Nhan Vo
Brandon Ormeno
Amir Hammoud

Patient

Patient
patientLastName
patientFirstName
cellphoneNumber
patientNumberofSample

Patient: An individual that is going to have their blood drawn.

1...1

Gives

Each patient may give 0 to many blood samples
One blood sample is given by only one patient

0...*

BloodSample
sampleTakenDate
sampleTakenTime

BloodSample: The blood drawn from a patient that will be tested.

1...1

Linked   Each blood sample will link one to many substances
One substance will be linked to one blood sample

1...*

Substance
substanceName
substanceLevel

Substance: Identifying and measuring a particular matter found in a blood sample.

Patients

patientFirstName	patientLastName	cellphoneNumber	patientNumberofSample
Primary Key			

1...1

Patients PK: The combination of a patients name and cellphone number is adequate in uniquely identifying a patient.

BloodSamples

Foreign Key				
patientFirstName	patientLastName	patientPhoneNumber	sampleTakenDate	sampleTakenTime
Primary Key				

0...*

1...1

BloodSamples PK: A blood sample can be uniquely identified by the date and time a particular patient's blood sample was taken as well as the foreign key.

Substances

Foreign Key						
patientFirstName	patientLastName	patientPhoneNumber	sampleTakenDate	sampleTakenTime	substanceName	substanceLevel
Primary Key						

1...*

Substance PK: A substance can be uniquely identified by simply the name of said substance as well as the foreign key. It cannot be mistaken for another substance because no other substance will have the same name of a substance.
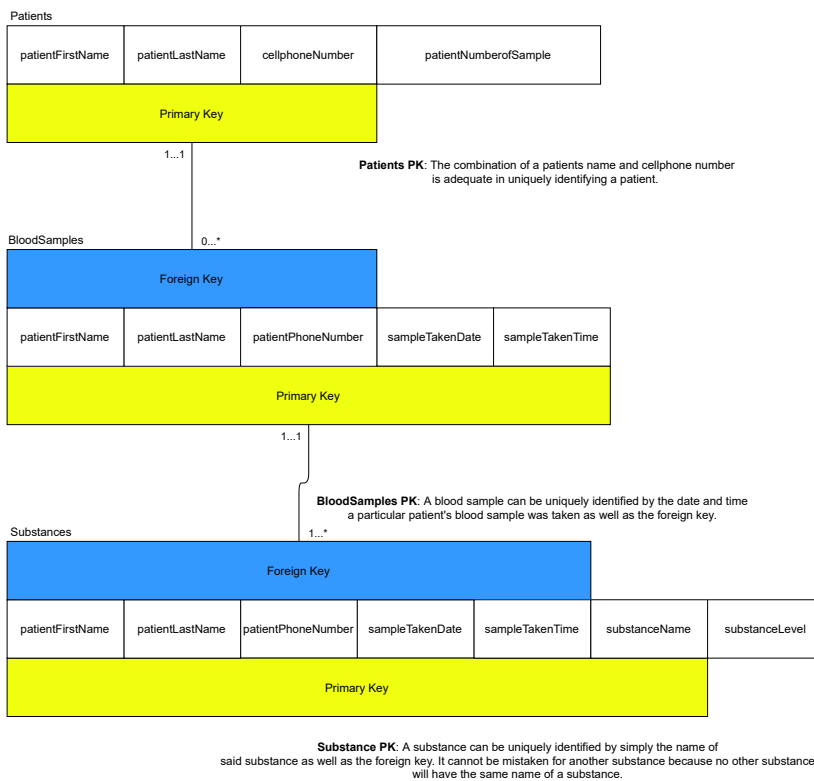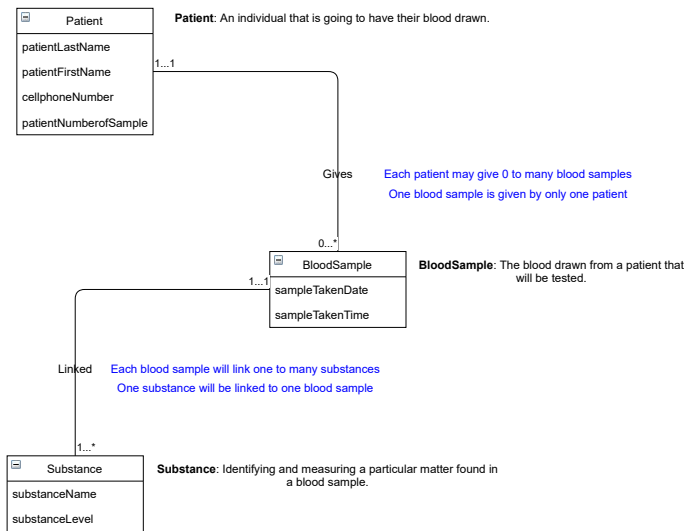
SELECT patientFirstName, patientLastName, sampleTakenDate, sampleTakenTime
FROM Patients
Natural Join BloodSample
Natural Join Substance
WHERE substanceName= 'LDL cholesterol' AND substanceLevel>160;

Π patientFirstName, patientLastName, sampleTakenDate, sampleTakenTime
σsubstatanceName=' LDL cholesterol' and substatanceLevel>160 $(Patient \bowtie BloodSample \bowtie Substance)$