Do proposed definitions meet the unmet needs of cardiologists and cardiac surgeons?

Orphan devices and unmet medical needs

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ESC Cardiovascular Round Table - 18 April 2024

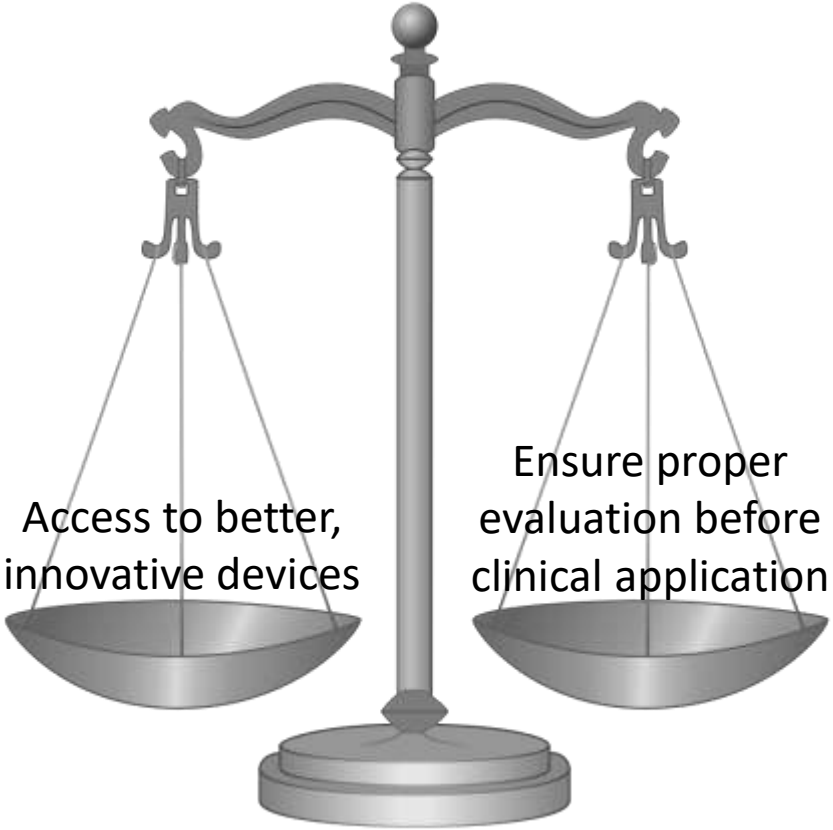
Disclosures

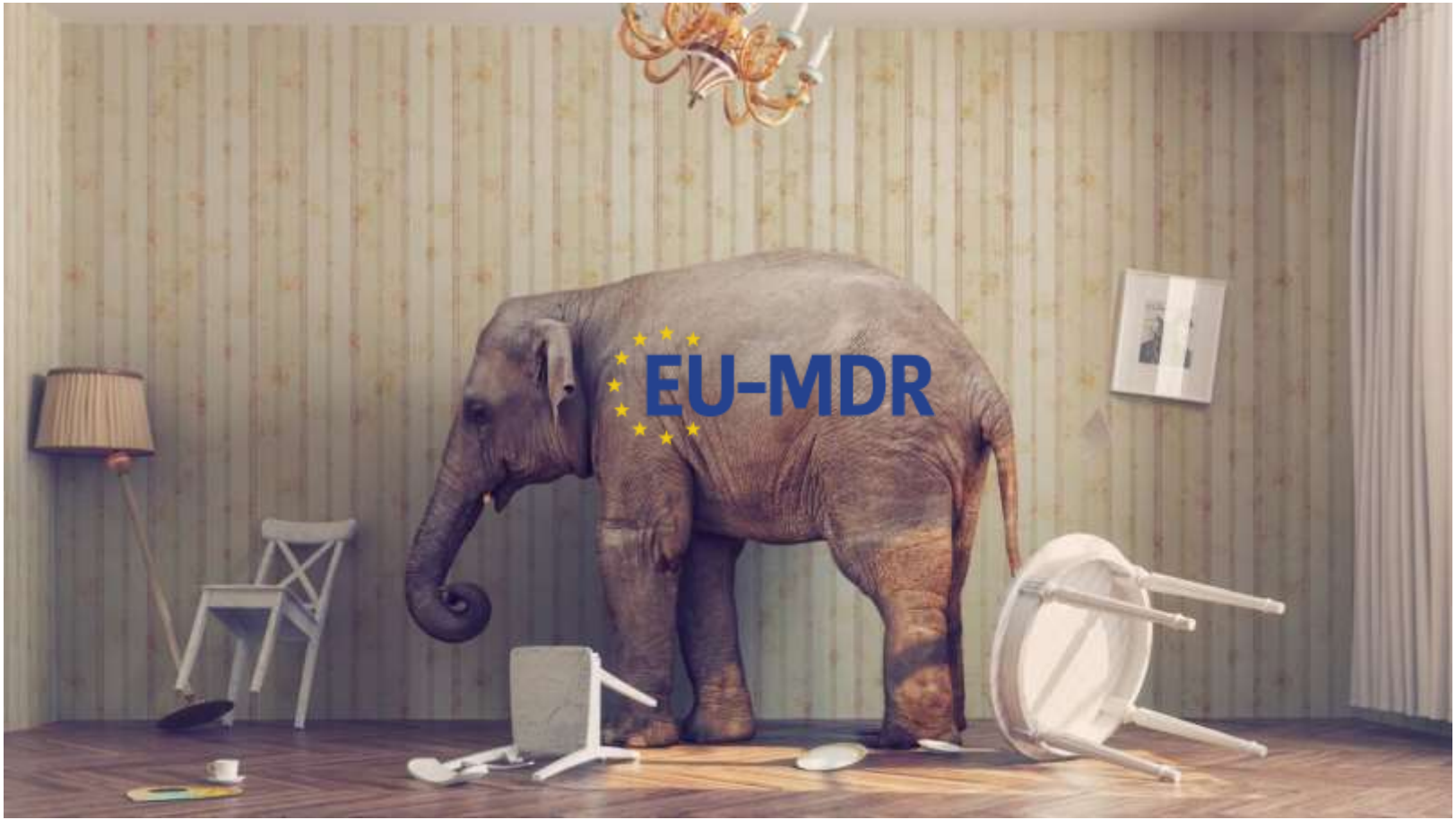
- **Financial: none**
- **Intellectual:**
  - Surgeon
  - EACTS Secretary General
  - Board member and former secretary, EBCTS
  - President, CTSNet
  - International Director, STS
  - Advisor to early-stage MedTech startups (NeuroSoft, Hi-D imaging, Artiria, Aspivix)

Orphan medical devices regulations globally

Orphan Criteria	Australia	Brazil	Europe	Japan	USA
Regulatory Framework	Drugs only	Drugs only	Drugs only	Yes	Yes
Prevalence / Incidence of rare disease	Prevalence: 50/100k Incidence: NA	Prevalence: 65/100k Incidence: NA	Prevalence: 50/100k Incidence: NA	Prevalence: 40/100k Incidence: NA	Prevalence: 60/100k Incidence: 8000 per/year
Indication	Serious medical condition (single)	Serious debilitating condition	Life-threatening or chronically debilitating condition	Serious diseases, (incl. difficult to treat diseases)	NA
Alternatives	None or Significant benefit to patient care vs alternatives	NA	None or significant benefit to patients	None or high effectiveness/safety vs alternatives	NA
Overseas Approval	Not previously refused for approval for safety	NA	NA	Sufficient clinical data or explanation of theoretical rationale for use in the target disease	NA
Performance	NA	Propose to significantly modify evolution or enable remission of disease	NA	NA	Exempt from effectiveness evaluation

Conundrum of Medical Device Regulation




EU-MDR

Rare diseases

+7000

rare diseases have been identified, with more being discovered every day.[1]

350 MILLION

Although the diseases themselves are rare, rare diseases affect **350 million people** worldwide.[1,2]

>80% of rare diseases are caused by faulty genes, underscoring the need for effective treatment rather than preventive measures.[2,3]

Only **5%** of rare diseases have treatments, high need for innovative therapies.[2]

Did you know?

If all the **people with a rare disease** lived in one country, it would be the world's **3rd populous country**.

50%

of the people affected are children.[1]

Individually rare, collectively common.

While each disease affects few people, collectively many lives are touched.

Definitions

- **Orphan medical devices**
  - Medical devices that benefit a relatively small group of patients in the treatment or diagnosis of a disease or condition

** Annex to the COMMISSION IMPLEMENTING DECISION on the financing of the Programme for the Union's action in the field of health ('EU4Health Programme') and the adoption of the work programme for 2023*

  - Lack alternatives
- **Orphan disease**
  - Disease occurring in <1 in 2’000 people

EMA definition

EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

Orphan medical devices

- **Opportunity & resources cost to stakeholders** (small addressable market)
- **Unfavorable development & investigation cost : ROI ratio**
- **No published definitions by EU Medical Devices Coordination Group (MDCG)!**

Orphan medicine definition

- Treatment, prevention or diagnosis of a disease that is **life-threatening** or **chronically debilitating**
- Prevalence in EU ≤5 in 10’000 or sufficient ROI unlikely
- No satisfactory method of diagnosis, prevention or treatment of the condition concerned can be authorized
- Or, if such a method exists, the medicine must be of significant benefit to those affected by the condition

Regulation (EC) 141/2000

Orphan medicine definition

- Benefits
  - Protocol assistance
  - Market exclusivity once the medicine is on the market
  - Fee reductions depending on the status of the sponsor and the type of service required
  - Global partnerships
    - US FDA
    - Japanese Ministry of Health, Labour and Welfare
- 60% intended for pediatric use!

Regulation (EC) 141/2000

Path forward for Orphan medical devices

- **Business models with incentives needed to bring these devices to the market**
  - Supportive frameworks
  - Avoid withdrawal for financial reasons
  - Regulate off-label use
  - Manage materiovigilance

Solutions


European
Commission
European Health Union:
Helping the transition to the new rules on medical devices and *in vitro* diagnostics

Solutions


ONGOING NON-LEGISLATIVE ACTIONS TO SUPPORT THE TRANSITION
ACTIONS TO INCREASE THE CAPACITY OF NOTIFIED BODIES AND HELPING PREPARE MANUFACTURERS
Position paper by Medical Device Coordination Group identifying actions to increase notified body capacity, the access to notified bodies and manufacturer preparedness (MDCG 2022-14 position paper)
Increasing the number of notified bodies
Consortium (NoBoCap) developing actions to increase the capacity of notified bodies and the preparedness of manufacturers (trainings) and facilitating access to notified bodies, especially for SMEs (matchmaking platform) (EU4Health)
Supporting coordination between notified bodies (EU4Health)
Tailored solutions for orphan devices
Targeted support to SMEs through Enterprise Europe Network
NEW: Development of further supporting tools such as translation of nomenclatures
STOCK TAKING OF REGULATORY FRAMEWORK AND TRANSITION (EU4HEALTH)
Study on governance and innovation
Study to monitor availability of medical devices on EU market
NEW: Studies supporting the targeted evaluation of MDR/IVDR
SUPPORT TO REGULATORY INFRASTRUCTURE AND PROCESSES (EU4HEALTH)
Support for European database on medical devices
Support for designated EU reference laboratories (in vitro diagnostics)
Joint Action on market surveillance
NEW: Horizon scanning for medical devices (EU4Health)
SUPPORT FOR INNOVATION AND ADDRESSING SPECIAL NEEDS
Pilot on scientific advice by expert panels for clinical development strategies for high-risk devices
Orphan device support programme, focussed on paediatrics (EU4Health)
NEW: Additional pilots with expert panels to support conformity assessment

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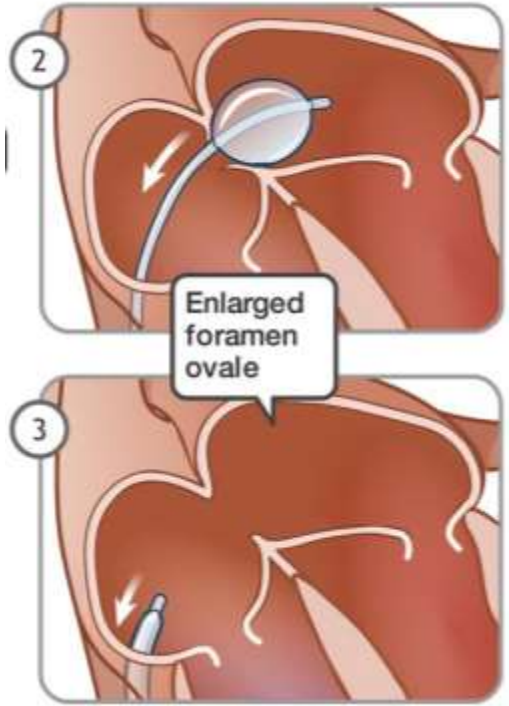
Applications



Value of Orphan Device Definitions

- Prevalence vs. incidence
- Scientific basis for cut-offs?
- How to define an orphan disease?

- Pragmatic approach

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