U.S. FOOD & DRUG ADMINISTRATION

Data Submission Modernization

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- The opinions expressed in this presentation are not meant to imply any changes to guidance or regulations.
- Guidance and regulations will be announced through typical channels.
- The opinions expressed in this presentation are solely my own based on my own experience and should not be interpreted as an endorsement by the FDA, or interpreted as changes in current guidance or regulations.

What will we cover

- Current state
  - Process
  - Standards
- Future Direction
- FDA Modernization Activities

Current state of data for regulatory agencies

- With some exceptions, regulators like FDA are stuck in the "paper" paradigm.
- "digital paper" (PDF/Word) - not computationally actionable
- Large amount of data submitted in narrative form - even in Cover Letters
- We still have banks of fax machines
- Structured data conforms to a "document" paradigm
- Sponsors must send a range of information to regulators requested in different formats
- Cover Letters, PDFs, Office docs, .xml files, Structured Data Files, etc.
- Packaged in various "wrappers"
- SAS Transport, electronic Common Technical Document (eCTD) folders, etc.

Current state of data for regulatory agencies (cont.)

- And then… regulators must unpack all that, manage it, and finally review it.
- Side effect of the Document paradigm:
  - Overreliance on data packaging vs data standards

Current state of data standards used by regulators

- Current data standards used at FDA for crucial functions are built on older technological approaches to data standards and informatics
- Clinical data is primarily represented in simple tabular formats
  - SDTM/ADaM - similar data structures but not fully harmonized
  - SAS transport - Outdated technology
  - Tabular data representations break down with larger data sets e.g. RWD & DHT
- HL7 v3 multiple submission types - no longer supported
  - (SPL) Product labeling
  - AE reporting
  - Facility and Establishment registration/information
  - Risk Evaluation and Mitigation Strategies (REMS)
- Some critical data activities have no structured data standards
  - All of eCTD Module 3: data on Pharmaceutical Quality, Chemical Manufacturing, and Controls

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pmda 独立行政法人 医薬品医療機器総合機構
Pharmaceuticals and Medical Devices Agency

Future Roadmap

A future where:

- Minimizing the burden on sponsors and regulators
- Minimizing the need for subjective interpretation of data i.e. increased data standardization
- Use modern data technologies and information technology conventions,

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Exploring Modern Data standards

- Dataset-JSON
  - Based on modern data serialization methods
  - Can conform to current tabular data standards i.e. STDM / ADaM without the current XPT limitations
  - Minimal impact of current workflow
- HL7 FHIR
  - Modern alternative to V3 messages
  - Not simply a messaging standard
    - Data model - FHIR Resources
    - Interoperability exchange - Implementation guides
  - Build on Web 2.0 technology

Current Projects

- Currently testing Dataset-JSON
  - Reviewer tools
- FHIR Projects
  - FHIR Accelerators Vulcan, CodeX
  - REMS - pilot phase
  - SPL-FHIR - pilot phase
  - ECTD Module 3 PQ/CMC - stage 2 / 3 development
- Electronic Clinical Study Protocol Template M11
  - ICH
  - CDISC
  - Vulcan

However…

- Dataset-JSON
  - New standard
  - Limited but growing tools support
  - Limited real world testing
- FHIR is primarily a Health Care exchange standard
  - Not a Regulatory Standard
  - Unlike current "document" based standards FHIR is based on Implementation guides
  - Under active development
  - Not inherently designed to manage aggregate data