IMDRF International Medical Device Regulators Forum

IMDRF Registry Working Group Update

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Introduction

The International Medical Device Regulators Forum (IMDRF) Registry Working Group was created with the purpose of developing:

1. Essential principles for linking electronic patient, device and outcome registries and/or related data repositories or identifiers such as unique device identifiers, including the principles behind data access, security, informatics formats, governance and other key areas related to global regulatory applications for medical device evaluation

2. Essential principles related to optimal methodologies for the analysis of heterogeneous data sources applied to medical device safety signal detection, performance, and reliability

Vision

- International harmonization of medical device registries analytical methodologies via international Coordinated Registry Networks (iCRNs) based on demonstrated best practices;

- Not all countries may be able to contribute registry data to every device evaluation; however, all countries will benefit from the global collaborative effort;

- Collaboration should be based on a systematic agreed upon process for sharing and evaluating data/findings from medical device registries; and

- All registries will agree on pre-specified analyses and collaborative sharing of the outputs with each other and the regulators.

Note: The focus will primarily be on implantable therapeutic devices, as this area represents the highest risk devices with most registry activities and opportunity to reach consensus.

Phase 1

"Essential Principles of International System of Registries Linked to Other Data Sources and Tools"

- Provides information and guidance on:
  - Definitions and qualifiers that define the impact, value, and sustainability of registries
  - Building on national registries and international collaborations
  - Data features and quality requirements for participating registries
  - Relevant data sources and tools
  - Desirable dimensions of data for assuring analysis validity when linking registries with other relevant data sources and tools
- 95 comments were received through the public consultation process
- Final document sent to MC for review and approval

Phase 2

"Essential Methodological Principles in the Use of International Medical Device Registry Data"

- Document builds on the:
  - Phase 1 document
  - Common Data Elements (CDE) for Medical Device Identification document
  - Methods discussed in the Medical Device Registry Task Force report as they can reasonably apply directly to the international setting

- Provides information and guidance on:
  - International coordination in methodologies
  - Methodological principles in the clinical evaluation of performance, effectiveness and safety across the device lifecycle using international Coordinated Registry Networks (iCRNs)
  - Methodological principles in signal detection via the iCRNs

Phase 2 - Key Concepts: Between-Country Variation

Several characteristics contribute to differences among countries in both the use of medical devices as well as their associated outcomes which can impact methodologies, including:

- **Market Environment**
  - Device availability, length of market experience, etc.
- **Intrinsic and Extrinsic Ethnic Factors**
  - Characteristics of the patient population
- **Registry Characteristics**
  - Variation in granularity of data, attrition rates, etc.
- **Medical Device Regulatory Requirements**
  - Requirements for assessment of clinical data varies globally
- **Health Care Delivery Systems**
  - Differences in health care delivery systems

Phase 2 - Key Concepts: Clinical Evaluation of Performance, Effectiveness and Safety

- The features of international medical device registries provide numerous opportunities to learn continuously about device performance through the product's entire life-cycle including, for example:
  - Understanding learning effects in the use of devices
  - Understanding device performance in different indications
  - Having greater pooled sample size and types of patients included in analyses
  - Having the ability to nest randomized trials in registries
  - Identification of subgroup effects

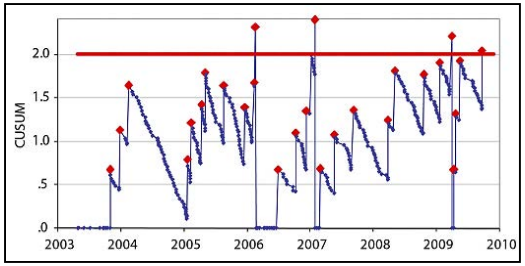
Phase 2 - Key Concepts: Signal Detection

- Single and aggregate reports and 'root cause analyses' are useful for identifying unexpected major harms
  - By shifting the focus from individual reports towards systematic summary analyses, registries can be used to detect signals depending on the degree of similarity or exchangeability in the data
  - Use of signal detection to contribute to benefit/risk assessments

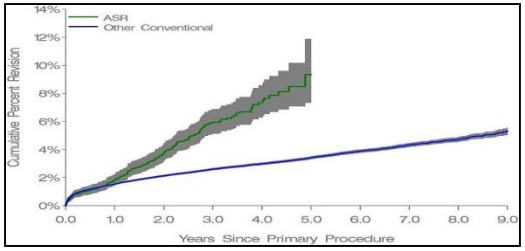
- Methodologies
  - Harmonizing terminology
  - Allowing flexibility for periodic updates of data capture
  - Providing different considerations for new vs. mature devices
  - Pre-specifying threshold values
  - Establishing criteria to distinguish between provider vs. device effect

Phase 2 - Key Concepts: Examples of Tools Used in Registries

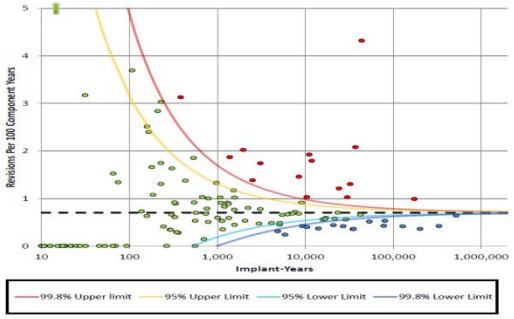
- **Cumulative sum of outcomes (CUSUM)**
  - Allows for determination of excessive rates of failures or adverse events



- **Cumulative Revision Rate Over Time**
  - Allows for identification of outliers when compared to overall or group average



- **Funnel Plots**
  - Comparison of the observed events (e.g. specific device failure) against the national average within the population

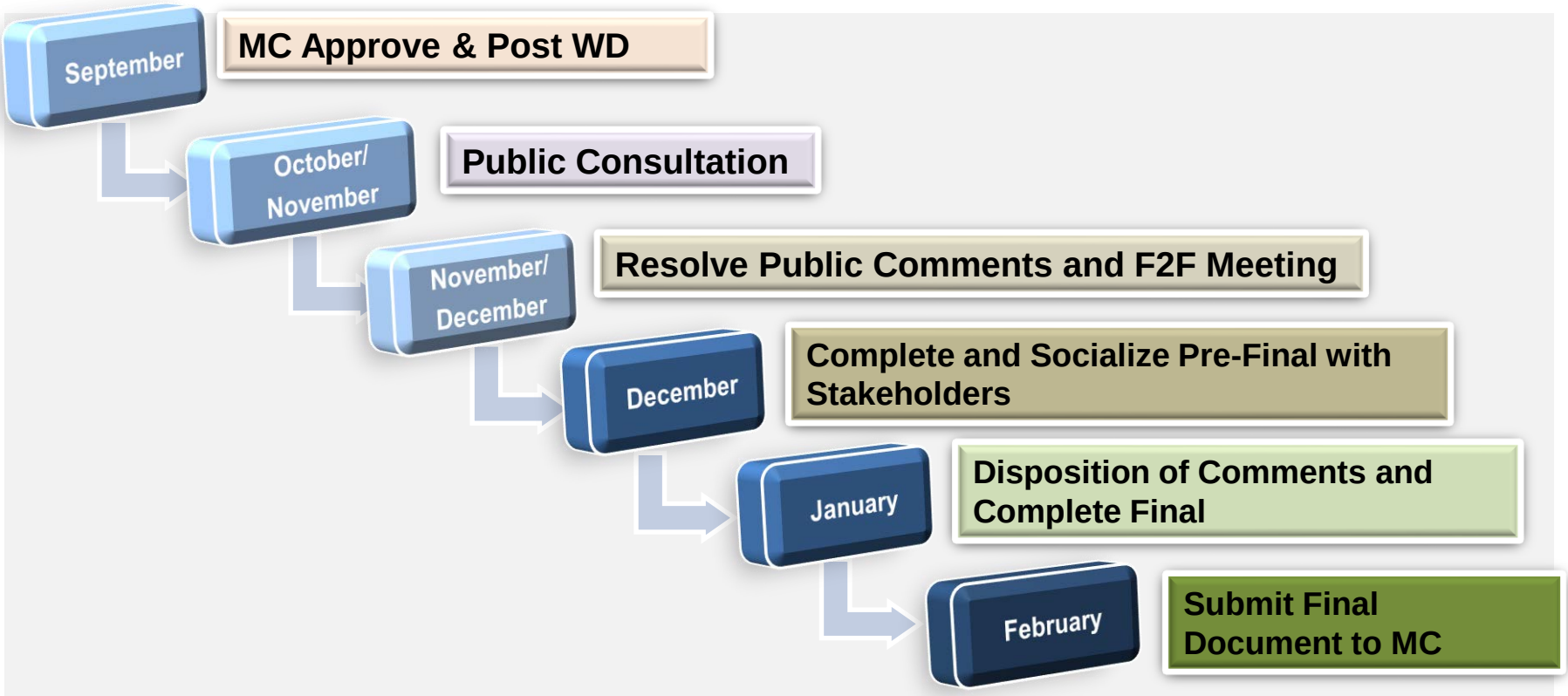


Current Status

- **Phase 1 - *"Essential Principles of International System of Registries Linked to Other Data Sources and Tools"***
  - Final document submitted to MC for review

- **Phase 2 - *"Essential Methodological Principles in the Use of International Medical Device Registry Data"***
  - Face-to-face meeting held July 25 - 27, 2016
  - Initial draft document submitted to MC for review
  - Proposed face-to-face meeting November/December timeframe

Project Plan for the Phase 2 Document



Thank you!

- Special thanks to the IMDRF Registry Working Group members and all the stakeholders and reviewers who provided valuable input!

And extra special thanks to MHRA for hosting our face to face mtg, July 25-27, 2016