

Impianto di ICD biventricolare guidato da sistema di mappaggio elettroanatomico

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Impianto di ICD biventricolare
guidato da sistema di mappaggio
elettroanatomico

Ma perche ?



**2001: CARTO UNIX for AF-
CA**

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graph TD; A[2001: CARTO UNIX for AF-CA] --> B[March 2007: CARTO-XP and integration with 3D MRI-image]; B --> C[2008: Ensite NavX for SVT-CA]; C --> D[October 2008: all CA performed with Carto and Ensite]; D --> E[March 2010: CARTO3]; E --> F[July 2010: Ensite Velocity];
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**March 2007: CARTO-XP and
integration with 3D MRI-
image**

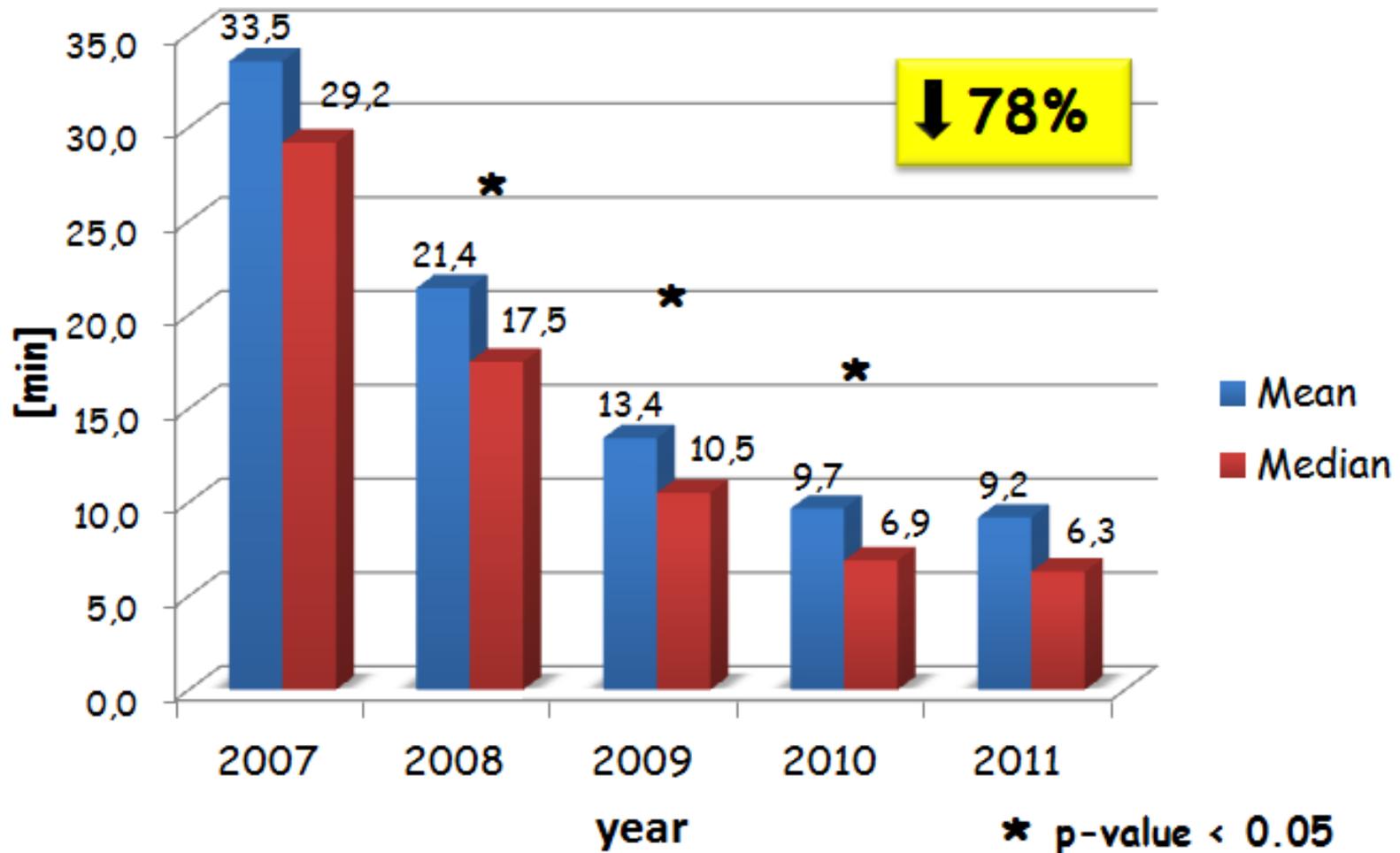
**2008: Ensite NavX for SVT-
CA**

**October 2008: all CA performed
with Carto and Ensite**

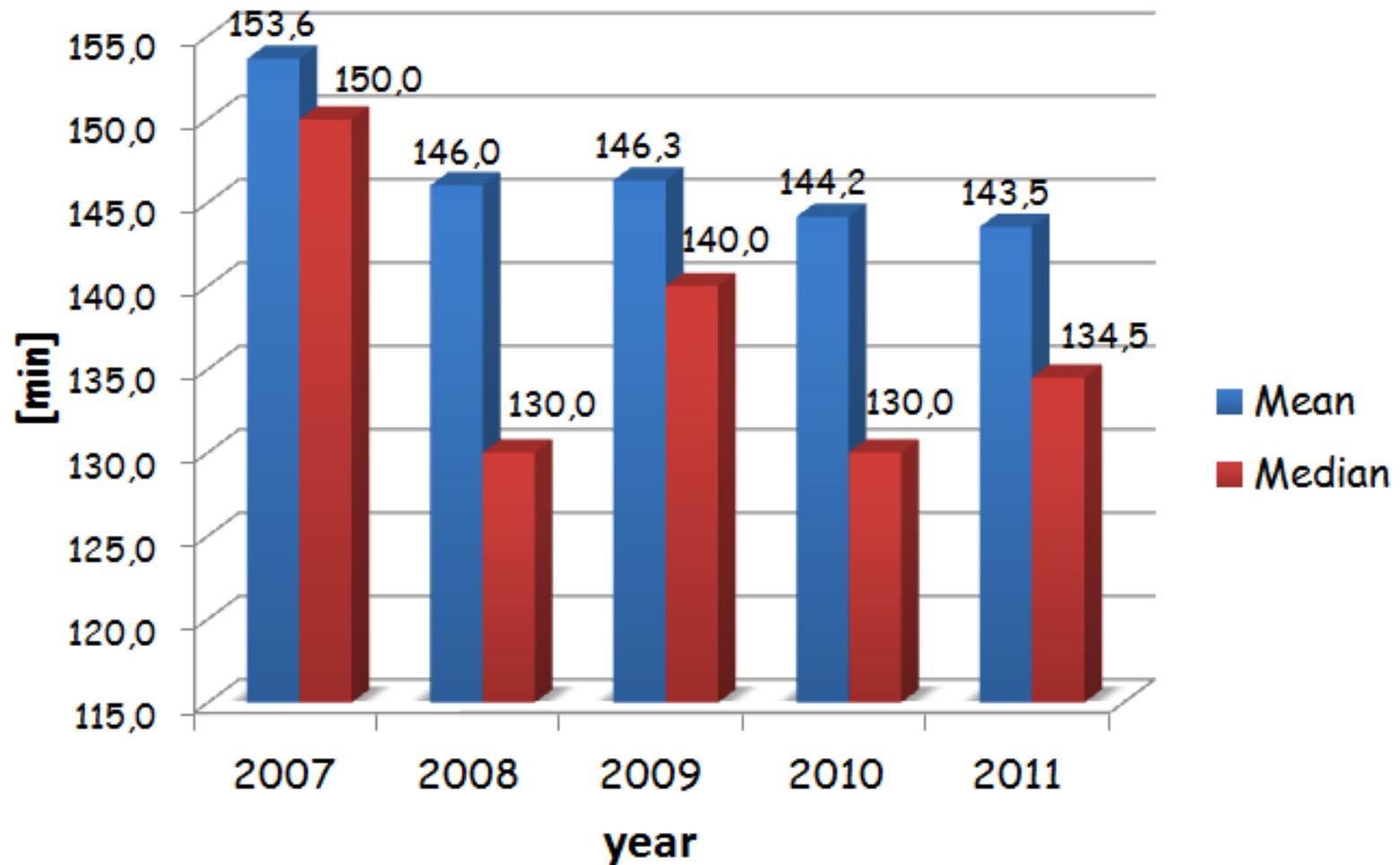
March 2010: CARTO3

July 2010: Ensite Velocity

TEMPO DI FLUOROSCOPIA PER TUTTE LE PROCEDURE



TEMPO PROCEDURALE PER TUTTE LE PROCEDURE



EP

Europace

European Pacing, Arrhythmias
and Cardiac Electrophysiology

Journal of the European Heart Rhythm Association,
a Registered Branch of the ESC and the ESC Working
Group on Cardiac Cellular Electrophysiology

Risk reduction in patients with AF:
a report from the 3rd AFNET/EHRA
consensus conference

Electroanatomical mapping-based refinement of risk
stratification for stroke in AF

Age-related pulmonary vein remodelling

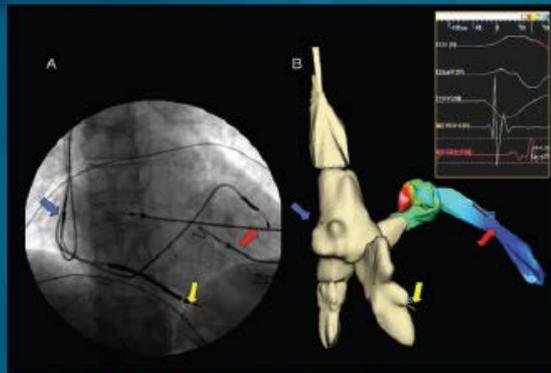
Pacing in the RVOT septum: a review

Left ventricular non-apical vs apical pacing:
a systematic review and meta-analysis

EHRA position paper: pathways for
training and accreditation for
transvenous lead extraction

Editor-in-Chief: **John Camm**

Co-Editor: **Luc Jordaens**

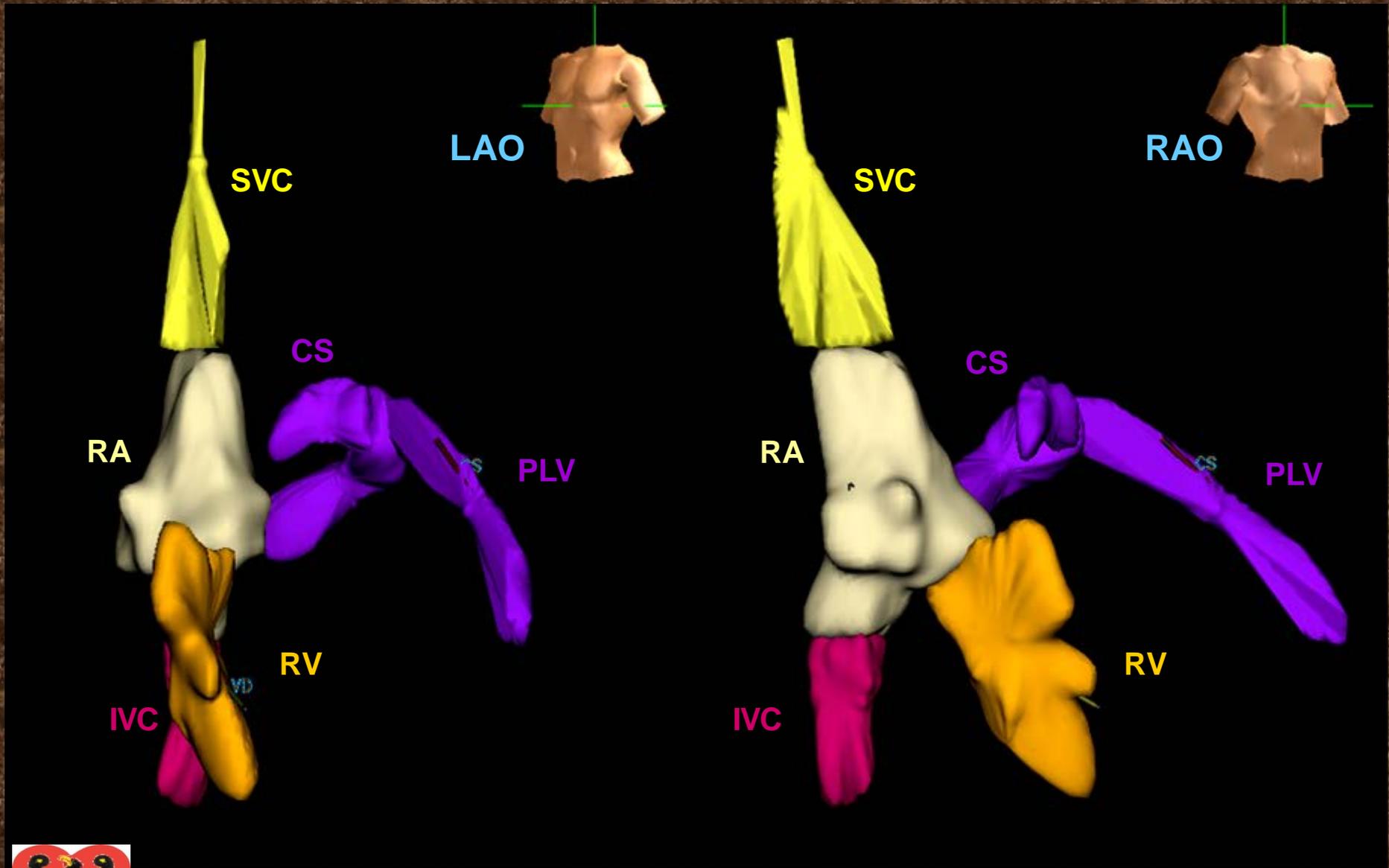


Implantation of a CS-IV pacing lead using electroanatomic mapping
See figure legend on page 110.

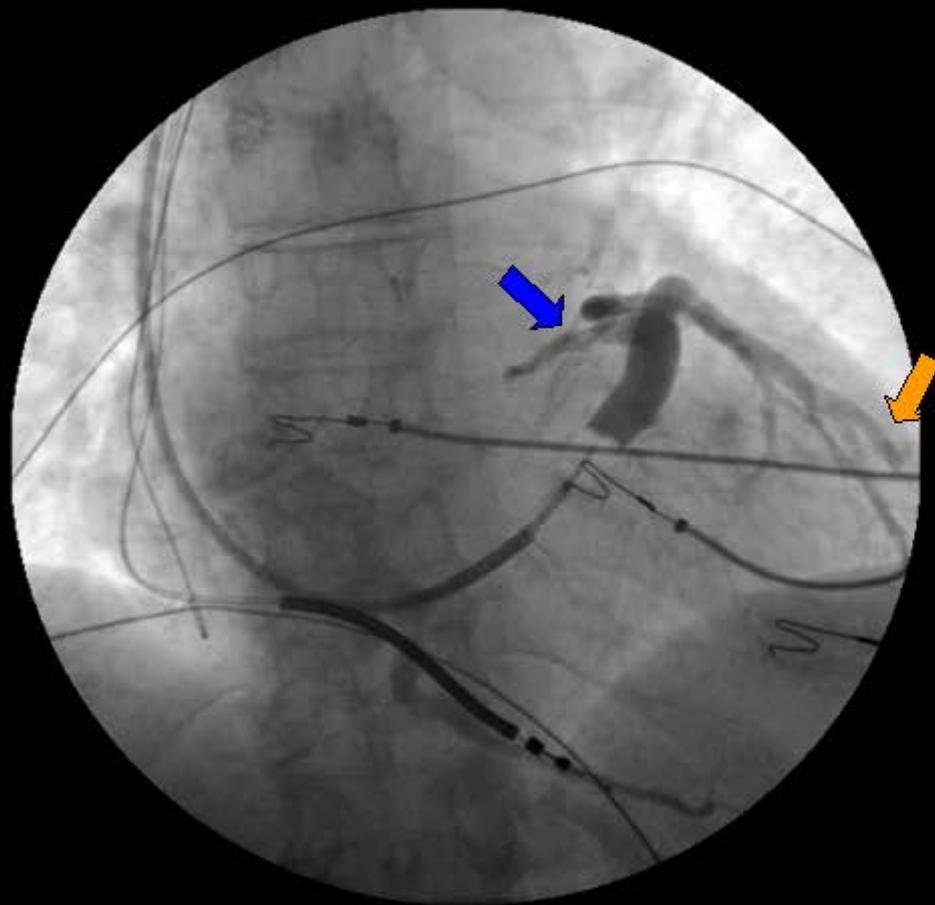
Attività

Attività di un impianto di
CRT mediante l'utilizzo
di un elettroanatomico

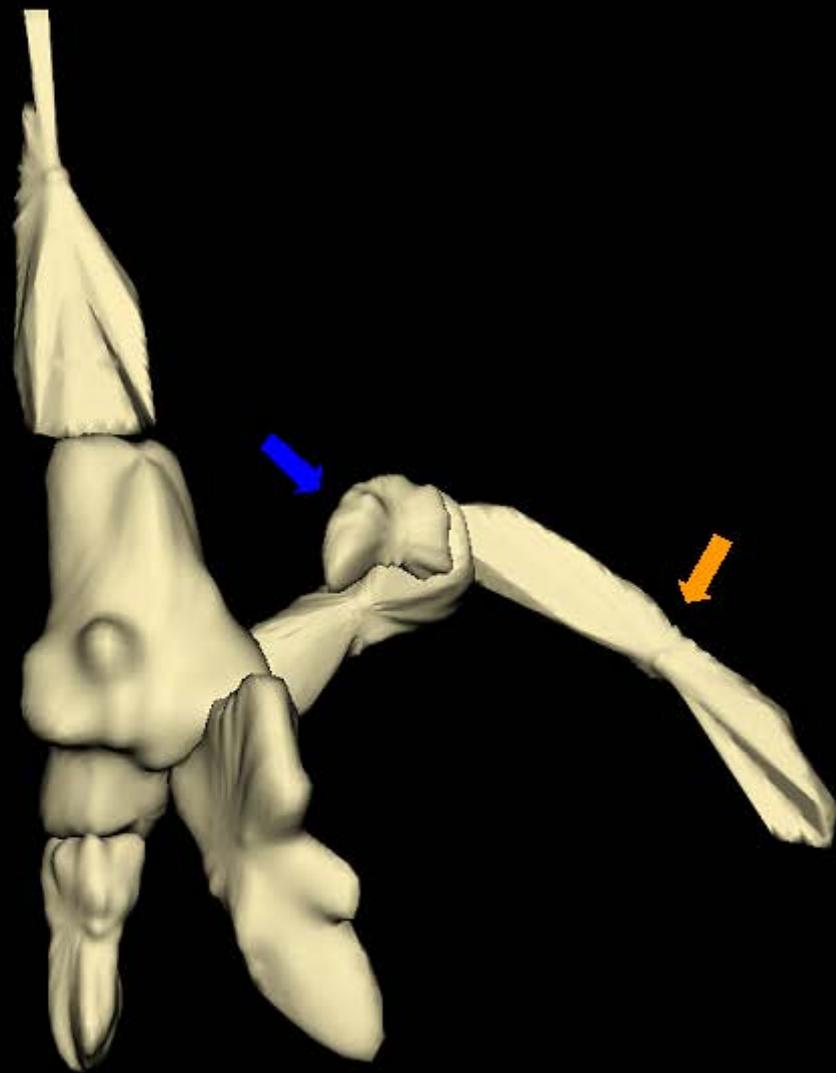
termini di riduzione



A

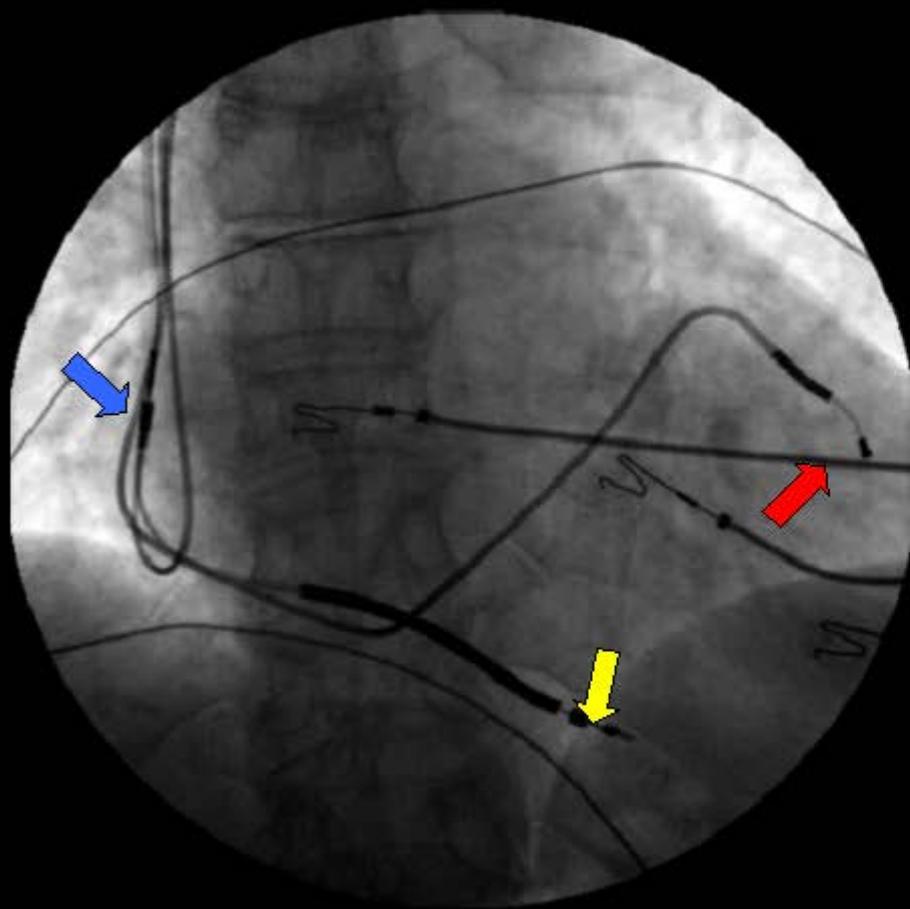
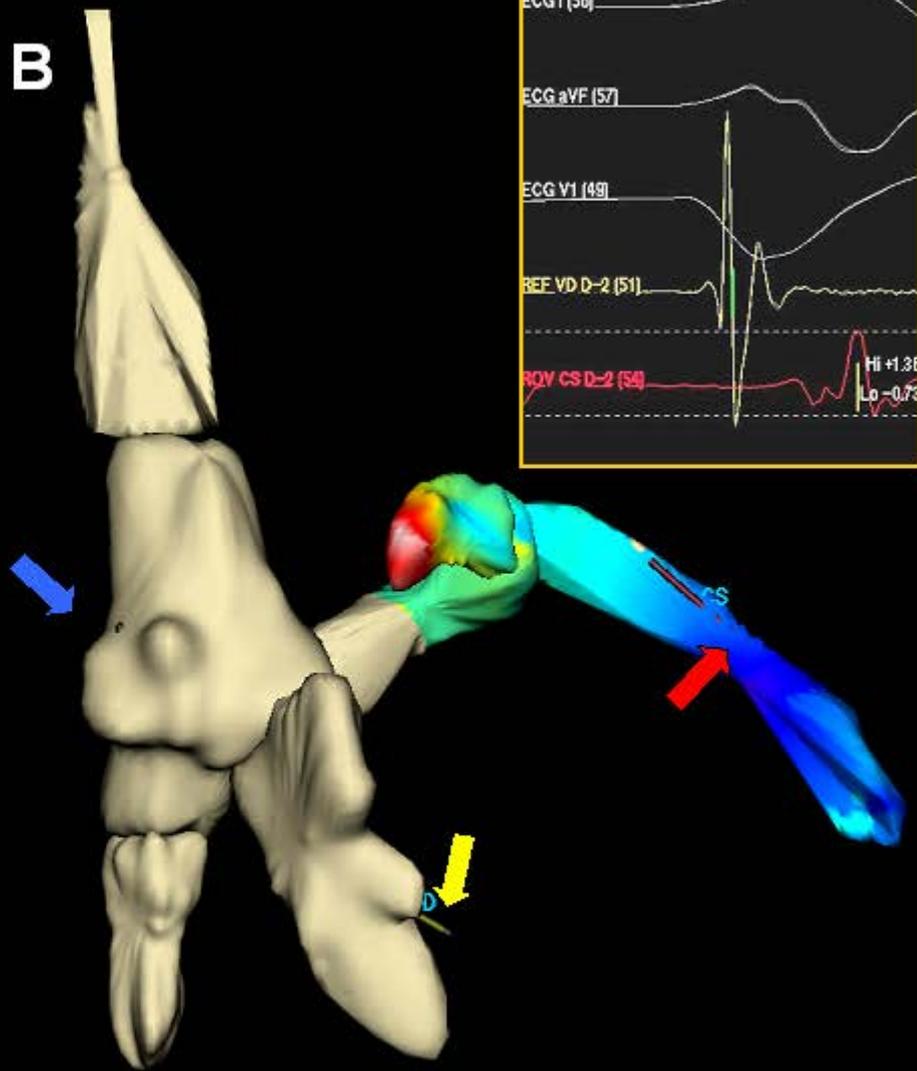


B

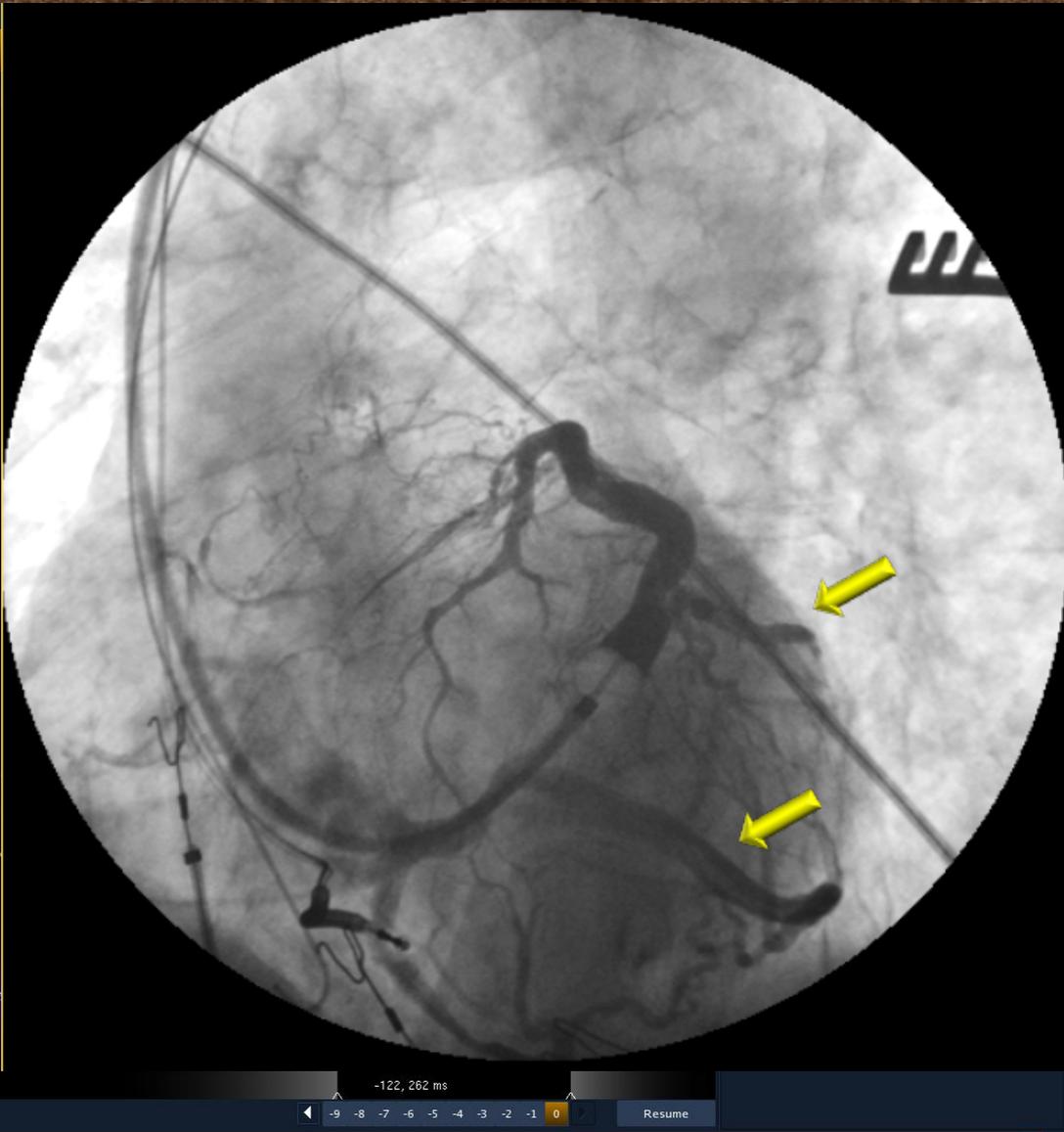
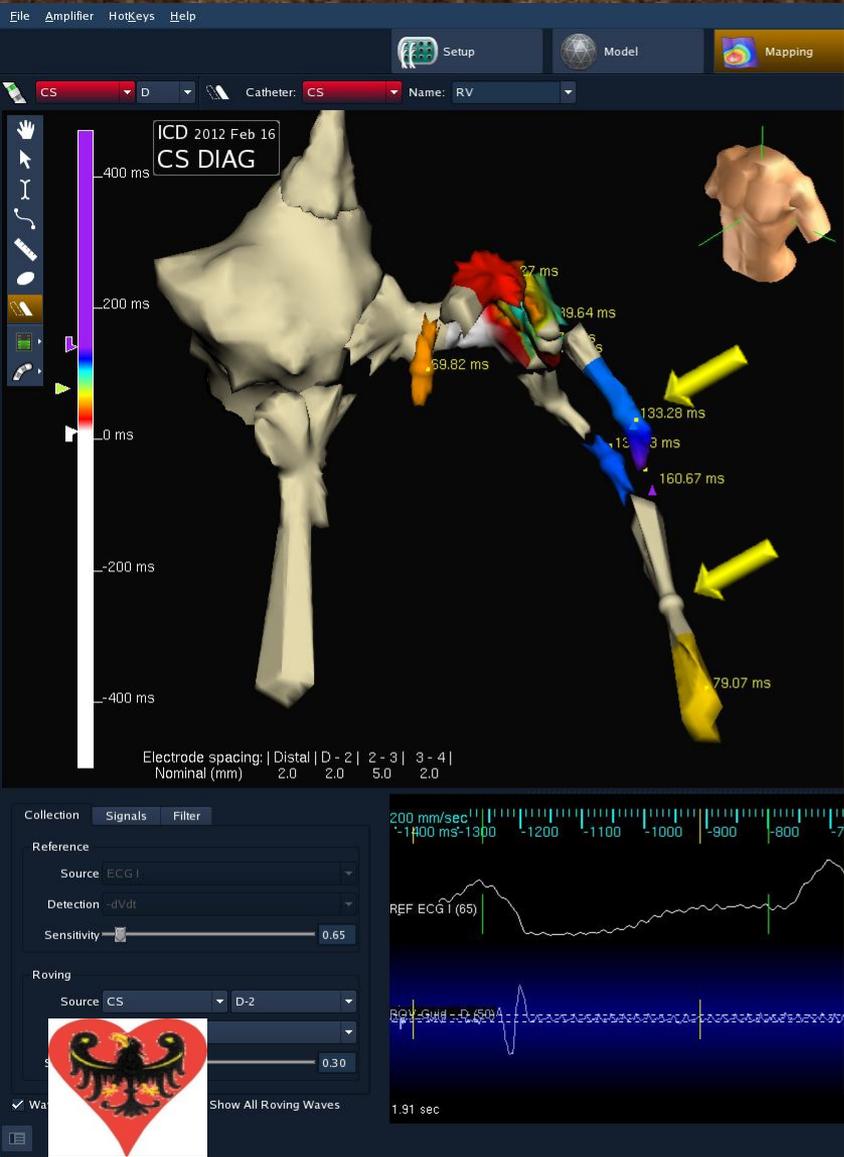


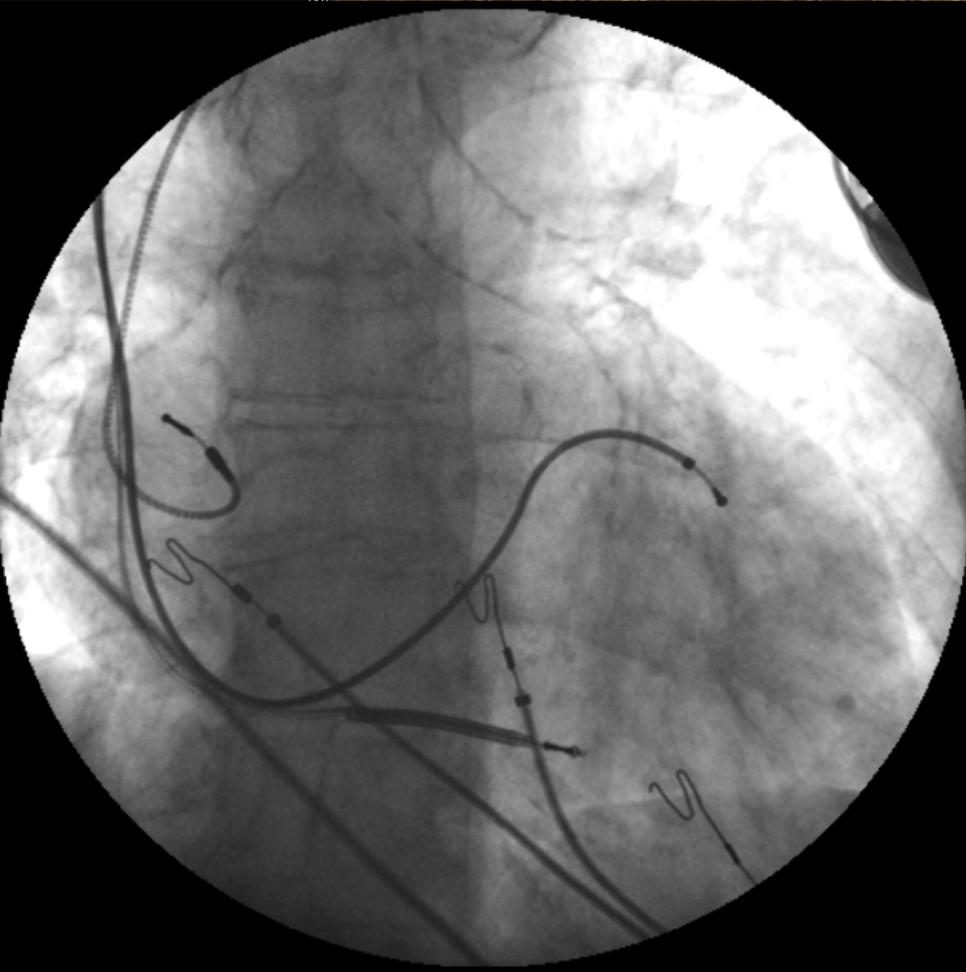
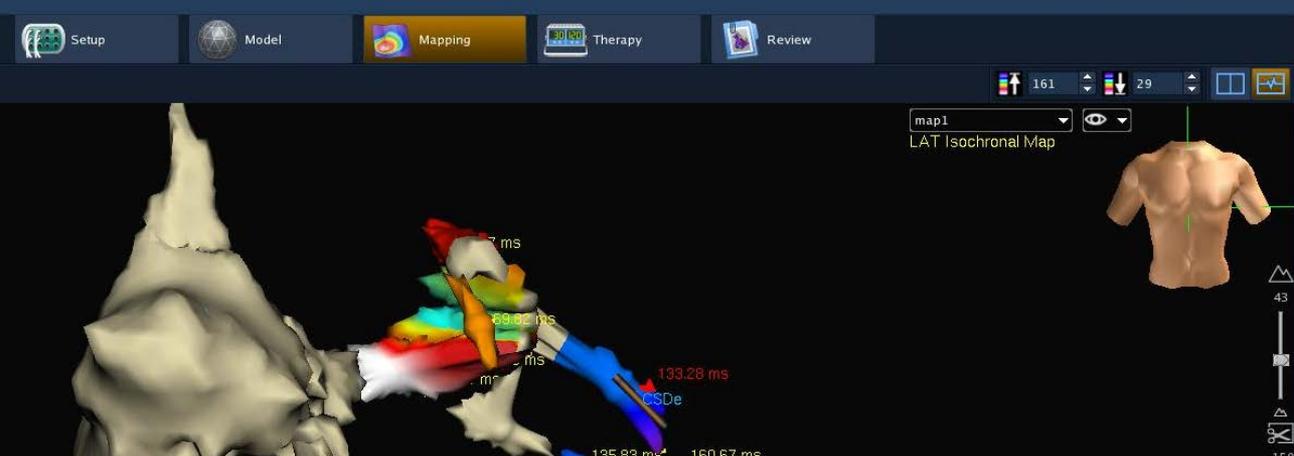
Prime evidenze

- Possibilità di navigare qualsiasi catetere da elettrofisiologia, da pacing e le guide (di tutte le marche !)
- Soddisfacente ricostruzione anatomica CS
- Possibilità di creare mappe di attivazione

A**B**

EnSite™ Velocity™ + Vision Wire™





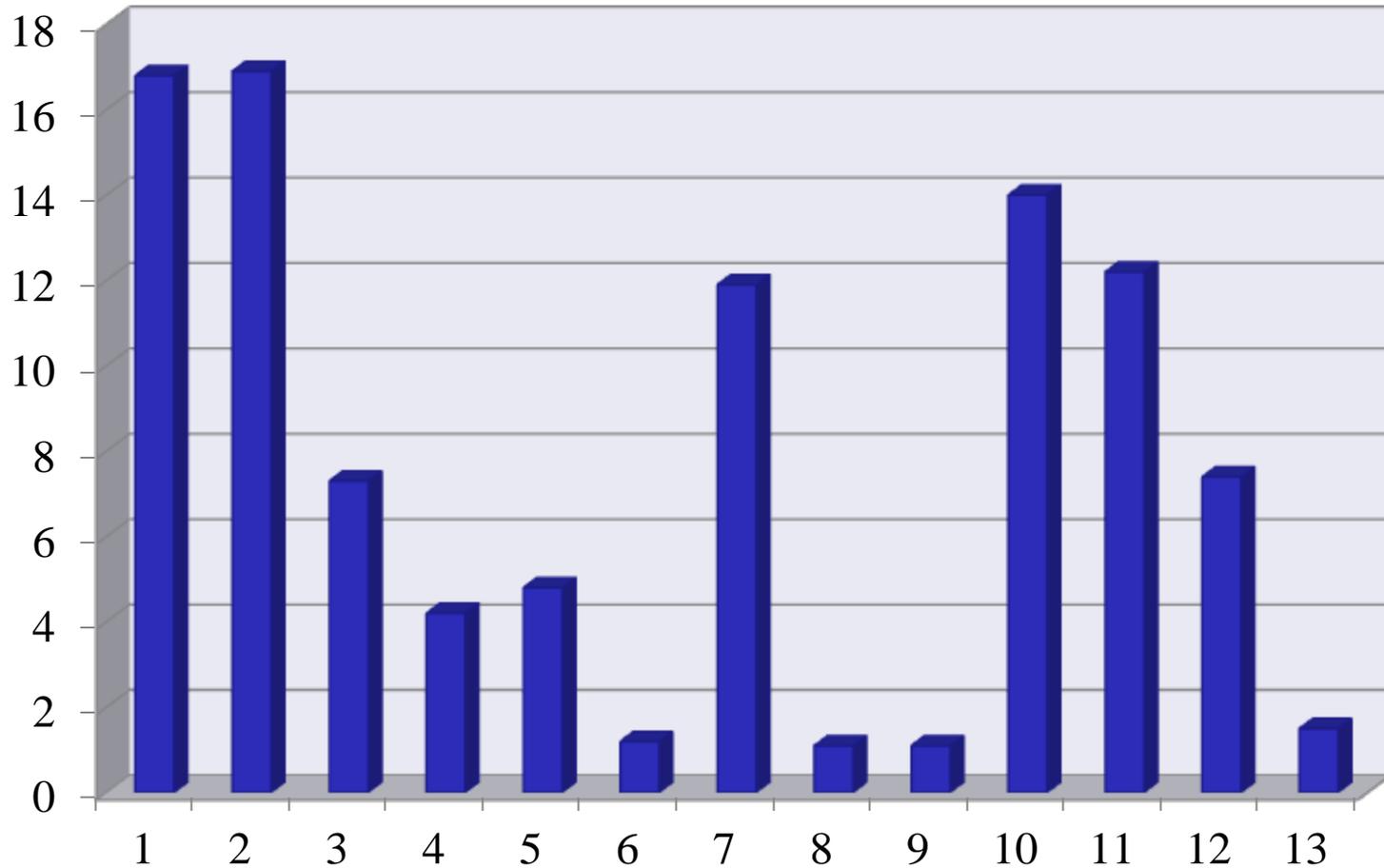
Metodi

- Popolazione: 13 pazienti ricoverati presso la ns S.C. per impianto di ICD-Biventricolare in prevenzione primaria.
- FE < 35%, classe funzionale NYHA II-III in terapia medica ottimale.
- 5 pazienti affetti da cardiopatia ischemica in fase dilatativa, 6 affetti da cardiomiopatia dilatativa e 2 cardiopatia valvolare
- Singolo Operatore

Casistica

	Caso 1	Caso 2	Caso 3	Caso 4	Caso 5	Caso 6	Caso 7	Caso 8	Caso 9	Caso 10	Caso 11	Caso 12	Caso 13
Sesso	M	M	M	F	M	M	F	F	M	M	M	F	M
Età	49	79	80	77	68	61	68	77	71	58	49	77	80
FE	20%	34%	18%	32%	24%	32%	35%	30%	30%	21%	19%	19%	20%
Cardiomiopatia	Ischemica	Ischemica	Ischemica	Non ischemica	Non ischemica	Non ischemica	Valvolare	Non ischemica	Ischemica	Valvolare	Non ischemica	Non ischemica	Ischemica
Ritmo	FA	RS	RS	RS	RS	RS	FA	FA	RS	FA	RS	RS	RS
Blocco di branca	BBDx	BBDx EASx	BBSx	BBSx	BBSx	BBSx	BBSx Stim	BBSx Stim	BBSx	BBSx	BBSx	BBSx	BBSx
Altro						Vision Wire		Vision Wire	Vision Wire	Vision Wire	Vision Wire	Vision Wire	Vision Wire
Tempo Procedurale (min)	168	142	130	124	155	110	125	90	125	145	135	130	110
Tempo di scopia (min)	16.8 min	16.9 min	7.3 min	4.2 min	4,8 min	1,2 min	11,9 min	1,1 min	1,1 min	14 min	12,2 min	7,4 min	1,5 min
DAP (cGy*cm2)	2914	3984	3946	1089	1906	572	3264	419	481	5863	5184	1301	278

Tempo di Fluoroscopia (min)



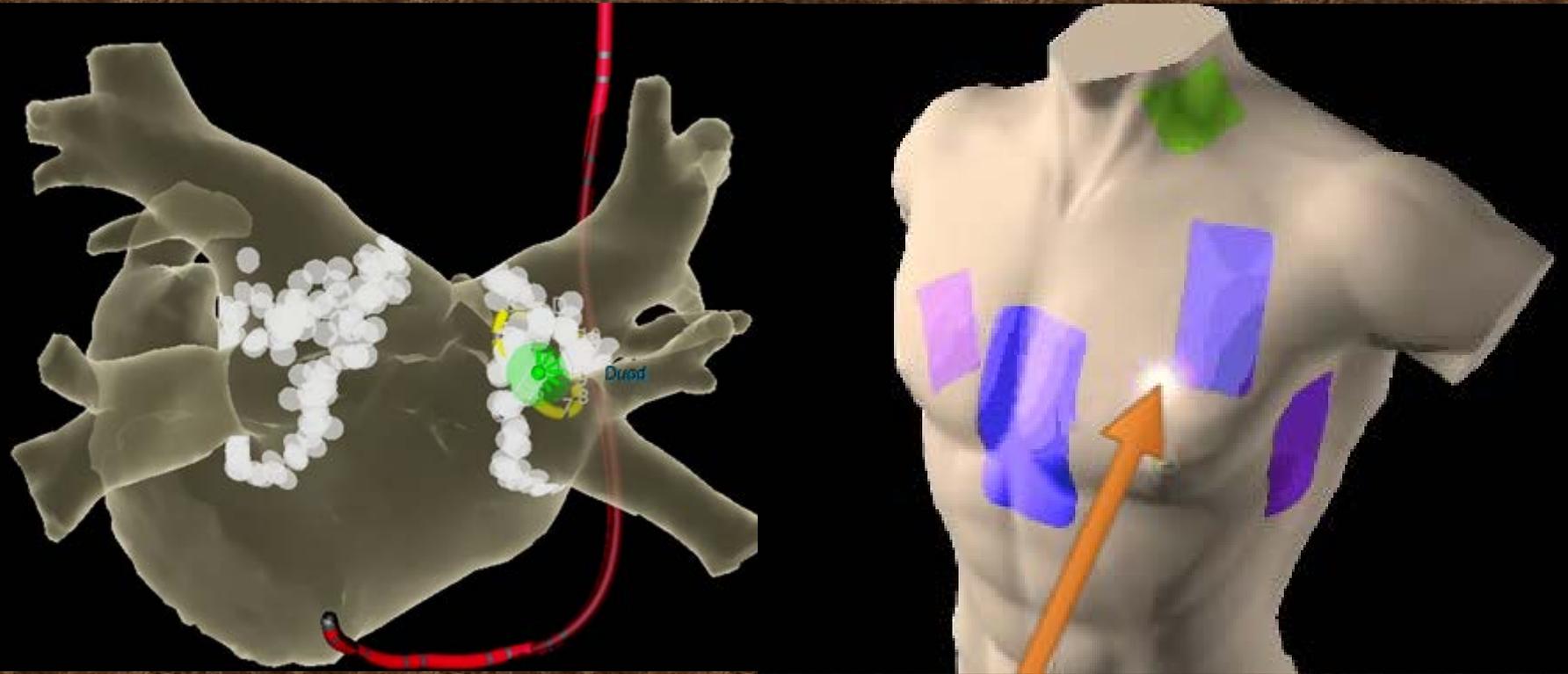
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L'Evolutione



EnSite™ Velocity™ System v.3.0

Virtual Reference



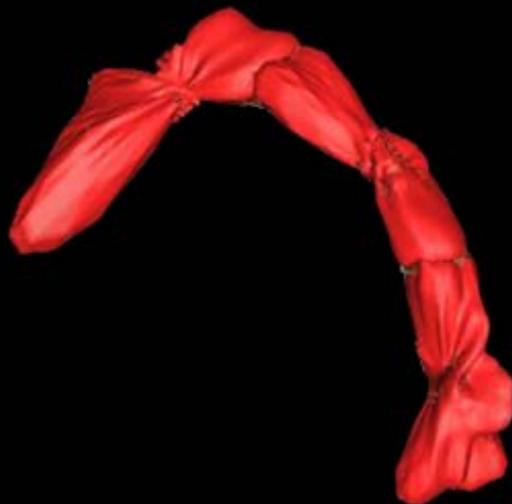
OneModel™ Tool

Before 3.0

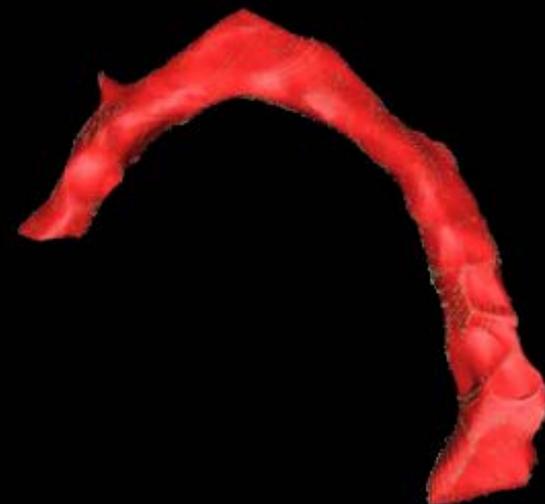
Butterfly effect



Reassign



OneModel™ 3.0 Tool

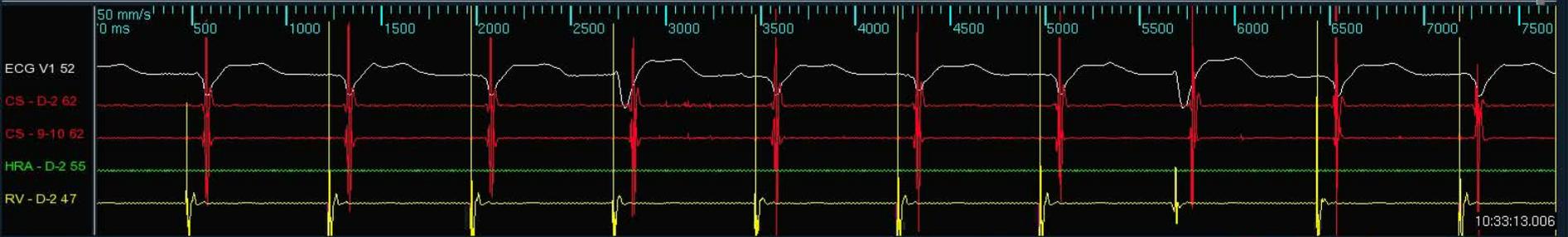


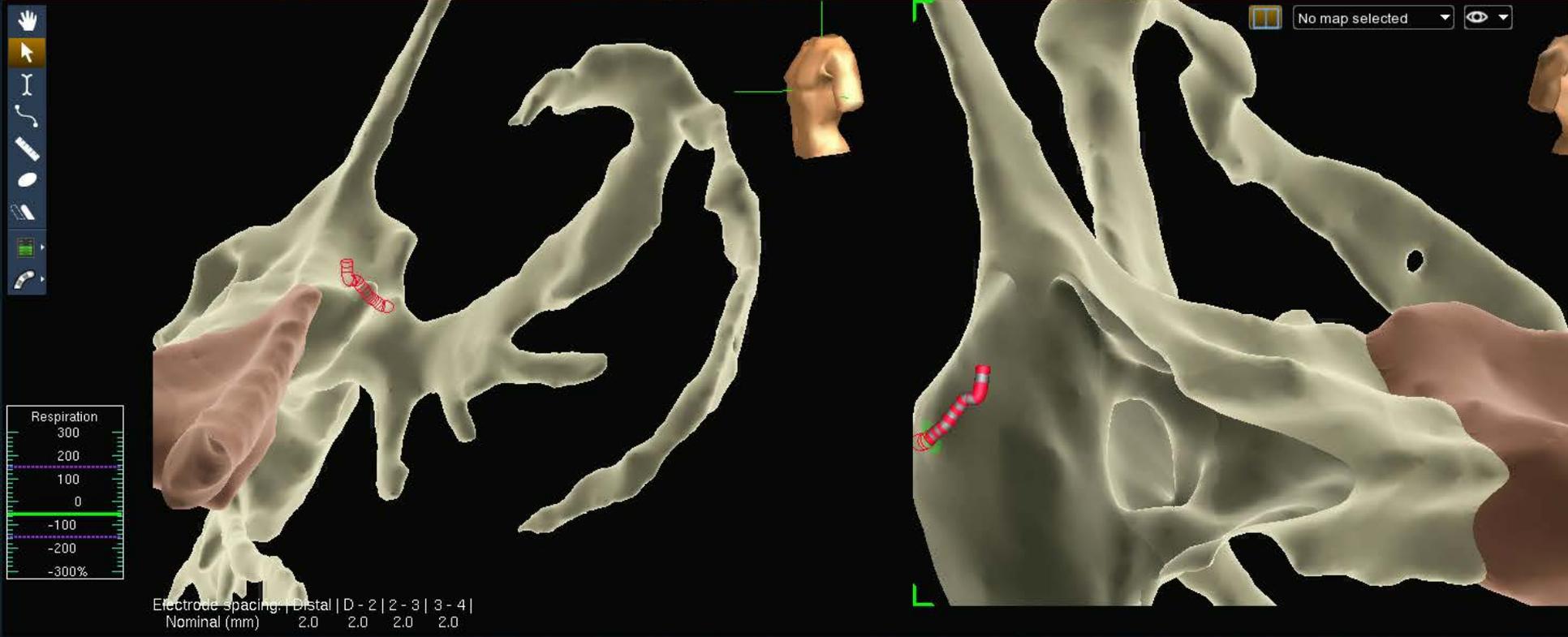
Steerable catheter mapping (CS proximal vessels)





Electrode spacing: | Distal | D - 2 | 2 - 3 | 3 - 4 |
Nominal (mm) 2.0 2.0 2.0 2.0





Endoscopic view

Keys Help



Setup



Model



Mapping



Therapy



Review

0 -200

ICD

Review: Aug 09, 2012 08:55:00 AM

GEO



No map selected



Electrode spacing: | Distal | D - 2 | 2 - 3 | 3 - 4 |
Nominal (mm) 2.0 2.0 2.0 2.0



Endoscopic view



Metodi

6 Passaggi (cateteri e guida sempre connessi !!)

1. Ricostruzione 3D: vena cava superiore ed inferiore, atrio dx, ventricolo dx e CS con catetere steerable (5F).
2. Posizionamento cat. da defibrillazione in VDx.
3. Posizionamento introduttore in CS attraverso catetere steerable (angiografia) >> MAP.
4. Navigazione rami CS con Vision Wire >> MAP
5. Posizionamento catetere sx (su Vision Wire) >> MAP
6. Posizionamento catetere atriale

Wire mapping

File HotKeys Help



Setup



Model



Mapping



Therapy



Review

D

88 35

ICD

Review: Aug 09, 2012 08:55:00 AM

GEO

No map selected



Electrode spacing: | Distal | D - 2 | 2 - 3 | 3 - 4 |
Nominal (mm) 2.0



NavX 3.0 vs Angio

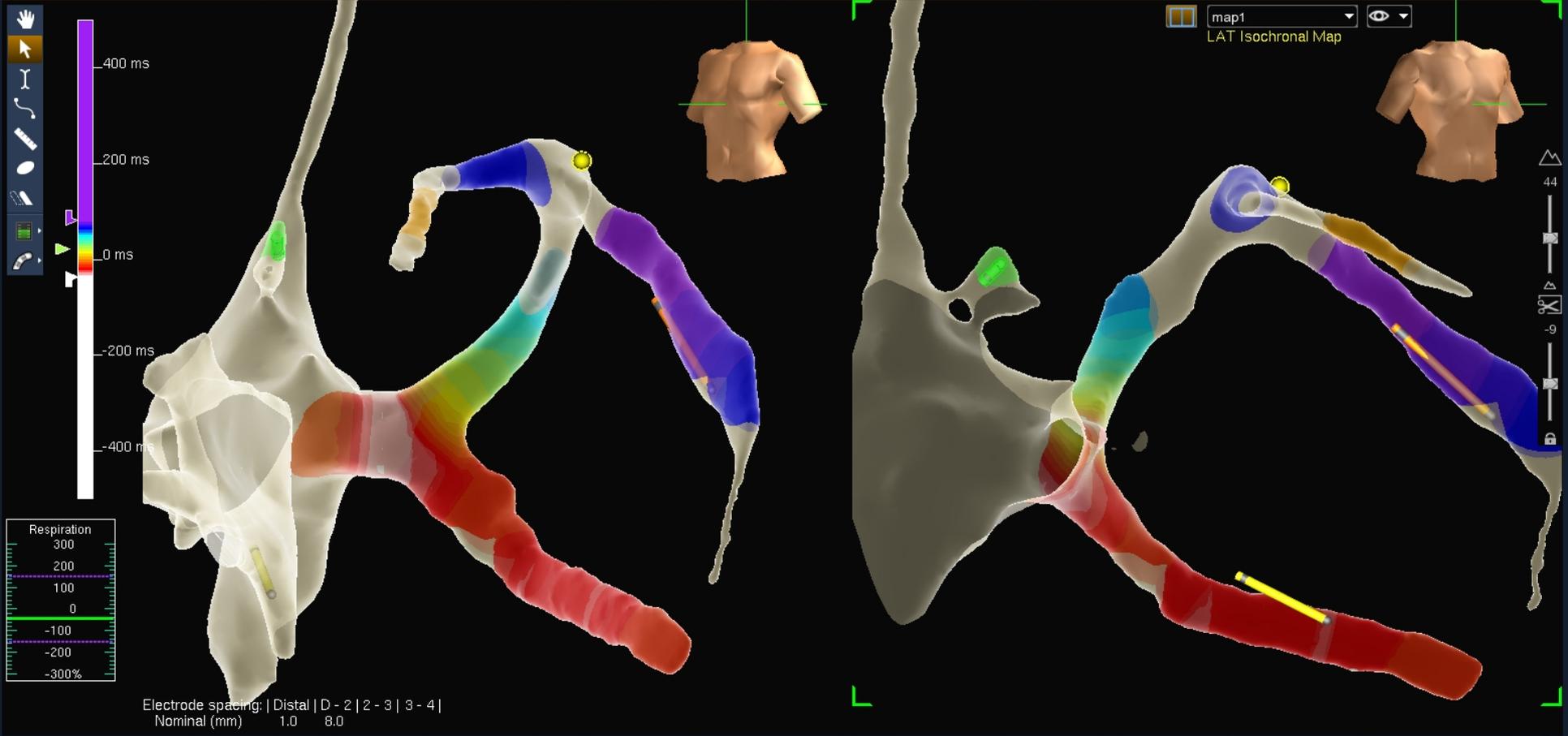


CRT implantation without CS angiography



The right place to leave the left lead

ICD Review: Sep 10, 2012 08:26:14 AM GEO



Mapping tools: EP catheter, wire, leads.



Wire: the unipolar signal



Wire: the unipolar signal



Setup



Model



Mapping



Therapy



Review

Guid D

ICD

Review: Sep 10, 2012 08:26:14 AM

GEO

No map selected



Waves Filters

ECG

High Pass 0.5 Hz

Low Pass 50 Hz

Noise Filter

Catheter Bipolar

High Pass 30 Hz

Low Pass 300 Hz

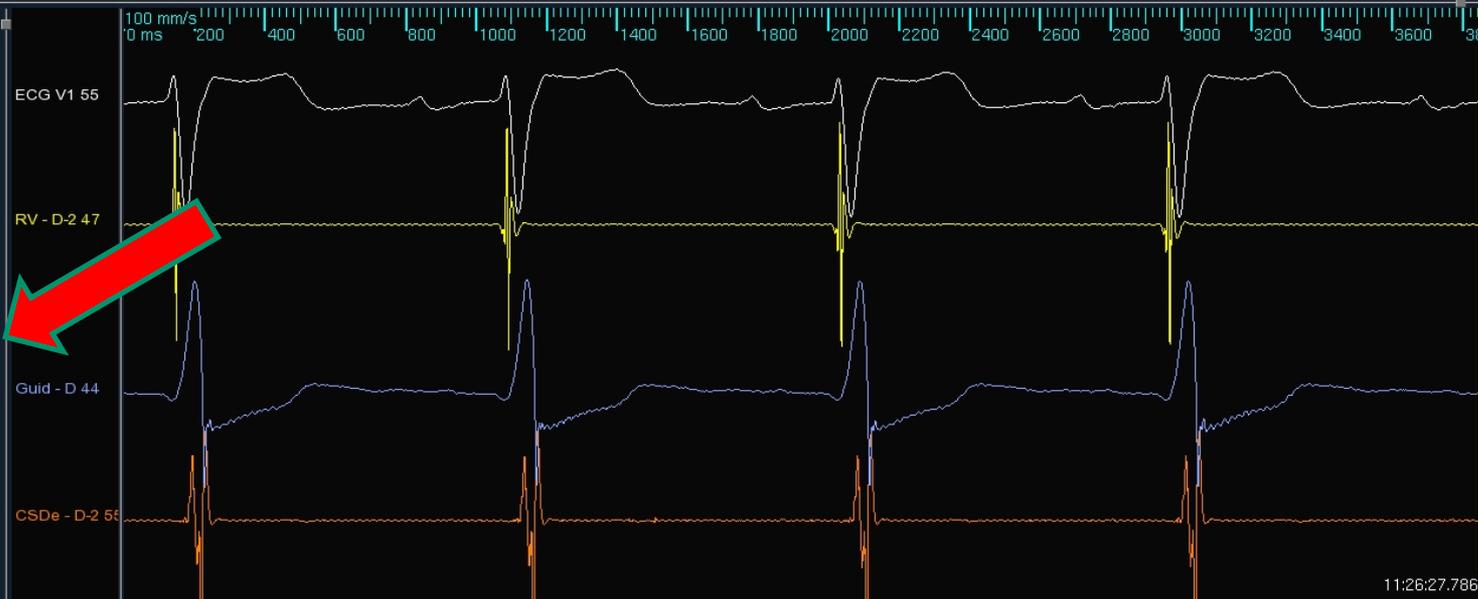
Noise Filter

Catheter Unipolar

High Pass 1 Hz

Low Pass 100 Hz

Noise Filter



Wire: the unipolar signal



Guid D

0 -200

ICD

Review: Sep 10, 2012 08:26:14 AM

GEO



Electrode spacing: | Distal | D - 2 | 2 - 3 | 3 - 4 |
Nominal (mm) 2.0

Waves Filters

ECG

High Pass 0.5 Hz

Low Pass 50 Hz

Noise Filter

Catheter Bipolar

High Pass 30 Hz

Low Pass 300 Hz

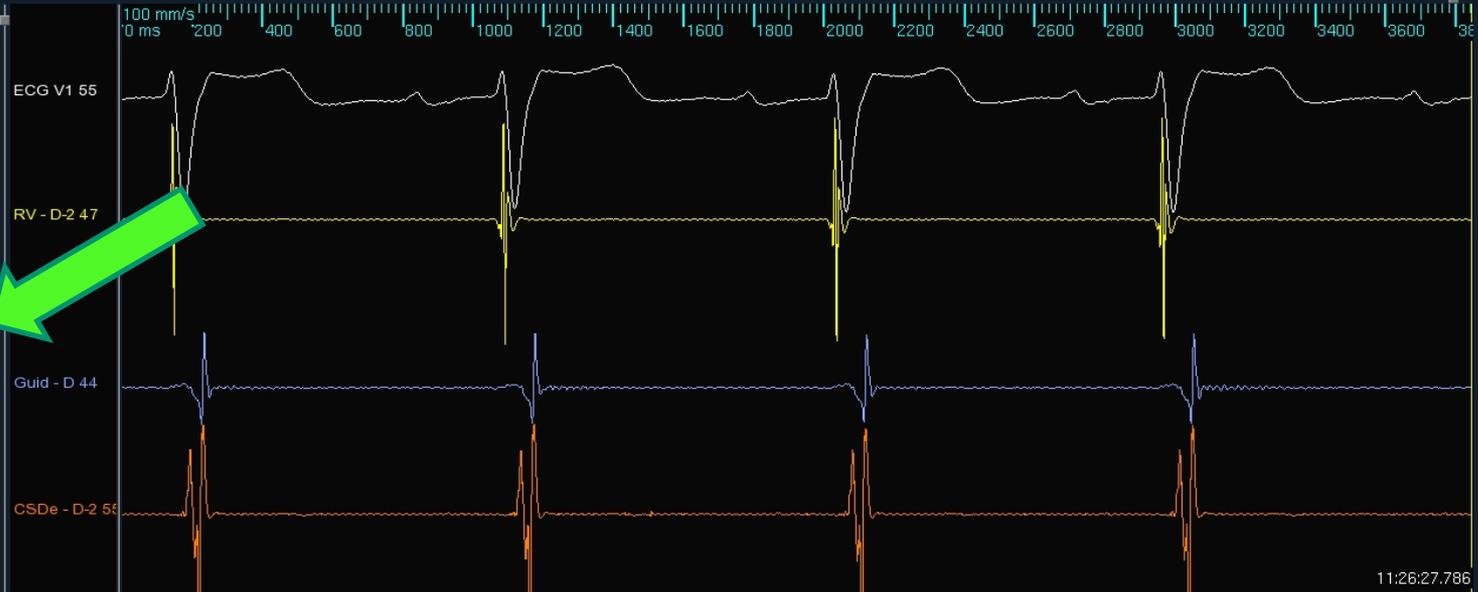
Noise Filter

Catheter Unipolar

High Pass 30 Hz

Low Pass 100 Hz

Noise Filter



Limiti

- Materiale non dedicato
- I costi

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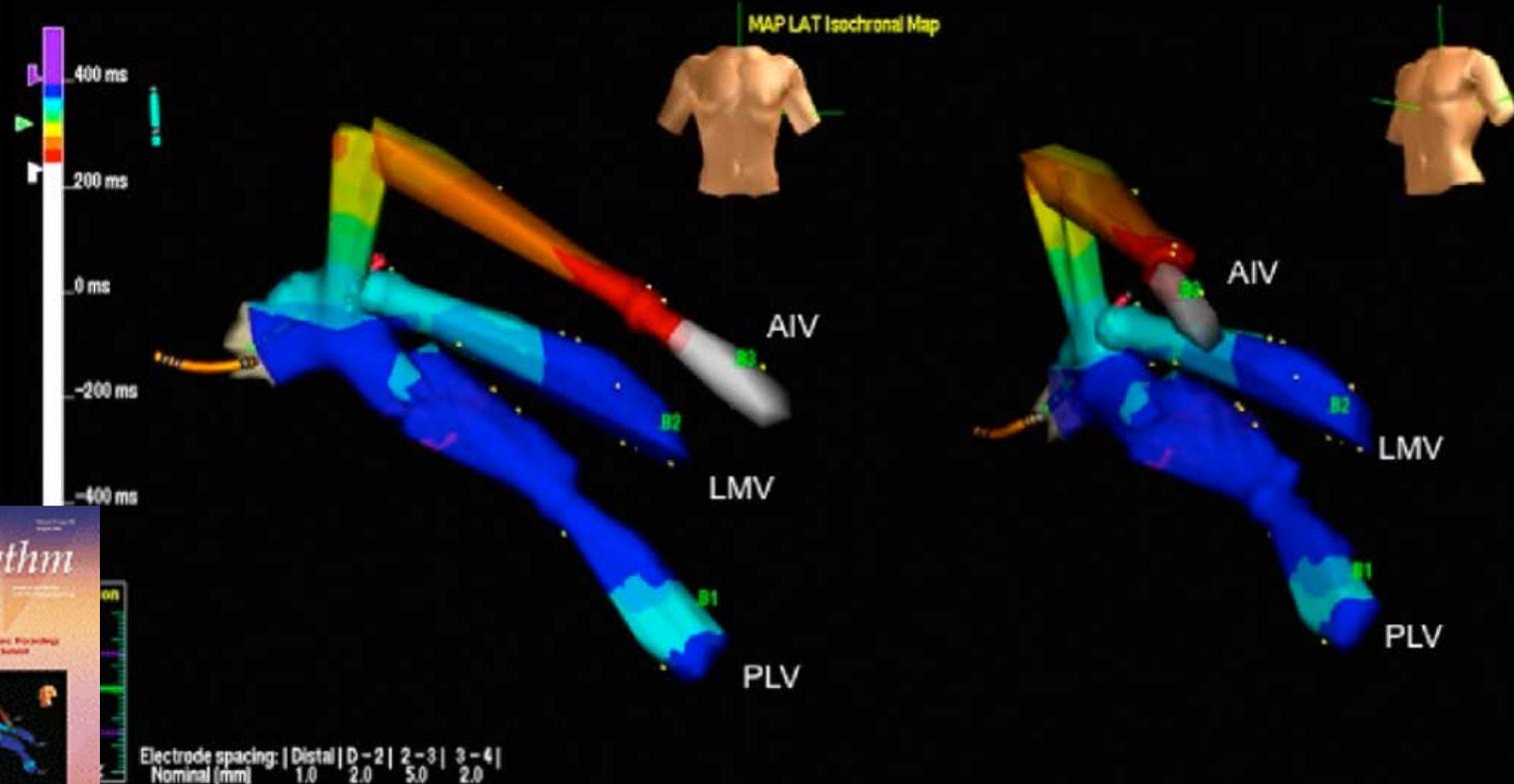
Tool or Toy ?



Contemporary and future trends in cardiac resynchronization therapy to enhance response

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From *Libin Cardiovascular Institute of Alberta, University of Calgary, Calgary, Canada, [†]Fondazione Cardiocentro Ticino, Lugano, Switzerland, and [‡]Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts.



(Heart Rhythm 2012;9:S27-S35)

