**CSCI 4707: Practice of Database Systems, Fall 2021**

**Case Study: New Haven Urgent Care**

You have been hired to create a database for the New Haven Urgent Care. The care center is a stand-alone urgent care that is not associated with any hospital system but was created to provide affordable health care to the wider community. The current system is antiquated and needs replacing. In fact, nearly everything is still done on paper and billing has become a nightmare. Ideally, the billing department will be fully automated but for now you are only tasked with getting the information in the system for the billing department (and not worrying about the billing itself.) The administrators of the urgent care want to ensure that proper billing is performed and that patient records are maintained in an efficient and effective manner. After speaking with a number of employees of the urgent care including administrators, clerks, and medical providers you have determined the following business requirements are needed:

* Patient: A person who is treated at the urgent care facility.
  + Each patient is assigned a unique patient ID and their full name, address, and date of birth are collected.
  + A patient can be a child, defined as anyone under the age of 18 or and adult. If the patient is under the age of 18, then the child’s parent/guardian information must be present and their identifying information is collected.
  + Therefore a patient can be an adult or a child. The parent/guardian is assigned a unique Id, has a full name, address, and could have multiple phone numbers. The parent/guardian can be the parent/guardian for numerous children. We need to know who is the primary contact for the child for this specific visit. It is possible that the child has different a different parent and guardian during different visits. We need to know which parent or guardian is with the child for a specific visit.
  + A patient who is an adult needs to have additional information tracked such as their phone numbers, email addresses, and what their preferred way of being contacted (e.g. email, text, call)
* Insurance Providers: An insurance company that provides coverage for a patient.
  + Many patients that will be seen have insurance but not all will have insurance.
  + An intake clerk collects all information from the patient by requesting their insurance card and inputting their information in the database. This includes the name of the company, the group number, the payer id, and the ID. Since this is an urgent care visit, there will be a co-pay on the card that we will collect at check in.
  + If a patient comes into the urgent care multiple times, it is possible the insurance information can change. We need to know what insurance record should be associated with each visit. If the insurance has not changed, we do not have to create a new record. We use the insurance information in our system that is tied to the patient. If the insurance has changed, we collect the new information for that visit.
  + Uninsured patients are required to pay for the entire office visit cost at the time end of the visit. Credit card information is collected at the checkin and will be charged for the full amount of the visit. This includes the $50 office visit cost along with any supplies used (e.g. splint, casts), tests, or medication given during the visit.
  + The co-pay is collected at check in for the insurance covered patients and will be paid via credit card only. Uninsured patient’s credit card information will be billed at the end of the visit, but we collect the credit card information at check in.
  + Credit card information to be collected includes credit card number, expiration date, the name on the card, and the 3 or 4 digit security code.
* Service Provider: A patient is be seen by a doctor who is the service provider.
  + A nurse is assigned to each patient and they complete the initial assessment (i.e. takes the vitals, description of issue, etc).
  + Nurses are identified by a unique ID, full name, and unique social security number.
  + One nurse will assist with each visit.
  + A nurse is NOT a service provider.
  + A service provider is identified by a unique service provider ID, full name, and a unique social security number.
  + We do need to know what nurse assisted with the visit.
* Diagnosis: A patient needs to have a diagnosis logged by the service provider; the nurse cannot do this. The International Classification of Diseases (ICD) is used to identify the diagnosis/diagnoses. The ICD-10-CM is used to code the patient’s condition. Each diagnosis is coded with the ICD-10-CM code and name.
* Treatment: Patients are treated onsite and may have additional tests/procedures ordered that are completed (e.g. lab work, x-rays). These are performed at the urgent care facilities.
  + The ICD-10-PCS codes are used to account for these treatments.
  + Each test/procedure is identified by its ICD-10-PCS code, name, and the cost of the test/procedure at the urgent care facility.
* Employees: All employees of the urgent center that are involved in data collection for a patient must be identified by an unique ID, ssn, and full name.
  + Intake clerks collect patient information, insurance information, credit card information and payments.
  + Doctors enter diagnoses and request tests/procedures.
  + Nurses take the vitals and assist the doctor.
* Initial Assessment: An initial assessment must be performed for each patient.
  + The patient’s vital records are collected by a nurse. This is performed for each patient. We collect the height, weight, blood pressure, and pulse.
  + The initial assessment needs to have the nurse’s id on it. Each assessment can be for only one patient and only one nurse can complete the assessment. The nurse’s id must listed on the assessment.
  + Current medications are also collected along with any known allergies.

Additional Notes:

* A patient is initially seen by the intake clerk. They collect the insurance information of the patient and collect copays or payments (all paid for by credit card). They also record the parent/guardian information if the patient is under the age of 18.
* After intake, the patient’s vital records are collected by a nurse. The patient’s height, weight, blood pressure, temperature, and medical condition description is collected (e.g. symptoms). In addition, all medications are listed along with known allergies. This is the initial assessment. Each visit we must collect this information. We do not keep a single record of medications and allergies. We collect and document this information for each visit.
* There must be at least one diagnosis. A patient can have multiple things wrong so there can be multiple diagnoses for a visit.
* A visit record consists of all of the information captured for that one patient for that one visit.