

1. branch

Used for branch comparison and capacity context.

column	type
branch_id	VARCHAR(10) PK
branch_name	VARCHAR(50)
total_beds	INT
icu_beds	INT

2. department

Used for cross-department comparison.

column	type
department_id	VARCHAR(10) PK
department_name	VARCHAR(40)
branch_id	VARCHAR(10) FK

3. patient

Only demographics required for slicing.

column	type
patient_id	VARCHAR(15) PK
age	INT
gender	VARCHAR(10)
insurance_type	VARCHAR(20)

4. admission (PRIMARY FACT TABLE)

Drives ALOS, admissions, discharges, emergency load, bottlenecks.

column	type
admission_id	VARCHAR(20) PK
patient_id	VARCHAR(15) FK
department_id	VARCHAR(10) FK
branch_id	VARCHAR(10) FK
admission_time	TIMESTAMP
discharge_time	TIMESTAMP
admission_type	VARCHAR(15)
bed_type	VARCHAR(10)

Derived in ETL / BI

- Length of stay
- Admission/discharge counts
- Emergency vs scheduled ratio

5. **bed_occupancy** (HOURLY SNAPSHOT FACT)

Used for bed occupancy rate & peak-hour analysis.

column	type
snapshot_time	TIMESTAMP
department_id	VARCHAR(10)
branch_id	VARCHAR(10)
occupied_beds	INT

Derived

- Bed occupancy %
- Bottlenecks (over-capacity)

6. **doctor**

Defines available capacity only.

column	type
doctor_id	VARCHAR(15) PK
department_id	VARCHAR(10)
max_daily_hours	INT

7. doctor_workload (UTILIZATION FACT)

Used directly for doctor utilization KPI.

column	type
doctor_id	VARCHAR(15) FK
work_date	DATE
hours_booked	DECIMAL(4,2)

Derived

- Utilization % = $\text{hours_booked} / \text{max_daily_hours}$

8. procedure

Used for procedure volume & emergency load.

column	type
procedure_id	VARCHAR(20) PK
admission_id	VARCHAR(20) FK
procedure_type	VARCHAR(30)
procedure_time	TIMESTAMP
emergency_flag	BOOLEAN

9. billing

Used for cost KPIs only.

column	type
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admission_id	VARCHAR(20) PK
total_cost	DECIMAL(10,2)
insurance_covered	DECIMAL(10,2)

Derived

- Cost per patient
- Cost per discharge

10. outcome

Used for quality KPIs.

column	type
admission_id	VARCHAR(20) PK
outcome_status	VARCHAR(20)
readmitted_30d	BOOLEAN

KPI - TABLE MAPPING

KPI	Tables Used
Average Length of Stay	admission
Bed Occupancy Rate	bed_occupancy + department
Admission / Discharge Count	admission
30-Day Readmission Rate	outcome
Procedure Volume	procedure
Emergency vs Scheduled	admission, procedure
Doctor Utilization	doctor, doctor_workload
Cost per Patient	billing
Patient Outcomes	outcome
Peak Hour Bottlenecks	bed_occupancy
Branch / Dept Comparison	branch, department