Healthcare Claims Database - Data Dictionary

Table Overview

Table Name	Description	Primary Key	Record Count Estimate
patient	Core patient demographic and contact information	patient_id	Millions
provider	Healthcare provider information including NPIs and specialties	provider_id	Hundreds of thousands
facility	Healthcare facility/location information	facility_id	Thousands
insurance_plan	Insurance payer and plan details	plan_id	Thousands
patient_insurance	Patient coverage details linking patients to insurance plans	coverage_id	Millions
encounter	Patient visits, admissions, and healthcare encounters	encounter_id	Tens of millions
diagnosis	ICD diagnosis codes associated with encounters	diagnosis_id	Hundreds of millions
procedure	CPT/HCPCS procedure codes performed during encounters	procedure_id	Hundreds of millions
prior_authorization	Pre-approval records for services	auth_id	Millions
claim	Main claims header with financial summary	claim_id	Tens of millions
claim_line_item	Individual service lines on claims	line_item_id	Hundreds of millions
payment	Payment/remittance records	payment_id	Tens of millions
payment_adjustment	Adjustment details with reason codes	adjustment_id	Hundreds of millions
denial	Claim denial tracking	denial_id	Millions
appeal	Appeal management for denied claims	appeal_id	Hundreds of thousands
coordination_of_benefits	Multi-payer claim coordination	cob_id	Millions
fee_schedule	Contracted rates by procedure and payer	fee_schedule_id	Millions

Detailed Column Definitions

PATIENT Table

Column Name	Data Type	Nullable	Description
patient_id	VARCHAR(50)	NO	Unique patient identifier
medical_record_number	VARCHAR(50)	YES	Hospital/clinic MRN
first_name	VARCHAR(100)	YES	Patient first name
last_name	VARCHAR(100)	YES	Patient last name
date_of_birth	DATE	YES	Patient DOB
gender	VARCHAR(10)	YES	M, F, Other, Unknown
ssn	VARCHAR(11)	YES	Social Security Number (encrypted)
address_line1	VARCHAR(200)	YES	Primary address
address_line2	VARCHAR(200)	YES	Secondary address
city	VARCHAR(100)	YES	City
state	VARCHAR(2)	YES	State code
zip_code	VARCHAR(10)	YES	ZIP or ZIP+4
phone_number	VARCHAR(20)	YES	Primary phone
email	VARCHAR(200)	YES	Email address
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

PROVIDER Table

Column Name	Data Type	Nullable	Description
provider_id	VARCHAR(50)	NO	Unique provider identifier
npi	VARCHAR(10)	YES	National Provider Identifier
provider_type	VARCHAR(50)	YES	Physician, NP, PA, etc.
first_name	VARCHAR(100)	YES	Provider first name
last_name	VARCHAR(100)	YES	Provider last name
specialty	VARCHAR(100)	YES	Medical specialty
tax_id	VARCHAR(20)	YES	Tax identification number
address_line1	VARCHAR(200)	YES	Practice address
city	VARCHAR(100)	YES	City
state	VARCHAR(2)	YES	State code
zip_code	VARCHAR(10)	YES	ZIP code
phone_number	VARCHAR(20)	YES	Contact phone
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

FACILITY Table

Column Name	Data Type	Nullable	Description
facility_id	VARCHAR(50)	NO	Unique facility identifier
facility_name	VARCHAR(200)	YES	Facility/hospital name
facility_type	VARCHAR(50)	YES	Hospital, Clinic, ASC, etc.
npi	VARCHAR(10)	YES	Facility NPI
tax_id	VARCHAR(20)	YES	Tax identification number
address_line1	VARCHAR(200)	YES	Street address
address_line2	VARCHAR(200)	YES	Additional address
city	VARCHAR(100)	YES	City
state	VARCHAR(2)	YES	State code
zip_code	VARCHAR(10)	YES	ZIP code
phone_number	VARCHAR(20)	YES	Main phone
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

INSURANCE_PLAN Table

Column Name	Data Type	Nullable	Description
plan_id	VARCHAR(50)	NO	Unique plan identifier
payer_id	VARCHAR(50)	YES	Insurance company ID
payer_name	VARCHAR(200)	YES	Insurance company name
plan_name	VARCHAR(200)	YES	Specific plan name
plan_type	VARCHAR(50)	YES	HMO, PPO, POS, EPO, etc.
group_number	VARCHAR(50)	YES	Employer group number
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

PATIENT_INSURANCE Table

Column Name	Data Type	Nullable	Description
coverage_id	VARCHAR(50)	NO	Unique coverage identifier
patient_id	VARCHAR(50)	YES	Link to patient
plan_id	VARCHAR(50)	YES	Link to insurance plan
member_id	VARCHAR(50)	YES	Insurance member ID
coverage_type	VARCHAR(20)	YES	Primary, Secondary, Tertiary
effective_date	DATE	YES	Coverage start date
termination_date	DATE	YES	Coverage end date
copay_amount	DECIMAL(10,2)	YES	Standard copay
deductible_amount	DECIMAL(10,2)	YES	Annual deductible
out_of_pocket_max	DECIMAL(10,2)	YES	Annual OOP maximum
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

ENCOUNTER Table

Column Name	Data Type	Nullable	Description
encounter_id	VARCHAR(50)	NO	Unique encounter identifier
patient_id	VARCHAR(50)	YES	Link to patient
facility_id	VARCHAR(50)	YES	Link to facility
encounter_type	VARCHAR(50)	YES	Inpatient, Outpatient, Emergency
admission_date	TIMESTAMP_NTZ	YES	Admission/visit start
discharge_date	TIMESTAMP_NTZ	YES	Discharge/visit end
attending_provider_id	VARCHAR(50)	YES	Primary provider
admitting_diagnosis_code	VARCHAR(20)	YES	Initial diagnosis
discharge_disposition	VARCHAR(50)	YES	Home, Transfer, Deceased, etc.
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

DIAGNOSIS Table

Column Name	Data Type	Nullable	Description
diagnosis_id	VARCHAR(50)	NO	Unique diagnosis identifier
encounter_id	VARCHAR(50)	YES	Link to encounter
diagnosis_code	VARCHAR(20)	YES	ICD-10-CM code
diagnosis_type	VARCHAR(10)	YES	ICD-10-CM, ICD-9
diagnosis_description	VARCHAR(500)	YES	Code description
diagnosis_rank	NUMBER(2)	YES	1=Primary, 2+=Secondary
present_on_admission	VARCHAR(1)	YES	Y, N, U, W
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp

PROCEDURE Table

Column Name	Data Type	Nullable	Description
procedure_id	VARCHAR(50)	NO	Unique procedure identifier
encounter_id	VARCHAR(50)	YES	Link to encounter
procedure_code	VARCHAR(20)	YES	CPT/HCPCS code
procedure_type	VARCHAR(10)	YES	CPT, HCPCS, ICD-10-PCS
procedure_description	VARCHAR(500)	YES	Code description
procedure_date	TIMESTAMP_NTZ	YES	When performed
performing_provider_id	VARCHAR(50)	YES	Provider who performed
modifier_1	VARCHAR(2)	YES	First modifier
modifier_2	VARCHAR(2)	YES	Second modifier
modifier_3	VARCHAR(2)	YES	Third modifier
modifier_4	VARCHAR(2)	YES	Fourth modifier
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp

PRIOR_AUTHORIZATION Table

Column Name	Data Type	Nullable	Description
auth_id	VARCHAR(50)	NO	Unique authorization identifier
auth_number	VARCHAR(50)	YES	Payer authorization number
patient_id	VARCHAR(50)	YES	Link to patient
plan_id	VARCHAR(50)	YES	Link to insurance plan
requesting_provider_id	VARCHAR(50)	YES	Provider requesting auth
procedure_code	VARCHAR(20)	YES	Authorized procedure
auth_status	VARCHAR(20)	YES	Approved, Denied, Pending
approved_units	NUMBER(10)	YES	Number of units approved
effective_date	DATE	YES	Auth start date
expiration_date	DATE	YES	Auth end date
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

CLAIM Table

Column Name	Data Type	Nullable	Description
claim_id	VARCHAR(50)	NO	Unique claim identifier
claim_number	VARCHAR(50)	YES	Payer claim number
encounter_id	VARCHAR(50)	YES	Link to encounter
patient_id	VARCHAR(50)	YES	Link to patient
plan_id	VARCHAR(50)	YES	Link to insurance plan
claim_type	VARCHAR(20)	YES	Professional (CMS-1500), Institutional (UB-04)
claim_status	VARCHAR(20)	YES	Submitted, Pending, Approved, Denied, Appealed
service_date_from	DATE	YES	Service start date
service_date_to	DATE	YES	Service end date
submission_date	DATE	YES	When claim submitted
billing_provider_id	VARCHAR(50)	YES	Provider submitting claim
rendering_provider_id	VARCHAR(50)	YES	Provider who rendered service
referring_provider_id	VARCHAR(50)	YES	Referring provider
facility_id	VARCHAR(50)	YES	Where service rendered
auth_id	VARCHAR(50)	YES	Link to prior auth
total_charge_amount	DECIMAL(12,2)	YES	Total billed charges
total_allowed_amount	DECIMAL(12,2)	YES	Contracted allowed amount
total_paid_amount	DECIMAL(12,2)	YES	Amount paid by payer
patient_responsibility	DECIMAL(12,2)	YES	Patient owes
deductible_amount	DECIMAL(12,2)	YES	Deductible applied
copay_amount	DECIMAL(12,2)	YES	Copay applied
coinsurance_amount	DECIMAL(12,2)	YES	Coinsurance applied
primary_payer_claim_id	VARCHAR(50)	YES	Primary claim for COB
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

CLAIM_LINE_ITEM Table

Column Name	Data Type	Nullable	Description
line_item_id	VARCHAR(50)	NO	Unique line identifier
claim_id	VARCHAR(50)	YES	Link to claim header
line_number	NUMBER(5)	YES	Line sequence number
procedure_code	VARCHAR(20)	YES	CPT/HCPCS code
procedure_type	VARCHAR(10)	YES	CPT, HCPCS
procedure_description	VARCHAR(500)	YES	Service description
modifier_1	VARCHAR(2)	YES	First modifier
modifier_2	VARCHAR(2)	YES	Second modifier
modifier_3	VARCHAR(2)	YES	Third modifier
modifier_4	VARCHAR(2)	YES	Fourth modifier
service_date	DATE	YES	Date of service
place_of_service	VARCHAR(2)	YES	POS code (11=Office, 21=Hospital)
units	DECIMAL(10,2)	YES	Quantity/units
charge_amount	DECIMAL(12,2)	YES	Line charge
allowed_amount	DECIMAL(12,2)	YES	Contracted amount
paid_amount	DECIMAL(12,2)	YES	Amount paid
denial_reason_code	VARCHAR(10)	YES	If denied, reason code
revenue_code	VARCHAR(4)	YES	UB revenue code
ndc_code	VARCHAR(20)	YES	Drug NDC code
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

PAYMENT Table

Column Name	Data Type	Nullable	Description
payment_id	VARCHAR(50)	NO	Unique payment identifier
claim_id	VARCHAR(50)	YES	Link to claim
payment_number	VARCHAR(50)	YES	Check/EFT number
payment_date	DATE	YES	Payment date
payment_method	VARCHAR(20)	YES	Check, EFT, Credit
check_eft_number	VARCHAR(50)	YES	Payment reference
payment_amount	DECIMAL(12,2)	YES	Total payment
applied_amount	DECIMAL(12,2)	YES	Amount applied to claim
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp

PAYMENT_ADJUSTMENT Table

Column Name	Data Type	Nullable	Description
adjustment_id	VARCHAR(50)	NO	Unique adjustment identifier
payment_id	VARCHAR(50)	YES	Link to payment
claim_id	VARCHAR(50)	YES	Link to claim
line_item_id	VARCHAR(50)	YES	Link to line item
adjustment_code	VARCHAR(10)	YES	CARC/RARC code
adjustment_reason	VARCHAR(500)	YES	Reason description
adjustment_amount	DECIMAL(12,2)	YES	Adjustment amount
adjustment_date	DATE	YES	When adjusted
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp

DENIAL Table

Column Name	Data Type	Nullable	Description
denial_id	VARCHAR(50)	NO	Unique denial identifier
claim_id	VARCHAR(50)	YES	Link to claim
line_item_id	VARCHAR(50)	YES	Link to line item
denial_date	DATE	YES	When denied
denial_code	VARCHAR(10)	YES	Denial code
denial_reason	VARCHAR(500)	YES	Denial explanation
denial_category	VARCHAR(50)	YES	Medical Necessity, Authorization, Eligibility
appeal_deadline	DATE	YES	Last date to appeal
appeal_status	VARCHAR(20)	YES	Not Appealed, Appealed, Won, Lost
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

APPEAL Table

Column Name	Data Type	Nullable	Description
appeal_id	VARCHAR(50)	NO	Unique appeal identifier
denial_id	VARCHAR(50)	YES	Link to denial
claim_id	VARCHAR(50)	YES	Link to claim
appeal_level	NUMBER(1)	YES	1=First, 2=Second, 3=External
appeal_date	DATE	YES	When appealed
appeal_reason	TEXT	YES	Appeal justification
appeal_status	VARCHAR(20)	YES	Pending, Approved, Denied
appeal_decision_date	DATE	YES	Decision date
appeal_outcome_amount	DECIMAL(12,2)	YES	Amount recovered
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

COORDINATION_OF_BENEFITS Table

Column Name	Data Type	Nullable	Description
cob_id	VARCHAR(50)	NO	Unique COB identifier
claim_id	VARCHAR(50)	YES	Link to claim
patient_id	VARCHAR(50)	YES	Link to patient
primary_plan_id	VARCHAR(50)	YES	Primary insurance
secondary_plan_id	VARCHAR(50)	YES	Secondary insurance
primary_paid_amount	DECIMAL(12,2)	YES	Primary payment
secondary_paid_amount	DECIMAL(12,2)	YES	Secondary payment
patient_paid_amount	DECIMAL(12,2)	YES	Patient portion
cob_adjustment_amount	DECIMAL(12,2)	YES	COB adjustment
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp

FEE_SCHEDULE Table

Column Name	Data Type	Nullable	Description
fee_schedule_id	VARCHAR(50)	NO	Unique fee schedule identifier
plan_id	VARCHAR(50)	YES	Link to insurance plan
procedure_code	VARCHAR(20)	YES	CPT/HCPCS code
procedure_type	VARCHAR(10)	YES	CPT, HCPCS
effective_date	DATE	YES	Rate effective date
termination_date	DATE	YES	Rate end date
allowed_amount	DECIMAL(12,2)	YES	Contracted rate
relative_value_unit	DECIMAL(10,4)	YES	RVU value
created_date	TIMESTAMP_NTZ	NO	Record creation timestamp
updated_date	TIMESTAMP_NTZ	NO	Last update timestamp

Key Relationships

- **Patient → Encounter**: One-to-many relationship tracking all patient visits

- **Encounter → Claim**: One-to-many relationship as encounters can generate multiple claims

- **Claim → Claim Line Item**: One-to-many relationship for service details

- **Claim → Payment**: One-to-many relationship for partial payments

- **Claim → Denial → Appeal**: Sequential workflow for denied claims

- **Patient → Patient Insurance → Insurance Plan**: Many-to-many relationship for coverage

- **Claim → Prior Authorization**: Optional relationship for authorized services

- **Primary Claim** → **Secondary Claim**: COB relationship for multiple payers

Common Query Patterns

1. **Claims Status Summary**: Join claim with patient and insurance_plan
2. **Denial Analysis**: Join denial with claim and claim_line_item
3. **Payment Reconciliation**: Join payment with claim and payment_adjustment
4. **Provider Performance**: Join claim with provider and aggregate metrics
5. **COB Processing**: Join coordination_of_benefits with multiple claims