Creating a Cost Report Relational Schema for

Skilled Nursing Facilities, Home Health Agencies,
Renal Facilities, Hospice, Health Clinics,
Federal Qualified Health Centers, Community Health Centers,
and Rural Health Centers.

Schema contains primarily financial data from worksheets;

S200001, G000000, G200001, G200002
S300001, S300002, S300003, S300004
S300005, S400000, S700001, A700000
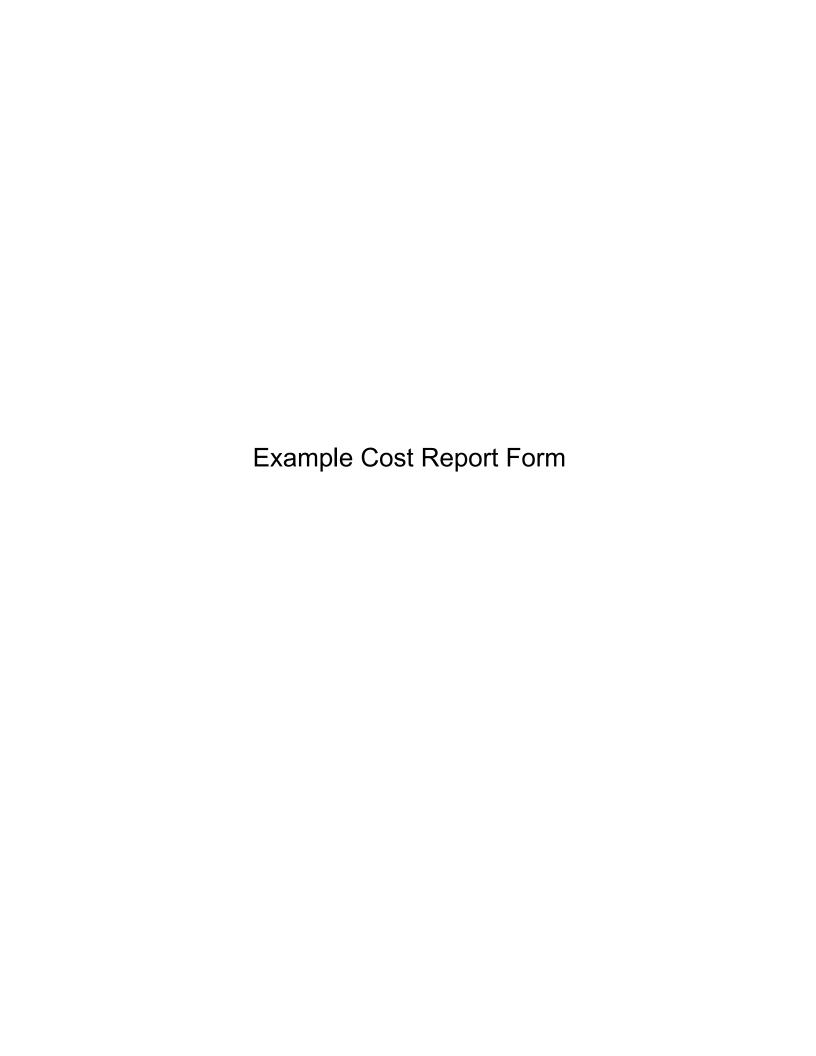A000000, C000000, E00A181 and O010000.

Agenda

1. Example of key data in current CSV cost report Puf
2. Example Cost Report Form for Cash on Hand
3. Example excel mini puf with cash on hand
4. Entity diagrams of full model and excel sub-model
5. Normalized central fact table
6. Simple flexible SAS code to produce any excel PUF
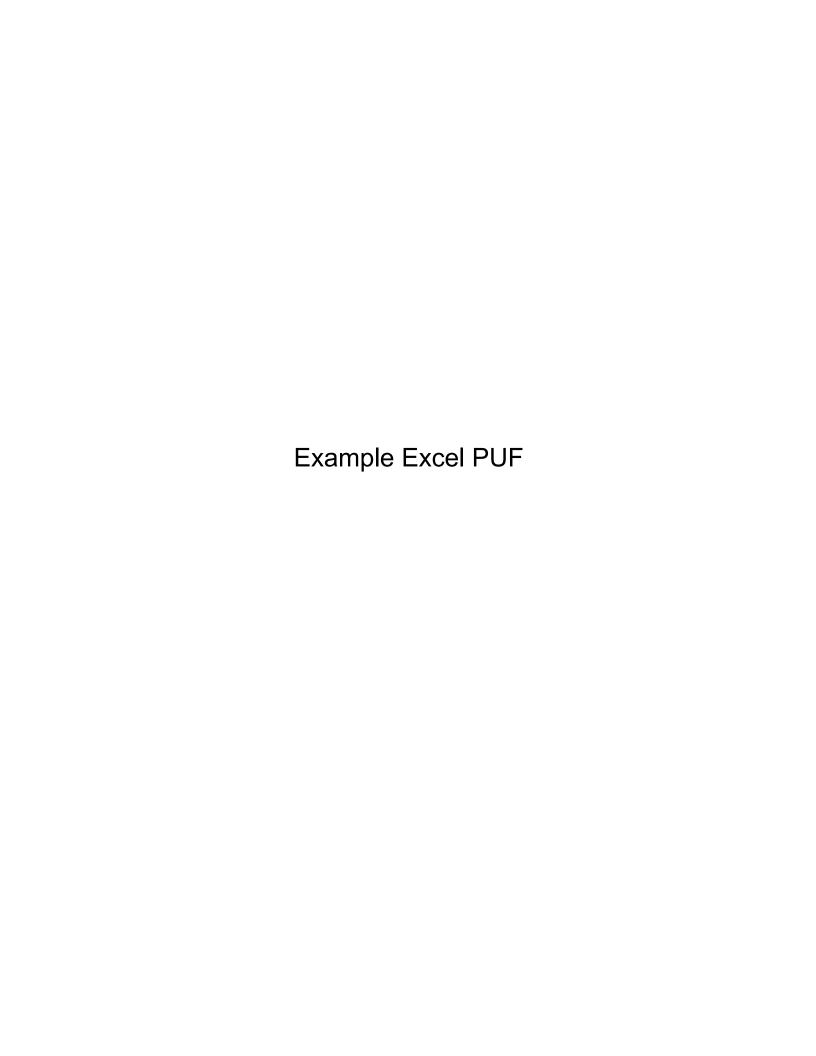7. Example excel PUF revisited
8. QC using Optimizer output

Key Fields in Current CSV PUF

Key Fields in Current CSV PUF

rpt_rec_num	wksht_cd	line_num	clmn_num	itm_txt
1000236	A000000	00700	00100	51333
1000236	A000000	00700	00200	912648
1000236	A000000	00700	00300	963981
1000236	A000000	00700	00500	963981
1000236	A000000	00700	00700	963981
1000236	A000000	00800	00100	297027
1000236	A000000	00800	00200	2043281
1000236	A000000	00800	00300	2340308
1000236	A000000	00800	00500	2340308
1000236	A000000	00800	00600	-1956
1000236	A000000	00800	00700	2338352
1000236	A000000	00900	00100	229048

Example Cost Report Form

BALANCE SHEET (If you are nonproprietary and do not maintain fund-type accounting records, complete the "General Fund" column only)			Provider No.:	Period: From 12/01/2014 To 11/30/2015	Worksheet G Date/Time Prepared: 5/2/2016 3:22 pm	
			General Fund	Specific Purpose Fund	Endowment Fund	Plant Fund	
			1.00	2.00	3.00	4.00	

		Assets					
		CURRENT ASSETS					
1.00		Cash on hand and in banks	44,078	0	0	0	1.00
2.00		Temporary investments	233,000	0	0	0	2.00
3.00		Notes receivable	0	0	0	0	3.00
4.00		Accounts receivable	4,012,843	0	0	0	4.00
5.00		Other receivables	1,173,513	0	0	0	5.00
6.00		Less: allowances for uncollectible notes and accounts receivable	0	0	0	0	6.00
7.00		Inventory	0	0	0	0	7.00
8.00		Prepaid expenses	1,480	0	0	0	8.00
9.00		Other current assets	0	0	0	0	9.00
10.00		Due from other funds	0	0	0	0	10.00
11.00		TOTAL CURRENT ASSETS (Sum of lines 1 - 10)	5,464,914	0	0	0	11.00
		FIXED ASSETS					

Example Excel PUF

cel_reportKey	Provider	Assets Current_Assets Cash On Hand And In Banks General Fund G000000_00100_00100_N	Assets Current_Assets Cash On Hand And In Banks Specific Purpose_Fund G000000_00100_00200_N	Assets Current_Assets Cash On Hand And In Banks Endowment Fund G000000_00100_00300_N	Assets Current_Assets Cash On Hand And In Banks Plant Fund G000000_00100_00400_N	Total Funds Current_Assets Cash On Hand And In Banks G000000_00100_00500_N
1123184	285279	-12767226				-12767226
1124350	15452	22700178				22700178
1129122	145269	44078				44078
1138053	165118	373173	31412	101913	315496	821994
1138243	396101	2000703				2000703
1141378	395180	1510299	852467	21744794		24107560
1141432	335201	2732563				2732563
1142735	146139	337652			672971	1010623
1150365	365014	1039770	2052535			3092305
1153052	335603	1428619			52031	1480650
1179051	185463	1717				1717
9999999	9999999					

Entity Diagrams for full Model
and Excel PUF Sub-Model

FULL MODEL FOR EXCEL PUF SEE SEE EXCEL SUB-MODEL

zip_demographics
- zip_zip5 VARCHAR(5)
- zip_county VARCHAR(5)
- zip_state VARCHAR(2)
- zip_zcta5 VARCHAR(5)
- zip_altzips VARCHAR(71)
- zip_naltzips DOUBLE
- zip_intptlat DOUBLE
- zip_intptlon DOUBLE
- zip_landsqmi DOUBLE
- zip_areasqmi DOUBLE
- zip_totpopsf1 DOUBLE
- zip_esriiid VARCHAR(5)
- zip_geoid VARCHAR(12)
- zip_logrecno DOUBLE
- zip_totpop DOUBLE
- zip_age0_4 DOUBLE
- zip_age5_9 DOUBLE
- zip_age10_14 DOUBLE
- zip_age15_19 DOUBLE
- zip_age20_24 DOUBLE
- zip_age25_34 DOUBLE
- zip_age35_44 DOUBLE
- zip_age45_54 DOUBLE
- zip_age55_59 DOUBLE
- zip_age60_64 DOUBLE
- zip_age65_74 DOUBLE
- zip_age75_84 DOUBLE
- zip_over85 DOUBLE
- zip_medianage DOUBLE
- zip_over5 DOUBLE
- 163 more...

Indexes

adr_address
- adr_cel_reportKey DOUBLE
- adr_rpv_providerNum VARCHAR(33)
- Provider_S200001_00400_00100_C VARCHAR(33)
- Street_S200001_00100_00100_C VARCHAR(33)
- City_S200001_00200_00100_C VARCHAR(33)
- State_S200001_00200_00200_C VARCHAR(33)
- Zip_S200001_00200_00300_C VARCHAR(33)
- County_S200001_00300_00100_C VARCHAR(33)
- Cbsa_code_S200001_00300_00200_C VARCHAR(33)
- UrbanRural_S200001_00300_00300_C VARCHAR(33)
- Pay_V_S200001_00400_00400_C VARCHAR(33)
- Pay_XVIII_S200001_00400_00500_C VARCHAR(33)
- Pay_XIX_S200001_00400_00600_C VARCHAR(33)
- TypControl_S200001_01500_00100_N VARCHAR(33)
- Cert_date_S200001_00400_00300_C VARCHAR(33)
- Fiscal_Bgn_S200001_01400_00100_C VARCHAR(33)
- Fiscal_End_S200001_01400_00200_C VARCHAR(33)

Indexes

zip_zip5
zip

adr_cel_reportKey
sys_cel_reportKey

sys_system
- sys_cel_reportkey DOUBLE
- sys_year VARCHAR(4)
- sys_rpv_providernum VARCHAR(7)
- sys_initlRptsw VARCHAR(1)
- sys_lastRptsw VARCHAR(1)
- sys_trnsmtlNum VARCHAR(1)
- sys_fiNum VARCHAR(5)
- sys_utilCd VARCHAR(1)
- sys_specInd VARCHAR(1)
- sys_prvdrCtrlTypeCd DOUBLE
- sys_RptStusCd DOUBLE
- sys_adrvndrCd DOUBLE
- sys_npi DOUBLE
- sys_procDt DATE
- sys_fiCreatDt DATE
- sys_nprdt DATE
- sys_fiRcptDt DATE

Indexes

cel_reportKey
adr_cel_reportkey

cel_reportKey
sys_cel_reportKey

cel_cellvalue
- cel_reportKey DOUBLE
- cel_name VARCHAR(21)
- cel_value VARCHAR(33)

Indexes

col_coldescribe
- col_cel_name VARCHAR(21)
- col_description VARCHAR(255)

Indexes

col_cel_name
cel_name

cel_reportKey
rpv_cel_reportKey

rpv_reportprvdr
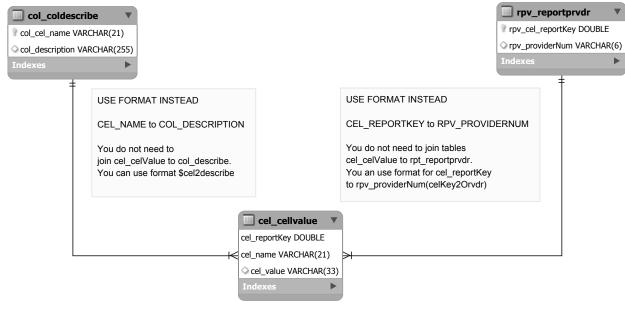- rpv_cel_reportKey DOUBLE
- rpv_providerNum VARCHAR(6)

Indexes

SUB_MODEL to CREATE XLS PUF

There are two keys that allow us to handle all cost reports in one schema, except Hospital Reports

1. cel_reportKey has cost report and year plus report number "SNF158761234" or "HHA159812345"

2, cel_name "S200000_00200_00100_C" or "S200000_0150_0020_N". cel_name has type

cell_name is composed of worksheet, line number and columnn number.

This Schema contains: SNF, HHA, RNF, HOS, HCL, FQH, RHC, and CMF Cost Reports.

col_coldescribe
- col_cel_name VARCHAR(21)
- col_description VARCHAR(255)
- **Indexes** ▶

rpv_reportprvdr
- rpv_cel_reportKey DOUBLE
- rpv_providerNum VARCHAR(6)
- **Indexes** ▶

USE FORMAT INSTEAD

CEL_NAME to COL_DESCRIPTION

You do not need to
join cel_celValue to col_describe.
You can use format $cel2describe

USE FORMAT INSTEAD

CEL_REPORTKEY to RPV_PROVIDERNUM

You do not need to join tables
cel_celValue to rpt_reportprvdr.
You an use format for cel_reportKey
to rpv_providerNum(celKey2Orvdr)

cel_cellvalue
- cel_reportKey DOUBLE
- cel_name VARCHAR(21)
- cel_value VARCHAR(33)
- **Indexes** ▶

```
CREATE EXCEL PUF

Suppose you want provider contrant amd finacial content

* FILTER WITHOUT FILTER YOU GET 700 COLUMNS ;
proc sql;
  create
    table finances as
  select
    cel_reportKey
   ,put(cel_reportKey,cel2Prvdr.) as Provider
   ,put(cel_name,$cel2describe)   as col_description
   ,cel_value
   from
    cel_reportKey eqt "SNF15"  and
    substr(cel_name,1,2) in ("S2","G0")
   order
    by cel_reportKey, Provider, cel_name
;quit;

* PIVOT;
Proc transpose data=finances out=financesXpo ;
  by cel_reportKey Provider;
  var cel_value;
  idlabel col_description;
run;quit;

* WILL AUTOMATICALLY USE THE LONG DESCRIPTION (UPTO 255 CHARACTERS;;
ods excel file="d:/snf/xls/snf_2018_finances.xlsx";
proc report data=financesXpo noed missing style(column)={cellwidth=5in};
run;quit;
ods excel close;
```

For Expediency we will Examine the Fact Table
and the Excel PUF Sub-Model

SNF 2015 Table cel_cellvalue Observations 1,0571,964


```
          cel_
        report                      cel_
Obs      Key          cel_name        value

---    ------------   --------------------  ------
  1   SNF15_1123184   A000000_00100_00300_N   662493
  2   SNF15_1123184   A000000_00100_00400_N
  3   SNF15_1123184   A000000_00100_00500_N   662493
  4   SNF15_1123184   A000000_00100_00600_N   -1346
  5   SNF15_1123184   A000000_00100_00700_N   661147
```

To get Provider Number
put(cel_reportKey,cel_reportKey2Ptvdr.)

To get cell description for excel column header(max 255 chars)
put(cell_name,$cel_name2des.)

Pivot and send to excel
ods excel uses the label for column names

Create a Example Excel PUF
of Cash on Hand

Code to Create Mini PUF

```
proc sql
  create
    table mini as
  select
    cel_reportKey
    ,put(cel_reportKey,cel_reporKey2prvdr.) as Provider
    ,cel_name
    ,cel_value
    ,put(cel_name,$cel_name2des.) as excel_column_header
  from
    snf.cel_cellvalue
  where
    cel_namein('G000000_00100_00100_N','G000000_00100_00200_N',
    'G000000_00100_00300_N','G000000_00100_00400_N','G000000_00100_00500_N')
  order
    by cel_reportKey, provider, cel_name
quit

proc transpose data=mini out=miniXpo(drop=_name_)
  by cel_reportKey provider
  var cel_value
  id cel_name
  idlabel excel_column_header
run


proc report data=miniXpo nowd missing style(column)={just=right cellwidth=5in}
split='&'
run
ods excel close
```

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of Cash on Hand

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