Final Project Proposal

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Goal

The purpose of this project is to create tool to analyze emergency medical service (EMS) provider quality of care. This project builds upon the functionality of an analysis database I previously created in Microsoft Access. The goal is to transfer the database to MySQL and to show proof of concept that the program can be accessed online for use.

Use

This program is intended to be utilized by EMS groups to quantify the quality of their care for specific learning outcome empirical data and targeted process improvement.

Program Specifics

The program consists of three main tables that will be queried to output the results: an EMS patient table, a hospital patient table, and a crosswalk that correlates EMS impressions given as a patient "diagnosis" with hospital diagnoses.

A table of EMS patients from an EMS database and a data file of hospital patients from a hospital database is input as raw data into the database and queried to create a EMS-hospital patient-event table. This project will use sample patient data occurring between 01/2011 and 01/2013 from a New York EMS squad and hospital. The patients are matched based on name, date of birth, and so that the EMS Dispatch Date/Time is within one day prior to the Hospital Admit Date/Time. Each EMS patient-event has been assigned one impression by the EMS providers and up to three hospital diagnoses by the hospital providers with decreasing importance and relevance to the visit (diagnosis 1 > diagnosis 2 > diagnosis 3).

Based on a crosswalk I previously built that correlates up to five EMS impressions (with decreasing relevance: impression 1 ≥ impression 2 ≥ impression 3 ≥ impression 4 ≥ impression 5) with each hospital diagnosis and an algorithm I created that quantifies EMS performance based on a 5-3-1-0 point system assigned to impression-diagnosis matches, the crosswalk and EMS-hospital patient-event table are queried to assign each patient-event a point ranking. Five points were awarded if the EMS impression matched the first hospital diagnosis, 3 points were awarded if the impression matched the second diagnosis, 1 point was awarded if the impression matched the third diagnosis, and 0 points were awarded if the impression did not match the hospital diagnosis.

Additionally, the database displays useful information, in addition to patient name, date of birth, dispatch/admit times, EMS impression, hospital diagnoses, and point ranking, such as reason for visit, in order to provide a more robust analysis display. The program will display all results or be query-able so the user can select which information (data column) is viewed and filter the data based on any of the displayed information (name, date of birth, dispatch/admit times, EMS impression, hospital diagnoses, reason for visit, or point ranking).