APEX DATA SOLUTIONS

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A Longitudinal Patient Record Built for Actionable Business Intelligence

Challenge

The ability to discover unique and key insights into both patient and patient population health and care has proven elusive due to the obstacles presented when integrating data from multiple systems-of-record. The goal for the patient, the provider and the care organization is to make informed decisions about the health of an individual, and the overall health of a population, using federated and reconciled data from these multiple systems-of-record.

To date, gathering this data has been difficult given that most organizations consist of a number of multiple, often discreet "data islands." What is needed to gather the required data and glean the required insights, is to have these data islands behave as a single "data ocean."

Solution

Lessons from work on re-engineering the VA's Medication Reconciliation and Allergy Review (MRAR) application exposed that a user experience should be scenario-specific and capture state change and interactions accurately and completely. Using these insights, we've incorporated technology advances into a number of solutions to further promote interoperability. These advances give users the ability to capture the requisite metadata in real-time to power Business Intelligence (BI) dashboards for the following categories of metrics:

1. Usability
2. Operational Efficiency
3. Operational Effectiveness
4. Workflow Improvement Identification
5. Patient Population Needs Insight and Care Outcomes
6. Domain-wide insights and trend analysis across operational and clinical domains

Each organization may define these categories differently. By using the immutable data model in our ForeverDB™ platform metrics are captured in a way that best suits each organization. This enables the creation of informative, accurate, actionable and relatable business intelligence. This can take the form of various diagnostic reports and dashboard-style views that can be used to materially enhance that organization's operations.

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Benifits

For Developers:

- Significant reduction in required data mapping activities, including design and development time when implementing BI solutions.
- Standardization of data mapping specifications that can be adopted by multiple data management organizations.
- Reduced transformation rules during design and development of ECTL (Extract Cleanse Transform Load) programs.
- Conformed dimensions that are aligned with HL7 FHIR® specifications.
- Simplified maintenance of tables.
- Simplified record linking between different subject areas through metadata tagging and identity resolution.
- Efficient creation of complex and high-performance BI repositories or data warehouses as needed, that remain up to date with their systems-of-record.

For Users:

- Consolidated views of patient records are delivered to user interfaces, while multi- dimensional information is exposed for ad hoc analytics.
- Ensures that shared or mirrored entities have consistent values and representations across all sites, minimizing data profiling activities that need to be conducted by new users or analysts.
- Consistent dimension values across all BI and analytics output, input source data are validated against HL7 FHIR® specifications.
- Ability to easily develop sophisticated historical reports, analytics, and predictive models.
- Consistent and extensible data models simplify design and development of clinical rules, clinical groupers, population identification and stratification.
- Easy to manage consolidated reporting and analytics across all sites.
- Ability to build report and analytic libraries that can be shared between all sites.
- Data-driven user Interfaces and experiences.
- Changes can be tracked and measured for usability effectiveness, with operational metrics
- supplementing decision support systems.

For System Administers:

- Storage is reduced since ForeverDB™ only updates field values that have changed, instead of expiring and replacing entire record sets.
- Higher performing query execution due to the reduced number of records that need to be persisted during database updates.
- Simpler setup of data acquisition layers.
- Minimal ECTL Staging and Transformation Server requirements.
- Allows implementation of existing in-house databases and BI platforms.

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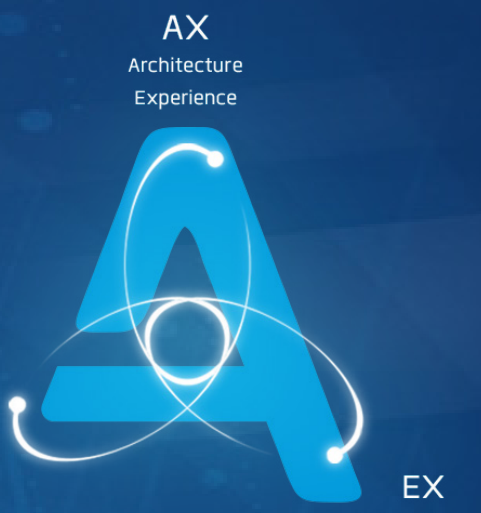
Highlights

- Enables systems to exchange information using HL7 FHIR® profiles, and populate consolidated BI platforms with verified information.
- Provides efficient consolidated views of patient records.
- Ability to slice-and-dice data using familiar HL7 FHIR®-based dimensions.
- Enables drill down from aggregated data to HL7 FHIR®-based granular data.
- Automatic detection of data discrepancies between systems of record.
- Simplifies ECTL processes during maintenance of BI repositories or data warehouses.
- Allows efficient design and implementation of BI platforms with minimal storage and CPU processing requirements.

Summary

Having complete, accurate, and actionable information for specific user scenarios – be they patient/provider or overall healthcare metric indicators – is the key to optimum healthcare at all levels. Interoperable tools offer the ability to gather, share, and act upon data that are stored across, and pulled from, multiple systems-of-record, making it easier to glean real-time insights from a now-unified patient record. At the individual level, these tools allow providers to make informed decisions about a patient's health and courses of treatment at the point of care. At the organizational level, the assortment of collected metrics allow businesses to make informed decisions, such as offering new types of treatments, preventative care programs, and ancillary support services in a specific facility or geographic area.



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