CONSTRAINTS

1. **Key Constraints (Primary Keys)**

- PATIENT_INFO (Patient_Id)
- DOCTOR_INFO (Doctors_Id)
- ENCOUNTER_RECORDS (Records_Id)
- PRESCRIPTION (Prescribed_Id)
- MEDICINE (Medicine_Id)
- MEDICAL_HISTORY (Medical_Id)
- DIAGNOSTIC_TEST_RESULT (Test_Id)
- ENCOUNTER_DIAGNOSTIC_TEST_RESULT (EDTR_Id)
- PROCEDURE_AND_SURGERIES (Procedure_Id)
- ENCOUNTER_PROCEDURES_RESULT (EPR_Id)

Constraint used:
PRIMARY KEY

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2. **Referential Integrity Constraints (Foreign Keys)**

Key Foreign Key relationships:
- ENCOUNTER_RECORDS.Patient_Id → PATIENT_INFO.Patient_Id
- ENCOUNTER_RECORDS.Doctors_Id → DOCTOR_INFO.Doctors_Id
- PRESCRIPTION.Records_Id → ENCOUNTER_RECORDS.Records_Id
- PRESCRIPTION.Medicine_Id → MEDICINE.Medicine_Id
- MEDICAL_HISTORY.Patient_Id → PATIENT_INFO.Patient_Id
- ENCOUNTER_DIAGNOSTIC_TEST_RESULT.Records_Id → ENCOUNTER_RECORDS.Records_Id
- ENCOUNTER_DIAGNOSTIC_TEST_RESULT.Test_Id → DIAGNOSTIC_TEST_RESULT.Test_Id
- ENCOUNTER_PROCEDURES_RESULT.Records_Id → ENCOUNTER_RECORDS.Records_Id
- ENCOUNTER_PROCEDURES_RESULT.Procedures_Id → PROCEDURE_AND_SURGERIES.Procedure_Id

Constraint used:
FOREIGN KEY REFERENCES

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3. **Cardinality Constraints**

a) One-to-Many (1:M)
- One **Patient** → Many **Encounter Records**
- One **Doctor** → Many **Encounter Records**
- One **Encounter Record** → Many **Prescriptions**
- One **Medicine** → Many **Prescriptions**
- One **Encounter Record** → Many **Test Results**
- One **Encounter Record** → Many **Procedure Results**

b) Many-to-Many (M:N) resolved using associative entities

- Encounters ↔ Diagnostic Tests
  → ENCOUNTER_DIAGNOSTIC_TEST_RESULT
- Encounters ↔ Procedures
  → ENCOUNTER_PROCEDURES_RESULT

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4. **Participation Constraints**

- Mandatory participation: Each Encounter Record must be linked to a Patient and a Doctor (NOT NULL).
  Optional participation: A Patient may or may not have Medical History or Encounter Records.

Use:

NOT NULL

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5. **Domain Constraints**

Examples:
- Gender → ('Male', 'Female', 'Other')
- Blood_Group → ('A+', 'A-', 'B+', 'O+', etc.)
- Visit_Type → ('New', 'Follow-up')
- Result_Status → ('Normal', 'Abnormal')
- Price, Estimated_Cost → must be **> 0**
- Expiry_Date → must be **greater than current date**

Implemented using:
CHECK

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6. Uniqueness Constraints
Examples:
- DOCTOR_INFO.License_Number

Implemented using:
UNIQUE

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7. Business Rule Constraints (Optional but Recommended)
Examples:
- Follow_Up_Date > Visit_Date
- Expiry_Date > Prescribed_Date
- Recover_Time >= 0

Implemented using:
CHECK