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Title	International expert consensus on a scientific approach to training novice cardiac resynchronization therapy implanters using performance quality metrics
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Supplementary Table S1. CRT Implanters and countries represented in the Delphi panel.

Country	Number of CRT Implanters	Names
France	2	C. Alonso, D. Gras
Germany	3	L. Binner, H. Schäfer, M. Stockburger
Italy	1	M.G. Bongiorni
Netherlands	1	D. van Kraaij
Slovakia	1	P. Margitfalvi
Spain	3	E. Diaz Infante, L. Mont, J. Moreno
Sweden	1	F. Gadler
Ukraine	1	O. Paratsii
UK	2	A. Patwala, A. Rao
Total	**15**	

Supplementary Table S2. Summary of the changes agreed and voted on by the Delphi panel to the procedure steps, errors and critical errors of the reference approach to cardiac resynchronization therapy implantation.

	STEPS			ERRORS			CRITICAL ERRORS		
Procedure phase	**Before**	**After**	**Changes applied**	**Before**	**After**	**Changes applied**	**Before**	**After**	**Changes applied**
I	8	8	0	7	7	0	1	1	0
II	6	6	3	4	4	1	0	2	2
III	4	4	1	4	4	1	4	5	1
IV	25	25	4	19	19	1	8	9	3
V	19	19	2	14	14	2	4	4	0
VI	24	24	6	7	7	2	5	6	2
VII	23	21	7	13	14	8	2	2	0
VIII	8	8	2	6	6	2	1	1	1
IX	28	28	2	20	20	0	6	6	2
X	26	25	2	17	17	2	4	4	1
XI	8	8	1	5	4	2	6	6	0
XII	12	11	2	2	1	1	8	8	1
XIII	5	7	2	4	5	1	1	2	1
N = 13	**196**	**194**	**34**	**122**	**122**	**23**	**50**	**56**	**14**

Supplementary Table S3. Examples of changes applied to the metrics by the Delphi panel at the consensus meeting in Amsterdam. Modifications are highlighted in italic.

Procedure Phase	Type of change	Status BEFORE Delphi	Status AFTER Delphi	Consensus
II & III	Extra critical error added		*Failure to secure guidewires*	100%
III	Definition modification	Puncture with Seldinger needle *at medial border of pectoralis minor muscle* (under fluoroscopy)	Puncture with Seldinger needle under fluoroscopy	100%
IV	Extra critical error added		*Failure to detect that lead is entrapped and continue pushing*	100%
VI	Extra critical error added		*Failure to stop contrast injection in the presence of dissection*	100%
VII	Definition modification	Insert the *proximal* end of the guidewire through the LV lead *tip seal* using the guidewire insertion tool	Insert the *soft* end of the guidewire through the LV lead *connector* using the guidewire insertion tool	100%
VII	Extra error added		*Gloves are dirty when shaping the stylet*	100%
VIII	Definition modification	*Confirm NO* phrenic nerve stimulation at 10V @0.5ms *using pacing vector with threshold <3.0V @0.5ms*	*Test* phrenic nerve stimulation at 10V @0.5ms	100%
VIII	Extra error deleted	*Accept LV pacing vector with Q-LV is <90ms without assessing other available pacing vectors*		100%
VIII	Extra error added		*Accept LV lead position with phrenic nerve stimulation present when another pacing vector or target vein is available*	100%
X	Definition modification	*Remove* the guidewire *from LV lead. Insert the straight stylet into the lead up to the mid-coronary sinus*	*Retract* the guidewire *into mid CS or replace it with stylet, depending on manufacturer*	100%
X	Extra error modification	Remove guide catheter before implanting the RV lead	Remove guide catheter before implanting the RV *and RA* lead	100%
X	Extra error added		*Failure to take measures to prevent air embolism with LV lead in 9F introducer*	100%
XII	Definition modification	Verify device biventricular pacing functioning on ECG monitor	*Reconfirm lead electricals with device in pocket and* verify device biventricular pacing functioning on ECG monitor	100%
XIII	Extra step and critical error added		*Confirm swab and suture count is correct*	100%