Introduction to Reporting with Allscripts Professional EHR

Demographics, Provider, Encounter
Today’s presenter:

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What will we cover today?

- Reporting best practices
- PRO database schemas and syntax
- EMR architecture
  - Dictionary tables
  - Common patient tables
  - Provider tables
  - Encounter tables
- Sample queries
- Q&A – Chat and Live
Why query the database

- **Clinical Informatics**
  - improve outcomes, improve patient care, refine/streamline clinical processes
- **Summarize data you see in the EHR**
- **Verify information in the EHR or interfaces**
- **Export information**
  - e.g. Excel for Graphs and Pivot Tables
- **Gathering data for reporting initiatives**
  - Meaningful Use, PCMH, etc.
Be Careful

• The Allscripts database is Complex
  – 630 tables
  – 3,500 stored procedures
  – 63 views, 94 triggers

• You can do harm, even by just running queries

• You may not have access – your organization’s policies
What To Do

• **Use TEST**
  – Test environment, Data Warehouse, Analytics server
  – Query development and testing

• **When using Production**
  • Get permission from the IT/DBA group
  • Run queries off-hours
  • Ensure it takes a reasonable amount of time
    – Most queries should be less than a minute

• **VALIDATE!**
  • Always [Verify](#) your queries’ data
What NOT To Do

• Never . . .
  – Access the database without proper approval
  – Delete data. Ever.
  – Run *anything* in production during the day
  – Share passwords, even “default” passwords
  – Save patient data on your PC or in email
    • HIPAA concerns
    • Your company’s policies
SQL Best Practices

- Start with simple queries and expand
  - Use COUNT(*) to confirm new table joins are correct
  - Use TOP function
- Use (NOLOCK) table hint
- Use BEGIN/COMMIT/ROLLBACK commands
  - Especially for UPDATE
Lookup Tables and Normalization

- Required for the application to run effectively
- Dividing large tables into smaller, more manageable tables and defining a relationship between each
- Yes, it makes reporting more difficult
EMR Database Schemas

• Database Schemas
  – a way to logically group objects such as tables, views, stored procedures etc.
    • think of a schema as a container of objects
  – can be created and altered in a database
  – can be owned by any user, and schema ownership is transferable

• Schemas Sort objects into categories
  – DBO: related to Interface
  – HPSITE: Patient related schema
    • includes dynamic data (data that is constantly being updated)
  – HPSYSTEM : No patient data
    • includes static data (data that does not often change)
    • Includes reference data that cannot be altered by the client, i.e. dictionary tables

• Database.Schema.Table.Column
  – i.e. EMR.HPSITE.DEMOGRAPHICS.DEM_LASTNAME
## Clinical Tables: EMR.HPSITE

<table>
<thead>
<tr>
<th>TABLES</th>
<th>PRIMARY KEYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEMOGRAPHICS</td>
<td>IMREDEEM_CODE</td>
</tr>
<tr>
<td>SCHEDULE</td>
<td>IMRESCHED_CODE</td>
</tr>
<tr>
<td>ENCOUNTER</td>
<td>IMREENC_CODE</td>
</tr>
<tr>
<td>CONTACT</td>
<td>IMRECONTACT_CODE</td>
</tr>
<tr>
<td>IMMUNIZATION_RECORD</td>
<td>IMMREC_ID</td>
</tr>
<tr>
<td>LABORDERS</td>
<td>IMRELABORDER_CODE</td>
</tr>
<tr>
<td>MEDICATIONS</td>
<td>IMREMED_CODE</td>
</tr>
<tr>
<td>PROVIDER</td>
<td>IMREPROV_CODE</td>
</tr>
<tr>
<td>RESULT</td>
<td>RESULT_ID</td>
</tr>
<tr>
<td>VITALS_DATA</td>
<td>VITALS_CODE</td>
</tr>
<tr>
<td>DX</td>
<td>IMREDX_CODE</td>
</tr>
<tr>
<td>HX_DIAGNOSIS</td>
<td>HX_DIAGNOSIS_ID</td>
</tr>
</tbody>
</table>
Dictionaries

- **HPSYSTEM.DICTIONARIES_MASTER**
  - Lookup table for master list of codes
  - Dict_Type
    - Race, Sex, Status, Unit, Priority, Lang, Lab_type, Ethnicity, etc.
  - Dict_Code
    - Unique code for a value in a dict_type

- **HPSITE.DICTIONARIES_SITE**
  - Dictionary entries that are specific to the site

- **HPSITE.DICTIONARIES_VIEW**
  - View that combines the two dictionaries above
Common Patient Tables

- **HPSITE.DEMOGRAPHICS**
  - Name, DOB, SSN, Bloodtype, Language, Marital Status

- **HPSITE.ADDRESSES**
  - Holds addresses for 5 types of entities
    - Patient, Provider, Site, Insurance Carriers, Institutions

- **HPSITE.INSURANCES**
  - Contains insurance information for the patient

- **HPSITE.DEMOGRAPHICPICTURE**
  - Link to picture in the EHR that is associated with the patient

- **HPSITE.PHARMACYFAVORITE**
  - Contains primary pharmacy information

- **HPSITE.DEMGUARANTOR**
  - Contains patient guarantor information
Patient Matching Parameters

• These parameters ensure that a particular clinical item is linked to the correct patient
• All values come from HPSITE.DEMOGRAPHICS
  – MRN
    • Dem_ExternalID
  – Last Name
    • Dem_LastName
  – First Name
    • Dem_FirstName
  – Date of Birth
    • Dem_Dateofbirth
  – SSN
    • Dem_ssn
Provider

- **HPSITE.PROVIDERS**
  - primary record for providers
  - information including provider code and specialties is found here

- **HPSITE.ADDRESSES**
  - holds addresses for 5 types of entities
    - Patient, Provider, Site, Insurance Carriers, Institutions

- **HPSITE.PROVIDERLICENSES**
  - stores info regarding medical licenses
  - can store multiple licenses per provider

- **HPSITE.PROVIDER_LOCATION**
  - cross-reference of caregivers and locations
  - also defines default location

- **HPSITE.PATIENT_PHYSICIANS**
  - contains provider information
    - both PCP and referring provider information

- **HPSITE.PROVIDER_IDENTIFIER**
  - stores all provider ID information
    - i.e., NPI, UPIN, DEA
Encounter

- **HPSITE.ENCOUNTER**
  - every update to a patient chart must be tied to an encounter
  - this table holds information about the encounter and the recorded dates

- **HPSITE.CONTACT**
  - holds one record for each encounter-provider-event
    - an encounter-provider event is everything that happens between the time a provider starts a contact until she/he saves the contact in the application

- **HPSITE.SCHEDULE**
  - a list of all patient and business related events scheduled for each provider on any given day
    - i.e. appointments made in EHR

- **HPSITE.PMS_APPOINTMENTS**
  - contains scheduled appointments from the practice management system

- **HPSITE.ENCOUNTER_TAKEN**
  - a record is inserted into this table when a provider accepts a patient encounter from another provider
  - this ensures that the original provider still has the record of their encounters
Embrace the new world of healthcare
Query to Find Tables associated with Clinical Table Key

```sql
SELECT t.name AS table_name,
       SCHEMA_NAME(schema_id) AS schema_name,
       c.name AS column_name
FROM sys.tables AS t
INNER JOIN sys.columns c ON t.OBJECT_ID = c.OBJECT_ID
WHERE c.name LIKE '%imredem_code%'
ORDER BY schema_name, table_name;
```
Demographics Search

- Write a query that displays demographic information about a patient

- Name
- DOB
- Address
- Status
- Gender
- Marital Status
- Race
- Language
- PCP
Patient Encounters

• Find a count of how many patients have had an finalized encounter documented in their chart since 1/1/2010
Canceled Appointments

- Patient MRN
- Name
- Date of Birth
- Schedule Date
- Status
Galen Training Offerings

• Database Trainings
  – Allscripts Professional
  – Allscripts TouchWorks
  – Allscripts Analytics

• ConnectR or Common Interface Engine (CIE) Training

• Allscripts Analytics End-User Training

• Sysadmin Training

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Questions?
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