CDEMS Relationships

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The Chronic Disease Electronic Management System, or CDEMS, is a Microsoft Access based[1] electronic patient registry designed to enhance the quality of care provided to patients with chronic diseases. CDEMS is an open source, public domain quality improvement tool originally developed by the Washington State Department of Health. The registry currently contains modules for diabetes, asthma, cardiovascular health, black lung, and adult preventive health, but also allows for expansion into any number of diseases or conditions based on the needs of the user. Modification of current modules is also possible.

CDEMS is driven by a series of main tables, each of which holds specific pieces of patient information. A graphical view of the registry's relationships are below, followed by an explanation of how the registry functions. Please see the accompanying documentation, CDEMS Code Book, for more detailed information.

Figure 1: CDEMS Relationships

[1] CDEMS is configured to run on Microsoft Access 1997, 2000, 2002, 2003 and 2007 formats

As noted in the figure above, there are a number of tables in CDEMS that work in tandem to manage health records. Each table, and a short description, is listed below.

- **tblDemo** – tblDemo, as the name implies, stores patient demographics. This table holds each patient's unique chart number, clinic code, first, middle and last names, dates of birth, contact information, other demographic information, and registry start and end dates. Please note that age is calculated automatically when needed, and is not stored in the database. The fields "clinic_code" and "chart_number" are both primary keys which link to each table.
- **tblHealth** – tblHealth stores the health profile for each patient. The field "raw_code" notes the diagnoses, with accompanying start and end dates for the conditions.
- **tblVisits** – tblVisits stores visit information for each patient (i.e., visit dates, weight, height, waist circumference, systolic and diastolic blood pressure). Please note that body mass index is calculated automatically when needed, and is not stored in the database. The field "type_visit" is used to specify, if needed, various potential types of medical visits.
- **tblServices** – tblServices stores information on services provided to each patient, and the dates on which those services occurred. The field "raw_code" notes the service.
- **tblLab** – tblLab stores laboratory results for each patient, and the dates on which the results were generated. The field "raw_code" notes the lab.
- **tblMed** – tblMed stores medication information for each patient, and the dates on which medications were prescribed and discontinued. The field "raw_code" notes the medication.
- **tblMeasures** – tblMeasures stores additional medical information for each patient, outside of the general list of services and laboratory results, and the dates on which the results were generated. The field "raw_code" notes the measure.
- **tblCustom** – tblCustom stores free-text notes for each patient, and the date on which the note was made.

tlkpCrosswalk and tlkpSetup

At the heart of the registry are tlkpCrosswalk and tlkpSetup. tlkpCrosswalk is the bridge linking all tables. tlkpCrosswalk uses the "raw_code" and "type_code" fields to link to each table, and assemble information on demand. This table also stores parameters for flagging labs, services, and measures that are overdue or outside of recommended guidelines, flags results which may be out-of-range for quality control purposes, and defines the order in which data elements appear on Progress Notes.

Working together with tlkpCrosswalk is tlkpSetup. While tlkpCrosswalk lists all of the available measures within the registry, tlkpSetup performs the task of linking each health condition with the appropriate measures. It's this flexibility that allows CDEMS to be easily customized based on user needs.

Other tables

In addition to the main tables listed above, there are a number of other tables involved with registry application and reporting functions. These tables are:

- tlkpCity – Used to create a drop-down list of cities
- tlkpClinic – Used to create a drop-down list of clinic codes, within sites, for patient sub-grouping
- tlkpClinicInfo – Used to pre-populate the health center name and contact information which appear on the Reminder and Notification Letters within the CDEMS Reporting Tool
- tlkpConstants – Used to specify the units of measure used for height (inches or centimeters), weight (pounds or kilograms) and denominator type (total registry or patients with 1+ recorded visits)
- tlkpCounty – Used to create a drop-down list of counties
- tlkpDefaults – Used to specify the default clinic_code (that which appears by default within the CDEMS Main Form in the Application)
- tlkpEducation – Used to create a drop-down list of educational attainment
- tlkpEthnicity – Used to create a drop-down list of ethnic categories
- tlkpGender – Used to create a drop-down list of gender categories
- tlkpGroup – Used to create a additional patient grouping for analysis
- tlkpInsurance – Used to create a drop-down list of insurance categories
- tlkpOccupation – Used to create a drop-down list of occupations
- tlkpPCP – Used to create a drop-down list of providers
- tlkpPLanguage – Used to create a drop-down list of primary language
- tlkpStatusFlags – Used to specify the status of the lab, service or measure (Completed, Referred, Declined, etc.)
- tlkpVisitType – Used to specify the type of medical visit (Office, Phone, Lab, etc.)