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| **Working Number** | **Indicator** | **Procedure** | **Population** | **Specifications** |
| **20** | **Fiberoptic laryngoscopy for patients with a diagnosis of sinusitis.** | **Laryngoscopy WITH ICD-9 code indicating sinusitis on the same claim**  **Unit of observation: per beneficiary per claim** | **Individuals with a diagnosis of sinusitis (acute or chronic) –inpatient or outpatient**  **Unit of observation: per beneficiary per date of service** | **Fiberoptic laryngoscopy**  **CPT: 31575, 31476, 31577, 31578, 31579**  **Sinusitis**  **ICD-9: 461, 461.x, 473, 473.x**  **linked to laryngoscopy in same CLAIM ID.** |
| **21** | **Nasal endoscopy for sinusitis diagnosis** | **Nasal endoscopy WITH ICD-9 code indicating sinusitis on the same claim**  **Unit of observation: per beneficiary per claim** | **Individual with a diagnosis of sinusitis (acute or chronic) –inpatient or outpatient**  **Unit of observation: per beneficiary per date of service** | **Diagnostic endoscopy**  **CPT: 31231,31233, 31235**  **Sinusitis**  **ICD9: 461, 461.x, 473, 473.x**  **linked to laryngoscopy in same CLAIM ID.** |

Pop 20 Denom= sinusitis

=15,618,210 (48,371,873 diagnoses)

Numerator Laryngoscopy procedure date same date as any sinusitis diagnosis

= 303,547 (447,583 procedures)

Laryngoscopy/Sinusitis=1.9% (this allows each person to contribute only once to num & denominator)

Alternative is to look at all of the Laryngoscopy and see how many had sinusitis recorded

-same for nasal endoscopy

\*Pops with Sinusitis as Denominator: 19-21;

\*Eligible: all individuals with sinusitis;

%let pop20\_icd\_dx9\_3='461', '473'; /\*and icd\_5=""\*/ \*pop 19 20 21; \*unclear why 5th digit must be blank--ignoring;

\*%let pop20\_dx9\_3 in ('461') then acute\_sinusitis=1; \*pop 47;

\*%let pop20\_dx9\_3 in ('473') then chronic\_sinusitis=1; \*pop 47;

%let pop20\_icd\_dx10\_3='J01', 'J32'; \*j01 is acute, j32 is chronic;

\*Popped: 20: Laryngoscopy recorded at same time as sinusitis--those with sinusitis who had laryngoscopy but sinusitis not recorded are not counted as "popped";

\*because location is tied to the denominator this means that a person who has a procedure somewhere else will be a pop counted against the provider that made the diagnosis;

%let pop20\_hcpcs='31575', '31476', '31577', '31578', '31579'; \*pop 20: fiberoptic laryngoscopy;

\*'31231', '31233', '31235', \*pop 21: diagnostic\_endoscopy;

\*'70486', '70487', '70488' \*pop 47: sinus ct; \*Any occurrence of sinus CT (CPT 70486, 70487, 70488) in the 92 days preceding the diagnosis of acute sinusitis;

;

\*did not include DRG exclusion--checked diagnosis codes included in malignancy DRG lists and incorporated those that matched original ICD list;

\*denominator based on ICD diagnosis code;

\*denominator;

\*identify those who had sinusitis;

**%macro** inp\_claims(source=, include\_cohort=);

data include\_cohort1; set &source;

\*DX code qualifying;

array dx(**25**) icd\_dgns\_cd1 - icd\_dgns\_cd25;

do j=**1** to **25**;

if substr(dx(j),**1**,**3**) in(&pop20\_icd\_dx9\_3) then do; sinusitis=**1**; end;

if substr(dx(j),**1**,**3**) in(&pop20\_icd\_dx10\_3) then do; sinusitis=**1**; end;

end;

if sinusitis ne **1** then delete;

run;

proc sort data=include\_cohort1 NODUPKEY; by bene\_id clm\_thru\_dt; run;\*sorted by person and date of sinusitis;

Data &include\_cohort (keep=pop:

bene\_id gndr\_cd bene\_race\_cd bene\_cnty\_cd bene\_state\_cd bene\_mlg\_cntct\_zip\_cd

prvdr\_num prvdr\_state\_cd at\_physn\_npi op\_physn\_npi org\_npi\_num ot\_physn\_npi rndrng\_physn\_npi rfr\_physn\_npi prf\_physn\_npi);

set include\_cohort1;

pop\_20\_elig\_dt=clm\_thru\_dt; label pop\_20\_elig\_dt='date eligible for pop 20';

pop\_20\_elig=**1**; label pop\_20\_elig='eligible for pop 20';

pop\_20\_age=(clm\_thru\_dt-dob\_dt)/**365.25**; label pop\_20\_age='age eligible for pop 20';

pop\_20\_age=round(pop\_20\_age);

pop\_20\_year=year(clm\_thru\_dt);

pop\_20\_nch\_clm\_type\_cd=nch\_clm\_type\_cd; label pop\_20\_nch\_clm\_type\_cd='claim/facility type for pop 20 eligibility';

pop\_20\_los=clm\_thru\_dt-clm\_from\_dt; label pop\_20\_los='length of stay for pop 20 eligibility';

if admtg\_dgns\_cd ne ' ' then do; pop\_20\_admtg\_dgns\_cd=put(admtg\_dgns\_cd,$dgns.); end;

if icd\_dgns\_cd1 ne ' ' then do; pop\_20\_icd\_dgns\_cd1=put(icd\_dgns\_cd1,$dgns.); end;

if clm\_drg\_cd ne ' ' then do;pop\_20\_clm\_drg\_cd=put(clm\_drg\_cd,$drg.);end;

if hcpcs\_cd ne ' ' then do; pop\_20\_hcpcs\_cd=put(hcpcs\_cd,$hcpcs.);end;

run;

**proc** **sort** data=pop\_20\_denom NODUPKEY;by bene\_id pop\_20\_elig\_dt;**run**;\*48,371,873;

**proc** **freq** data=pop\_20\_denom; table pop\_20\_nch\_clm\_type\_cd; **run**;\*most are physician claims;

\*Numerator: had procedure on same day as sinusitis;

**%macro** claims\_rev(source=, rev\_cohort=, include\_cohort=);

proc sql;

create table include\_cohort1 (compress=yes) as

select a.\*, b.pop\_20\_elig\_dt

from

&rev\_cohort a,

pop\_20\_denom b

where

a.bene\_id=b.bene\_id and a.hcpcs\_cd in (&pop20\_hcpcs) and a.clm\_thru\_dt=b.pop\_20\_elig\_dt;

quit;

proc sql;

create table include\_cohort2 (compress=yes) as

select \*

from

include\_cohort1 a,

&source b

where

a.bene\_id=b.bene\_id and a.clm\_id=b.clm\_id;

quit;

Data &include\_cohort (keep=bene\_id pop\_20\_elig\_dt pop\_20\_popped\_dt pop\_20\_hcpcs\_cd\_popped);

set include\_cohort2;

pop\_20\_popped\_dt=clm\_thru\_dt; label pop\_20\_popped\_dt='date popped for pop 20';

pop\_20\_hcpcs\_cd\_popped=put(hcpcs\_cd,$hcpcs.); label pop\_20\_hcpcs\_cd\_popped='hcpcs code associated with procedure for pop 20';

run;

\*only keep procedures that occur after sinusitis diagnosis;

if pop\_20\_popped\_dt<pop\_20\_elig\_dt then delete;

**run**;\*447,583;

**proc** **sort** data=pop\_20\_num NODUPKEY;by bene\_id pop\_20\_elig\_dt;**run**;\*411,252;

\*bring in chronic conditions---associated with denominator first then match to the num-denom file;

**%macro** line(abcd=, include\_cohort=);

proc sql;

create table &include\_cohort (compress=yes) as

select

a.bene\_id, b.\*

from

pop\_20\_denom a,

&abcd b

where a.bene\_id=b.bene\_id ;

quit;

**%mend**;

%***line***(abcd=mbsf.mbsf\_cc\_2010, include\_cohort=cc\_2010);

\*if in cc\_cohort and in denominator then include;

**proc** **sort** data=cc; by bene\_id;\*;

**proc** **sort** data=pop\_20\_num; by bene\_id pop\_20\_popped\_dt;\*447,583 sort so keep first popped date--all procedures before elig date have been deleted;

**proc** **sort** data=pop\_20\_num NODUPKEY; by bene\_id; \*303,547;

**proc** **sort** data=pop\_20\_denom; by bene\_id pop\_20\_elig\_dt; \*48,371,873 sort so keep first eligibility date;

**proc** **sort** data=pop\_20\_denom NODUPKEY; by bene\_id;\*15,618,210 denominator is person level not date so keep only 1 per person;

\*when de-dupe to 1 sinusitis per person;

**data** shu172sl.pop\_20\_cc;

merge cc(in=a) pop\_20\_denom (in=b) pop\_20\_num;

if a and b;

by bene\_id;

if popped\_20=**.** then popped\_20=**0**;

format pop\_20\_nch\_clm\_type\_cd $clm\_typ.;

if ami\_ever ne **.** and ami\_ever<=pop\_20\_elig\_dt then cc\_ami=**1**; else cc\_ami=**0**;

if alzh\_ever ne **.** and alzh\_ever <=pop\_20\_elig\_dt then cc\_alzh=**1**; else cc\_alzh=**0**;

if alzh\_demen\_ever ne **.** and alzh\_demen\_ever <=pop\_20\_elig\_dt then cc\_alzh\_demen=**1**; else cc\_alzh\_demen=**0**;

if atrial\_fib\_ever ne **.** and atrial\_fib\_ever<=pop\_20\_elig\_dt then cc\_atrial\_fib=**1**; else cc\_atrial\_fib=**0**;

if cataract\_ever ne **.** and cataract\_ever <=pop\_20\_elig\_dt then cc\_cataract=**1**; else cc\_cataract=**0**;

if chronickidney\_ever ne **.** and chronickidney\_ever<=pop\_20\_elig\_dt then cc\_chronickidney=**1**; else cc\_chronickidney=**0**;

if copd\_ever ne **.** and copd\_ever <=pop\_20\_elig\_dt then cc\_copd=**1**; else cc\_copd=**0**;

if chf\_ever ne **.** and chf\_ever <=pop\_20\_elig\_dt then cc\_chf=**1**; else cc\_chf=**0**;

if diabetes\_ever ne **.** and diabetes\_ever <=pop\_20\_elig\_dt then cc\_diabetes=**1**; else cc\_diabetes=**0**;

if glaucoma\_ever ne **.** and glaucoma\_ever <=pop\_20\_elig\_dt then cc\_glaucoma=**1**; else cc\_glaucoma=**0**;

if hip\_fracture\_ever ne **.** and hip\_fracture\_ever <=pop\_20\_elig\_dt then cc\_hip\_fracture=**1**; else cc\_hip\_fracture=**0**;

if ischemicheart\_ever ne **.** and ischemicheart\_ever<=pop\_20\_elig\_dt then cc\_ischemicheart=**1**; else cc\_ischemicheart=**0**;

if depression\_ever ne **.** and depression\_ever <=pop\_20\_elig\_dt then cc\_depression=**1**; else cc\_depression=**0**;

if osteoporosis\_ever ne **.** and osteoporosis\_ever <=pop\_20\_elig\_dt then cc\_osteoporosis=**1**; else cc\_osteoporosis=**0**;

if ra\_oa\_ever ne **.** and ra\_oa\_ever <=pop\_20\_elig\_dt then cc\_ra\_oa=**1**; else cc\_ra\_oa=**0**;

if stroke\_tia\_ever ne **.** and stroke\_tia\_ever <=pop\_20\_elig\_dt then cc\_stroke\_tia=**1**; else cc\_stroke\_tia=**0**;

if cancer\_breast\_ever ne **.** and cancer\_breast\_ever<=pop\_20\_elig\_dt then cc\_cancer\_breast=**1**; else cc\_cancer\_breast=**0**;

if cancer\_colorectal\_ever ne **.** and cancer\_colorectal\_ever<=pop\_20\_elig\_dt then cc\_cancer\_colorectal=**1**; else cc\_cancer\_colorectal=**0**;

if cancer\_prostate\_ever ne **.** and cancer\_prostate\_ever <=pop\_20\_elig\_dt then cc\_cancer\_prostate=**1**; else cc\_cancer\_prostate=**0**;

if cancer\_lung\_ever ne **.** and cancer\_lung\_ever <=pop\_20\_elig\_dt then cc\_cancer\_lung=**1**; else cc\_cancer\_lung=**0**;

if cancer\_endometrial\_ever ne **.** and cancer\_endometrial\_ever<=pop\_20\_elig\_dt then cc\_cancer\_endometrial=**1**; else cc\_cancer\_endometrial=**0**;

if anemia\_ever ne **.** and anemia\_ever <=pop\_20\_elig\_dt then cc\_anemia=**1**; else cc\_anemia=**0**;

if asthma\_ever ne **.** and asthma\_ever<=pop\_20\_elig\_dt then cc\_asthma=**1**; else cc\_asthma=**0**;

if hyperl\_ever ne **.** and hyperl\_ever <=pop\_20\_elig\_dt then cc\_hyperl=**1**; else cc\_hyperl=**0**;

if hyperp\_ever ne **.** and hyperp\_ever <=pop\_20\_elig\_dt then cc\_hyperp=**1**; else cc\_hyperp=**0**;

if hypert\_ever ne **.** and hypert\_ever <=pop\_20\_elig\_dt then cc\_hypert=**1**; else cc\_hypert=**0**;

if hypoth\_ever ne **.** and hypoth\_ever<=pop\_20\_elig\_dt then cc\_hypoth=**1**; else cc\_hypoth=**0**;

cc\_sum=sum(cc\_ami, cc\_alzh, cc\_alzh\_demen, cc\_atrial\_fib, cc\_chronickidney, cc\_copd, cc\_chf, cc\_diabetes, cc\_glaucoma, cc\_hip\_fracture,

cc\_ischemicheart, cc\_depression, cc\_osteoporosis, cc\_ra\_oa, cc\_stroke\_tia, cc\_cancer\_breast, cc\_cancer\_colorectal, cc\_cancer\_prostate,

cc\_cancer\_lung, cc\_cancer\_endometrial, cc\_anemia, cc\_asthma, cc\_hyperl, cc\_hyperp, cc\_hypert, cc\_hypoth);

if cc\_sum=**0** then cc\_cat='0 ';

if **1**<=cc\_sum<=**5** then cc\_cat='1-5';

if **6**<=cc\_sum<=**9** then cc\_cat='6-9';

if cc\_sum>=**10** then cc\_cat='10+';

if pop\_20\_age<**65** then age\_cat='LT 65';

if **65**<=pop\_20\_age<**70** then age\_cat='65-69';

if **70**<=pop\_20\_age<**75** then age\_cat='70-74';

if **75**<=pop\_20\_age<**79** then age\_cat='75-79';

if **79**<=pop\_20\_age<**84** then age\_cat='80-84';

if pop\_20\_age>=**84** then age\_cat='85-95';

**run**;\* (some not in cc file );

**proc** **sort** data=shu172sl.pop\_20\_cc; by pop\_20\_nch\_clm\_type\_cd; **run**;

**proc** **freq** data=shu172sl.pop\_20\_cc order=freq; \*by pop\_20\_nch\_clm\_type\_cd;

table gndr\_cd pop\_20\_year\*popped\_11 pop\_20\_nch\_clm\_type\_cd

pop\_20\_admtg\_dgns\_cd pop\_20\_icd\_dgns\_cd1 pop\_20\_clm\_drg\_cd pop\_20\_hcpcs\_cd

/ nocol nopercent; **run**;