(R)	n
All interventions	437
AVN(R) combined with others	21
AVN(R) only	416

The following statistics include AVN(R) only procedures

Age distribution (years)



Age (years)	min.	Ø	max.
Female	26	80	94
Male	32	76	93
<b>All</b>	<b>26</b>	<b>78</b>	<b>94</b>

Number of patients	n	%
Females	246	60,29
Males	162	39,71
<b>Total</b>	<b>408</b>	

## Atrioventricular Node (Rate Control in Atr. Fibrillation)

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	116	27,88
Tachycardiomyopathy	94	22,6
Hypertensive Cardiomyopathy	58	13,94
Ischemic	50	12,02
Valvular	35	8,41
Dilated	23	5,53
Other	21	5,05
H(O)CM	9	2,16
Infiltrative	4	0,96
Post Valvular Surgery	3	0,72
Congenital	2	0,48
Early Repolarization Syndrome	1	0,24
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
CABG	0	0
Angioplasty	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>416</b>	

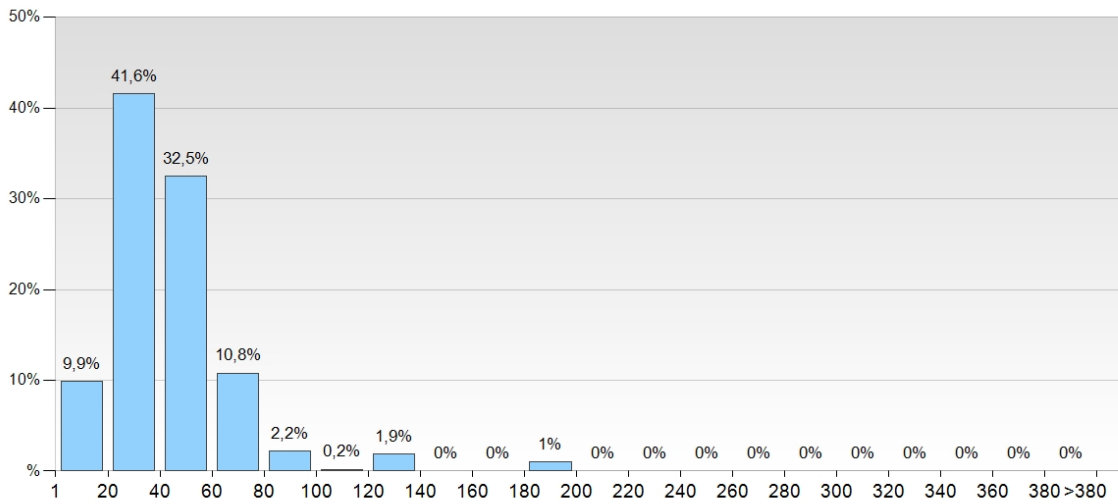
<b>Symptoms</b>	<b>n</b>
Palpitations	314
Dyspnea	191
Fatigue	107
Dizziness	32
Other	20
None	9
Syncope	9
Angina Pectoris	4
SCD	0

### Atrioventricular Node (Rate Control in Atr. Fibrillation)

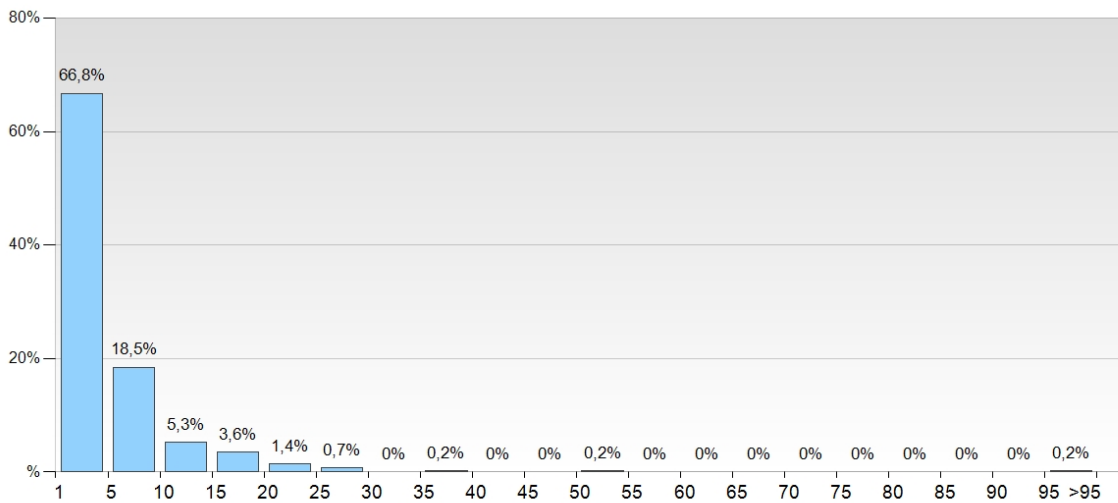
Anesthesia	n	%
Local	410	98,56
General	6	1,44
<b>Total</b>	<b>416</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	1	40,9	180	416	0
Fluoroscopy time	1	5,2	197	404	12

Investigation time (minutes)



Fluoroscopy time (minutes)



## Atrioventricular Node (Rate Control in Atr. Fibrillation)

Type of Fibrillation	n	%
Paroxysmal	94	22,6
Persistent	214	51,44
Long-standing Persistent (>1 Year)	108	25,96

EHRA-Score	n	%
Score I	13	3,13
Score II	145	34,86
Score III	218	52,4
Score IV	40	9,62

Intervention	n	%
Primary Intervention	372	89,42
Redo	24	5,77
Previous AF Abl. Procedure	20	4,81

Antiarrhythmic Drugs	n
Beta Blocker	327
Amiodarone	95
None	38
Calcium Antagonist	32
Digitalis	25
Other	14
Flecainide	9
Sotalol	7
Dronedarone	2
Propafenone	1

## Atrioventricular Node (Rate Control in Atr. Fibrillation)

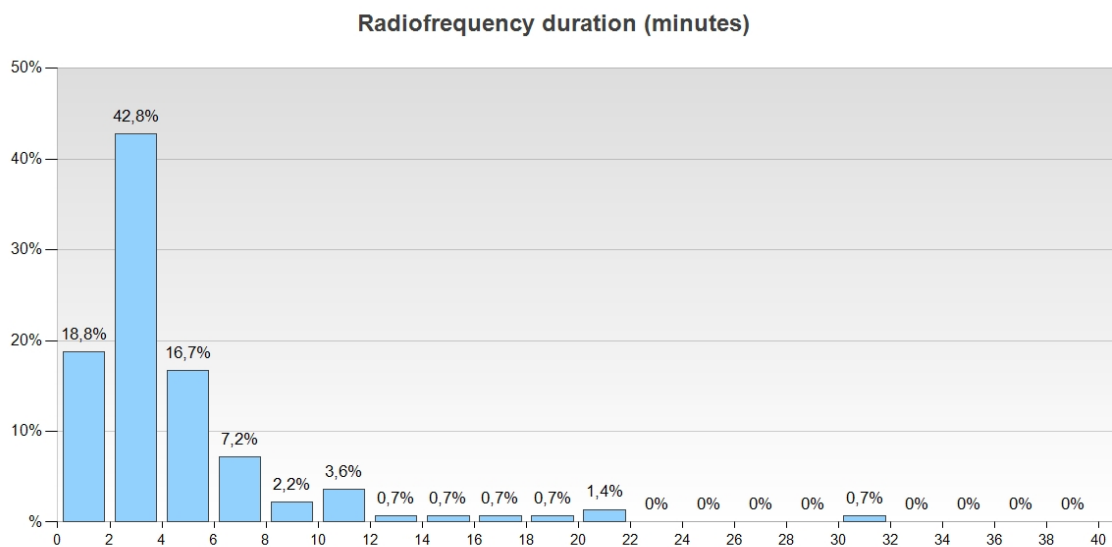
<b>Thromboembolic Risk Factors</b>	<b>n</b>
Hypertension	249
Congestive Heart Failure, LV dysfunction	83
Diabetes	51
Prior MI, Per. Artery Disease, Aortic Plaque	51
Stroke, TIA, Pther Embolic Event	17

<b>Anticoagulation, Antiaggregation</b>	<b>n</b>
Factor Xa-Antagonist	338
Vitamin K-Antagonist	34
Other	17
Direct Thrombin Inhibitor	12
Aspirin	9
None	9
Clopidogrel	4
Ticagrelor	1
Prasugrel	0

<b>CHA<sub>2</sub>DS<sub>2</sub>-VASc Score</b>	<b>n</b>
Score = 0	5
Score = 1	21
Score = 2	67
Score = 3	134
Score = 4	118
Score = 5	50
Score = 6	17
Score = 7	4
<b>Average Score</b>	<b>3,39</b>

### Atrioventricular Node (Rate Control in Atr. Fibrillation)

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	4	31	133	5
Irrigated Technology				89	





## Atrioventricular Node (Rate Control in Atr. Fibrillation)

<b>Cryoablation</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>	<b>n</b>	<b>n<sub>0</sub>*</b>
Total Duration (minutes)	0	0	0	0	0

	<b>n</b>
Contact force	10

	<b>n</b>
Pulsed field	0

	<b>n</b>
Ethanol	0

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	411	98,8
Arterial	4	0,96
Trans-septal, Puncture	1	0,24
Trans-septal, PFO	0	0
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Epicardial, Sub-xiphoid	0	0
Trans-septal Puncture+arterial	0	0
Other	0	0
<b>Total</b>	<b>416</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
Conventional	334	80,29
3D Mapping	81	19,47
Basket	1	0,24
Lasso	0	0
Non Contact	0	0
HD Mesh	0	0
Other	0	0
<b>Total</b>	<b>416</b>	

## Atrioventricular Node (Rate Control in Atr. Fibrillation)

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	412	99,04
Other	4	0,96
Stereotaxis	0	0
Hansen	0	0
<b>Total</b>	<b>416</b>	

<b>Results</b>	<b>n</b>	<b>%</b>
Success	413	99,28
No success	3	0,72

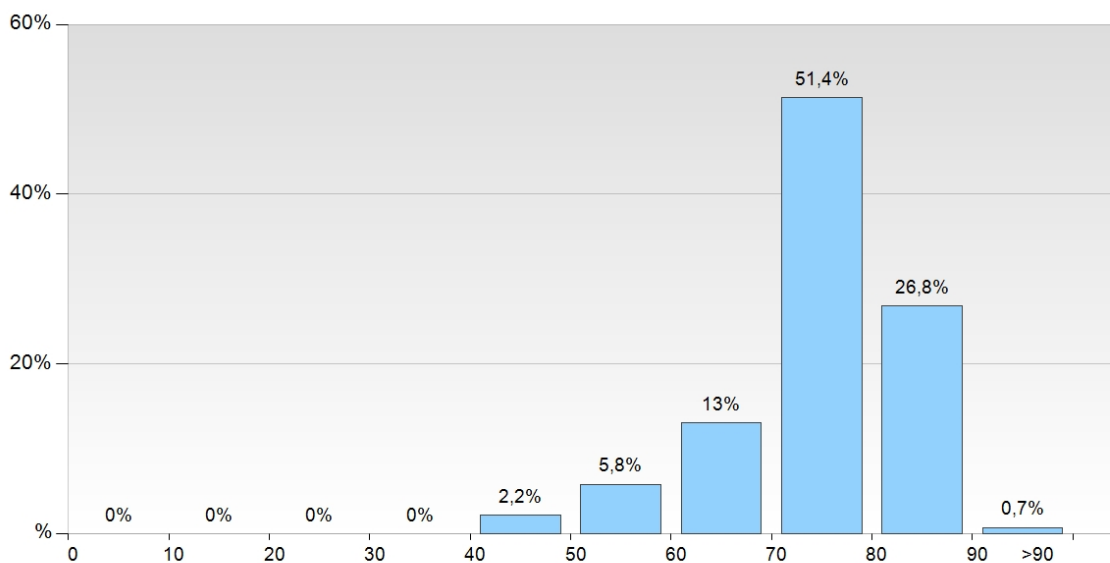
<b>Periprocedural Complications</b>	<b>n</b>
No complications	416
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0
Other	0

## Atrioventricular Node (to resynchronisation)

<b>Ablation of AVN</b>	<b>n</b>
All interventions	156
AVN combined with others	18
AVN only	138

The following statistics include AVN only procedures

**Age distribution (years)**



<b>Age (years)</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>
Female	62	79	90
Male	42	74	93
<b>All</b>	<b>42</b>	<b>76</b>	<b>93</b>

<b>Number of patients</b>	<b>n</b>	<b>%</b>
Females	39	28,26
Males	99	71,74
<b>Total</b>	<b>138</b>	

## Atrioventricular Node (to resynchronisation)

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
Tachycardiomyopathy	34	24,64
Ischemic	24	17,39
None	17	12,32
Dilated	16	11,59
Hypertensive Cardiomyopathy	14	10,14
Valvular	13	9,42
Other	8	5,8
H(O)CM	4	2,9
Post Valvular Surgery	3	2,17
Infiltrative	2	1,45
Congenital	1	0,72
Angioplasty	1	0,72
Brugada Syndrome	1	0,72
Channelopathy long QT	0	0
Channelopathy short QT	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
RV Cardiomyopathy	0	0
CABG	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>138</b>	

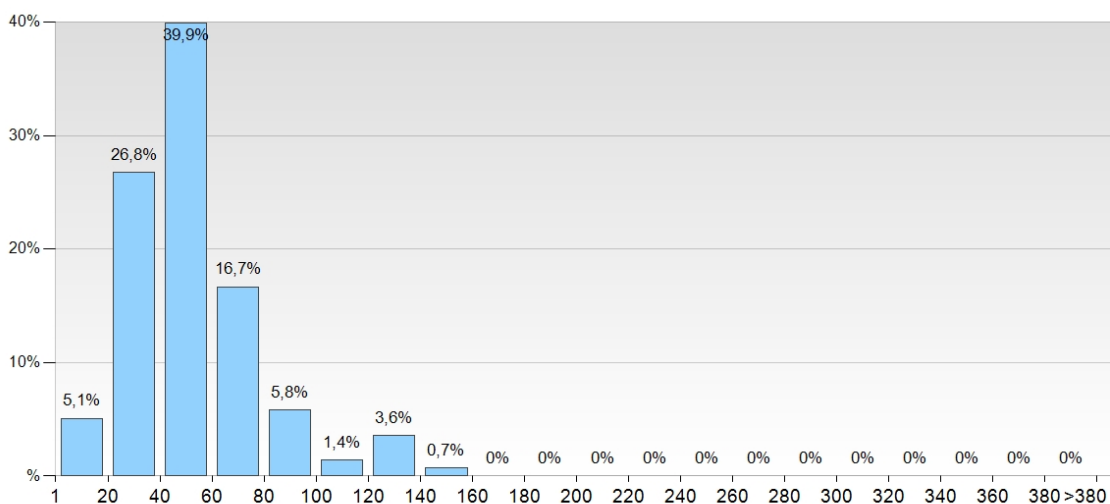
<b>Symptoms</b>	<b>n</b>
Dyspnea	87
Palpitations	78
Fatigue	54
Dizziness	20
Other	8
Syncope	5
None	2
Angina Pectoris	1
SCD	0

### Atrioventricular Node (to resynchronisation)

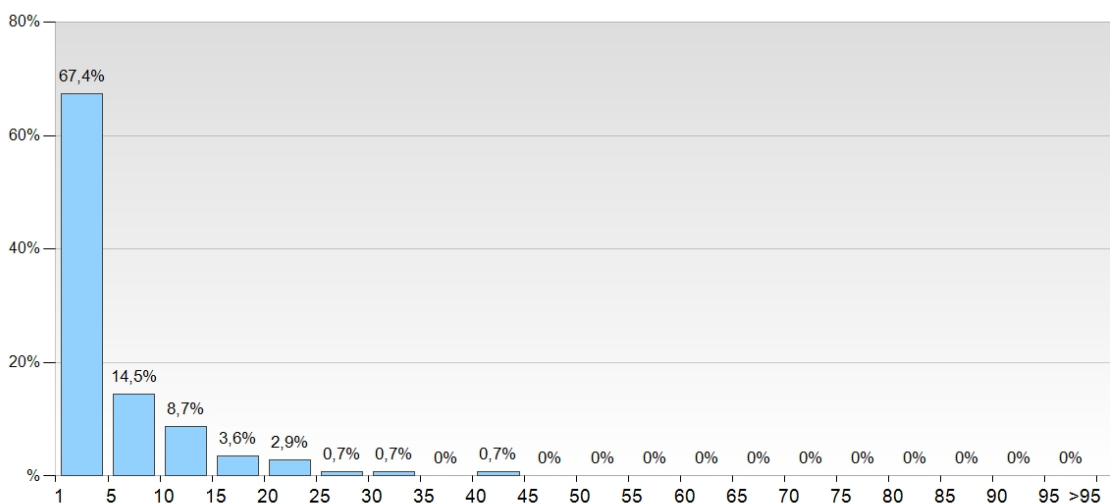
Anesthesia	n	%
Local	133	96,38
General	5	3,62
<b>Total</b>	<b>138</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	5	49,9	150	138	0
Fluoroscopy time	1	5,4	40	137	1

Investigation time (minutes)



Fluoroscopy time (minutes)



## Atrioventricular Node (to resynchronisation)

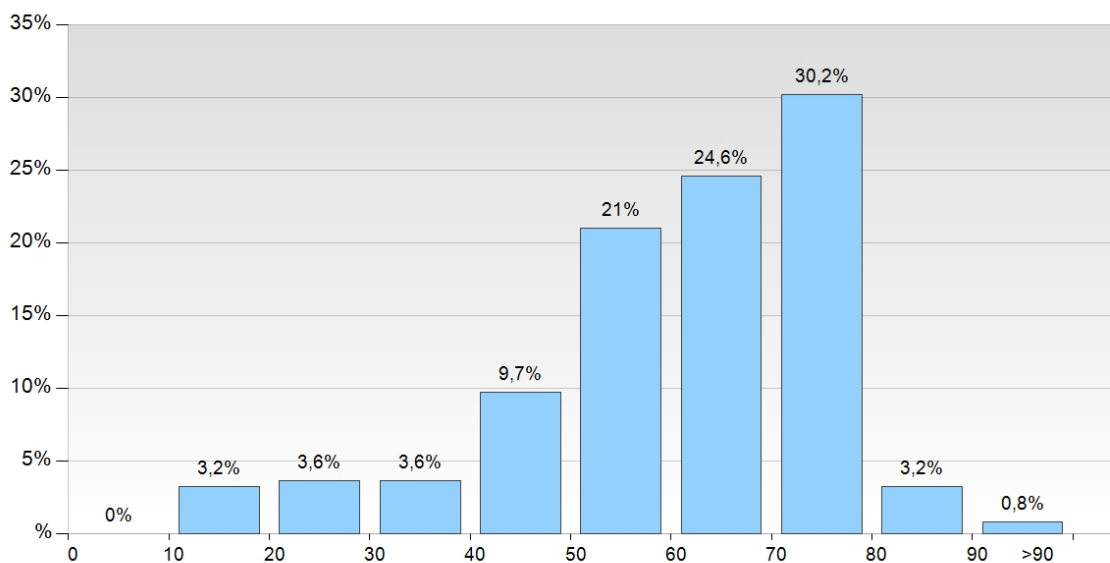
<b>Periprocedural Complications</b>	<b>n</b>
No complications	137
Other	1
Inguinal Hematoma	0
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pericardial Effusion	0
Tamponade	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Ventricular Tachycardia

<b>Ablation of Ventricular Tachycardia (VT)</b>	<b>n</b>
All interventions	262
VT combined with others	14
VT only	248

The following statistics include VT only procedures

**Age distribution (years)**



<b>Age (years)</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>
Female	12	53	82
Male	16	63	95
<b>All</b>	<b>12</b>	<b>62</b>	<b>95</b>

<b>Number of patients</b>	<b>n</b>	<b>%</b>
Females	44	18,97
Males	188	81,03
<b>Total</b>	<b>232</b>	

## Ventricular Tachycardia

<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
Ischemic	113	45,56
None	67	27,02
Tachycardiomyopathy	12	4,84
Dilated	11	4,44
RV Cardiomyopathy	8	3,23
H(O)CM	7	2,82
Other	7	2,82
Valvular	6	2,42
Infiltrative	5	2,02
Congenital	4	1,61
Hypertensive Cardiomyopathy	4	1,61
Brugada Syndrome	1	0,4
Channelopathy long QT	1	0,4
Post Valvular Surgery	1	0,4
Angioplasty	1	0,4
Channelopathy short QT	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
CABG	0	0
Post Congenital Surgery	0	0
<b>Total</b>	<b>248</b>	

<b>Symptoms</b>	<b>n</b>
Palpitations	197
Dizziness	49
Dyspnea	48
Syncope	34
SCD	28
Fatigue	24
Other	20
None	11
Angina Pectoris	8

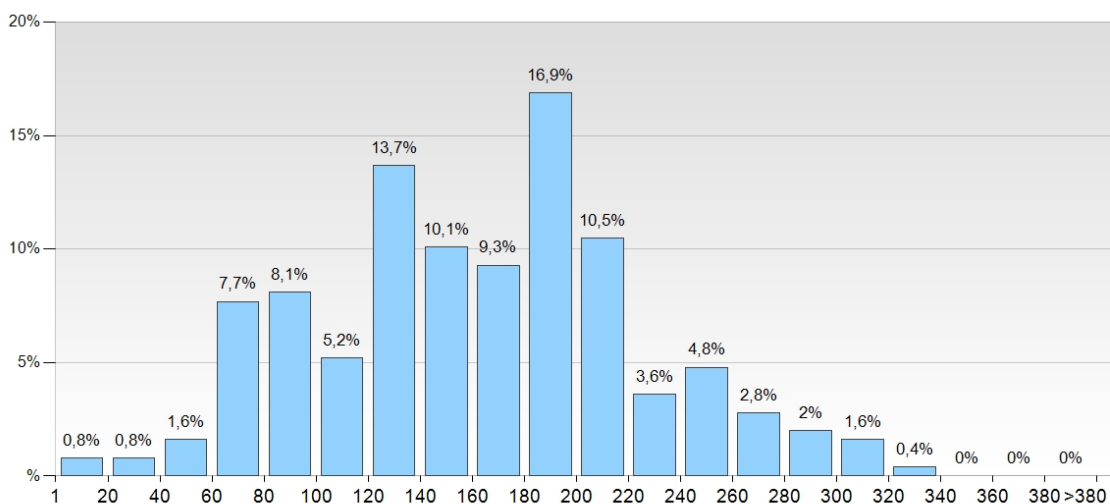


### Ventricular Tachycardia

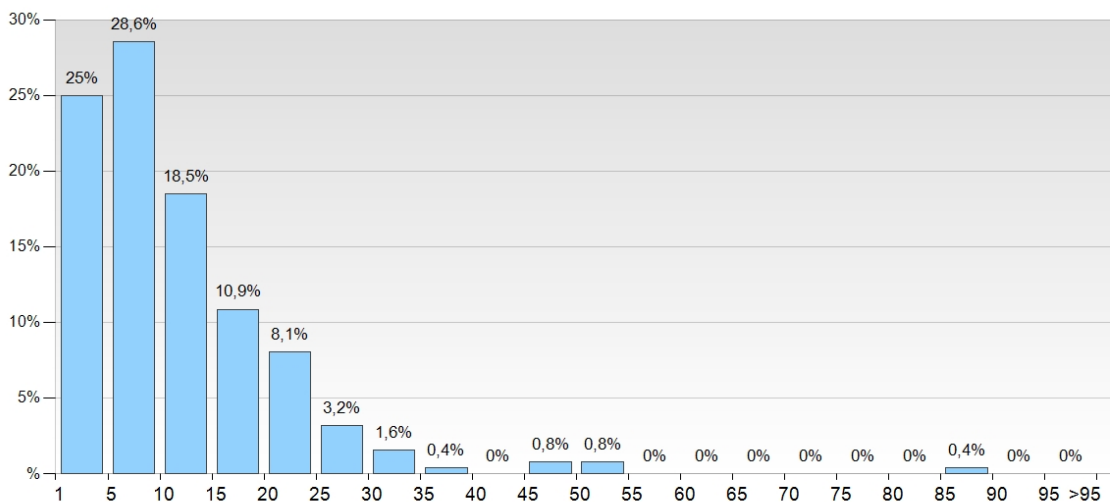
Anesthesia	n	%
Local	155	62,5
General	93	37,5
<b>Total</b>	<b>248</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	2	158,9	321	248	0
Fluoroscopy time	1	11,4	86	244	4

Investigation time (minutes)



Fluoroscopy time (minutes)



## Ventricular Tachycardia

Type	n
Monomorphic	209
Polymorphic	41

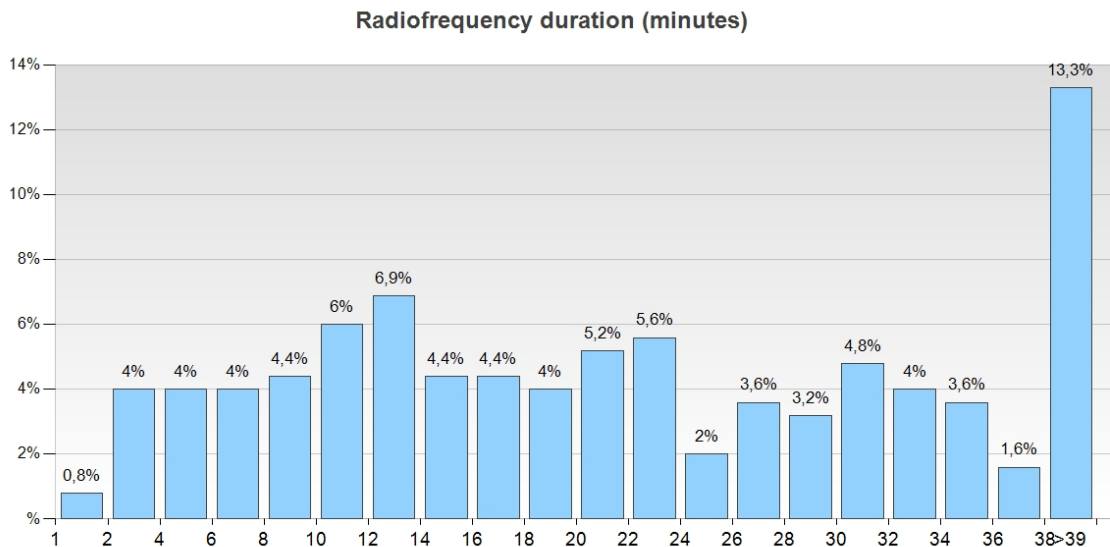
Location	n
Other	118
RVOT / Cusp / PA	49
LVOT / Cusp	40
Mitral Annulus	27
Epicardial LV / RV	21
Tricuspid Annulus	11
Fascicular	11
Left Pap Muscle	10
Parahisian	2
Right Pap Muscle	1
BB Reentry	0

Intervention	n	%
Primary Intervention	181	72,98
Redo	67	27,02

Antiarrhythmic Drugs	n
Beta Blocker	163
Amiodarone	91
None	36
Other	13
Calcium Antagonist	12
Flecainide	12
Sotalol	5
Propafenone	0

### Ventricular Tachycardia

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	25	190	227	21
Irrigated Technology				207	



Cryoablation	min.	Ø	max.	n	n <sub>0</sub> *
Total Duration (minutes)	0	0	0	0	0

	<b>n</b>
Laser ablation	0
	<b>n</b>
Contact force	18
	<b>n</b>
Pulsed field	0
	<b>n</b>
Ethanol	0
	<b>n</b>
Radio ablation	0
	<b>n</b>
Bipolar ablation	0

Number of Induced VT: 385

## Ventricular Tachycardia

<b>Access</b>	<b>n</b>	<b>%</b>
Trans-septal, Puncture	90	36,29
Venous	87	35,08
Arterial	38	15,32
Epicardial, Sub-xiphoid	17	6,85
Trans-septal, PFO	8	3,23
Trans-septal Puncture+arterial	6	2,42
Other	2	0,81
Epicardial, Coronary Sinus	0	0
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
<b>Total</b>	<b>248</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	231	93,15
Conventional	10	4,03
Lasso	4	1,61
HD Mesh	1	0,4
Other	1	0,4
Non Contact	1	0,4
Basket	0	0
<b>Total</b>	<b>248</b>	

## Ventricular Tachycardia

<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	248	100
Stereotaxis	0	0
Hansen	0	0
Other	0	0
<b>Total</b>	<b>248</b>	

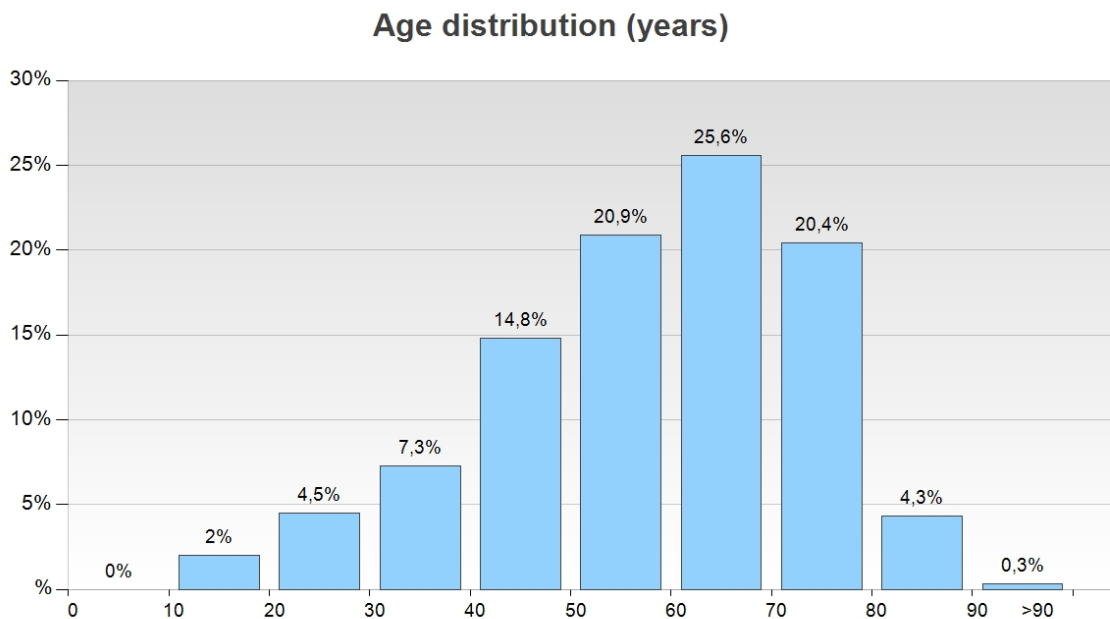
<b>Results</b>	<b>n</b>	<b>%</b>
All Induces VT Ablated	147	59,27
Target VT Ablated	86	34,68
Failure	15	6,05

<b>Periprocedural Complications</b>	<b>n</b>
No complications	243
Other	2
Inguinal Hematoma	1
Pericardial Effusion	1
Tamponade	1
AV Fistula	0
Pseudoaneurysm	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0

## Premature Ventricular Contraction

<b>Ablation of PVC</b>	<b>n</b>
All interventions	411
PVC combined with others	13
PVC only	398

The following statistics include PVC only procedures



<b>Age (years)</b>	<b>min.</b>	<b>Ø</b>	<b>max.</b>
Female	17	54	89
Male	16	61	100
<b>All</b>	<b>16</b>	<b>58</b>	<b>100</b>

<b>Number of patients</b>	<b>n</b>	<b>%</b>
Females	155	40,26
Males	230	59,74
<b>Total</b>	<b>385</b>	

## Premature Ventricular Contraction

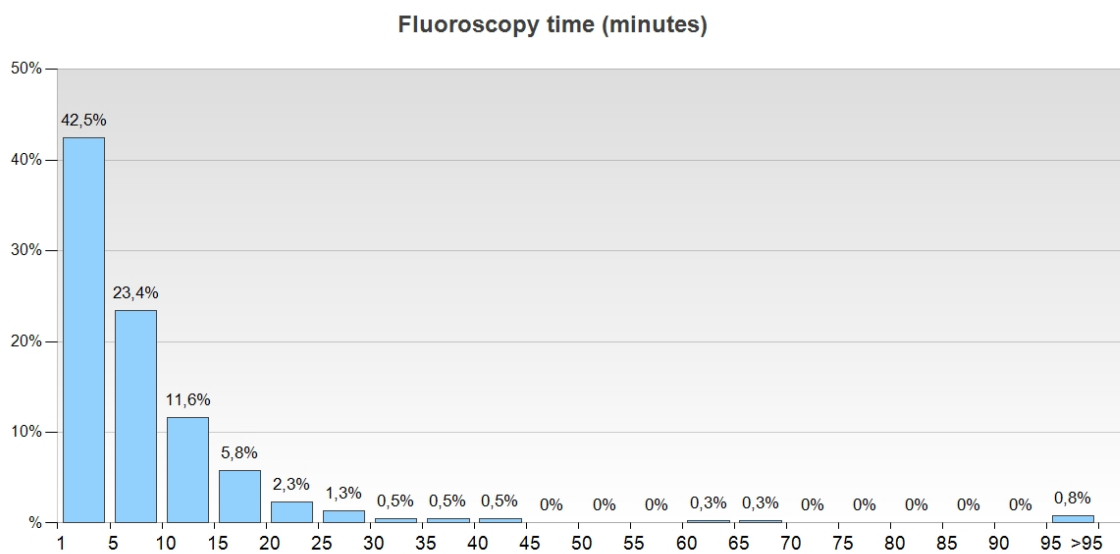
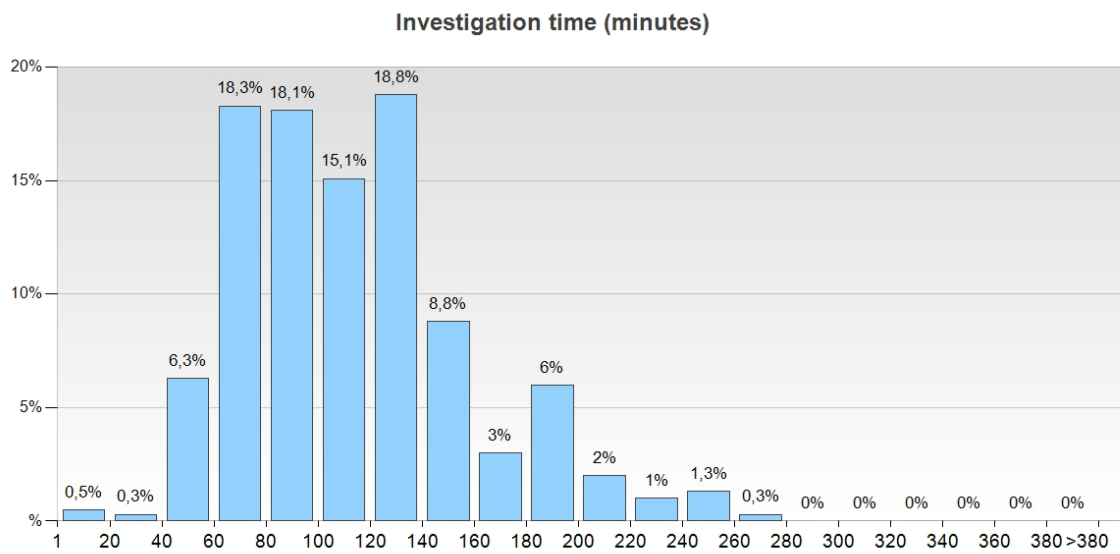
<b>Cardiopathy (Underlying heart disease)</b>	<b>n</b>	<b>%</b>
None	238	59,8
Ischemic	51	12,81
Dilated	28	7,04
Valvular	18	4,52
Hypertensive Cardiomyopathy	17	4,27
Tachycardiomyopathy	17	4,27
Other	15	3,77
H(O)CM	3	0,75
Congenital	3	0,75
Infiltrative	3	0,75
Post Congenital Surgery	2	0,5
Channelopathy long QT	1	0,25
RV Cardiomyopathy	1	0,25
Post Valvular Surgery	1	0,25
Channelopathy short QT	0	0
Brugada Syndrome	0	0
Early Repolarization Syndrome	0	0
Catecholaminergic Polymorphic VT	0	0
CABG	0	0
Angioplasty	0	0
<b>Total</b>	<b>398</b>	

<b>Symptoms</b>	<b>n</b>
Palpitations	318
Dyspnea	80
Fatigue	47
Dizziness	38
None	21
Other	21
Syncope	13
Angina Pectoris	11
SCD	2

## Premature Ventricular Contraction

Anesthesia	n	%
Local	373	93,72
General	25	6,28
<b>Total</b>	<b>398</b>	

Minutes	min.	Ø	max.	n	n <sub>0</sub> *
Investigation time	3	109,6	260	397	1
Fluoroscopy time	1	9,3	475	356	42





## Premature Ventricular Contraction

Type	n
Monomorphic	367
Polymorphic	34
Ischemic	5

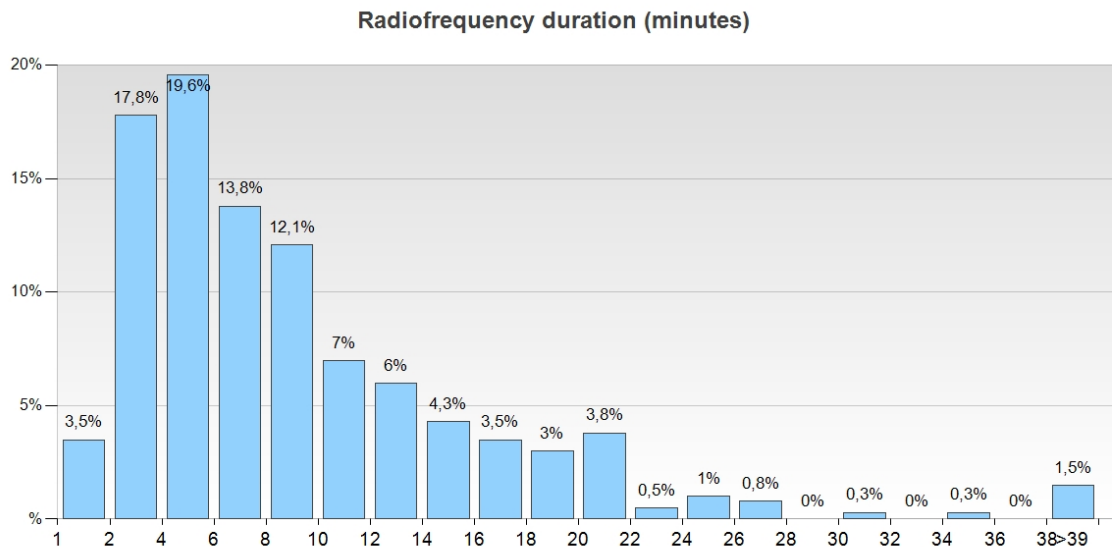
Location	n
RVOT	177
LVOT / Aortic Cusp	140
Other	86
HP System	19
Left Fascicular PVC	8

Site of Ablation	n
Left Ventricle	218
Right Ventricle	211

Intervention	n	%
Primary Intervention	355	89,2
Redo	43	10,8

### Premature Ventricular Contraction

Radiofrequency	min.	Ø	max.	n	n <sub>0</sub> *
Duration (minutes)	1	9	307	393	5
Irrigated Technology				346	



Cryoablation	min.	Ø	max.	n	n <sub>0</sub> *
Total Duration (minutes)	0	0	0	0	0

	n
Laser ablation	0

	n
Contact force	24

	n
Pulsed field	1

	n
Ethanol	0

	n
Radio ablation	1

	n
Bipolar ablation	0

## Premature Ventricular Contraction

<b>Access</b>	<b>n</b>	<b>%</b>
Venous	208	52,26
Arterial	129	32,41
Trans-septal, Puncture	46	11,56
Trans-septal, PFO	8	2,01
Other	5	1,26
Epicardial, Sub-xiphoid	1	0,25
Epicardial, Coronary Sinus	1	0,25
Epicardial, Thoracotomy	0	0
Epicardial, Thoracoscopy	0	0
Trans-septal Puncture+arterial	0	0
<b>Total</b>	<b>398</b>	

<b>Mapping</b>	<b>n</b>	<b>%</b>
3D Mapping	386	96,98
Conventional	9	2,26
Basket	2	0,5
Other	1	0,25
Lasso	0	0
Non Contact	0	0
HD Mesh	0	0
<b>Total</b>	<b>398</b>	

## Premature Ventricular Contraction

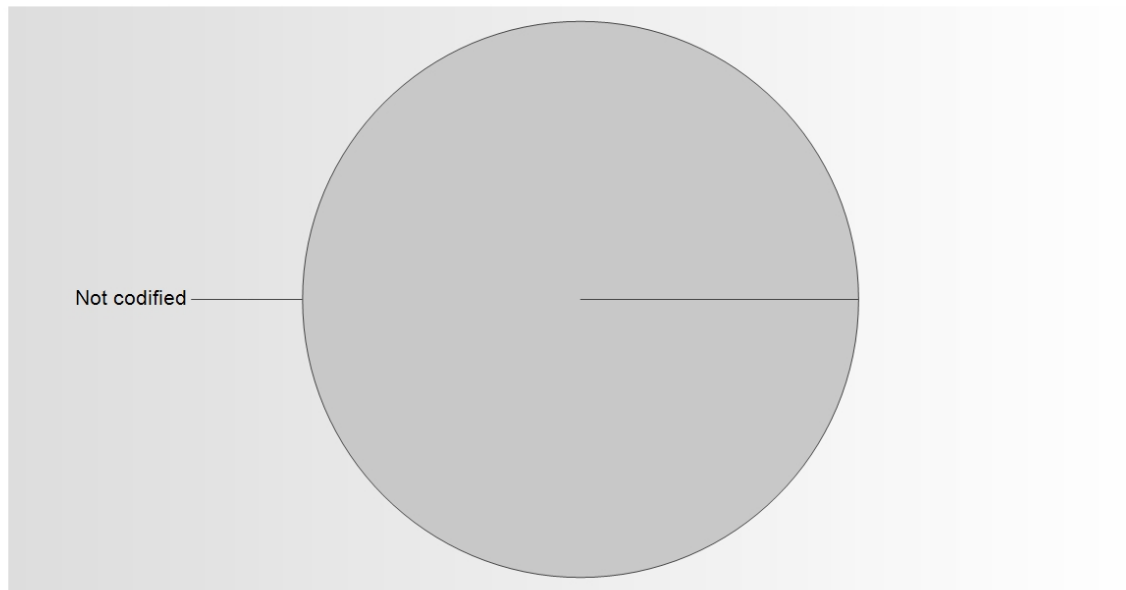
<b>Catheter Steering</b>	<b>n</b>	<b>%</b>
Conventional	397	99,75
Stereotaxis	1	0,25
Hansen	0	0
Other	0	0
<b>Total</b>	<b>398</b>	

<b>Results</b>	<b>n</b>	<b>%</b>
Success	364	91,46
No Success	34	8,54

<b>Periprocedural Complications</b>	<b>n</b>
No complications	391
Pericardial Effusion	5
Inguinal Hematoma	1
Pseudoaneurysm	1
Tamponade	1
AV Fistula	0
Aortic Dissection	0
Arterial Thrombosis	0
Arterial Occlusion	0
Pulmonary Embolism	0
TIA	0
Stroke	0
Myocardial Infarction	0
Pneumothorax	0
Hemothorax	0
Transient AV Block	0
High Degree or Complete AV Block	0
Phrenic Nerve Paralysis	0
Infection	0
PV Stenosis	0
Valvular Lesions	0
Pulmonary Oedema	0
Death	0
Other	0

## Completion

### Completion



<b>Cause of completion</b>	<b>n</b>	<b>%</b>
Not codified	3	100
Regular End of Follow-Up	0	0
Lost to Follow-Up	0	0
Death	0	0
Change from Rhythm Control to Rate Control	0	0
<b>Total</b>	<b>3</b>	

The statistics are based on the data from SwissEPnet from 01.01.2022 to 31.12.2022. Its completeness and correctness depends on the complete and correct data entry in the respective hospital. EPS are counted as interventions.

0,2% incomplete records are not included in these statistics.

$n_0^*$ : Investigations were reported with 0 minutes and are not included in these statistics.

Ø depicts the arithmetic mean.

Text, numbers, and figures may only be copied with permission by the Swiss Rhythmology Foundation, which cannot be held liable for the content.

## Abbreviations

AF = Atrial Fibrillation  
RAFlu = Right Atrial Flutter  
LAFlu = Left Atrial Flutter  
AT = Atrial Tachycardia  
AP = Accessory Pathway  
AVNRT = Atrioventricular Nodal Reentry Tachycardia  
VT = Ventricular Tachycardia  
PVC = Premature Ventricular Contraction  
AVN = Atrioventricular Node (to resynchronisation)  
AVN(R) = Atrioventricular Node (Rate Control in Atr. Fibrillation)  
Other = Other Arrhythmia

The cover picture shows a steerable ablation catheter from the late 90s