Symposium
Harmonised Approach to Early Feasibility Studies for Medical Devices in the EU

Clinical evidence generation for high-risk medical devices under MDR

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EU Medical Device Regulation

Notified Body [NB]

Organization that **performs conformity assessment procedures** [responsible for issuing the certificate/CE mark] as a service to manufacturers; they operate in an **independent and impartial manner** [no consultancy] and are regularly audited by the competent authorities in the country they are based on

- April 5th 2017 ➡ **MDR** ➡ May 26th 2021
- **MDR art 61 and Annex XIV ➡ Clinical Evaluation**
- **MDCG guidance papers**

EU Medical Device Regulation
MDR art 61 and high-risk devices

- *In the case of implantable devices and class III devices, clinical investigations shall be performed*

- *Except if,*

- Art 61.4 and 61.5 – **Equivalence** ⇒ **New device**
- Art 61.6 (a) – **Legacy device** ✗ **New device**
- Art 61.6 (b) – **Exempted devices** [*fixed list*]

EU Medical Device Regulation

Sources of clinical evidence [MDCG 2020-6]

Rank	Types of clinical data and evidence
1	Results of high quality[62] clinical investigations covering all device variants, indications, patient populations, duration of treatment effect, etc
2	Results of high quality clinical investigations with some gaps
3	Outcomes from high quality clinical data collection systems such as registries[63]
4	Outcomes from studies with potential methodological flaws but where data can still be quantified and acceptability justified[66]
5	Equivalence data (reliable / quantifiable)
6	Evaluation of state of the art, including evaluation of clinical data from similar devices as defined in Section 1.2 of this document
7	Complaints and vigilance data; curated data
8	Proactive PMS data, such as that derived from surveys
9	Individual case reports on the subject device
10	Compliance to non-clinical elements of common specifications considered relevant to device safety and performance
11	Simulated use / animal / cadaveric testing involving healthcare professionals or other end users[67]
12	Pre-clinical and bench testing / compliance to standards[62]

- Clinical Investigations
- PMCF studies
- Registries
- Peer-reviewed Literature
- Data from Equivalent Device(s)
- Data from Similar Device(s)
- PMS data
- Individual case-reports
- Pre-clinical data

NB Clinical Assessment

- Medical Device

- Sources of clinical data/evidence

- Sum of evidence should:
  - ⇨Demonstrate positive benefit-risk
  - ⇨Cover all indications and target patient groups

PMCF Plan
PMS Plan

NB Clinical Assessment

Sources of clinical evidence/data [new, high-risk device]

- Pre-market clinical investigation(s) ➡ pivotal, EFS
- Equivalence?
  - ⇨Clinical inv
  - ⇨Literature
  - ⇨PMCF data
  - ⇨PMS data
- Similar devices data/SOTA [supportive data]
- Pre-clinical data [animal tests, bench tests, etc]
- Post-market data [non-EU]

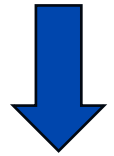
Orphan devices

[MDCG 2024-10]

Acceptable limited pre-market clinical data

Only EFS?

Acceptable “lower” quality pivotal study design



- Still needs to be enough for positive benefit-risk ratio
- Appropriate PMCF Plan
- Users need to be informed

Possible Gaps and Solutions

• *Low-risk* high-risk MD	• Surrogate data from system
• Equivalence	• PMCF study(ies) [all ind & target groups]
• CI with small cohort	• PMCF study; high quality registry
• CI with short follow-up vs lifetime of device	• Conversion to PMCF study post CE mark
• Insuf data for 1 indication or target group	• PMCF study [if indication and/or target patients are well established in SOTA]
• Overall low amount of data	• PMCF study; registries

Upcoming...

- AI Act & MDR
- Possible rise in *In Silico trials* [computational modelling and simulation]?
- MDCG Guidance on Breakthrough Devices?

Thank you for your attention!

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