

# A Brief Introduction to IVC\_CDS

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# Road Map

- Overview of Community Care
- Basic understanding of `ivc_cds`
  - Comparison to `PIT_archive`
  - Access
  - Data fields
  - Partition keys
  - Issues
- Quick-ish code example: identifying knee replacements & diagnoses
- Questions

# Overview: What is VA-Purchased Care?

- VA-purchased Care: care paid for by the VA but delivered by providers outside a VA facility
  - The Office of Integrated Veteran Care (IVC) oversees VA-purchased care
  - Community Care (CC)
    - This care can take place in a multitude of settings
    - Providers could be VA staff at an academic affiliate, DoD providers, IHS/THP providers, or non-VA providers.
  - Family Member Benefit Program Care
    - Similar to CC, but not part of the contracts that drive CC
    - Often in same databases as CC
    - E.g.: Camp Lejeune FMP, Spina Bifida Health Care Benefits Program, etc.

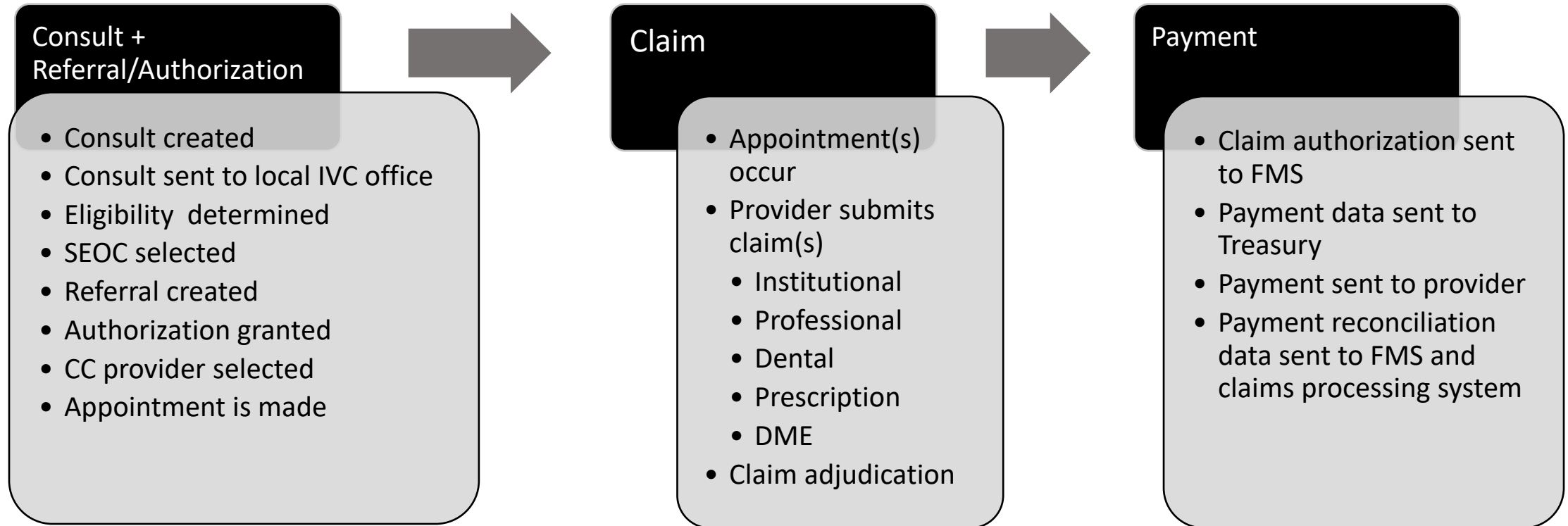
**VS.** VA-provided Care: care delivered in VA Healthcare Systems (VAHCS) and other VA facilities

IHS: Indian Health Services

THP: Tribal Health Program

9/20/2023

# Overview: Community Care Process



SEOC: Standardized Episode of Care

DME: Durable Medical Equipment

FMS: Financial Management System

# Comparing IVC\_CDS to Archived PIT: The Basics

	<b>IVC_CDS</b>	<b>Archived PIT</b>
Data Owner	Office of Integrated Veteran Care	Office of Integrity and Compliance
Operational Purpose	Create an IVC-owned single, consolidated dataset that would lead to more accurate and quicker reporting	Detect Fraud, Waste, and Abuse
Access	Operations and Research	Research Only (TBD)

# Accessing/Requesting IVC\_CDS

- Operations:
  - ePAS: Privileged Read Patient Access (CDW\_SPatient)
  - Server: A06
  - Database: CDWork
- Research:
  - DART
    - Real SSN

- Homeless Veterans Registry (Disclaimer)
- IVC Consolidated Data Sets - Real SSN approval required
- Lung Cancer Screening Demonstration Project (LCSDP) Cohort

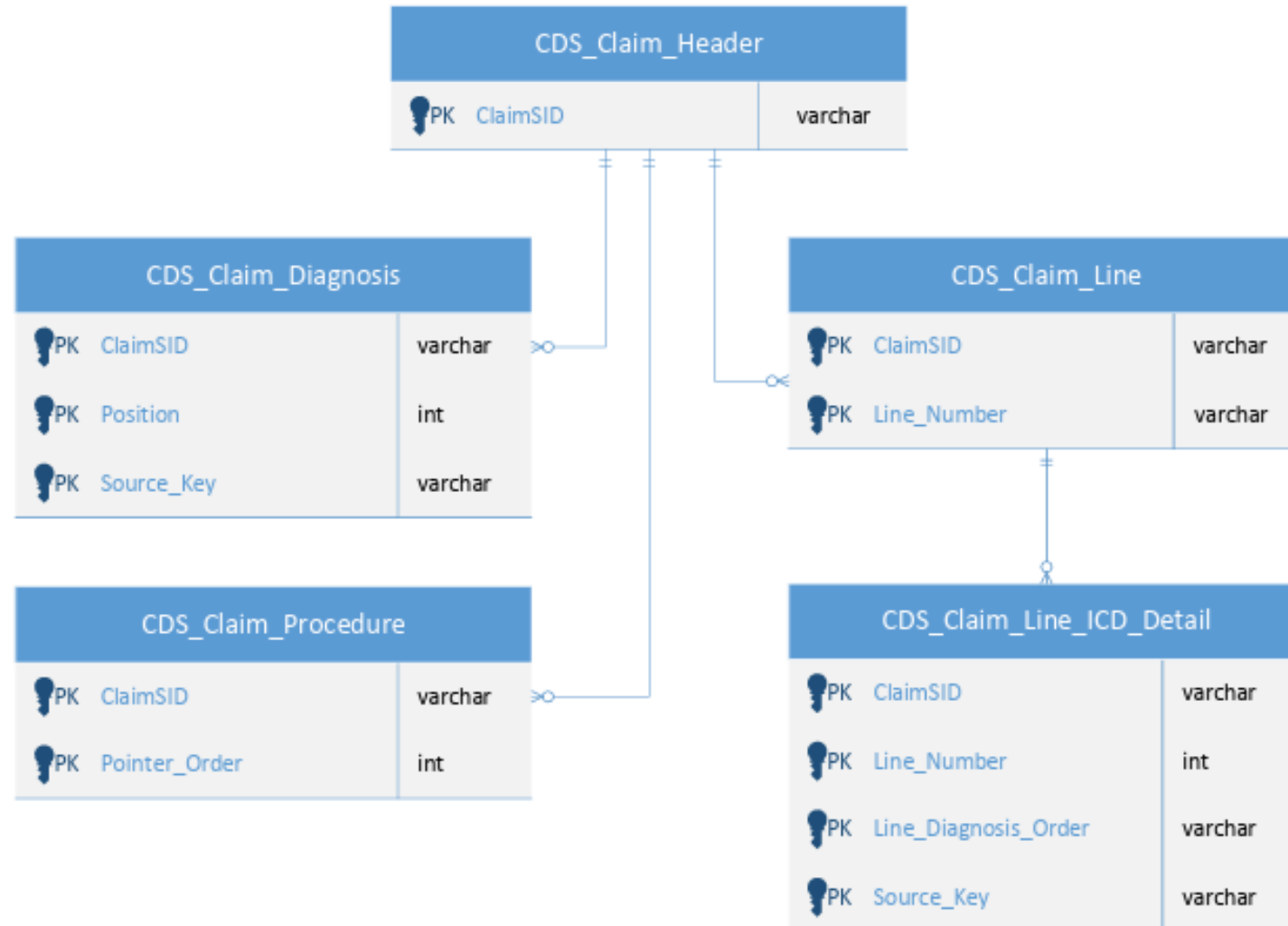
# Comparing IVC\_CDS to Archived PIT: Tables

	<b>IVC_CDS</b>	<b>Archived PIT</b>
Table Structure	Data for claim types in <b>combined</b> in tables	Data is <b>separated</b> into tables by claim type
Dim Tables	One* dim table: for claim status	Diagnosis, Procedure, ect tables in NDIM schema
Patient Information Table	none	SVeteran.PITPatient

\* There may be more dim tables in the future as additional data is added

# IVC\_CDS: Tables & Structure

Figure 1. Diagram of the IVC CDS Claim Tables



[DR-IVC-CDS.pdf \(va.gov\)](#)



# Comparing IVC\_CDS to Archived PIT: Data

	<b>IVC_CDS</b>	<b>Archived PIT</b>
Time	Claims with any processing in FY19 forward Will see claims with earlier service dates	FY2011-02/21/2023
Claim Types available	Professional, Institutional, and Dental No Pharmacy yet	Professional, Institutional, and Pharmacy, Dental
Update Frequency	Research: Monthly Operations: Nightly	Not updating
Data Sources	CCRS  eCAMS VISTA Fee FBCS PLEXIS	CCRS CP&E eCAMS  FBCS PLEXIS Lumpsum Payments

# Partition Keys

- For research projects only

Table	Partition Field	Data Type
CDS_Claim_Header	Service_Start_Date	Date
CDS_Claim_Line	Service_Start_Date	Date
CDS_Claim_Procedure	Procedure_Date	Date

```
FROM [VINCI_IVC_CDS].[IVC_CDS].[CDS_Claim_Header]  
where service_start_date >= convert(date, '2022-10-01')
```

# Important Fields: Patient Identifiers

Data Point	Table	Field Name
Patient ICN	All tables except CDS_Claim_Status	Patient_ICN
Patient SSN	CDS_Claim_Header	Patient_SSN
Relation of Patient to Insured	CDS_Claim_Header	Patient_relation_value 18 = "self"

# Important Fields: Dates

- CDS\_Claim\_Header

Field	Description
Service_Start_Date	Earliest service_start_date from associated claim lines (service from)
Service_End_Date	Latest service_start_date from associated claim lines (service to)
Admission_Date	Date of patient admission on claim form (P,I)
Discharge_Date	Date of patient discharge on claim form (I)
Load_Date	Date the record was loaded into CDS or updated
Paid_Date	Payment confirmation date

- CDS\_Claim\_Line

Field	Description
Service_Start_Date	The first service date for the line item
Service_End_Date	The last service date for the line item
Paid_Date	Date check was issued for line item
Pay_Order_Date	date payment was ordered

# To know: Finding the claims you want

- CDS\_Claim\_Status Table
  - Descriptions of status values
- CDS\_Claim\_Header.IsCurrent
  - “Y” Represents the most recent submission
  - “R” = reversed (claim has been reprocessed to some extent)
  - “D” = deleted claims (eCAMS only; n = 199)
  - “N” are not the most recent submission, but may be the ones that are Accepted/Paid
- CDS\_Claim\_Header.Station\_Number
  - Can be sta6a (not always stapa or sta3n)

# Nuances

- Anesthesiology CPT Procedure codes can be found in both CDS\_Claim\_Procedure & CDS\_Claim\_Line
- Diagnoses
  - Periods are removed → E codes overlap between ICD code sets
    - if you aren't sure if ICD-9 or ICD-10 (E codes) is used on a claim then look at the other DX on the claim
  - CDS\_Claim\_Diagnosis for Plexis:
    - For professional
      - 1 = Primary DX
      - 2+ = all other DX
    - For institutional
      - 1 = Principal DX
      - 3-19 are other DX (no 2s)
      - 20 = admitting DX
      - 21-24 = reason for visit
      - 25 – 27 = External Cause of Injury

# Duplication

- FBCS + FEE
- FBCS + eCAMS
- eCAMS (rejected/denied) + CCRS

# Currently Identified Issues

- Hanging children records
  - Was happening, but is not currently. Watch out!
  - eCAMS only
  - Records deleted from CDS\_Claim\_Header and/or CDS\_Claim\_Line
- Duplicate
  - CDS\_Claim\_Line: Non-unique ClaimSID + Line\_Number in (n=230)
- Deactivated ICNs
  - N ICNs = 1,111 (as of 09/09/2023)
  - VINCI working on a solution for ORD\_xx DB provisioning
  - Operations users should look at (S)Veteran.(S)MVIPerson



# Quick Code example

# Case Study (Script Walkthrough)

- Objective: Identify claims with Total Knee Replacements (TKAs) in the window 2022-04-01 to 2022-10-01
  - get primary DX associated with those procedures
  - check for hypertension for those patients in the year prior to the TKA

The following slides walk through the logic with small code snippets. The complete script will be available to download.

# The Plan

1. Create a temp DIM for the procedures of interest
2. Use the Claim Header table
3. Fetch claims with TKAs
  - a. Use the Claim Line table for CPT procedures
  - b. Use the CDS Claim Procedure table for ICD procedures
4. Fetch diagnosis data associated with the procedures from step 3
  - a. Use the Line Detail table for diagnoses associated with CPT codes
  - b. Use the Claim Diagnosis table for diagnoses associated with ICD procedures
5. Fetch diagnosis data associated with the patients from step 2
  - a. Search the Claim Diagnosis table with the PatientICNs from step 2, using the one-year-prior

# Step 1: Create a temp DIM

- This step is very similar to working in VistA, except there are no code SIDs in IVC\_CDS, so you work with the codes directly.
- Insert codes manually (these are copy-pasted from a CMS spreadsheet)...

```
-- ICD procedure codes
insert into #dim_tka_proc_codes values
('0SRC069', 'ICD10PCS', 'Replacement of Right Knee Joint with Oxidized Zirconium on
Polyethylene Synthetic Substitute, Cemented, Open Approach', 'Knee')
```

- ...or grab the codes from CDW dimensions, but remember we don't need the SIDs

```
select distinct icd10procedurecode, 'ICD10PCS' as code_type, icd10proceduredescription,
'knee' as hip_knee
into #dim_tka_proc_codes_fromDIMs
from cdwork.dim.icd10procedure i
join cdwork.dim.icd10proceduredescriptionversion descr
on i.icd10proceduresid = descr.icd10proceduresid
where i.ICD10ProcedureCode like '0sr[dc]0[6j]%'
```

# Step 2: Use the Claim Header Table

- Identify claims
  - With the form type we want (note that different form types have different columns filled in)
  - with the statuses we want (must join to a dimension here)
  - excluding reversed and deleted records
  - in the time frame we want (choose columns e.g. service\_start\_date, service\_end\_date, admission\_date, discharge\_date, etc.) Always include service\_start\_date to employ partitioning
- Starting with the claim header data may seem unnecessary, but claim status isn't on the cds\_claim\_procedure table, and the IsCurrent value isn't on any of the other tables.
- Remember statuses are assigned at both the header and line level.

```
and claim_form_type in ('I', 'P') -- institutional or professional claims only
and stat.Status_Description in ('APPROVED', 'PENDING') --etc. keep certain claim statuses
and cds.IsCurrent not in ('R' /* reversed */, 'D' /* deleted */ )
```

# Step 3.1: Use the Claim Line Table for CPT Procedures

- Join the header records to the line fact table on ClaimSID
- Filter to the procedures of interest using a join to our temp dim
  - Claim line only contains CPT codes, not ICD procedure codes
- Claim line records also have a status and service start/end dates, so some filters from the previous step get repeated

```
from #claim_header_in_dates as head --temp table from step 2
inner join src.ivc_cds_cds_claim_line as line on head.claimsid=line.claimsid
inner join #dim_tka_proc_codes as tha on line.procedure_code=tha.proc_code -- DIM table
from step 1
and tha.code_type = 'cpt' -- only CPT codes are in the claim_line table
```

## Step 3.2: Use the CDS Claim Procedure Table for ICD Procedures

- Just as in step 3.1, join to Claim\_Procedure table from the header table on ClaimSID
- Filter to the procedures of interest using a join to our temp dim
  - Claim Procedure only contains ICD procedure codes, not CPT codes
- This table contains a procedure date, but no claim status

# Step 4.1: Use the Line Detail Table for Diagnoses associated with CPT Codes

- Join to the Line\_ICD\_Detail table from the Claim\_Line table on **both ClaimSID AND line\_number**. This is a composite foreign key so you must join on both columns.
- We can use the Line Detail table here because we have claim lines from the CPT code query.

```
from #claim_header_w_TKALines as tka
left outer join [Src].[IVC_CDS_CDS_claim_line_icd_detail] as line_dx
on tka.claimsid=line_dx.claimsid -- composite key claimsid + line_number (also
nonclustered unique index)
and tka.line_number = line_dx.line_number
and line_procedure_code is not null -- only pull for CPT procedures (ICD procedures do
not have DX in this table)
and line_dx.qualifier = 'P' -- where diagnosis is primary for the line
```



## Step 4.2: Use the CDS Diagnosis Table for diagnoses associated with ICD Procedures

- Join to the Claim\_Diagnosis Table from the Claim Header table on ClaimSID.
- This is not quite as specific as using line detail as in step 4.1. But because there is no line-specific record for ICD procedures, the best we can do is to pull the diagnosis off of the claim.
  - Note that this could result in a diagnosis unrelated to the procedure, since primary diagnosis is the one that is most serious or cost intensive for the stay.

# Step 5

- Using the PatientICNs from step 2, search the header table again to find claims
  - Checking form type, status, and time range as in step 2

```
from src.ivc_cds_cds_claim_header as cds
inner join #pat_tka as tkas on cds.Patient_ICN=tkas.PatientICN -- limiting to patients
we found had TKA
```

- Using those ClaimSIDs, search Claim\_Diagnosis as in step 4.2

```
from #claim_header_in_dates_dx as h
inner join src.ivc_cds_cds_claim_diagnosis as dx
on h.claimsid=dx.claimsid
inner join #dim_hypertension as hyper
on dx.icd = hyper.code
```

- Don't forget to thoughtfully consider de-duplication!

# Full Script Available

- Again, the script outlined on the previous slides will be available on VINCI Central, along with the slide deck

# Next for IVC\_CDS

- Referrals Fact table
  - Currently a DOEx on SQL52 available to operations groups
  - ConsultSID (not all claims have a consult!)
  - SEOC
- Payments

# Other Datasets of Use

- VA
  - Patient Identifiers: SMVI or Spatient
  - [SEOC](#) database: “allowable health care services” specific to a specialty for referrals
- Non-VA
  - NPPES
    - VINCI SAS Grid: cms\_pb1c libname
    - Contains x12 (taxonomy) codes for providers (individual and professional)
  - [Berenson-Eggers Type of Service \(BETOS\) classification 2.0](#)
    - Based off of HCPCs/CPTs

# IVC CDS Resources

- [VIReC](#)
  - [Community Care Page](#)
  - [DR-IVC-CDS-PCM-Data-Source.pdf \(va.gov\)](#)
  - [DR-IVC-CDS.pdf \(va.gov\)](#)
- [ACCENT](#)
  - [Code to find inpatient hospital stays](#)
- [Data Portal](#)
  - [Integrated Veteran Care Consolidated Data Set \(va.gov\)](#)

# Thank you

- ACCENT Core
- Noreen Arnold & VIREC
- IVC IIA group
- VINCI
- The field!



# Questions?

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