

Health Insurance Claim Management System Design
for Chen's Chinese Medicine
Pan Chen
Syracuse University

I am designing a Health Insurance Claim Management System for my aunt, who runs a clinic in Camarillo, CA called Chen's Chinese Medicine. The current one she is using is not too easy to use and not efficient enough: it has too much functions/options that an acupuncture clinic does not need, so it takes extra time to navigate through these redundant options input each patient's entry. So a simple design that focuses on the insurance billing might be a good start point for my project.

My aunt is the only practitioner in the clinic with several other part-time staff members that helps her with insurance claim filing and billing. This project is set to help the clinic manage the patient's payment to each office visit, which records the patient information and his/her insurance policy information, his/her office visits including appointment date and the description of the treatment, insurance claims associate with his/her visits and their statuses, the clinic staff that is responsible for handling each claim, and the medical bills that are not billable to insurance companies and thus need to be paid upfront.

Section III: entity and attribute table (see the following example table)

This section should include a table that lists all entities and their attributes, as well as necessary explanations of what data each entity stores. For foreign keys and associative entities, make sure to explain the relationships they establish. Please also provide explanations for the attributes that are hard to understand based on common sense. No need to provide explanations for easy-to-understand attributes like IDs, names, and addresses.

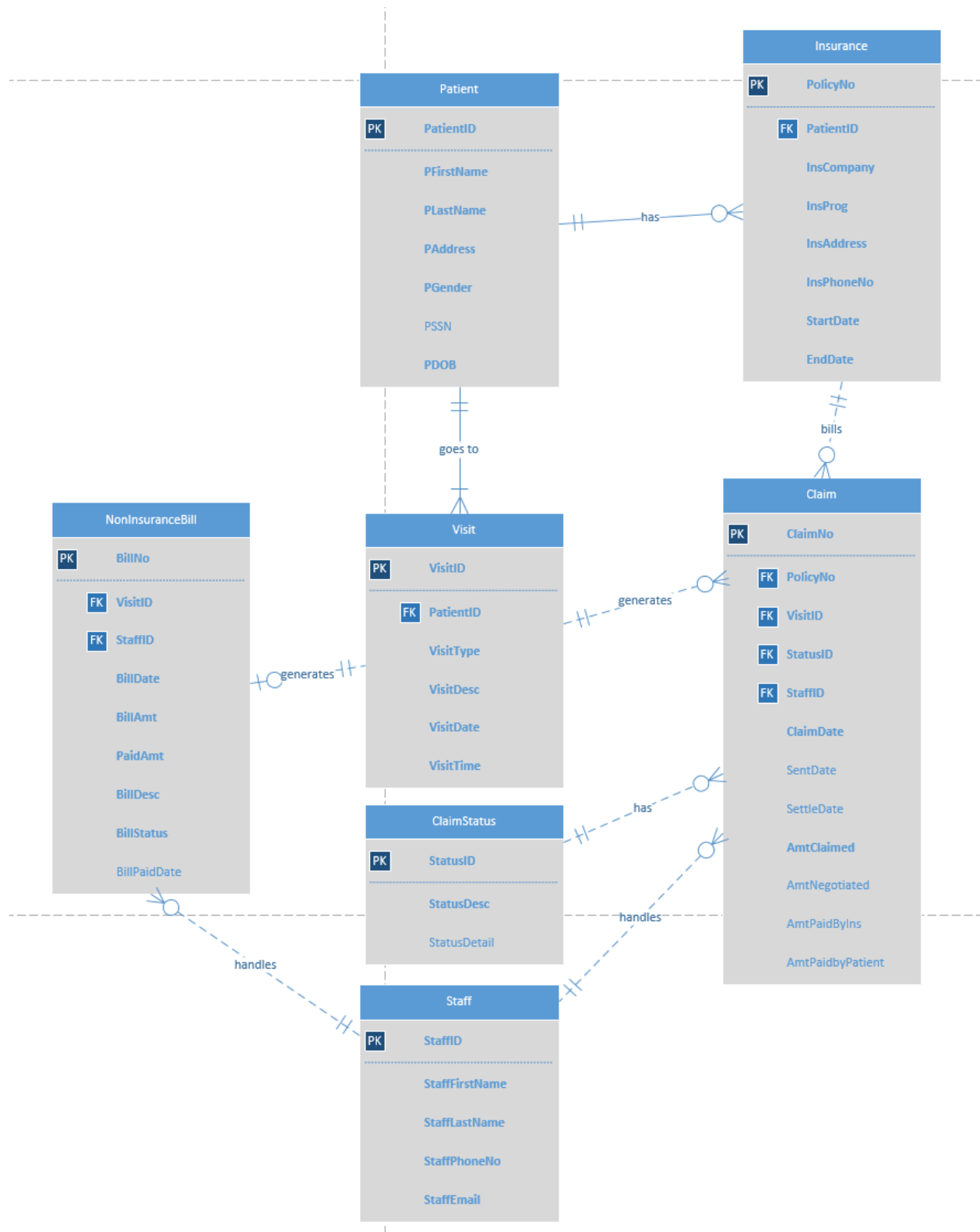
Data object	Explanation
Patient	Patients' personal information
PK: PatientID	Either DL/ID Number or Passport Number
PFirstName	
PLastName	
PAddress	
PGender	

PSSN	optional
PDOB	
Insurance	Patients' insurance information
PK: PolicyNo	Insurance Policy Number
FK: PatientID	Associates with PatientID in Patient Table, a patient could have one or more insurance policies, an insurance policy is only for one patient
InsCompany	
InsProg	Insurance policy program
InsAddress	Insurance company address
InsPhoneNo	Insurance program phone number
StartDate	
EndDate	
Visit	Patients' office visits information
PK: VisitID	Autogenerated
FK: PatientID	Associates with PatientID in Patient Table, a patient could have one or more visits, an office visit is only for one patient
VisitType	Type of visits, including Counseling, Medicine, Acupuncture, Cupping, and etc
VisitDesc	Describe the diagnosis/treatment
VisitDate	
VisitTime	
NonInsuranceBill	Non-Insurance bill: Medical bills not billable to the insurance company
PK: BillNo	
FK: VisitID	Associates with VisitID in Visit Table, a visit could generate one or more bills, an office visit is only for one patient

FK: StaffID	Associates with StaffID in Staff Table, a Non-insurance bill is handled by one of the clinic staff, a staff member can handle multiple non-insurance bills
BillDate	
BillAmt	The bill amount
BillDesc	Detailed Description on what the bill is about
PaidAmt	How much of the bill is paid
BillStatus	Whether the non-insurance bill is paid, paid in part, or not paid at all
BillPaidDate	
ClaimStatus	Statuses of insurance claims
PK: StatusID	
StatusDesc	Claim Status Description, which includes dispute, settled, not filed yet, pen
StatusDetail	Detailed description on what the status is about
Staff	Information about staff member including the doctor herself
PK: StaffID	
StaffFirstName	
StaffLastName	
StaffPhoneNo	
StaffEmail	
Claim	Insurance Claim Information
PK: ClaimNo	

FK: PolicyNo	Associates with PolicyNo in Policy Table, a claim can only be filed under one policy, a policy can have multiple claims
FK: VisitID	Associates with VisitID in Visit Table, a claim can only be filed for one policy, a visit can have multiple claims
FK: StatusID	Associates with StatusID in ClaimStatus Table, a claim can only have one status, a status could be from multiple claims
FK: StaffID	Associates with StaffID in Staff Table, a claim can only be filed by one staff, a staff can file multiple claims
ClaimDate	The date the claim is generated
SentDate	The date the claim is filed
SettleDate	The date the claim is settled
AmtClaimed	The amount asked by the clinic
AmtNegotiated	The final negotiated amount between the clinic and the insurance company
AmtPaidByIns	Amount of money paid by insurance
AmtPaidByPatient	Amount of money paid by the patient

Section IV: relational data model



Section V: business rules that are not represented in the above data model

1. Each patient has to have an insurance policy, each policy number belongs to one patient, however it is up to the patient whether to use the insurance or not.
2. Claim Status Description(StatusDesc) can only be one of the four values: "D" stands for dispute, "S" stands for settled, "N" stands for not-filed -yet, "P" stands for pending.
3. Non-Insurance Bills can only be one of the four values: "O" stands for owed (paid in part), "S" stands for Settled, "N" stands for not-paid-yet.

Section VI: major data questions?

All clinic staff member could check the statuses of the insurance claims including whether the insurance claim is filed, whether it is settled, the settled amount, how long it usually takes for different types of claims to get settles, which insurance company and which insurance program reimburse the clinic with the highest rate, which insurance company processes the claims the fastest in general, so the doctor could decide which insurance company to take and which do not. It could also help the financing guys to determine how much tax should the clinic file, how much deductible could the clinic/staff/doctor claim, and so forth, and the State Board for the regulation purposes.