Development of an Integrated Millennium Module with CCL

STANDING ORDERS FOR OUTPATIENT LAB COLLECTIONS

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MILLENNIUM CALGARY SNAPSHOT

- Millennium Solutions: Rad, Lab, Scheduler, CPDI
- Millennium lab has been designated the provincial LIS solution
- Currently provides comprehensive lab services supporting Calgary and a wide surrounding area (pop ~1.5M).
- Lab test volume = 25.2 million orders per year

STANDING ORDERS HISTORY

- Legacy SQL server application stored SO requisitions
- Approximately 30% of all lab orders originate from a standing order
- Standing Order Processing Office (SOPO)
  - 5 staff maintain 56K requisitions and counting

STANDING ORDER PROCESS

1) Patient arrives with a manual requisition stating a standing order frequency is requested
2) Requisition entered into Millennium, then the requisition with a barcode accession is forwarded to SOPO
3) SOPO captures the requisition into their database
4) Following patient presentation, requisition is printed on patient identification

LEGACY SQL SERVER HURDLES

- Maintenance & development became difficult due to lost expertise
- Manual maintenance was required for most all data elements: (order catalog, patient demographics, encounter identifiers)
- Alternatives considered: Millennium Scheduler, CPDI, CCL

THE CCL INTEGRATED APPROACH

- CCL Standing Orders Database (SODB) was designed from the ground up around Millennium
- An emphasis was put on minimizing data maintenance by linking Millennium data elements (_id, _cd):
  - person_id, frequency_cd, reporting_priority_cd, synonym_id, catalog_cd)

THE CCL INTEGRATED APPROACH

- Relying on Millennium data greatly simplified schema compared to SQL Server
  - CUST_SODB, CUST_SODB_ORD
- SODB record lifecycle emulates Millennium
  - Updates to a patient's standing order record is handled by inserting a new row – only the latest record has active_ind=1
  - Allows for historical tracking
  - Avoids record update contention where two users try to 'update' the same record

THE CCL INTEGRATED APPROACH

- Heavily customized prompt attempts to emulate the look and feel of an application
  - JavaScript
    - Allows for customized functionality as well as integrated Millennium functions such as PMSearch
  - API_DATASET
    - Permits control of data displayed/selected in prompt box

SODB DEMONSTRATION

- Core CCLs
  - SODB: add/update/inactivate SO requisitions
  - Standing Order Requisition: print on patient presentation
  - SODB Search: flexible standing order search tool
- Maintenance CCLs
  - Mass Update/Removal of Tests
  - Mass Update/Inactivation of Providers
  - Person Combine: run daily in ops to keep person_id synchronized with Millennium
  - Auto-inactivation: run daily in ops; based on end-date/inactivity >1.5yr

SODB DEMONSTRATION

- SODB Security:
  - The ability to process an update CCL is controlled from a security CCL object. This CCL qualifies based on the userID.
- Management Report CCL:
  - SODB Statistics: entries & cancels by userID

SODB CONSIDERATIONS

- Known bug with accession capture/update (api_dataset CCL function)
- Prompt Javascript isn't robust
- Users are instructed to have a 'one-pass' approach to avoid data errors in the prompt fields

BENEFITS OF SODB

- Reduced data maintenance for SOPO
- Significant reduction in entry time due to automation
  - ~1.5 minutes/entry via accession vs. ~3.5 minutes on SQL DB
  - ~150 entries a day -> ~1 FTE potential savings
- Data consistency and quality should improve
- Easier order management with enforced end-dates & renewal notices to both patients and physicians
- Uptime linked to Millennium = improvement

SYNOPSIS

- ✓ SODB Module built from 1 year of CCL development (~100 queries)
- ✓ Go-live occurred March 2013
- ✓ Manual data load of 56K orders will span 5 months during parallel roll-out (3/4 done)
- Successful user adoption with limited support
- 1st full featured module built from CCL?

AHS GIFT TO THE CERNER COMMUNITY

- ☑ No Standing Order module existed in Millennium until now
- ☑ Complete SODB source code will be shared on UCERN compliments of AHS

QUESTIONS?