Integrating Event Flow with the Pharmacovigilance Defense Application System (PVDAS)

Chris Crowley
Commonwealth Informatics

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Pharmacovigilance
(also known as Drug Safety)

The pharmacological science relating to the collection, detection, assessment, monitoring, and prevention of adverse effects with pharmaceutical products

—wikipedia.org
The Pharmacovigilance Defense Application System (PVDAS) is used by the US Army Pharmacovigilance Center (PVC).

The PVC uses PVDAS to analyze the US Dept. of Defense (DoD) TRICARE healthcare data.

PVDAS was developed under a Small Business Innovative Research Project (SBIR).
US Army Medical Database

- 15 million patients enrolled in TRICARE over a 10 year period
  - Active duty military personnel
  - Eligible retirees
  - Family members

- Based on TRICARE Claims data and EMR data

- Data includes:
  - Diagnoses (over 2 billion records)
  - Pharmacy (over 1 billion Rx's)
  - Laboratory results (over 700 million records)
  - Claims for care received in the civilian healthcare system
PVDAS

• Epidemiological analysis tool for healthcare data
• **Cohort Selection**
• **Descriptive Analysis** – Relationships between specified Indexes and Outcomes (Rx’s and/or medical events)
• **Evaluative Analysis** – Comparative analysis of a Primary index-outcome analysis vs. a Comparator index-outcome analysis
• **Exploratory Analysis** – Adverse Event comparison across incidence drugs (“Signal Detection”)

• Robust suite for specifying complex criteria:
  • Inclusion/exclusion filters
  • Temporal constraints
  • Drug era complications
  • Immeasurable time (e.g. overseas deployment)
Selected Index Event
Instance of a potential Index
Drug era
Follow-up period from Index to Outcome
Selected Outcome Event
Instance of a potential Outcome
Co-occurrence Window
Co-occurrence Drug
Live Demo
PVDAS analysis exported to EventFlow
Demo
Future Direction

• Tighter integration – hiding the export/import steps
• Persistent graphic configurations (color, shape, order)
• Cohort selection from EventFlow back to PVDAS

Wish List...
• Hierarchical timeline elements (i.e. Gantt chart roll-ups)
• Command line control
• Configuration merge
• Persistent filtering configurations (visibility, selection, filtering)