Cerner - Millennium Data for Researchers

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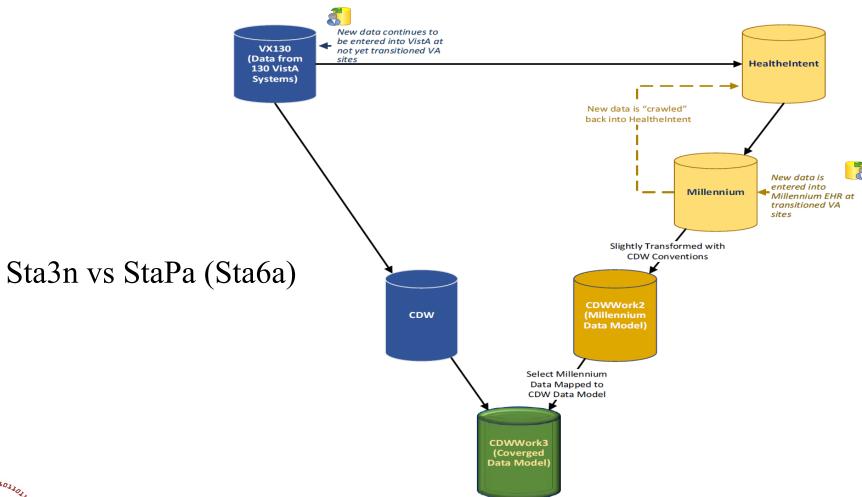


Agenda

- Millennium Data Background
- How to get Millennium Data
 - What is it going to look like in a Research Database
- Resources
- Lessons Learned



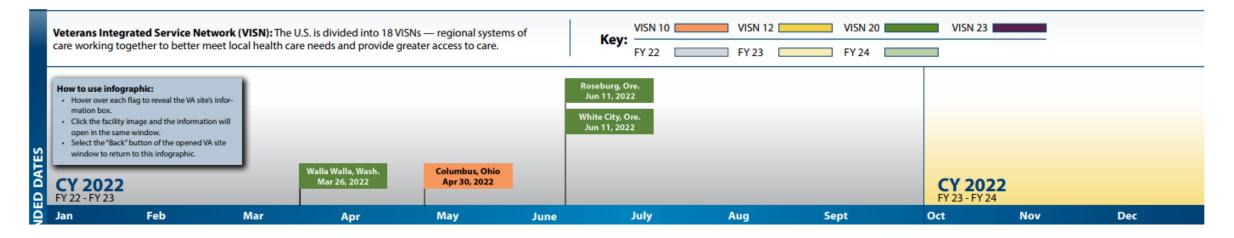
Data Structure





Sites Already Transitioned

Spokane, Wash. 10/24/2020





Timeline for Transition







10 FEB 2025 - Block Release 12

5

Obtaining Millennium Data

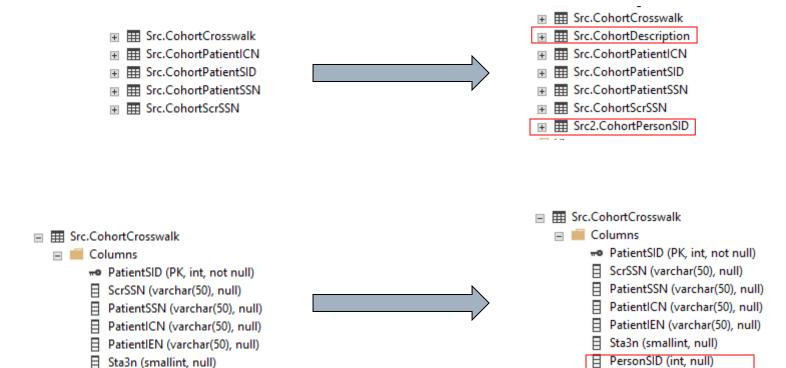
Submit an amendment to DART (Data Sources)



- Look for an email from me
 - Consultation
 - Millennium needs
 - Cohort recreation
 - What to expect
 - Resources



What To Expect In Your ORD Space



PersonID (varchar(50), null)



What To Expect Continued

■ Src.Outpat_ProblemList

■ Src.Outpat_VisitLogic

■ Src.Outpat_VPatientEd

Src = CDWWork

■ Src3.RxOut_RxOutpat_EHR

■ Grc3.RxOut_RxOutpatSig_EHR

Src3 = CDWWork3

■ Src2.EncMill_EncounterAssociatedPerson_NC

■ Src2.EncMill_EncounterCareCommunication_NC

■ Src2.EncMill_EncounterCareCommunicationRelation_NC

■ Src2.EncMill_EncounterCarePeriod_NC

■ Grc2.EncMill_EncounterCarePeriodActivity_NC

■ Grc2.EncMill_EncounterCarePeriodType_NC

Src2 = CDWWork2



Important Factors Impacting Your Cohort

- Static Cohort vs Live Data
 - Patient identifiers being added
 - PatientSIDs
 - PersonSIDs
 - Asking your Provisioning Data Manager on the correspondence site for a cohort refresh
 - Monthly, Quarterly, Yearly



Resources

VINCI Curated SOPs

 https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.p hp/Category:VINCI_SOP

The following 58 pages are in this category, out of 58 total.			
A	н	P	
VINCI:Addresses (Patient) SOP, VINCI	VINCI:Health Factor - Millennium SOP, VINCI	VINCI:Patient Contact - Millennium SOP, VINCI	
VINCI:Age & Gender at Event (VINCI)	VINCI:Hemoglobin A1C SOP (VINCI)	 VINCI:Patient Flag SOP, VINCI 	
VINCI:All Upcoming Appointments SOP (VINCI)		 VINCI:Period of Service SOP, VINCI 	
VINCI:Appointments - Millennium SOP, VINCI		VINCI:Phone Number SOP (VINCI)	
	VINCI:ICD Code PIT SOP (VINCI)	 VINCI:PIT CPT and Procedure Codes SOP (VINCI) 	
В	VINCI:ICD Codes - Millennium SOP, VINCI	 VINCI:Primary Care Provider - Millennium SOP, VIN 	
VINCI:BMI - Millennium SOP, VINCI	VINCI:ICD Codes SOP, VINCI	 VINCI:Primary Care Provider SOP, VINCI 	
VINCI:BMI (VINCI)	VINCI:ICD Procedure Codes SOP, VINCI	 VINCI:Procedures - Millennium SOP, VINCI 	
С	L	R	
VINCI:Calculate Median, VINCI	VINCI:Labs - Millennium SOP, VINCI	VINCI:Race & Ethnicity (VINCI)	
VINCI:CDW Meta Data Search SOP, VINCI	VINCI:Labs SOP, VINCI	VINCI:Radiology SOP (VINCI)	
VINCI:Combat Veterans (VINCI)	VINCI:Last VA Visit SOP, VINCI	3, ()	
VINCI:COVID-19 SOPs (VINCI)	VINCI:Living Patients SOP, VINCI	S	
VINCI:CPT Codes SOP, VINCI	 VINCI:Loop to Pull Counts for Columns, VINCI 	 VINCI:Search TIU for Keyword, VINCI 	
_	М	 VINCI:Standard Exclusionary Criteria, VINCI 	
D		VINCI:Standard Exclusion - Millennium SOP, VINCI	
VINCI:Date of Death SOP, VINCI	VINCI:Medication Adherence (VINCI) VINCI:Medications Inserting COD VINCI VINCI:Medications Inserting COD VINCI VINCI:Medications Inserting COD VINCI VINCI:Medication Adherence (VINCI) VINCI:Medication Adherence (VINCI)	 VINCI:Stop Codes - Millennium SOP, VINCI 	
VINCI:Demographic - Millennium SOP, VINCI	VINCI:Medications Inpatient - Millennium SOP, VINCI VINCI:Medications Outpatient - Millennium SOP, VINCI	 VINCI:Stop Codes SOP, VINCI 	
VINCI:Distance (Patient Address from Station) SOP, VINCI	VINCI:Medications Outpatient - Millerministry, VINCI VINCI:Medications SOP, VINCI	V	
E		VINOIN A Veterene Obeier December (VINOIN	
VINCI:EGFR VINCI	VINCI:Most Closed BMI of Certain Interested Date (VINCI)	VINCI: VA Veterans Choice Program, (VINCI) VINCI: Visits - Millennium SOP, VINCI	
• VINGLESI K VINGI	N	VINCI: VISIS - Millennium SOP, VINCI VINCI: VISIS SOP, VINCI	
F	VINCI:Name and SSN - Millennium SOP, VINCI	VINCI: Visits 50P, VINCI VINCI: Vitals - Millennium SOP, VINCI	
VINCI:Facilities SOP, VINCI	VINCI:Name and SSN SOP (VINCI)	VINCI: Vitals - Millermum SOP, VINCI VINCI: Vitals SOP, VINCI	
VINCI:Filter By Station SOP, VINCI	·	• VINGLARIS SOP, VINCI	
	0	W	
G	VINCI:OEF/OIF Veterans (VINCI)	VINCI:Wiki Template (VINCI)	



VINCI Data Services Millennium Experts

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Other Teams

- VIREC
- PERC
- REDE
- Cerner SME
- BISL



Lessons Learned

- Identifiers
- Encounters / Visits
- Demographics
- Diagnosis / Procedures
- Primary Care Provider Team
- Health Factors / Power Forms
- Medications



Identifiers

PersonSID

- Millennium Identifier
- In CDWWork3 the PersonSID is used as the PatientSID

PatientICN

- Continues to be the nationwide identifier for the patient
- Will be the same in VistA and Millennium Data



Identifiers Continued

Get PatientICN from PersonSID



Identifiers Continued

Get PersonSID from PatientICN

```
Get PersonSID Added to Cohort
DROP TABLE IF EXISTS #Cohort_With_PersonSID;
WITH CTE AS(
           COH.PatientICN
            .MILL.PersonSID
            #Cohort With EDIPI AS COH
           Src2.SVeteranMill SPersonAlias AS MILL
           ON LEFT(MILL.AliasName, 10) = COH.PatientICN
               AND MILL.ActiveIndicator = 1
               AND GETDATE() BETWEEN MILL.BeginEffectiveDateTime AND MILL.EndEffectiveDateTime
               AND MILL.AliasPool = 'ICN'
               AND MILL.PersonAliasType = 'Veteran ID'
           COH.PatientICN
            ,MILL.PersonSID
            #Cohort With EDIPI AS COH
           Src2 SVeteranMill SPersonAlias AS MILL
                   MILL.AliasName = COH.EDIPI
               AND MILL.ActiveIndicator = 1
               AND GETDATE() BETWEEN MILL.BeginEffectiveDateTime AND MILL.EndEffectiveDateTime
               AND MILL.PersonAliasTypeCodeValueSID= 1800223089
       A.PatientICN
        ,B.PersonSID
       #Cohort_With_PersonSID
        <Cohort, varchar(100), #Cohort> AS A
       CTE AS B
               A.PatientICN = B.PatientICN
    XX rows:
```



Encounters / Visits

```
DROP TABLE IF EXISTS #MillVisits;
SELECT
        ENC.PersonSID
        --, COALESCE(ENC.RegistrationDateTime, ENC.PreRegistrationDateTime) AS VisitDateTime
        #MillVisits
        Src2.EncMill Encounter AS ENC
        Src2.Mill VALocations AS VALC
                VALC.OrganizationNameSID = ENC.OrganizationNameSID
            ENC.BeginEffectiveDateTime <= CAST(GETDATE() AS Datetime2(0))</pre>
        AND ENC.EndEffectiveDateTime >= CAST(GETDATE() AS Datetime2(0))
        AND ENC.ActiveIndicator = 1
        AND ENC.EncounterTypeClass IN ('OUTPATIENT', 'EMERGENCY', 'HOME HEALTH', 'RECURRING')
        AND (ENC.EncounterType IN
            -- Community Care
                --OR ENC.EncounterType like '%Community%Care%' --Uncomment if community care data is needed
        AND COALESCE(ENC.RegistrationDateTime, ENC.PreRegistrationDateTime) >= CAST(DateAdd(MONTH, -XX, GetDate()) AS Datetime2(0))
        AND COALESCE(ENC.RegistrationDateTime, ENC.PreRegistrationDateTime) < CAST(GetDate() AS Datetime2(0))
        --AND VALC.STAPA = 'XXXXX'--Uncomment out this line if need to limit StaPa
```



Encounters / Visits Continued

```
SELECT
       ENC.PersonSID
       -- WHEN ENC.DischargeDateTime < GETDATE() THEN ENC.DischargeDateTime
       -- ELSE COALESCE(ENC.InpatientAdmitDateTime, ENC.RegistrationDateTime)
       -- END AS VisitDateTime
   FROM
       Src2.EncMill_Encounter AS ENC
       Src2.Mill VALocations AS VALC
               VALC.OrganizationNameSID = ENC.OrganizationNameSID
   WHERE
           ENC.BeginEffectiveDateTime <= CAST(GETDATE() AS Datetime2(0))</pre>
       AND ENC.EndEffectiveDateTime >= CAST(GETDATE() AS Datetime2(0))
       AND ENC.ActiveIndicator = 1
       AND (ENC.EncounterType in ('Inpatient', 'SNF Inpatient', 'Observation')
           -- Community Care
           --OR ENC.EncounterType in ('Community Care Inpatient', 'Community Care SNF') --Uncomment if community care data is needed
                   (COALESCE(ENC.InpatientAdmitDateTime, ENC.RegistrationDateTime) >= CAST(DateAdd(MONTH, -XX, GetDate()) AS Datetime2(0))
               AND COALESCE(ENC.InpatientAdmitDateTime, ENC.RegistrationDateTime) < CAST(GetDate() AS Datetime2(0)))
                   (ENC.DischargeDateTime >= CAST(DateAdd(MONTH, -XX, GetDate()) AS Datetime2(0))
               AND ENC.DischargeDateTime < CAST(GetDate() AS Datetime2(0)))
        --AND VALC.STAPA = 'XXXXX'--Uncomment out this line if need to limit StaPa
```

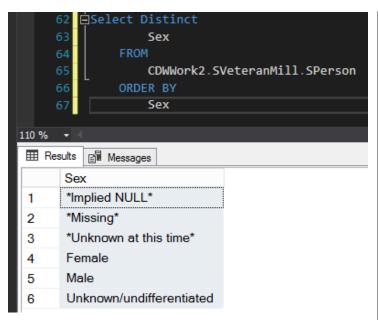


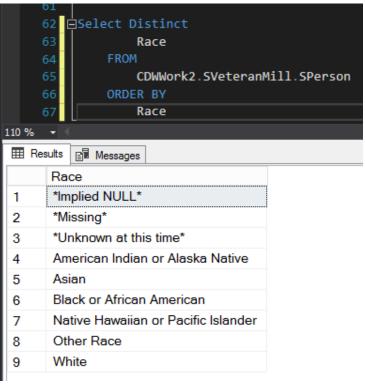
Demographics

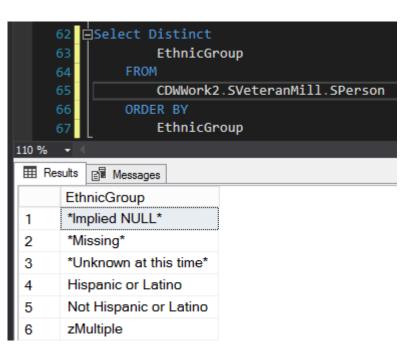
```
Get Demographics
DROP TABLE IF EXISTS #MillPatientDemographic;
SELECT DISTINCT
        COH.PatientICN
        ,COH.PersonSID
        ,SP.Race
        ,SP.EthnicGroup
        ,SP.Sex
        .SP.BirthDateTime
        --,SP.MaritalType
        --,SP.Religion
        ,CAST(DATEDIFF(DAY, SP.BirthDateTime, GETDATE())/365.25 AS INT) AS Age --If they
    INTO
        #MillPatientDemographic
    FROM
        <Cohort, varchar(100), #Cohort> AS COH
        Src2.SVeteranMill SPerson AS SP
                SP.PersonSID = COH.PersonSID
            AND SP.ActiveIndicator = 1
            AND GETDATE() BETWEEN SP.BeginEffectiveDateTime AND SP.EndEffectiveDateTime
    WHERE
        1 = 1
                   XXm:XXs
```



Demographics Continued









Diagnosis/Procedures

- Cerner Millennium is a commercial product
- VA does not typically do billing
- Diagnosis and Procedures
 - Extracted from same domains
 - Can exists in Billing or Encounter or Both



Diagnosis/Procedures Continued

```
X.X Look Up ICD Codes
SELECT DISTINCT
       NC.SourceIdentifier AS [ICD10 Code]
        ,NC.SourceString AS [ICD10 Description]
       CDWWork2.NDimMill.Nomenclature AS NC
           (REPLACE(NC.SourceIdentifier, '.', '') LIKE 'XXXX" -- Enter ICD
       AND NC.PrincipleType = 'Disease or Syndrome'
       AND NC.SourceVocabulary = 'ICD-10-CM'
       AND NC.ActiveIndicator = 1
       AND NC.SourceString IS NOT NULL
   ORDER BY
       NC.SourceIdentifier:
  X.X Create DIM Table for ICD Code
DROP TABLE IF EXISTS #MillDiagnosisSID XXX;
SELECT DISTINCT
       NC.NomenclatureSID
       #MillDiagnosisSID_XXX
       CDWWork2.NDimMill.Nomenclature AS NC
           (REPLACE(NC.SourceIdentifier, '.', '') LIKE 'XXX%' -- Enter ICD
       AND NC.PrincipleType = 'Disease or Syndrome'
       AND NC.SourceVocabulary = 'ICD-10-CM'
       AND NC.ActiveIndicator = 1;
```

```
Look Up Procedure Codes
        NC.SourceIdentifier
        .NC.SourceString
        ,NC.SourceVocabulary
        ,NC.ContributorSystem
        CDWWork2.NDimMill.Nomenclature AS NC
            REPLACE(NC.SourceIdentifier, '.', '') LIKE 'XXXX" -- Ente
       AND NC.PrincipleType = 'Procedure
        AND NC.SourceVocabulary IN ( 'CPT4', 'HCPCS', 'ICD-10-PCS')
        AND NC.ActiveIndicator = 1
   ORDER BY
        NC.SourceIdentifier
   XX rows:
           Create DIM Table for Procedure Code
DROP TABLE IF EXISTS #MillProcedureSID XXX;
        NC.NomenclatureSID
        #MillProcedureSID XXX
        CDWWork2.NDimMill.Nomenclature AS NC
            REPLACE(NC.SourceIdentifier, '.', '') LIKE 'XXXX' -- Ente
       AND NC.PrincipleType = 'Procedure
        AND NC.SourceVocabulary IN ( 'CPT4', 'HCPCS', 'ICD-10-PCS')
        AND NC.ActiveIndicator = 1
   XX rows;
```



Primary Care Provider Team

■ RPCMM is authoritative source

```
SELECT

SP.Namelast AS PCP_LastName

,SP.NameFirst AS PCP_FirstName

,PA.AliasName AS StaffEDIPI

--,SP.Email AS PCP_Email

,SP.PositionTask AS PCP_PositionTitle

FROM

Src2.SStaffMill_SPersonStaff AS SP

INNER JOIN

Src2.SStaffMill_SPersonStaffAlias AS PA

ON SP.PersonStaffSID = PA.PersonStaffSID

WHERE

PA.AliasPoolCodeValueSID = 1800592474

AND SP.ActiveIndicator = 1

AND PA.ActiveIndicator = 1
```



Primary Care Provider Team Continued

```
P.PatientICN
    ,S.PCP LastName
    ,S.PCP FirstName
    ,S.PCP PositionTitle
    ,A.RelationshipStartDateTime AS PCP_RelationshipStartDateTime
    ,A.InstitutionCode AS PCP FacilityCode
    ,I.OfficialVAName AS PCP_Facility
    ,Dense Rank () OVER (PARTITION BY COH.PatientICN, A.Sta3n Order By A.RelationshipStartDateTime DESC) AS DRank
    SPV.RPCMM.CurrentPatientProviderRelationship AS A
    CDWWork.NDim.RPCMMTeam AS B
    ON A.RPCMMTeamSID = B.RPCMMTeamSID
    CDWWork.NDim.RPCMMTeamRole AS TR
         A.PrimaryProviderTeamRoleSID = TR.RPCMMTeamRoleSID
INNER JOIN
   CTE Patient AS P
    ON A.PatientIEN = P.EDIPI
        AND A.PatientSID = 0 -- To get facilities transitioned to Millennium
    CTE_Staff AS S
   ON A.PrimaryProviderIEN = S.StaffEDIPI
    CDWWork.Dim.Institution AS I
         I.InstitutionCode = A.InstitutionCode
        AND I.Sta3n = A.Sta3n
        A.RelationshipStartDateTime <= CAST(GETDATE() AS DateTime2(0))
    AND ( A.RelationshipEndDateTime IS NULL
        OR A.RelationshipEndDateTime >= CAST(GETDATE() AS DateTime2(0)))
    AND TR.PrimaryCarePositionIndicator = 'Y
   AND A.PCMSTDTeamCareType_IO IN ('7', '13') --Primary Care Team care type AND A.TeamPatientAssignStatus = 'Active'
    AND A.PrimaryCarePositionFlag = 'Y'
PatientICN
,PCP_LastName
,PCP FirstName
,PCP PositionTitle
,PCP_RelationshipStartDateTime
,PCP_FacilityCode
,PCP_Facility
#MillPrimaryCareProvider
CTE Final
DRank = 1;
```



Health Factors / Power Forms

- Health Factors and Surveys are in Power Forms
 - On our SOP you can see the large DIM table creation
- Additional Source is Social History Data
 - TaskAssay from CareChartMill.SocialHistoryActivityResponse

	TaskAssay
1	*Implied NULL*
2	*Missing*
3	*Unknown at this time*
4	Completed Smoking Cessation Education
5	Describe Your Child
6	Education About Screen Time Given
7	Exercise TPW
8	Have Any Fears or Worries?
9	Home Equipment
10	Home Schooled
11	How Do You Deal With Your Fears?
12	How Do You Feel About Yourself?
13	phys act con
14	phys act inten
15	Reason Cessation Teaching Not Completed
16	School District
17	School Grade
18	School Name
19	School Phone Number
20	School Psychologist/Counselor/Nurse
21	School Psychologist/Counselor/Nurse Phon
22	Screen Time Hours Per Day
23	Services Children Receive
24	SHX Activity level work
25	SHX Agency(s)/Others notified

	-
6	SHX Alcohol abuse in household
7	SHX Alcohol amount average
8	SHX Alcohol amount max
9	SHX Alcohol anyone at risk
0	SHX Alcohol Date Last Used
1	SHX Alcohol drinks more than intended
2	SHX Alcohol frequency
3	SHX Alcohol household concern
4	SHX Alcohol previous treatment
5	SHX Alcohol readiness to change
6	SHX Alcohol started drinking age
7	SHX Alcohol stopped drinking age
8	SHX Alcohol type
9	SHX Alcohol use
0	SHX Alcohol use interfere with work
1	SHX Are your partners?
2	SHX Average Cigarette packs per day
3	SHX Caffeine intake
4	SHX Cigarette use
5	SHX Concerns for family members at home
6	SHX Condition self assessment
7	SHX Diet
8	SHX Diet description
9	SHX Diet restrictions
0	SHX E-Cigarette Frequency of Duration

	0.045.01 5 5
51	SHX E-Cigarette Passive Exposure
52	SHX E-Cigarette Started At Age
53	SHX E-Cigarette Stopped At Age
54	SHX E-Cigarette type
55	SHX E-Cigarette use
56	SHX Eating disorders
57	SHX Employment/School status
58	SHX Environment risks
59	SHX Exercise duration
30	SHX Exercise type
31	SHX Exposure to Secondhand Smoke
32	SHX Family/Friends available to help
33	SHX Feels stressed
34	SHX Feels unsafe at home
35	SHX Financial concerns
66	SHX Gender Identity
37	SHX Guardian Information
88	SHX Hazardous equipment operation
39	SHX Highest education level
70	SHX History of sexual abuse
71	SHX Injuries/Abuse in household
72	SHX Injuries/Abuse type
73	SHX IV drug use
74	SHX Lives with
75	SHX Living situation

76	SHX Major illness in household
77	SHX Marital Status of Parents
78	SHX Marital Status of Patient
79	SHX Name of agencies notified
80	SHX Number of current partners
81	SHX Number of lifetime partners
82	SHX Other contraceptive use
83	SHX Other employment/school concerns
84	SHX Other history details
85	SHX Other history name
86	SHX Other sexual concerns
87	SHX Other Tobacco type
88	SHX Other Tobacco use
89	SHX Preferred pronouns
90	SHX Previous employment/school
91	SHX Primary Care Giver
92	SHX Religious restrictions
93	SHX Safe place to go
94	SHX School concerns
95	SHX School Type
96	SHX Sexual orientation
97	SHX Sexually active
98	SHX Sexually active at age
99	SHX Sibling Information

101	SHX Smokeless Tobacco use
102	SHX Smoker in household
103	SHX Spouse Name
104	SHX Substance abuse frequency
105	SHX Substance abuse household concern
106	SHX Substance abuse in household
107	SHX Substance abuse interfered with work
108	SHX Substance abuse previous treatment
109	SHX Substance abuse readiness to change
110	SHX Substance abuse started at age
111	SHX Substance abuse stopped at age
112	SHX Substance abuse type
113	SHX Substance abuse use
114	SHX Tobacco amount per day
115	SHX Tobacco number of years
116	SHX Tobacco previous treatment
117	SHX Tobacco readiness to change
118	SHX Tobacco started at age
119	SHX Tobacco stopped at age
120	SHX Tobacco total pack years
121	SHX Tobacco type
122	SHX Tobacco use
123	SHX Total years of smoking cigarettes
124	SHX Uses alternative healthcare
125	SHX Uses condoms

126	SHX Vitamins/Supplements
127	SHX Wants to lose weight
128	SHX Work hazards
129	SHX Work/School description
130	Sleep number of hours per night
131	Smoking/Tobacco Cessation Teaching co
132	Special Services and Community Resources

Medications

- Medications are difficult
 - No true DIM table to search for medication names
 - Outpatient vs Inpatient need different logic

Suggest if you are diving in deeply to medications to join one of the Millennium Rx Work Groups.





QUESTIONS??

