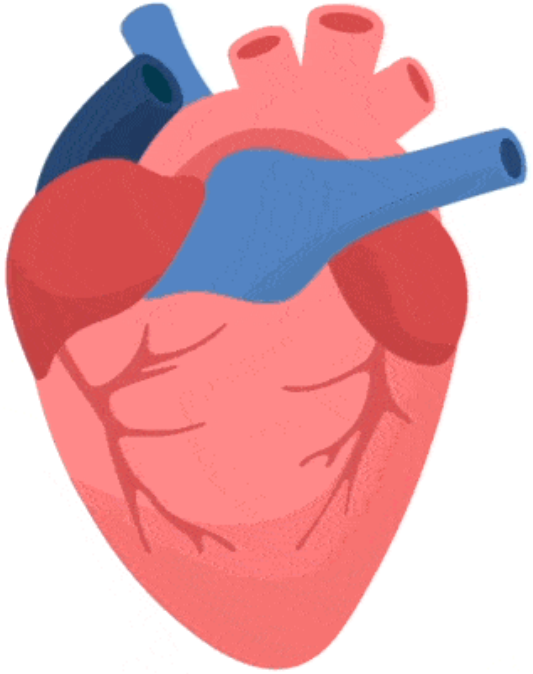
LONG-TERM OUTCOMES OF PATIENTS WITH IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS IMPLANTED IN CHILDHOOD: TRANSVENOUS VS. NONTRANSVENOUS SYSTEMS



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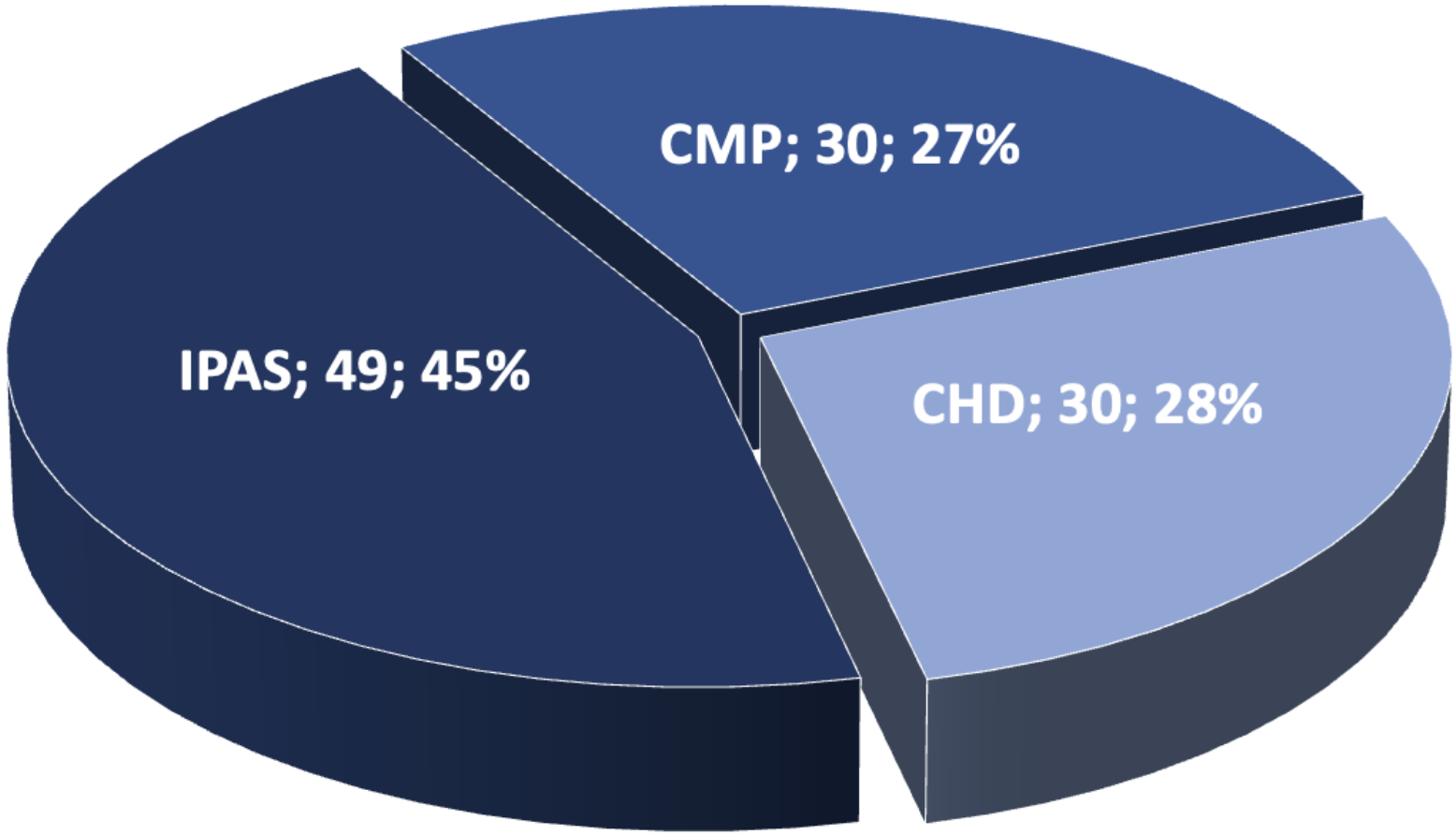
Aims

- long-term outcomes of travenous vs. nontransvenous ICD systems
  - characteristics of implanted ICD systems
  - appropriate/inappropriate therapy
  - number of complications leading to surgical revisions

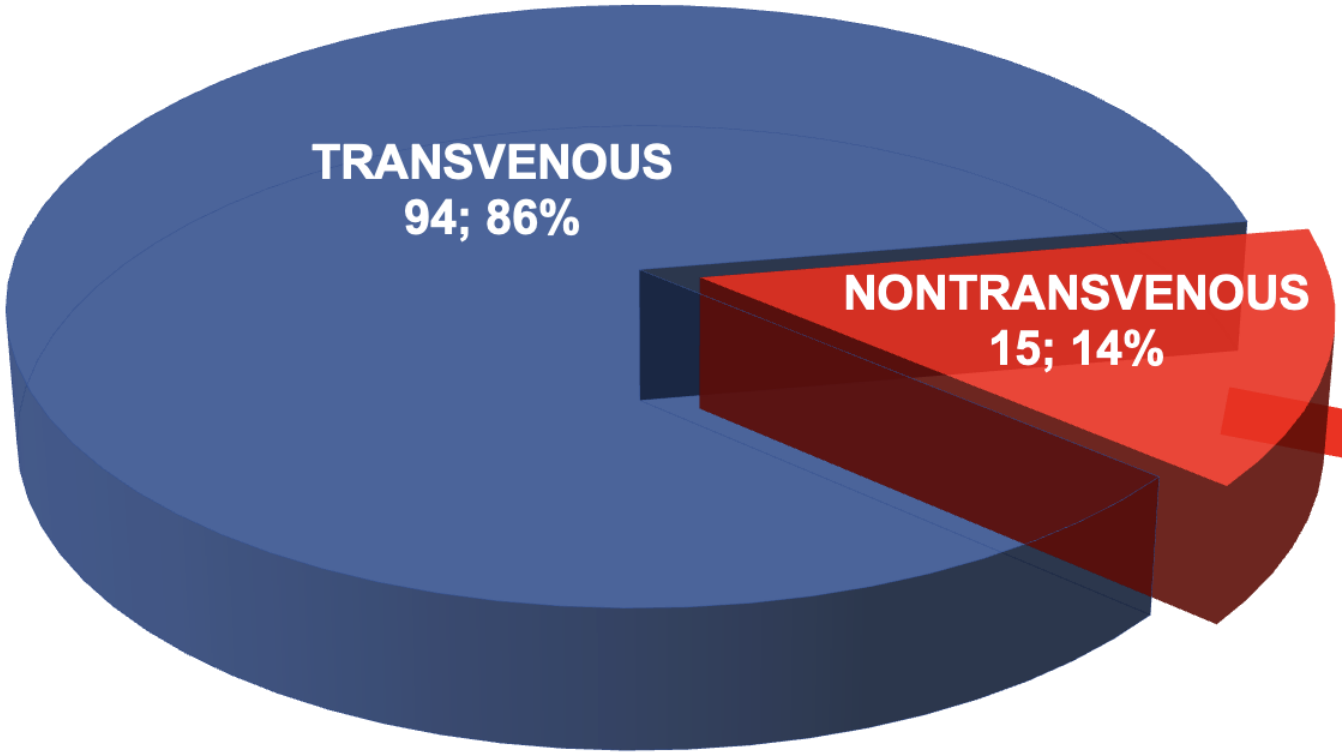
Patients with ICD (S-ICDs excluded, N = 109, 1993 - 2022)

	Transvenous systems	Nontransvenous systems	p
Number of patients	94	15	
Boys/girls	66/28	8/7	
Age (years, median, IQR)	15.3 (12.7 – 16.9)	4.6 (2.1 – 8.8; **min. 2.1 m.**)	<0.001
Weight at 1st implant (kg, median, IQR)	58.6 (47.2 – 74.0)	17.0 (13.5 – 22.0; **min. 4,4**)	<0.001
Height at 1st implant (cm, median)	169.0 (158.0 – 177.0)	105.0 (89.0 – 130.0; **min. 55.0**)	<0.001
Primary/secondary prevention	38/56	2/13	0.083
Follow-up (years, median, IQR)	6.9 (2.7 – 16.5)	5.4 (1.9 – 10.4)	0.968

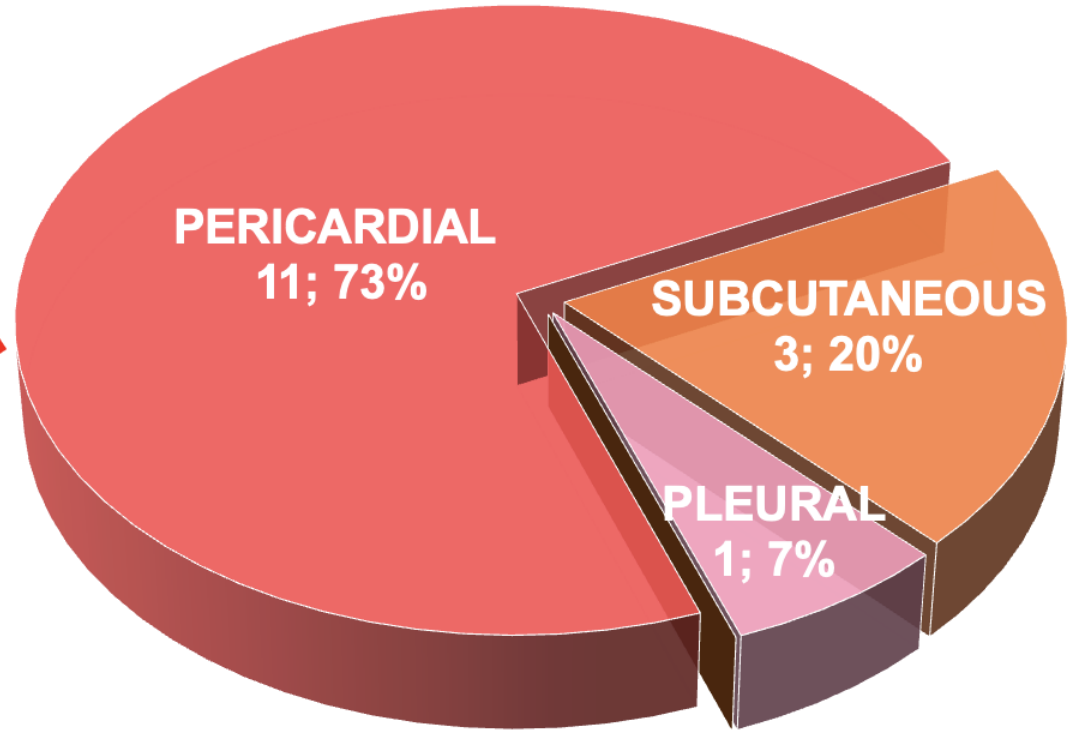
DIAGNOSIS


CMP; 30; 27%
CHD; 30; 28%
IPAS; 49; 45%
INHERITED PRIMARY ARRHYTHMIA SYNDROMES (IPAS)
CARDIOMYOPATHIES (CMP)
CONGENITAL HEART DEFECTS (CHD)

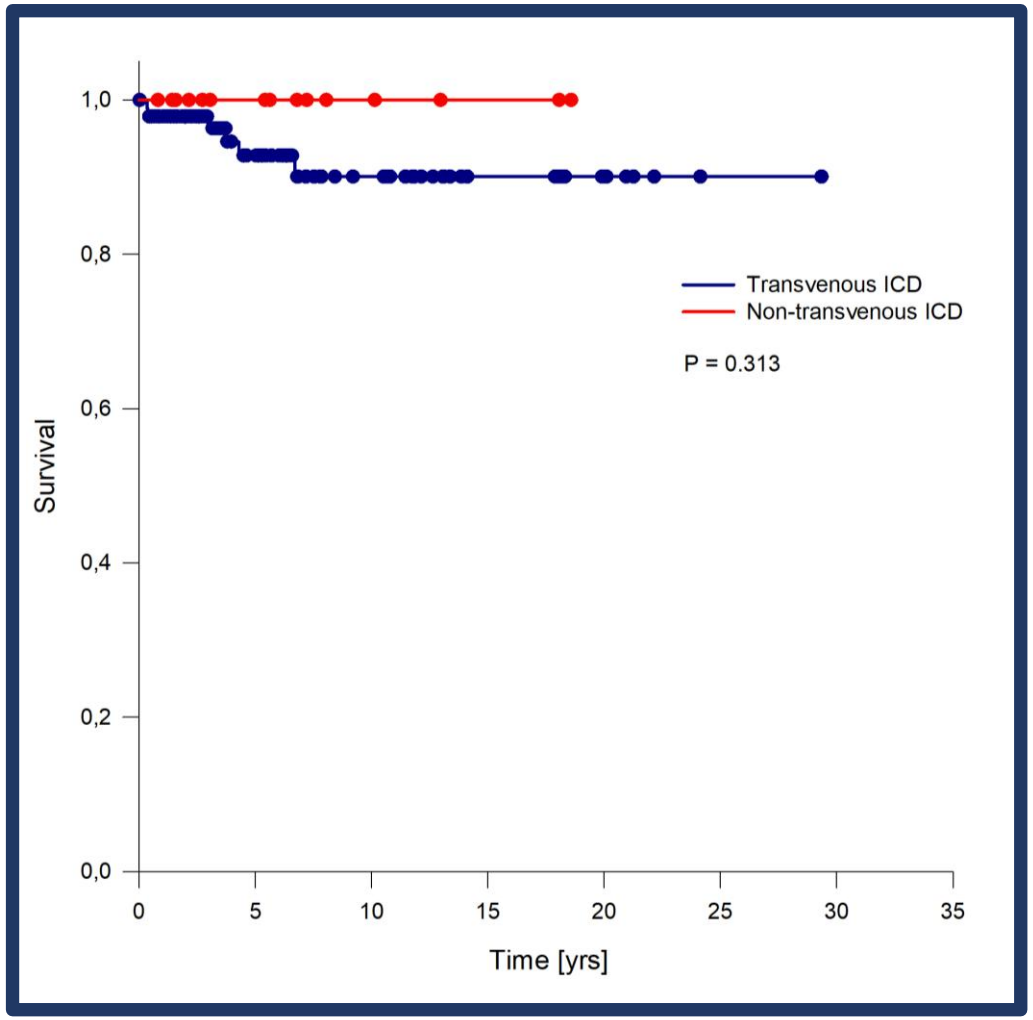
ICD TYPE

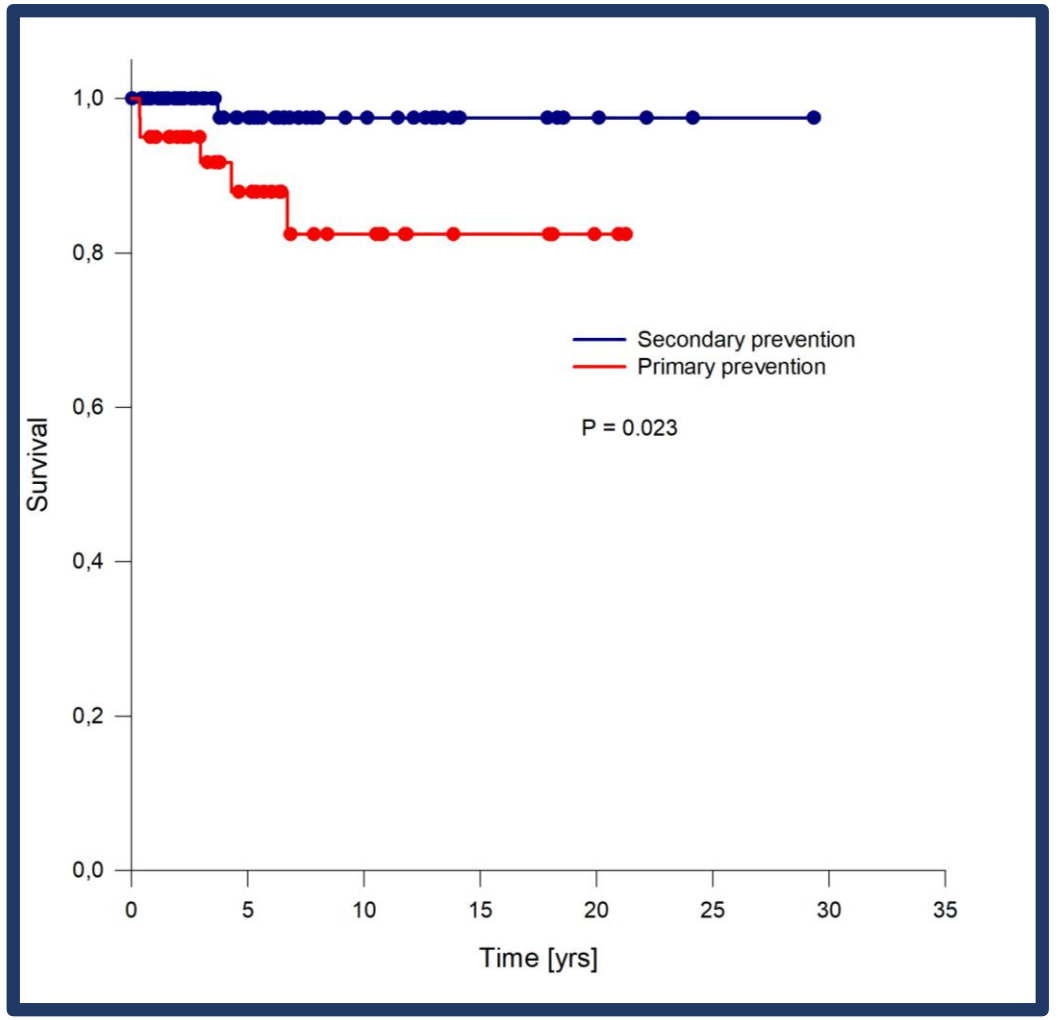


NONTRANSVENOUS ICDs



SURVIVAL:



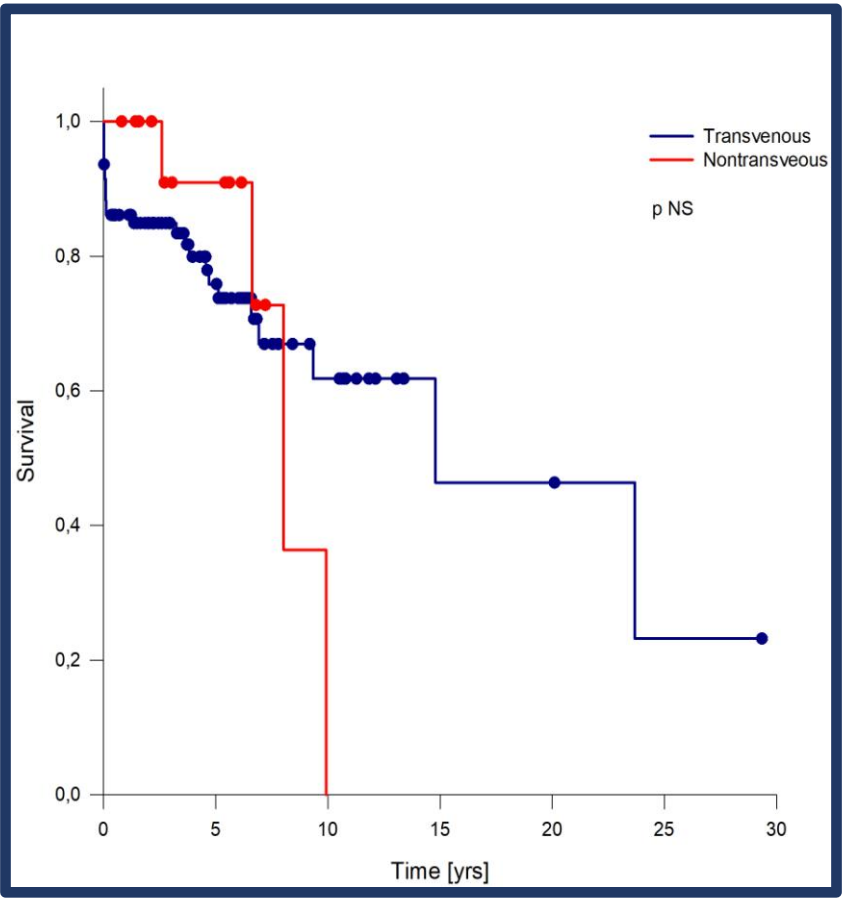


TRANSVENOUS vs. NONTRANSVENOUS ICD
p = 0.313

PRIMARY vs. SECONDARY PREVENTION
p = 0.023

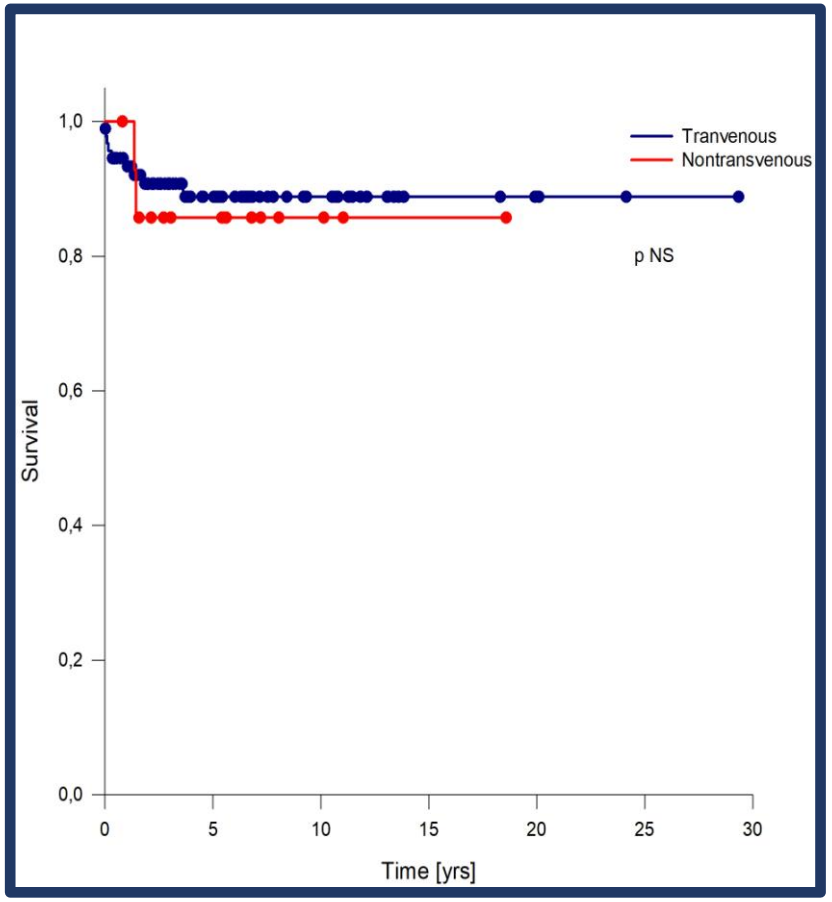
FREEDOM FROM:

Transvenous systems
Nontransvenous systems



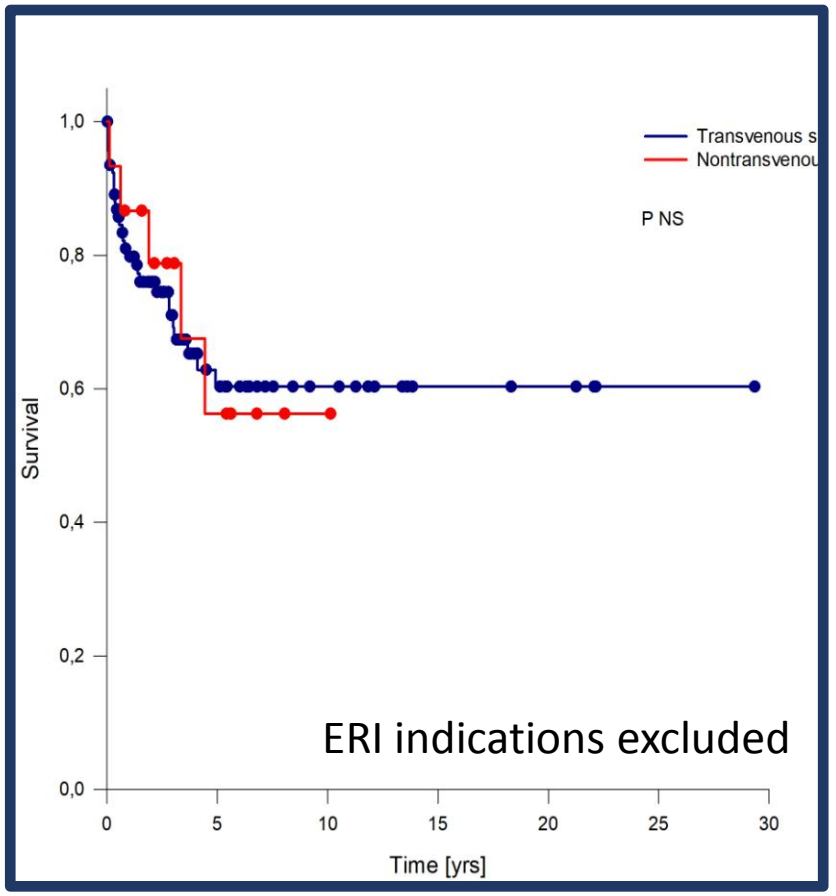
APPROPRIATE THERAPY

p = 0.886



INAPPROPRIATE THERAPY

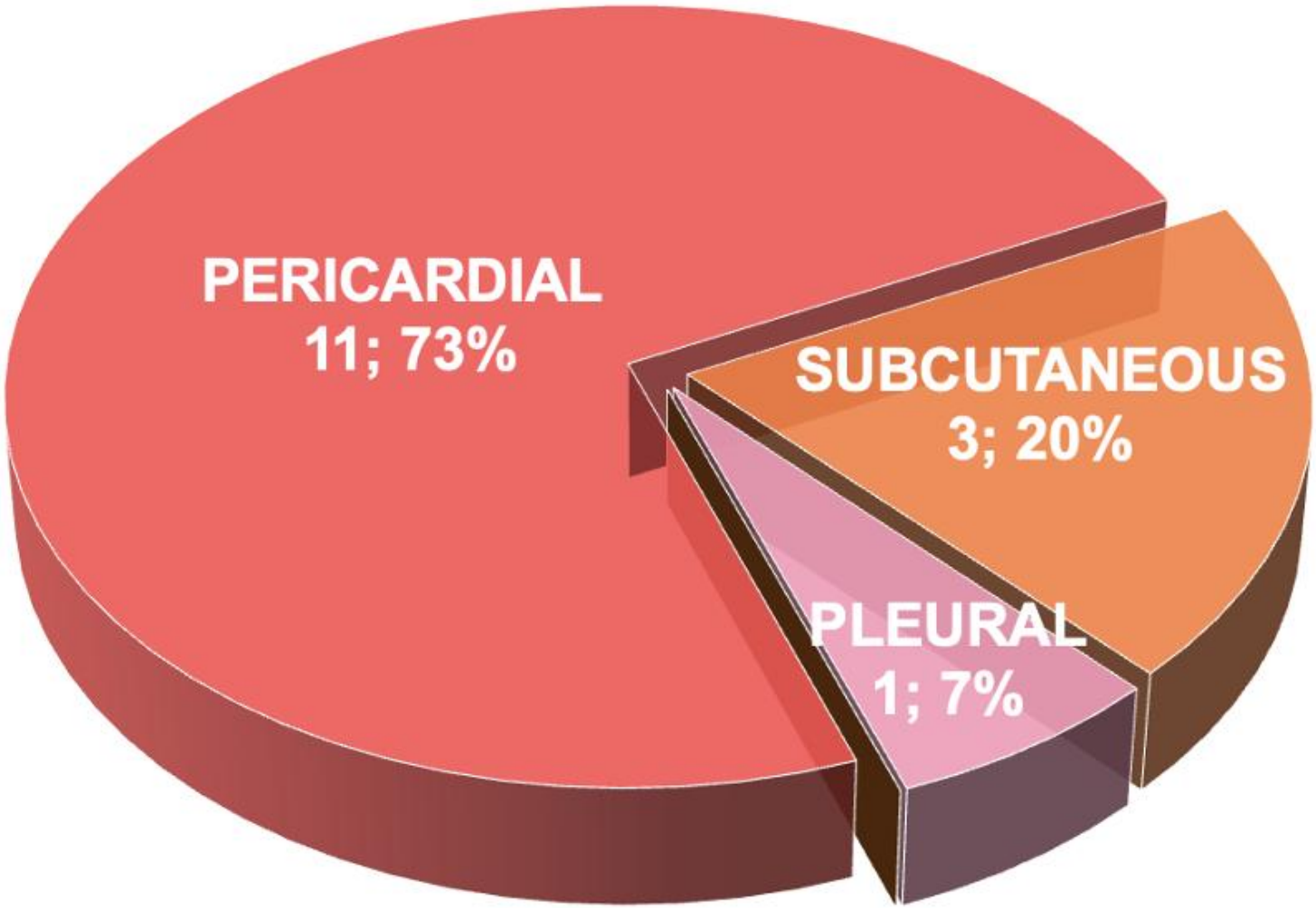
p = 0.751



SURGICAL REVISION

p = 0.961

NONTRANSVENOUS ICDs



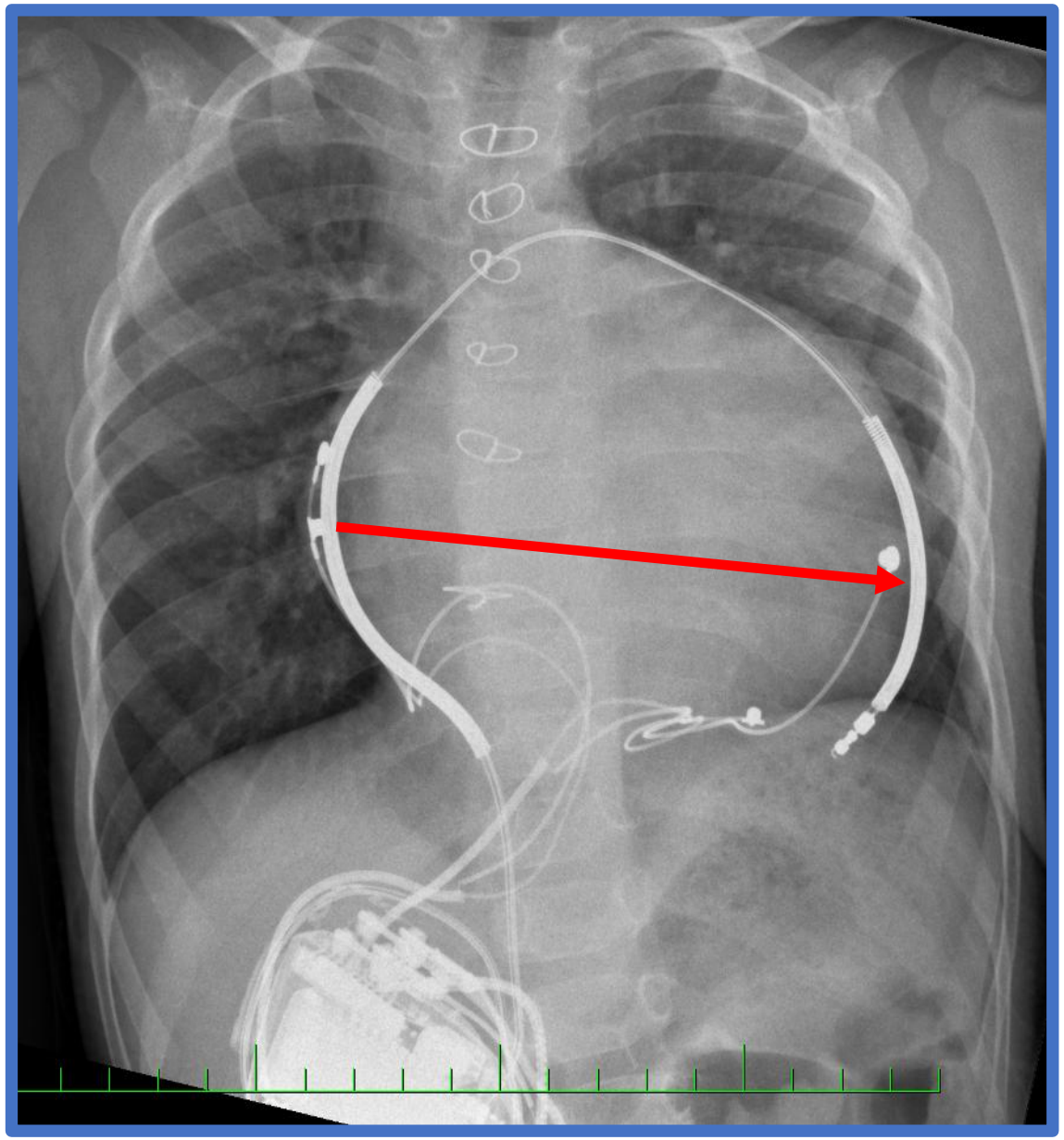
Complications (4 patients)

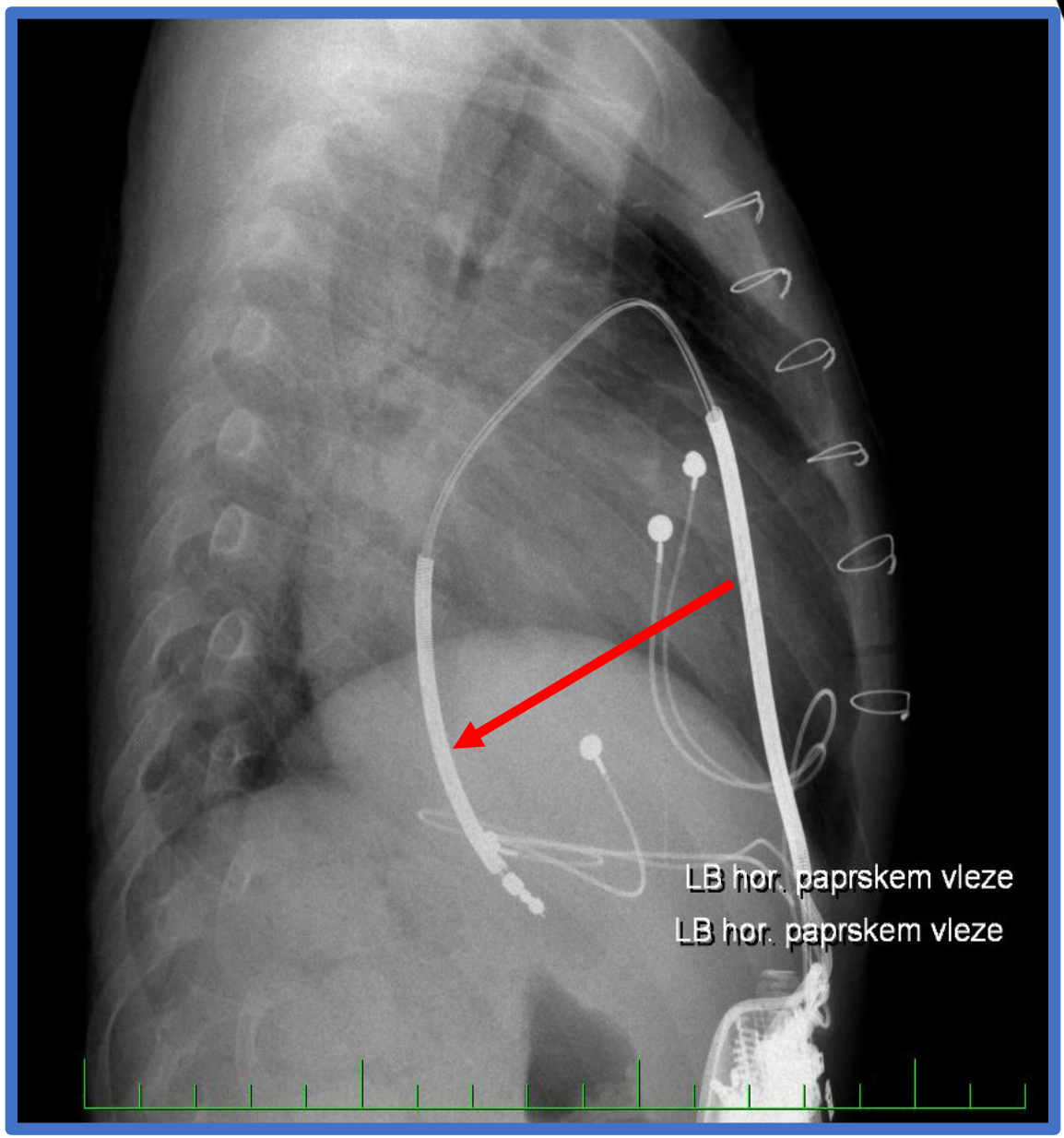
Type	Number
Pace/sense electrode dysfunction	2
Subcutaneous electrode dislocation (growth)	1
Infection	1

DFT test under general anaesthesia 3/15

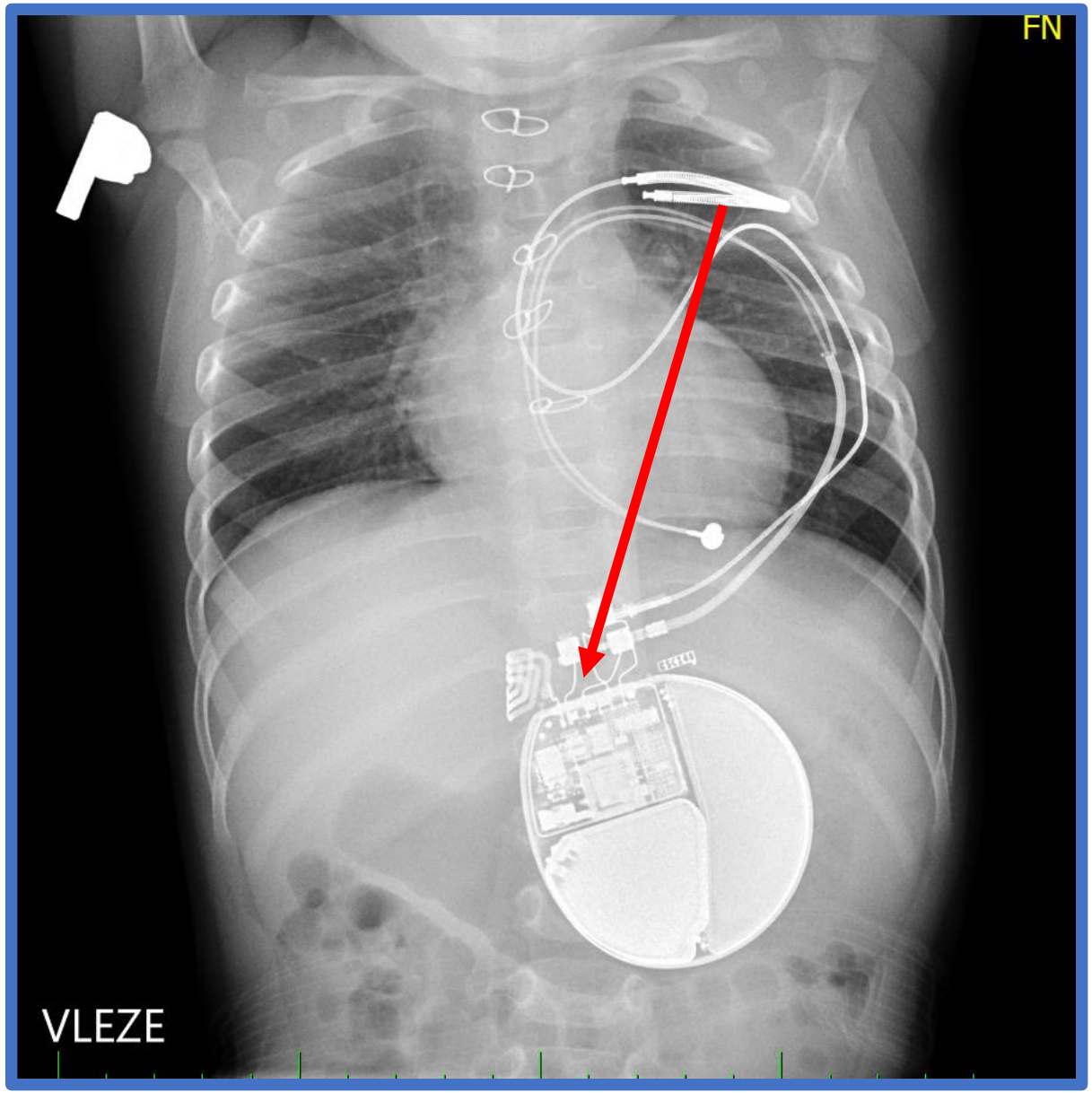
* 2x subcutaneous systems
  1x epicardial system due to sudden impedance increase on defibrillation eletrode

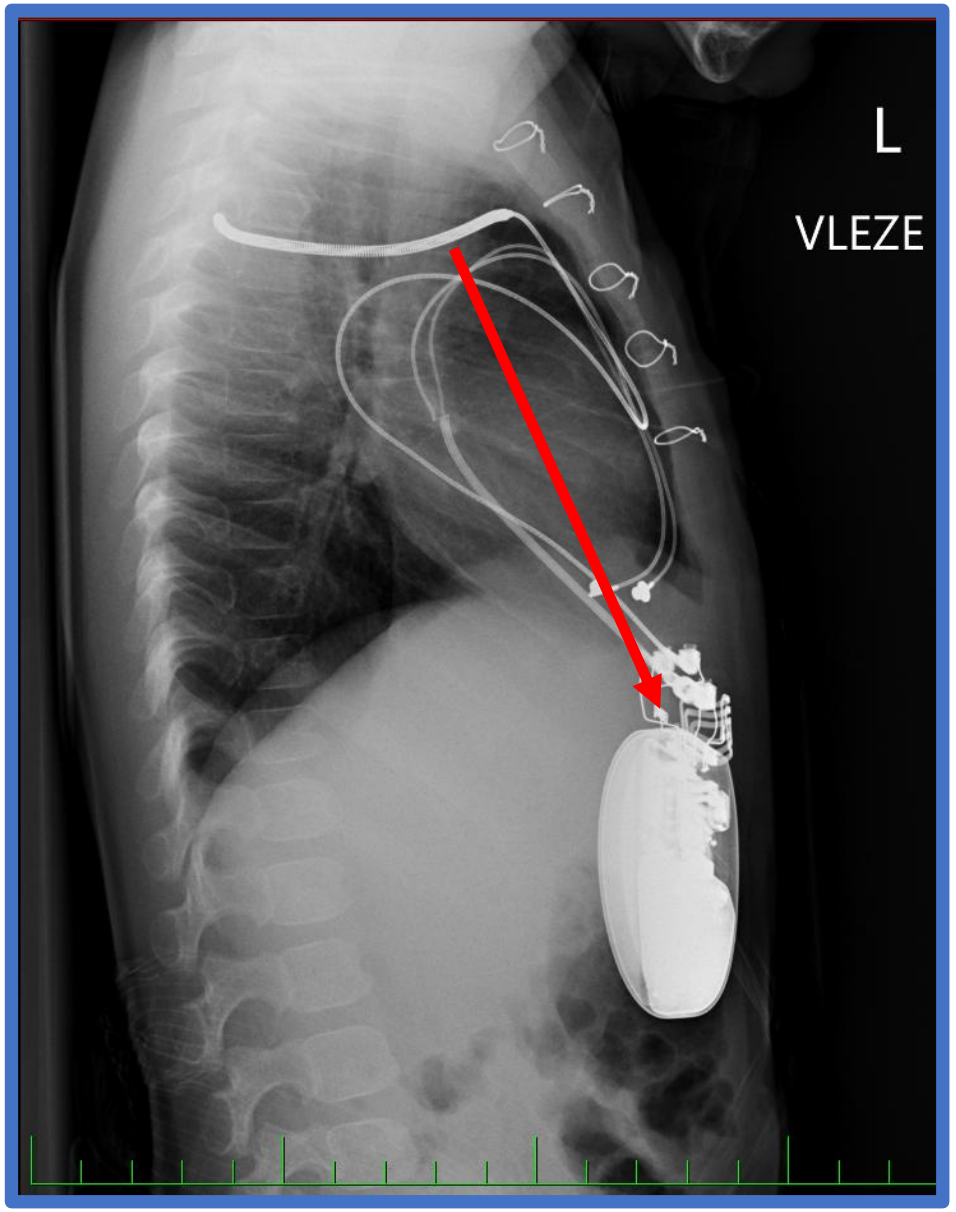
Nontransvenous systems: epicardial ICD (N = 11)



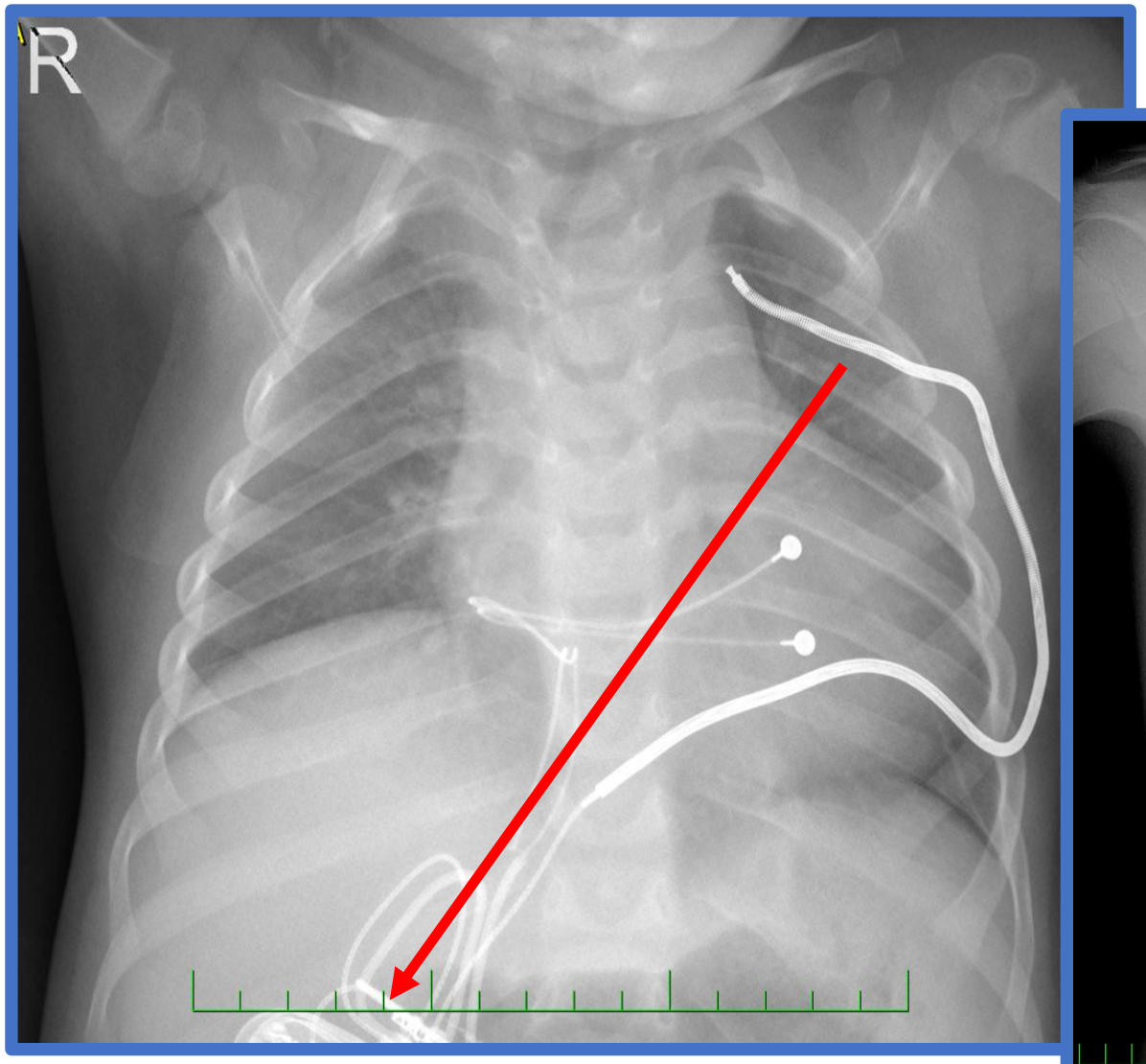


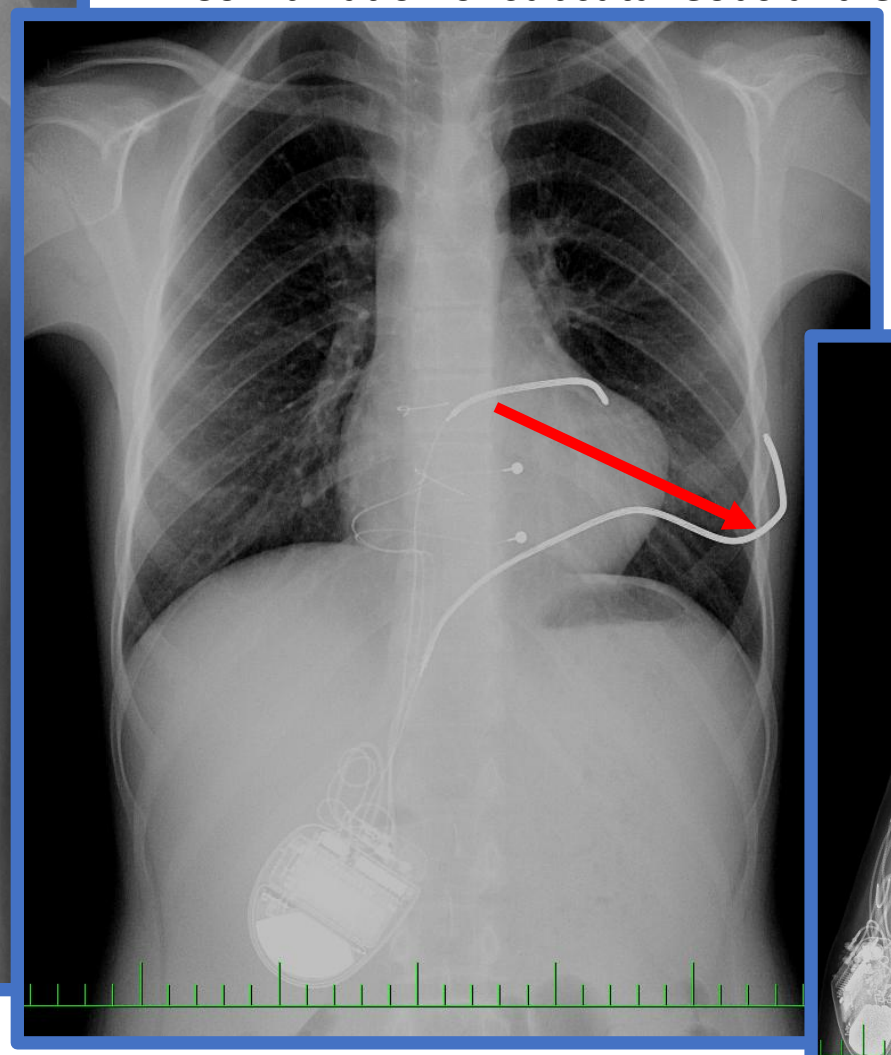
Nontransvenous systems: pleural ICD (N = 1)



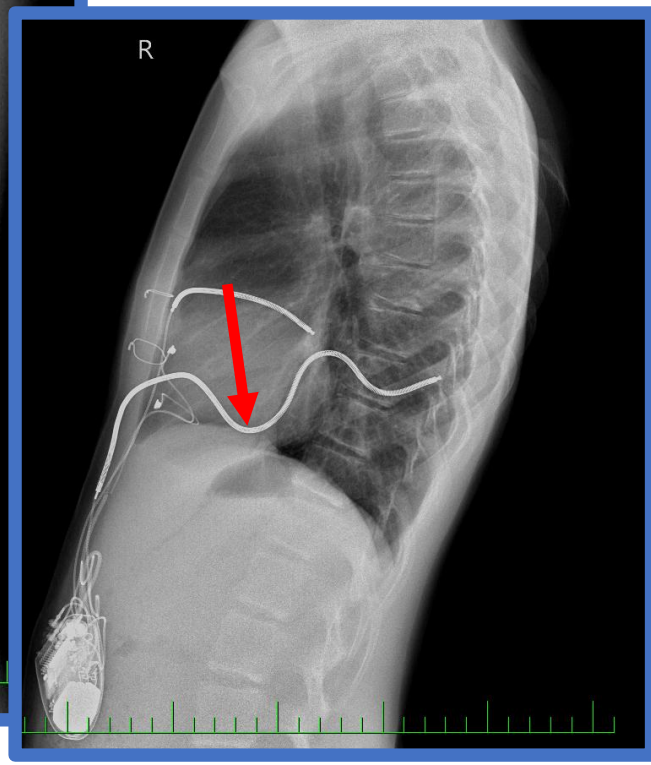


Nontransvenous systems: subcutaneous ICD (N = 3)





Combination of subcutaneous and epicardial electrode (N = 1)



Conclusion

- Nontransvenous ICDs in younger and smaller children
- The most common reason for ICD were IPAS = 45%
- Nontransvenous ICD systems are just as effective as transvenous ICDs in therapy of life-threatening arrhythmias in children (p = 0.886)
- Comparable number of revisions (p = 0.961)
- No revision in patients with nontransvenous systems was associated with either coil dysfunction or heart strangulation
- Epicardial ICDs – mostly without need for DFT testing