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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 ONLINE APPENDICES

Supplementary Appendix 1. Glossary.

Behavioural scientist	A professional who engages in any discipline concerned specifically with the subject of human actions and behaviour
Concurrent validity	A type of evidence in which there is a positive relation between the test scores from one instrument and the scores from another instrument purporting to measure the same construct
Construct validity	A type of evidence that supports that specific test items identify the quality, ability, or trait they were designed to measure
Content validity	An estimate (by expert/experienced opinion) of the validity of a testing instrument based on a detailed examination of the contents of the test items
Critical error	An event or occurrence involving a serious deviation from optimal performance during a procedure that represents a risk for the safety or success of the therapy
Definition	A definite, distinct, and clear objective characterization providing an accurate and reliable identification of whether an event was or was not observed to have occurred
Delphi Panel (modified)	A structured communication technique originally developed as a systematic, interactive forecasting method that relies on the opinion of an experienced panel; in the modified form, the members of the panel answer queries/vote in 2 or more rounds (cycles) on the appropriateness of the metric-based operational definitions of detailed aspects of procedure performance with the goal of achieving consensus – voting is not anonymous
Description	A qualitative characterization of certain or salient aspects or features of an event
Error	A deviation from optimal performance
Face validity	An estimate by an experienced panel that reviews the content of an assessment or tool to see if it seems appropriate and relevant to the concept it purports to measure
Iterative process	A process for calculating or progressing toward a desired result by means of repeated cycles of operations (deliberations); an iterative process should be convergent, that is, it should come closer to the desired result as the number of iterations increases
Likert-type scale	A method of ascribing a quantitative value to qualitative data to make them amenable to statistical analysis
Metric	A system of measurement of quantitative assessments used for objective evaluations to make comparisons or to track performance
Metric stress testing	A method for determining how specific metric definitions fare during their application and use in scoring in vivo or video-recorded performances
Metric element	The smallest observable element that constitutes a metric
Operational definition	Terms used to define a variable or event in terms of a process (or set of validation tests) needed to determine its existence, quantity, and duration
Performance characteristics	The features determining the accomplishment of a given task measured against preset known standards of accuracy and completeness
Performance unit	The smallest observable unit that constitutes a performance
Predictive validity	A type of evidence that determines the extent to which the scores on a test are predictive of actual performance
Procedure phase	A group or series of integrally related events or actions that, when combined with other phases, make up or constitute a complete operative procedure

Proficiency/proficiency benchmark	A specific level of performance defined by a quantitative score (benchmark) or scores on a standardized test or other form of assessment
Proficiency-based progression	A training program that dictates that skill performance be demonstrated, to a predetermined benchmark level, by the trainee before advancement to more complex techniques
Reference procedure	A straightforward operative procedure; an agreed on/accepted approach to the performance of an uncomplicated implant procedure
Reliability of identification (inter-rater reliability)	The extent of agreement between 2 raters on the occurrence of a series of observed events; it ranges between 0, no agreement, and 1.0, complete agreement
Step	A component task, the series aggregate of which constitutes the completion of a specific procedure
Task analysis	An assessment of how a procedure is accomplished, including a detailed (functional) description of the manual activities or tasks along with their duration, frequency, and complexity and any other unique and distinguishing factors
Task deconstruction	To break down a procedure into constituent tasks, steps, or components

Supplementary Appendix 2. Name and institute of the clinical panellists attending the Delphi meeting.

Name	Institute
Christine Alonso	Cardiology Department, Clinique Ambroise Paré, Neuilly-sur-Seine, France
Ludwig Binner	Department of Internal Medicine II, University of Ulm, Ulm, Germany
Maria Grazia Bongiorni	Cardiology Department, University Hospital of Pisa, Pisa, Italy
Ernesto Diaz Infante	Cardiology Department, Arrhythmia Unit, Hospital Universitario Virgen Macarena, Sevilla, Spain
Fredrik Gadler	Department of Cardiology, Karolinska University Hospital, Stockholm, Sweden
Daniel Gras	Nouvelles Cliniques Nantaises, Nantes, France
Peter Margitfalvi	National Institute of Cardiovascular Diseases, Bratislava, Slovak Republic
Lluís Mont	Department of Cardiology, Hospital Clinic, Universitat de Barcelona, Barcelona, Spain;
Javier Moreno	Department of Cardiology, Arrhythmia Unit, Ramón y Cajal University Hospital, Madrid, Spain.
Oleksii Paratsii	National Institute of cardiovascular surgery, Kiev, Ukraine
Ashish Patwala	Department of Cardiology, University Hospital of North Midlands, Stoke-on-Trent, United Kingdom
Archana Rao	Liverpool Heart and Chest Hospital, Liverpool, United Kingdom
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