Real-World Evidence Guidance

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Patients are at the Heart of What We Do

CDRH Vision: Patients in the U.S. have access to high-quality, safe, and effective medical devices of public health importance first in the world
Context for RWE Guidance

2016-2017 CDRH Strategic Priorities

National Evaluation System for health Technology (NEST)

FDARA (including MDUFA IV) commitment to use of real-world evidence to support device pre/postmarket decisions

Guidance issued to clarify how RWE may be used to support regulatory decisions
**Definitions from the Guidance**

<table>
<thead>
<tr>
<th>Real-World Data (RWD)</th>
<th>Real-World Evidence (RWE)</th>
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</thead>
<tbody>
<tr>
<td>Data relating to patient health status and/or the delivery of health care routinely collected from a variety of sources</td>
<td>Clinical evidence regarding the usage and potential benefits or risks of a medical product derived from analysis of RWD</td>
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Devices Are Different from Drugs

- Many devices are highly dependent on clinician knowledge, experience, and skill
- Devices and techniques iteratively and rapidly improve (sometimes even during a trial)
- Gold-standard RCT often not practical
What are the opportunities?

Flexibility
- “Can’t always get what you want....”
- But if we are flexible, we can “get what we need”

Innovation
- Modeling
- Adaptive designs
- Real-world evidence

Collaborations
- NEST
- Industry groups
- Patient and clinician groups
Patient Engagement

Patient Perspectives!

Informed Decisions
Why Use RWE in Regulatory Decisions?

Traditional clinical trials

• Evaluate device performance in controlled setting.
• **Benefits** include:
  • Control over the study design and protocol
  • Control for confounding
• **Limitations** include:
  • Usually, expensive and time-consuming
  • May be difficult to collect rare outcomes
  • How generalizable are results?
Why Use RWE in Regulatory Decisions?

**Potential benefits of real world data sources include:**

- Understand device performance in real-world environment to inform benefit-risk.
- Collect outcomes not always feasible in traditional trials
  - performance in diverse patient populations and subgroups
  - long-term outcomes
  - larger data sets to assess rare but important events
- Opportunities to partner w/patients in new ways (patient reported outcomes, mobile medical apps, wearable devices, user experience, etc.)
- Reduced time/cost to answer important questions
Some Regulatory Uses for RWE

- Replacing post approval study
- New indications for approved devices
- Shifts to pre-postmarket balance
- Control arm for pivotal clinical study
- Studying new improvements to devices
- Adverse event reporting
Some Non-Regulatory Uses for RWE

- Informing the community on optimal care
- Identifying needs and gaps
- Market analysis
- Assessing quality of care
Data Quality

‘Fit for Purpose’
Data should be assessed for completeness, consistency, accuracy, and whether it contains all critical data elements needed to evaluate a medical device and its claims.

Relevant & Reliable

Benefit  Risk
Characteristics for RWE Evaluation – Relevance –

The data adequately addresses the applicable regulatory question or requirement.

- Examples of factors to be evaluated:
  - Appropriate variables collected, e.g. device exposure.
  - Endpoint definitions consistent and meaningful.
  - Assessment schedule captures endpoints of interest.
  - Population is appropriate and representative.
  - Study protocol and/or analysis plan appropriate for question.
Characteristics for RWE Evaluation
– Reliability –

Reliability includes factors related to overall data quality

• RWD data reliability is assessed using characteristics of:
  – Data Accrual
  – Data Assurance – Quality Control
How will NEST become a success?

The NEST Ecosystem

- NESTcc
- Clinician Groups
- Industry
- Payers
- Patient Groups
- Regulators
- Health Systems
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