DHHS Metrics Management

Richard Bool, Robert Bruffey, Waleed Falak

Project Description

- DHHS works with 130+ direct service programs and contracts services with 700 providers
- Metrics are reported in Monthly Trend Reports (MTR), the Office of Management and Budget (OMB), or other programs such as CountyStat or dataMontgomery
- To track the data, it’s stored in spreadsheets or paper reports
- DHHS currently has no user interface (UI) for the data and no business intelligence tool (BI) to display the data

Project Goal

- Enhance the documentation of DHHS performance metrics into a more suitable format
- Create a data dictionary for future reference

Roles

Richard: Project Manager, Analyst, Tester

Bob: Analyst, Tester

Waleed: Analyst, Researcher, Tester, Part-time

The Plan

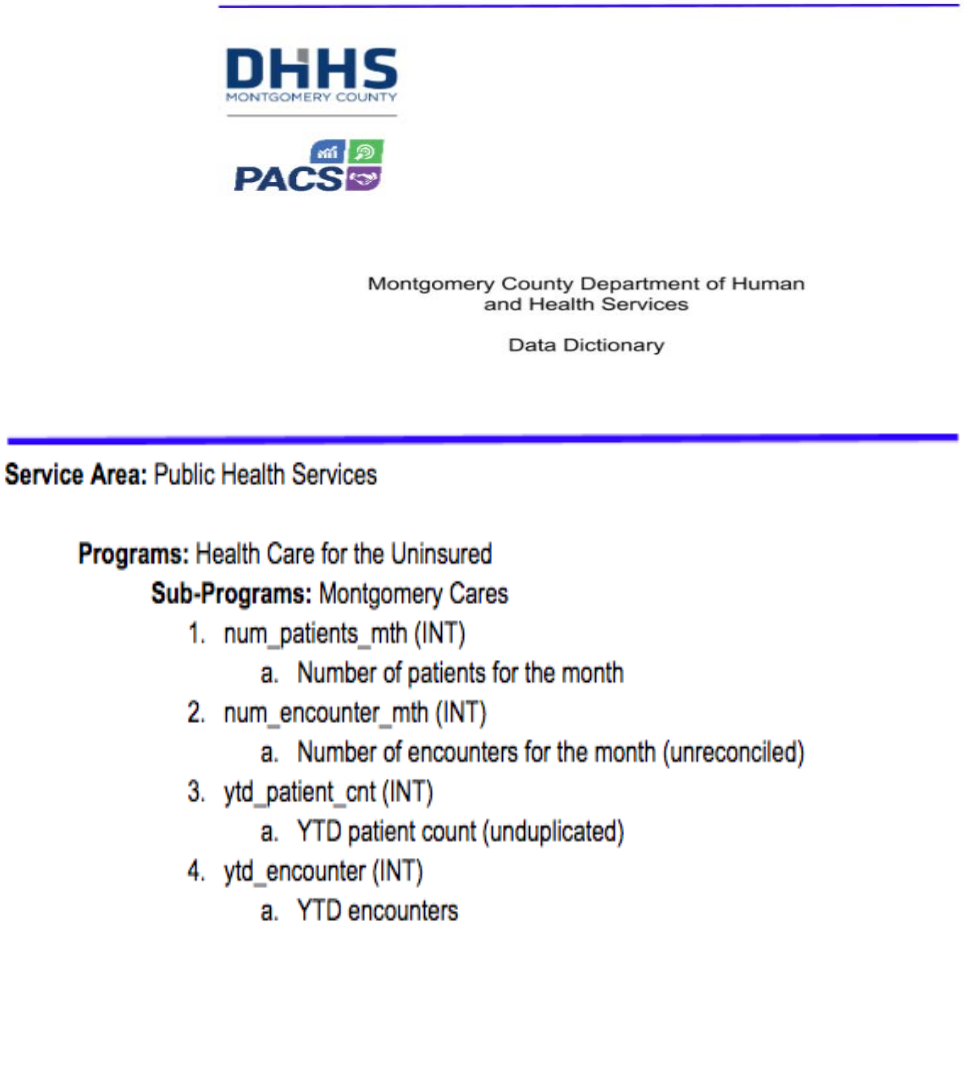
- Create a metadata schema
- Develop a data dictionary
- Clean the data using OpenRefine
- Develop the ERD/testing queries

Timeline

DHHS Metrics Management Timeline	Owner	Status	Priority	Time Est.	DHHS Metrics Timeline
Troubleshooting Part 1		Waiting for review	Medium		Apr 16 - 22
Cleaning Data from the Public Health Services		Working on it	High		Apr 20 - 23
Implementing the SQL table w/ Performance Architecture...		Working on it	High		Apr 24 - 29
Troubleshooting Part 2		Working on it	Medium		Apr 30 - May 4
Compile Final Project Deliverables		Working on it	High		May 1 - 7

Data Dictionary

- A data dictionary contains the contents, formats, and relationships of a database
- Since DHHS has so many different programs and attributes, it's best to have a place where anyone can look up a program, variable name, data type structure, or more



DHHS
MONTGOMERY COUNTY

PACS

Montgomery County Department of Human and Health Services

Data Dictionary

Service Area: Public Health Services

Programs: Health Care for the Uninsured

Sub-Programs: Montgomery Cares

1. num_patients_mth (INT)
    a. Number of patients for the month
2. num_encounter_mth (INT)
    a. Number of encounters for the month (unreconciled)
3. ytd_patient_cnt (INT)
    a. YTD patient count (unduplicated)
4. ytd_encounter (INT)
    a. YTD encounters

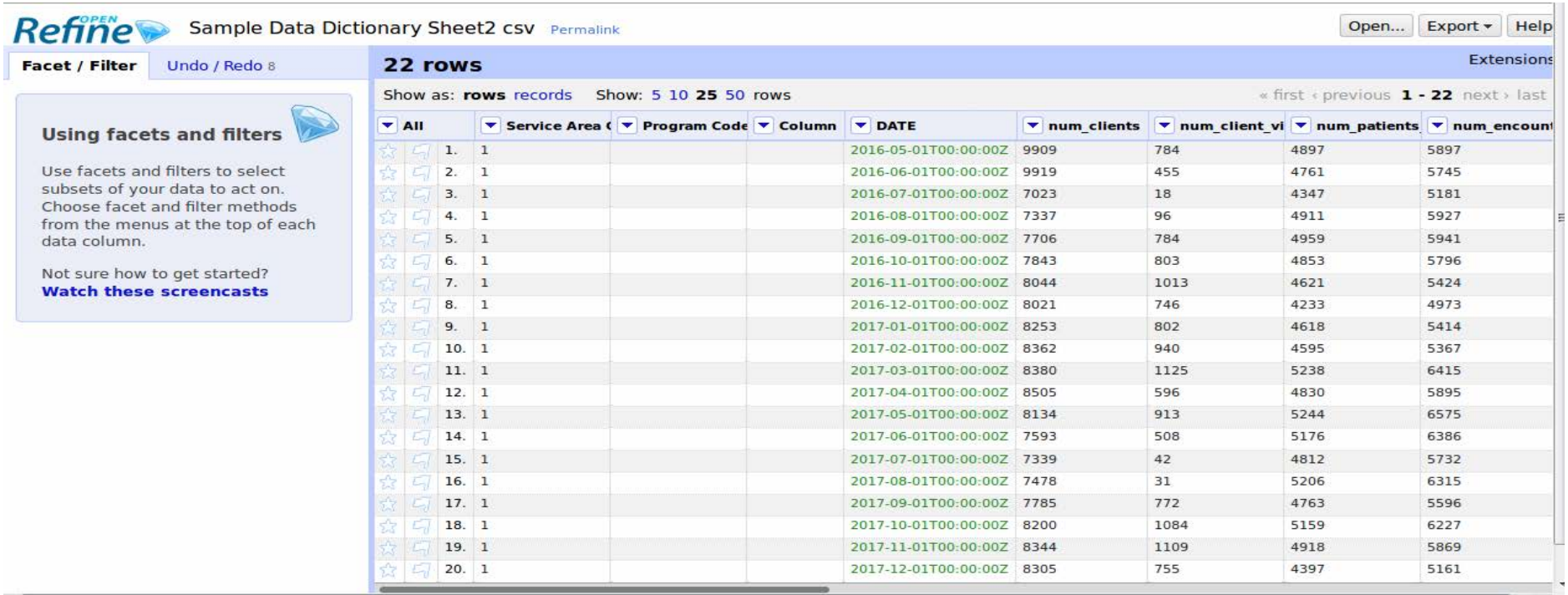
Our Solution

Service Area

A	B	C	D	E
Service Area	Service Area Code	Program	Program Code	Variable Name
PHS	1			
		School Based Health Centers	1	
				num_clients
				num_client_visits
		Montgomery Cares	2	
				num_patients_mth
				num_encounter_mth
				ytd_patient_cnt
				ytd_encounter
		Maternity Partnership Program	3	
				num_children
				infant_risk_perc
				num_infants_risk
				num_pregnant_teens
		Maternity Partnership	4	
				num_women_enrolled_maternity_partnership_pr

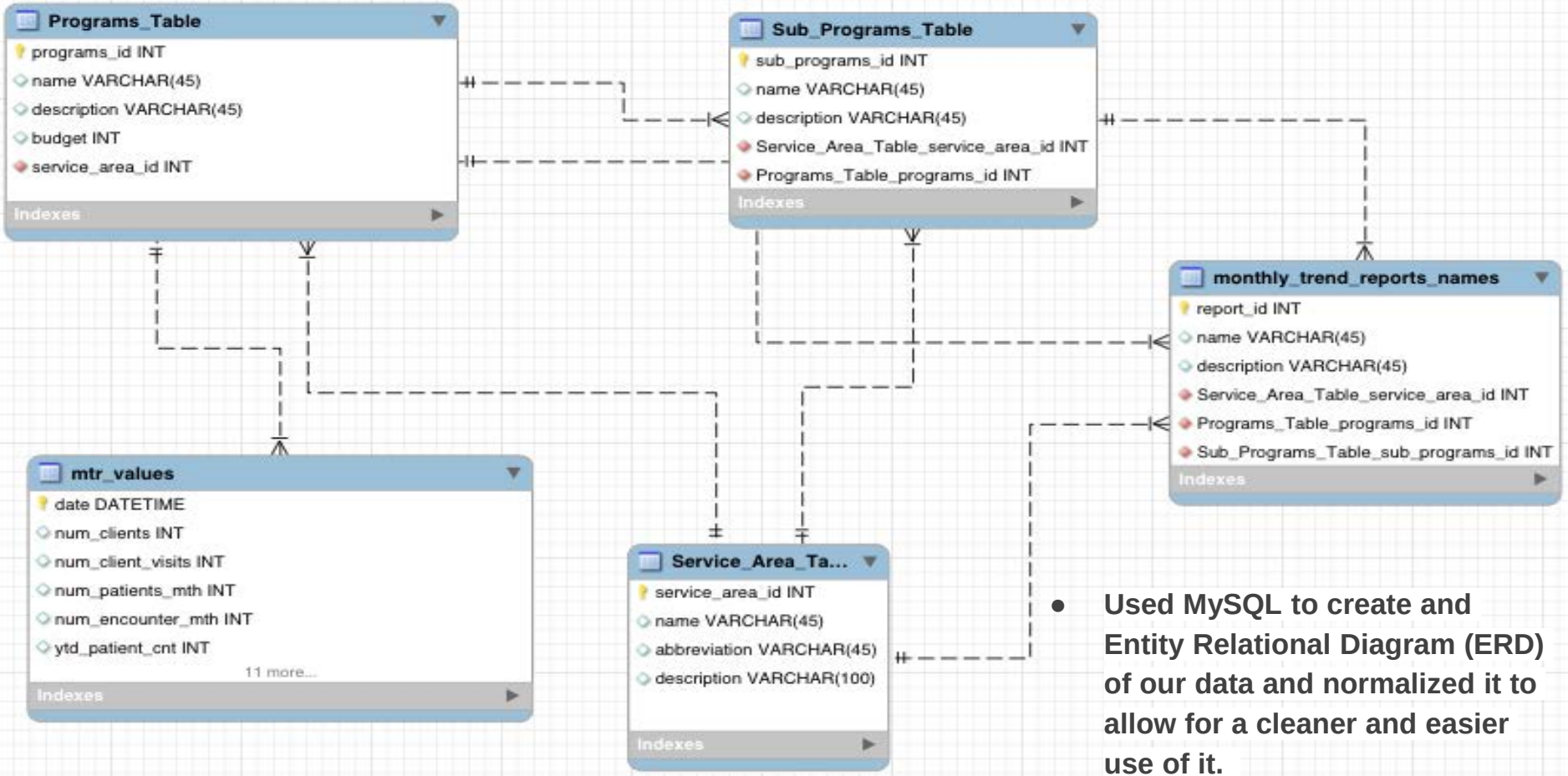
D	E	F	G
DATE	num_clients	num_client_visits	num_patients_m
May-16	9909	784	4897
Jun-16	9919	455	4761
Jul-16	7023	18	4347
Aug-16	7337	96	4911
Sep-16	7706	784	4959
Oct-16	7843	803	4853
Nov-16	8044	1013	4621
Dec-16	8021	746	4233
Jan-17	8253	802	4618
Feb-17	8362	940	4595
Mar-17	8380	1125	5238
Apr-17	8505	596	4830
May-17	8134	913	5244
Jun-17	7593	508	5176
Jul-17	7339	42	4812
Aug-17	7478	31	5206
Sep-17	7785	772	4763
Oct-17	8200	1084	5159
Nov-17	8344	1109	4918
Dec-17	8305	755	4397
Jan-18	8398	701	4887
Feb-18	8527	896	4693

Our Solution



All		Service Area C	Program Code	Column	DATE	num_clients	num_client_vi	num_patients	num_encount
1.	1				2016-05-01T00:00:00Z	9909	784	4897	5897
2.	1				2016-06-01T00:00:00Z	9919	455	4761	5745
3.	1				2016-07-01T00:00:00Z	7023	18	4347	5181
4.	1				2016-08-01T00:00:00Z	7337	96	4911	5927
5.	1				2016-09-01T00:00:00Z	7706	784	4959	5941
6.	1				2016-10-01T00:00:00Z	7843	803	4853	5796
7.	1				2016-11-01T00:00:00Z	8044	1013	4621	5424
8.	1				2016-12-01T00:00:00Z	8021	746	4233	4973
9.	1				2017-01-01T00:00:00Z	8253	802	4618	5414
10.	1				2017-02-01T00:00:00Z	8362	940	4595	5367
11.	1				2017-03-01T00:00:00Z	8380	1125	5238	6415
12.	1				2017-04-01T00:00:00Z	8505	596	4830	5895
13.	1				2017-05-01T00:00:00Z	8134	913	5244	6575
14.	1				2017-06-01T00:00:00Z	7593	508	5176	6386
15.	1				2017-07-01T00:00:00Z	7339	42	4812	5732
16.	1				2017-08-01T00:00:00Z	7478	31	5206	6315
17.	1				2017-09-01T00:00:00Z	7785	772	4763	5596
18.	1				2017-10-01T00:00:00Z	8200	1084	5159	6227
19.	1				2017-11-01T00:00:00Z	8344	1109	4918	5869
20.	1				2017-12-01T00:00:00Z	8305	755	4397	5161

SQL Database



- **Used MySQL to create and Entity Relational Diagram (ERD) of our data and normalized it to allow for a cleaner and easier use of it.**

SQL Database

```
SELECT mtr_name, program_name
    FROM monthly_trend_reports_names2 m
    JOIN programs p
    ON m.Programs_Table_programs_id = p.programs_id
    WHERE program_name = "Health Care for the Uninsured";
```

service_area_name	program_name	budget
Public Health Services	Cancer and Tobacco Prevention	1249749
Public Health Services	Service Area Administration, PHS	1889725
Public Health Services	Communicable Disease and Epidemiology	213809
Public Health Services	Health Care and Group Residential Facilities	1622350
Public Health Services	Public Health Emergency Preparedness & Resp...	1109961
Public Health Services	STD/HIV Prevention and Treatment Program	7619838

```
SELECT service_area_name, program_name, budget
    FROM service_area s
    JOIN programs p
    ON s.service_area_id = p.service_area_id;
```

mtr_name	program_name
num_patients_mth	Health Care for the Uninsured
num_encounter_mth	Health Care for the Uninsured
ytd_patient_cnt	Health Care for the Uninsured
ytd_encounter	Health Care for the Uninsured
num_women_enrolled_maternity_partnership_p...	Health Care for the Uninsured

Challenges?

- Limited amount of of data provided
- Learning OpenRefine to clean the data

Questions?