



Clinical Evaluation and Investigation of Medical Devices under the new EU-Regulation

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Tarquin Mittermayr

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Bernhard Schwartz

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pharmacological and medical technology industry in planning, execution and statistical analysis of clinical trials. In addition, Bernhard regularly conducts systematic reviews, clinical evaluations and mini health technology assessments (mini HTAs). Based on his former experience in the field of toxicology (Seibersdorf Laboratories) and medical devices (University for Applied Sciences Upper Austria), he has a perfect background for solving clinical and technical problems.

Foreword

'I first met Wolfgang in 2015, having moved from working as a busy junior doctor in an Irish hospital to working as a medical officer for medical devices for my national Authority.

In my second week on the job, I was asked to attend a meeting in Brussels to discuss what became Annex VII of the Medical Device Regulation. I still remember being introduced to Wolfgang and I was immediately struck by his kind and enthusiastic manner. Wolfgang was a key figure in representing the importance of clinical evidence as part of the European Council Working Party negotiations for the Medical Device Regulation. At the Clinical Investigation and Evaluation Working Group, Wolfgang also worked very hard to ensure progress the last revision of the guidance for clinical evaluation (MEDDEV 2.7/1 revision 4), in addition to a range of other technical achievements.

In Europe, you learn very quickly that achieving progress requires teamwork, consultation and effective communication. This textbook represents a thorough and detailed guidance, with many practical and useful elements to help medical device developers to meet the requirements of the new Regulation.

When I speak about medical device regulations, I often find myself explaining the differences between medical devices and medicinal products, in terms of the numbers of products, the decision makers for market access, the legal standard for clinical evidence, but also the differences of profiles of drug and device developers. Medical devices are often developed in smaller institutions, whether 'spin-out' companies or small and medium sized enterprises. As such, a thorough and practical textbook explaining the

requirements and providing practical solutions is an important addition to the available knowledge and I congratulate Wolfgang and the fellow authors for their achievement.'

Dr. Tom Melvin

Co-Chair, Clinical Investigation and Evaluation Working Group

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List of Abbreviations

Abbreviation	Definition, Explanation, Remarks
acc.	According to
AIMDD	Active Implantable Medical Device Directive 90/385/EEC
App.	Appendix (used in MEDDEV 2.7.1. rev. 4)
Art.	Article (of MDR)
Basic UDI DI	Basic UDI Device Identifier
B/R	Benefit/Risk
B/R-R	Benefit/Risk-Ratio
CA	Competend Authority
CDRH	Center for Devices and Radiological Health (of FDA)
CEAR	Clinical Evaluation Assessment Report
CEN	Comitee Europeene de Normalisation (European Standardisation Committee)
CENELEC	European Committee for Electrotechnical Standardization
CER	Clinical Evaluation Report
CIE	Working Group for Clinical Investigation and Evaluation of the EU MDEG
CIP	Clinical Investigation Plan
COM	Commission of the European Community
COMET	Core Outcome Measures in Effectiveness Trials (comet-initiative.org)
CRA	Clinical Research Associate / Monitor
CRF	Case Report Form
CRO	Clinical Research Organisation

CS	Common Specification (Art. 9 of MDR)
CV	Curriculum Vitae
DD	Device Deficiency
DoI	Declaration of Interest
DSG	Device Specific Guidance
EbM	Evidence based Medicine
EC	Ethics Committee
eCRF	Electronic Case Report Form
EMA	European Medicines Agency
EUDAMED	European Database for Medical Devices
EudraCT	European Union Drug Regulating Authorities Clinical Trials
EUnetHTA	European network for health technology assessment
FDA	Food and Drug Administration (US)
GCP	Good Clinical Practice
GHTF	Global Harmonisation Task Force, now superseded by IMDRF
GMDN	Global Medical Device Nomenclatura
GSPR	General Safety and Performance Requirements, see Annex I of MDR
HN	Harmonised Norm – EU Harmonised Standard with presumptions of conformity in their Annexes Z for specific Directives/Regulations of EU
HTA	Health Technology Assessment
IB	Investigators Brochure
ICH	International Council for Harmonisation of

	Technical Requirements for Pharmaceuticals for Human Use
IEC	International Electrotechnical Commission
IMDRF	International Medical Device Regulatory Forum, Successor of GHTF
IP	Investigational Product
IQWiG	Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen
ISF	Investigator Site File
ISO	International Standardization Organization
IVD	In Vitro Diagnostic (Medical Device)
IVDR	IVD Regulation (EU) 2017/746
MDCG	Medical Device Coordination Committee
MDEG	Medical Device Expert Group of EU, now superseded by MDCG
MEDDEV	Medical Device Guideline of the EU COM, now superseded by MDCG-Guidance
MD	Medical Device
MDD	Medical Device Directive 93/42/EEC
MDR	Medical Device Regulation (EU) 2017/745
NB	Notified Body
NCBI	National Center for Biotechnology Information
PI	Principal Investigator
PICO	HTA structured search strategy with Population; Intervention; Control/Comparator; Outcome(s)
PLEG	Post Launch Evidence Generation; Concept

	in HTA for post market evidence generation
PMCF	Post-Market Clinical Follow-Up
PMS	Post Market Surveillance, see Chapter VII.1 and Annex III of MDR
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta Analyses
PSUR	Periodic Safety Update Report, see Art. 86 of MDR
rev.	Revision (MEDDEV 2.7.1. rev. 4)
RMS	Risk Management System
RWD	Real World Data – Concept of IMDRF for post market evidence generation
RWE	Real World Evidence
SAE	Serious Adverse Event
SaMD	Software as a Medical Device (IMDRF concept)
SMF	Study Master File
SOP	Standard Operation Procedures
SRN	Single Registration Number (of manufacturer, authorized representative or importer) in EUDAMED
SSCP	Summary of Safety and Clinical Performance, see Art. 32 of MDR
TD	Technical Documentation
TPLC	Total Product Life Cycle – Concept of IDEAL D Initiative
UDI	Unique Device Identifier
WHO	World Health Organization

WHO ICTRP

World Health Organization International
Clinical Trials Registry Platform

Symbol meanings

Symbol for relevant hints:



Hint

Symbol for MDR citation:



Citation

Symbol for Guidance (MEDDEV, MDCG, GHTF/IMDRF etc) citation:



Citation

The QR Codes shown in this book can be captured by a QR Code Scanner, which allows a forwarding to the website where the videos and supporting documents are provided.



Further reference material and updates (e.g. references to new MDCG Guidelines ...) can be found under the following link:

<https://www.rnb-consulting.at/doku/doku.php/en/referenzen/start>