

Step 1: Strong Entites

PATIENT

<u>PId</u>	Fname	Mname	Lname	House_number	Street	City	State	Zip	Day	Month	Year	Has_insurance
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PARENT

<u>Parent_id</u>	Fname	Mname	Lname
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EMERGENCY_CONTACT

<u>EId</u>	Fname	Mname	Lname
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VISIT

In_time	Out_time	<u>VId</u>	Day	Month	Year	Bill	Online_form
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INSURANCE

<u>Provider_name</u>	<u>Member_id</u>	<u>Group_id</u>	Start_date	End_date	Copay
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TREATMENT

Name	<u>ICD-10-PCS-Code</u>	Cost
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UNIQUE(Name)
NOT NULL(Name)

DIAGNOSIS

Name	<u>ICD-10-CM-Cost</u>	Cost
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UNIQUE(Name)
NOT NULL(Name)

FORM

<u>Form_id</u>	Approved
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MEDICATION

<u>MId</u>	Name
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UNIQUE(Name)
NOT NULL (Name)

DEPARTMENT

<u>Id</u>	Name
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UNIQUE(Name)
NOT NULL (Name)

EMPLOYEE

<u>EId</u>	Ssn	Fname	Lname	Mname
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UNIQUE(Ssn)
NOT NULL (Ssn)

SERVICE_PROVIDER

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
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UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE(SId)
NOT NULL (SId)

HOURLY

<u>EId</u>	Ssn	Fname	Lname	Mname	Hourly_rate
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UNIQUE(Ssn)
NOT NULL (Ssn)

SALARIED

<u>EId</u>	Ssn	Fname	Lname	Mname	Salary
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UNIQUE(Ssn)
NOT NULL (Ssn)

NURSE

<u>EId</u>	Ssn	Fname	Lname	Mname	NId
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UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (NId)
NOT NULL (NId)

OTHER/SUPPORT

<u>EId</u>	Ssn	Fname	Lname	Mname
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UNIQUE(Ssn)
NOT NULL (Ssn)

INTAKE_CLERK

<u>EId</u>	Ssn	Fname	Lname	Mname
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UNIQUE(Ssn)
NOT NULL (Ssn)

DOCTOR

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
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UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

PHYSICIAN_ASSISTANT

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
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UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

Notes:

VISIT entity stores an online form. This form doesn't necessarily store any data since all the data required is part of the visit entity. It just captures the fact that there's a document present for reference related to the things that happened during the visit.

The Initial_payment attribute of VISIT will be a virtual generated column, which means it will be generated on the fly.

PATIENT

<u>PId</u>	Fname	Mname	Lname	House_number	Street	City	State	Zip	Day	Month	Year	Has_insurance
------------	-------	-------	-------	--------------	--------	------	-------	-----	-----	-------	------	---------------

PARENT

<u>Parent_id</u>	Fname	Mname	Lname
------------------	-------	-------	-------

EMERGENCY_CONTACT

<u>EId</u>	Fname	Mname	Lname
------------	-------	-------	-------

VISIT

In_time	Out_time	<u>VId</u>	Day	Month	Year	Bill	Online_form
---------	----------	------------	-----	-------	------	------	-------------

INSURANCE

<u>Provider_name</u>	<u>Member_id</u>	<u>Group_id</u>	Start_date	End_date	Copay
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TREATMENT

Name	<u>ICD-10-PCS-Code</u>	Cost
------	------------------------	------

UNIQUE(Name)
NOT NULL(Name)

DIAGNOSIS

Name	<u>ICD-10-CM-Cost</u>	Cost
------	-----------------------	------

UNIQUE(Name)
NOT NULL(Name)

FORM

<u>Form_Id</u>	Approved
----------------	----------

MEDICATION

<u>MId</u>	Name
------------	------

UNIQUE(Name)
NOT NULL (Name)

DEPARTMENT

<u>Id</u>	Name
-----------	------

UNIQUE(Name)
NOT NULL (Name)

EMPLOYEE

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

SERVICE_PROVIDER

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE(SId)
NOT NULL (SId)

HOURLY

<u>EId</u>	Ssn	Fname	Lname	Mname	Hourly_rate
------------	-----	-------	-------	-------	-------------

UNIQUE(Ssn)
NOT NULL (Ssn)

SALARIED

<u>EId</u>	Ssn	Fname	Lname	Mname	Salary
------------	-----	-------	-------	-------	--------

UNIQUE(Ssn)
NOT NULL (Ssn)

NURSE

<u>EId</u>	Ssn	Fname	Lname	Mname	NId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (NId)
NOT NULL (NId)

OTHER/SUPPORT

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

INTAKE_CLERK

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

DOCTOR

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

PHYSICIAN_ASSISTANT

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

INITIAL_ASSESSMENT

NId	Height	Weight	Blood_pressure	Temperature	<u>VId</u>
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NOT NULL (NId)

NOTES

<u>Note_Id</u>	Notes	<u>VId</u>
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CONSTRAINTS:

INITIAL_ASSESSMENT

- FORIEGN KEY (VId) REFERENCES VISIT (VId)

NOTES

- FORIEGN KEY (VId) REFERENCES VISIT (VId)

PATIENT

<u>PId</u>	Fname	Mname	Lname	House_number	Street	City	State	Zip	Day	Month	Year	Has_insurance
------------	-------	-------	-------	--------------	--------	------	-------	-----	-----	-------	------	---------------

PARENT

<u>Parent_id</u>	Fname	Mname	Lname
------------------	-------	-------	-------

EMERGENCY_CONTACT

<u>EId</u>	Fname	Mname	Lname
------------	-------	-------	-------

VISIT

In_time	Out_time	<u>VId</u>	Day	Month	Year	Bill	Online_form
---------	----------	------------	-----	-------	------	------	-------------

INSURANCE

<u>Provider_name</u>	<u>Member_id</u>	<u>Group_id</u>	Start_date	End_date	Copay
----------------------	------------------	-----------------	------------	----------	-------

TREATMENT

Name	<u>ICD-10-PCS-Code</u>	Cost
------	------------------------	------

UNIQUE(Name)
NOT NULL(Name)

DIAGNOSIS

Name	<u>ICD-10-CM-Cost</u>	Cost
------	-----------------------	------

UNIQUE(Name)
NOT NULL(Name)

FORM

<u>Form_Id</u>	Approved
----------------	----------

MEDICATION

<u>MId</u>	Name
------------	------

UNIQUE(Name)
NOT NULL (Name)

DEPARTMENT

<u>Id</u>	Name
-----------	------

UNIQUE(Name)
NOT NULL (Name)

EMPLOYEE

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

SERVICE_PROVIDER

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE(SId)
NOT NULL (SId)

HOURLY

<u>EId</u>	Ssn	Fname	Lname	Mname	Hourly_rate
------------	-----	-------	-------	-------	-------------

UNIQUE(Ssn)
NOT NULL (Ssn)

SALARIED

<u>EId</u>	Ssn	Fname	Lname	Mname	Salary
------------	-----	-------	-------	-------	--------

UNIQUE(Ssn)
NOT NULL (Ssn)

NURSE

<u>EId</u>	Ssn	Fname	Lname	Mname	NId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (NId)
NOT NULL (NId)

OTHER/SUPPORT

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

INTAKE_CLERK

<u>EId</u>	Ssn	Fname	Lname	Mname
------------	-----	-------	-------	-------

UNIQUE(Ssn)
NOT NULL (Ssn)

DOCTOR

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

PHYSICIAN_ASSISTANT

<u>EId</u>	Ssn	Fname	Lname	Mname	SId
------------	-----	-------	-------	-------	-----

UNIQUE(Ssn)
NOT NULL (Ssn)
UNIQUE (SId)
NOT NULL (SId)

INITIAL_ASSESSMENT

NId	Height	Weight	Blood_pressure	Temperature	<u>VId</u>
-----	--------	--------	----------------	-------------	------------

NOT NULL (NId)

NOTES

<u>Note_id</u>	Notes	<u>VId</u>
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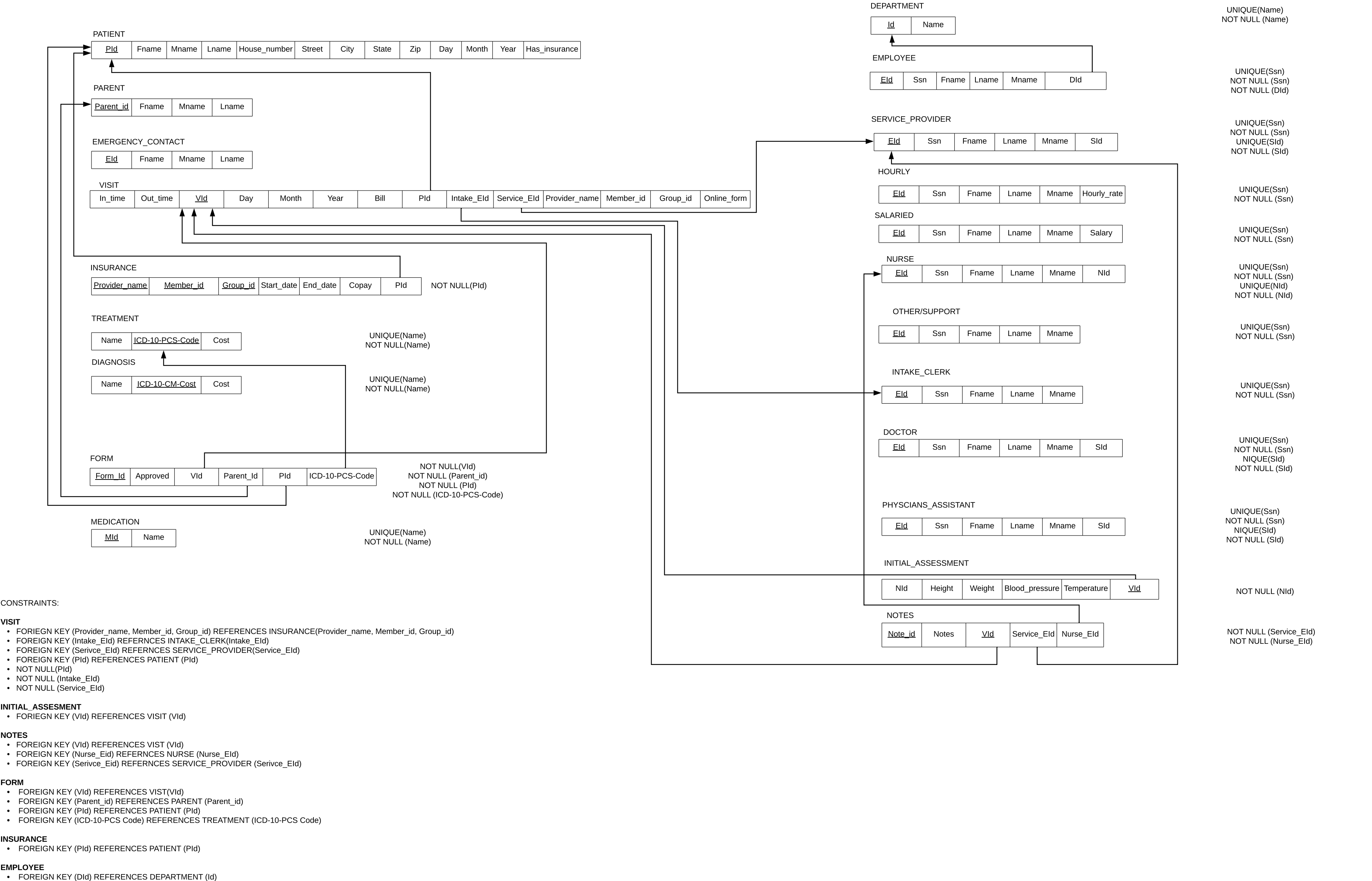
CONSTRAINTS:

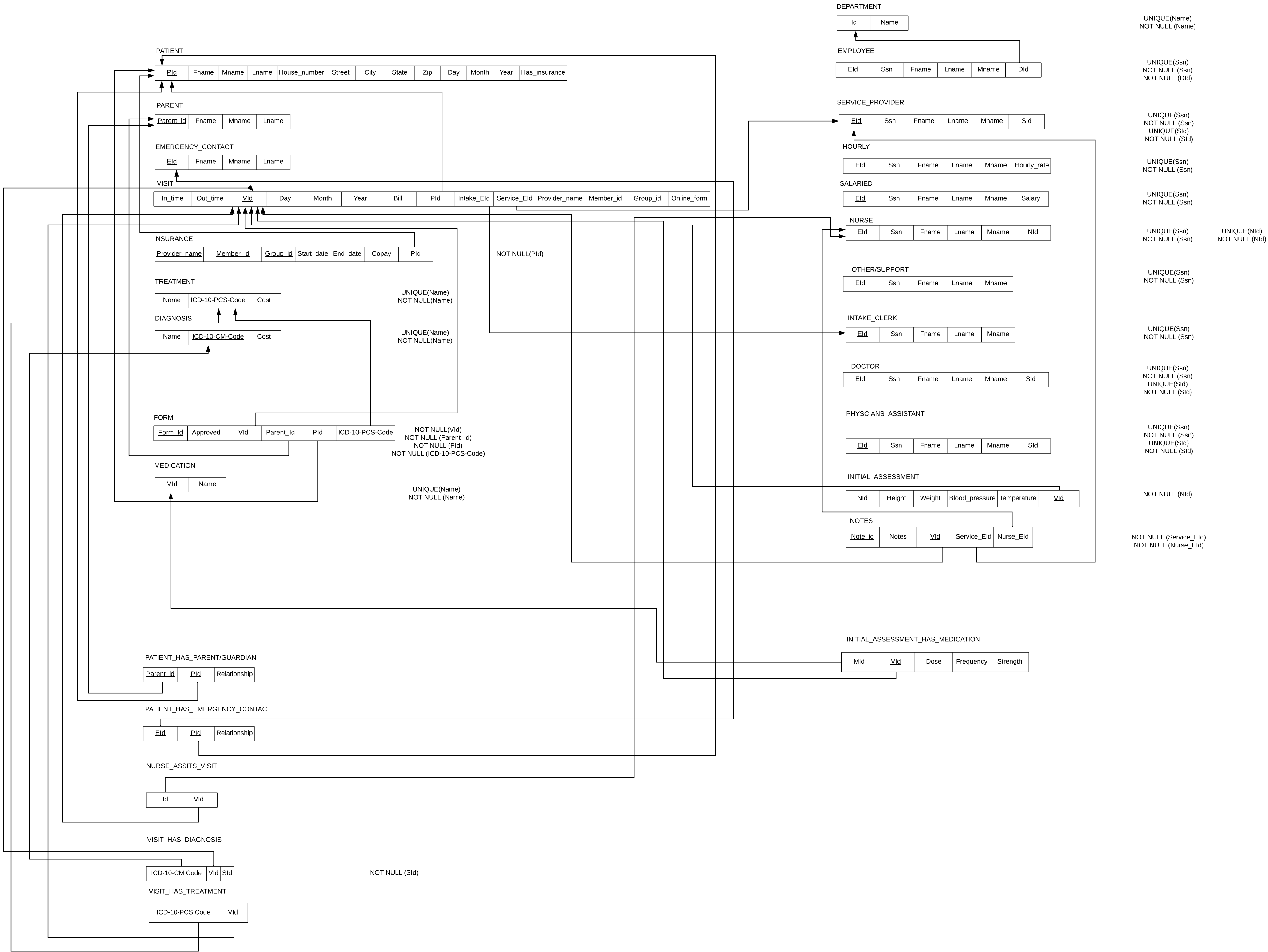
INITIAL_ASSESMENT

- FORIEGN KEY (VId) REFERENCES VISIT(VId)

NOTES

- FORIEGN KEY (VId) REFERENCES VISIT (VId)





Constraints:

VISIT

- FOREIGN KEY (Provider_name, Member_id, Group_id) REFERENCES INSURANCE (Provider_name, Member_id, Group_id)
- FOREIGN KEY (Intake_EId) REFERENCES INTAKE_CLERK(Intake_EId)
- FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER(Service_EId)
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- NOT NULL(PId)
- NOT NULL (Intake_EId)
- NOT NULL (Service_EId)

INITIAL_ASSESSMENT

- FOREIGN KEY (VId) REFERENCES VIST(VId)

FORM

- FOREIGN KEY (VId) REFERENCES VIST(VId)
- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- FOREIGN KEY (ICD-10-PCS Code) REFERENCES TREATMENT (ICD-10-PCS Code)

NURSE_ASSITS_VISIT

- FOREIGN KEY (VId) REFERENCES VIST (VId)
- FOREIGN KEY (EId) REFERENCES NURSE (EId)

VISIT_HAS_DIAGNOSIS

- FOREIGN KEY (VId) REFERENCES VIST (VId)
- FOREIGN KEY (ICD-10-CM Code) REFERENCES DIAGNOSIS (ICD-10-CM Code)

VISIT_HAS_TREATMENT

- FOREIGN KEY (VId) REFERENCES VIST (VId)
- FOREIGN KEY (ICD-10-PCS Code) REFERENCES TREATMENT (ICD-10-PCS Code)

PATIENT_HAS_EMERGENCY_CONTACT

- FOREIGN KEY (EId) REFERENCES EMERGENCY_CONTACT (EId)
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)

INSURANCE

- FOREIGN KEY (PId) REFERENCES PATIENT (PId)

NOTES

- FOREIGN KEY (VId) REFERENCES VIST (VId)
- FOREIGN KEY (Nurse_EId) REFERENCES NURSE (Nurse_EId)
- FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER (Service_EId)

INITIAL_ASSESSMENT_HAS_MEDICATION

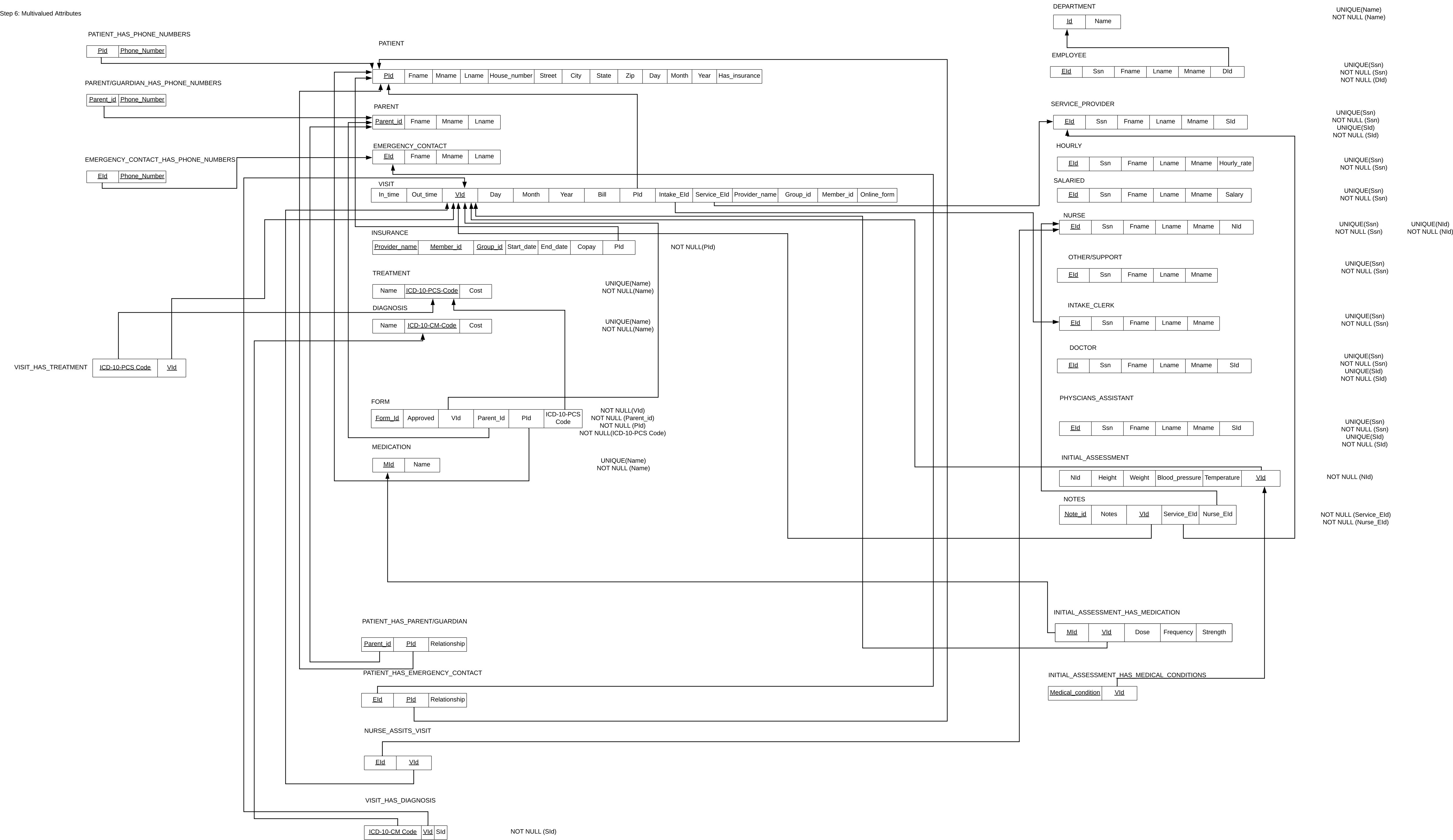
- FOREIGN KEY (MId) REFERENCES MEDICATION(MId)
- FOREIGN KEY (VId) REFERENCES VIST(VId)

PATIENT_HAS_PARENT/GUARDIAN

- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)

EMPLOYEE

- FOREIGN KEY (DId) REFERENCES DEPARTMENT (Id)



Constraints:

- VISIT**
- FOREIGN KEY (Provider_name, Member_id, Group_id) REFERENCES INSURANCE (Provider_name, Member_id, Group_id)
 - FOREIGN KEY (Intake_EId) REFERENCES INTAKE_CLERK (Intake_EId)
 - FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER (Service_EId)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
 - NOT NULL (PId)
 - NOT NULL (Intake_EId)
 - NOT NULL (Service_EId)

- INITIAL_ASSESSMENT**
- FOREIGN KEY (VId) REFERENCES VIST (VId)

- FORM**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
 - FOREIGN KEY (ICD-10-PCS-Code) REFERENCES TREATMENT (ICD-10-PCS-Code)

- NURSE_ASSITS_VISIT**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (EId) REFERENCES NURSE (EId)

- VISIT_HAS_DIAGNOSIS**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (ICD-10-CM-Code) REFERENCES DIAGNOSIS (ICD-10-CM-Code)

- VISIT_HAS_TREATMENT**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (ICD-10-PCS-Code) REFERENCES TREATMENT (ICD-10-PCS-Code)

- PATIENT_HAS_EMERGENCY_CONTACT**
- FOREIGN KEY (EId) REFERENCES EMERGENCY_CONTACT (EId)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)

- INSURANCE**
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)

- NOTES**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (Nurse_EId) REFERENCES NURSE (Nurse_EId)
 - FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER (Service_EId)

- INITIAL_ASSESSMENT_HAS_MEDICATION**
- FOREIGN KEY (MId) REFERENCES MEDICATION (MId)
 - FOREIGN KEY (VId) REFERENCES VIST (VId)

- PATIENT_HAS_PARENT/GUARDIAN**
- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)

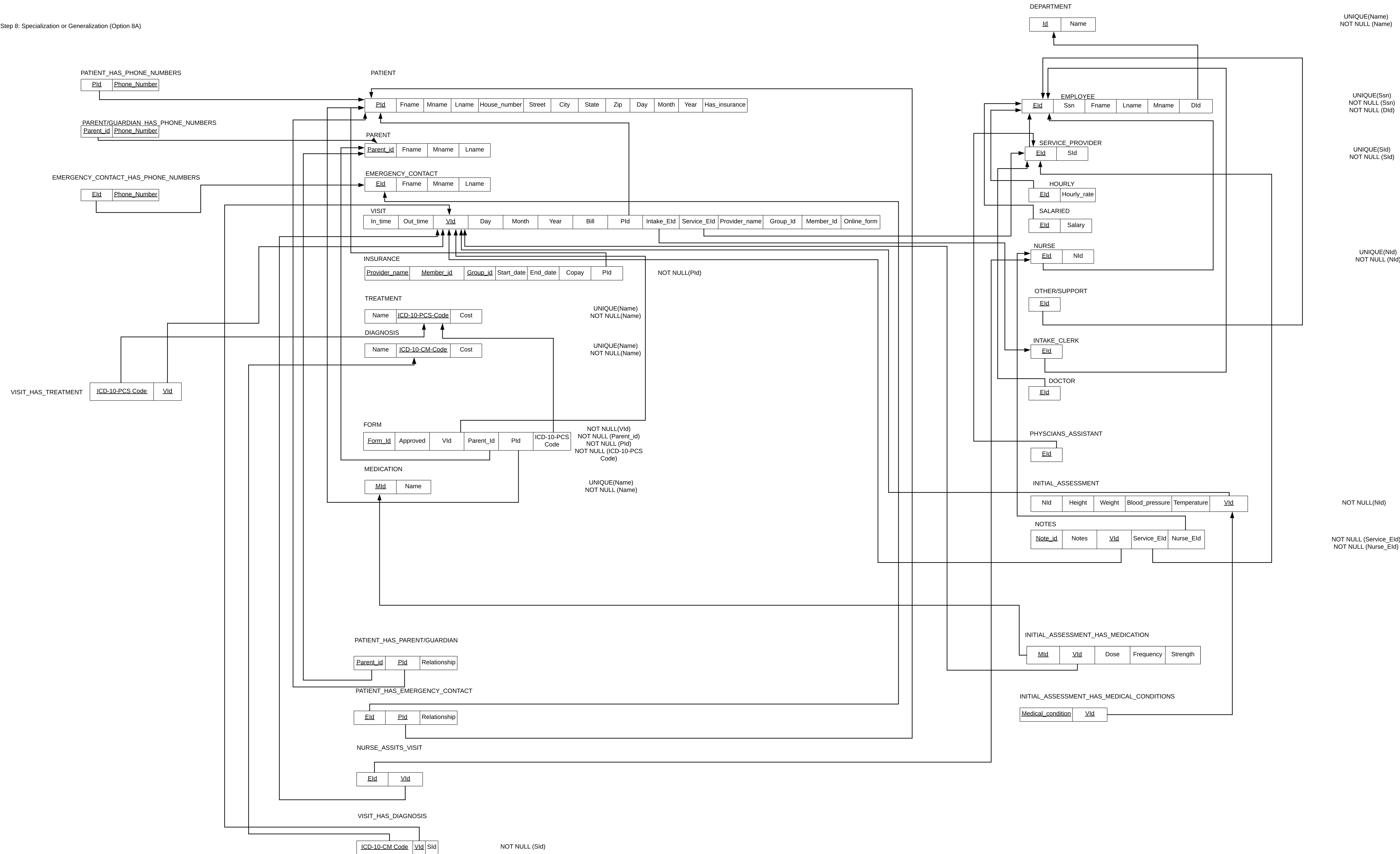
- EMPLOYEE**
- FOREIGN KEY (DId) REFERENCES DEPARTMENT (Id)

- PARENT/GUARDIAN_HAS_PHONE_NUMBERS**
- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)

- PATIENT_HAS_PHONE_NUMBERS**
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)

- EMERGENCY_CONTACT_HAS_PHONE_NUMBERS**
- FOREIGN KEY (EId) REFERENCES EMERGENCY_CONTACT (EId)

No Step 7 (No n-ary relationships)



Constraints:

- VISIT**
- FOREIGN KEY (Provider_name, Member_id, Group_id) REFERENCES INSURANCE (Provider_name, Member_id, Group_id)
 - FOREIGN KEY (Intake_EId) REFERENCES INTAKE_CLERK(Intake_EId)
 - FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER(Service_EId)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
 - NOT NULL(PId)
 - NOT NULL(Intake_EId)
 - NOT NULL(Service_EId)
- INITIAL_ASSESSMENT**
- FOREIGN KEY (VId) REFERENCES VIST(VId)
- FORM**
- FOREIGN KEY (VId) REFERENCES VIST(VId)
 - FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- NURSE_ASSITS_VISIT**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (EId) REFERENCES NURSE (EId)
- VISIT_HAS_DIAGNOSIS**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (ICD-10-CM Code) REFERENCES DIAGNOSIS (ICD-10-CM Code)
- VISIT_HAS_TREATMENT**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (ICD-10-PCS Code) REFERENCES TREATMENT (ICD-10-PCS Code)
 -
- PATIENT_HAS_EMERGENCY_CONTACT**
- FOREIGN KEY (EId) REFERENCES EMERGENCY_CONTACT (EId)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- INSURANCE**
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- NOTES**
- FOREIGN KEY (VId) REFERENCES VIST (VId)
 - FOREIGN KEY (Nurse_EId) REFERENCES NURSE (Nurse_EId)
 - FOREIGN KEY (Service_EId) REFERENCES SERVICE_PROVIDER (Service_EId)
- INITIAL_ASSESSMENT_HAS_MEDICATION**
- FOREIGN KEY (MId) REFERENCES MEDICATION(MId)
 - FOREIGN KEY (VId) REFERENCES VIST(VId)
- PATIENT_HAS_PARENT/GUARDIAN**
- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
 - FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- EMPLOYEE**
- FOREIGN KEY (DId) REFERENCES DEPARTMENT (Id)
- PARENT/GUARDIAN_HAS_PHONE_NUMBERS**
- FOREIGN KEY (Parent_id) REFERENCES PARENT (Parent_id)
- PATIENT_HAS_PHONE_NUMBERS**
- FOREIGN KEY (PId) REFERENCES PATIENT (PId)
- EMERGENCY_CONTACT_HAS_PHONE_NUMBERS**
- FOREIGN KEY (EId) REFERENCES EMERGENCY_CONACT (EId)
- SERVICE_PROVIDER**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- HOURLY**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- SALARIED**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- OTHER_SUPPORT**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- NURSE**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- INTAKE CLERK**
- FOREIGN KEY (EId) REFERENCES EMPLOYEE (EId)
- PHYSICIANS_ASSISTANT**
- FOREIGN KEY (EId) REFERENCES SERVICE_PROVIDER (EId)
- DOCTOR**
- FOREIGN KEY (EId) REFERENCES SERVICE_PROVIDER (EId)

No Step 9 (No union types)