

SQL code to create function to identify procedures.txt

BEGIN

```
-- Start by identifying the cases where procedures were performed that definitively put the case into the
Other category. ProcID=null.
  if (VSTCV=1 or EndoProc=1 or OCarACDLE=1 or ResectSubA=1 or OCarCrTx=1 or OCarSVR=1 or CCancCase=1) or
(OCTumor<>1 and OCTumor is not null) or (OCPulThromDis<>1 and OCPulThromDis is not null) then
    Return null;
  else
    if (VADProc=2 and (UnplVAD=2 or UnplVAD is null)) or VADProc=3 or VADProc=4 then
      Return null;
    else
      if OCarASD=1 and (OCarASDTy=1 or OCarASDTy=2 or OCarASDTy is null) then
        Return null;
      else
        if OCarAFibSur=1 and OCarAFibAProc=2 then
          Return null;
        else
          if (OpTricus is not null and OpTricus<>1) or (OpPulm is not null and OpPulm<>1) then
            if UnplProc=1 or UnplProc=2 or UnplProc is null then
              Return null;
            else
              if UnplCABG=1 or UnplAV=1 or UnplMV=1 or UnplAo=1 or UnplVAD=1 then
                Return null;
              end if;
            end if;
          end if;
          if (UnplOth=2 or UnplOth is null) or UnplProc=2 then
            if OpONCard=1 or OCarLVA=1 or OCarVSD=1 or OCarTrma=1 or OCarOthr=1 then
              Return null;
            end if;
          end if;
          if (OCAoProcType is not null and OCAoProcType<>1) then
            if (UnplAo=2 or UnplAo is null) or (UnplAo=1 and UnplProc=2) then
              Return null;
            end if;
          end if;
        end if;
      end if;
    end if;
  end if;
end if;
```

SQL code to create function to identify procedures.txt

```
-- Now determine whether the procedure is an isolated CAB. ProcID=1.
if OpCAB=1 and (UnplCABG=2 or UnplCABG is null) then
    if OpValve=2 or OpValve is null then
        if (OCarCongProc1 is null or OCarCongProc1=10 or OCarCongProc1=1291 or OCarCongProc1=1305) and
            (OCarCongProc2 is null or OCarCongProc2=10 or OCarCongProc2=1291 or
OCarCongProc2=1305) and
            (OCarCongProc3 is null or OCarCongProc3=10 or OCarCongProc3=1291 or
OCarCongProc3=1305) then
            Return 1; -- Isolated CAB procedure.
        else
            Return null;
        end if;
    else
        -- OpValve can only be 1 at this point.
        if UnplProc=3 then
            If (VSAV=2 or VSAV is null) or (VSAV=1 and UnplAV=1) then
                if (VSMV=2 or VSMV is null) or (VSMV=1 and UnplMV=1) then
                    if (OCarCongProc1 is null or OCarCongProc1=10 or OCarCongProc1=1291 or
OCarCongProc1=1305) and
                        (OCarCongProc2 is null or OCarCongProc2=10 or OCarCongProc2=1291 or
OCarCongProc2=1305) and
                        (OCarCongProc3 is null or OCarCongProc3=10 or OCarCongProc3=1291 or
OCarCongProc3=1305) then
                        Return 1; -- Isolated CAB procedure.
                    else
                        Return null;
                    end if;
                end if;
            end if;
        end if;
    end if;
end if;

-- Procedure is not an isolated CABG, but could still be a valve or combination CAB + Valve procedure.

-- Determine whether the procedure is an isolated AVR or AVR + CAB. ProcID=2 or 4.
If OpValve=2 or OpValve is null then
    Return null; -- If procedure is not an isolated CAB and no valve procedures were done, it is an
Other procedure.
else
    if VSAV=1 and (VSAVPr=1 or VSAVPr=9) then
        if (VSMV=2 or VSMV is null) or (VSMV=1 and UnplProc=3 and UnplMV=1) then
            if (OpCAB=2 or OpCAB is null) or (OpCAB=1 and UnplProc=3 and UnplCABG=1) then
                if (OCarCongProc1 is null or OCarCongProc1=10) and (OCarCongProc2 is null or
OCarCongProc2=10) and (OCarCongProc3 is null or OCarCongProc3=10) then
                    Return 2; -- Isolated AVR procedure.
                else
```

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        Return null;
    end if;
else
    -- OpCAB can only be 1 at this point.
    If (Unpl Proc=3 and (Unpl CABG=2 or Unpl CABG is null)) or (Unpl Proc=1 or Unpl Proc=2 or
Unpl Proc is null) then
        if (OCarCongProc1 is null or OCarCongProc1=10 or OCarCongProc1=1291 or
OCarCongProc1=1305) and
            (OCarCongProc2 is null or OCarCongProc2=10 or OCarCongProc2=1291 or
OCarCongProc2=1305) and
            (OCarCongProc3 is null or OCarCongProc3=10 or OCarCongProc3=1291 or
OCarCongProc3=1305) then
            Return 4;    -- AVR + CAB procedure.
        else
            Return null;
        end if;
    end if;
end if;
end if;
end if;

-- Determine whether the procedure is an isolated MVR or MVR + CAB.  ProcID=3 or 5.
if VSMV=1 and (VSMVPr=2) then
    if (VSAV=2 or VSAV is null) or (VSAV=1 and Unpl Proc=3 and Unpl AV=1) then
        if (OpCAB=2 or OpCAB is null) or (OpCAB=1 and Unpl Proc=3 and Unpl CABG=1) then
            if (OCarCongProc1 is null or OCarCongProc1=10) and (OCarCongProc2 is null or
OCarCongProc2=10) and (OCarCongProc3 is null or OCarCongProc3=10) then
                Return 3;    -- Isolated MVR procedure.
            else
                Return null;
            end if;
        else
            -- OpCAB can only be 1 at this point.
            If (Unpl Proc=3 and (Unpl CABG=2 or Unpl CABG is null)) or (Unpl Proc=1 or Unpl Proc=2 or
Unpl Proc is null) then
                if (OCarCongProc1 is null or OCarCongProc1=10 or OCarCongProc1=1291 or
OCarCongProc1=1305) and
                    (OCarCongProc2 is null or OCarCongProc2=10 or OCarCongProc2=1291 or
OCarCongProc2=1305) and
                    (OCarCongProc3 is null or OCarCongProc3=10 or OCarCongProc3=1291 or
OCarCongProc3=1305) then
                        Return 5;    -- MVR + CAB procedure.
                    else
                        Return null;
                    end if;
            end if;
        end if;
    end if;
end if;

```

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        end if;
    end if;

    -- Determine whether the procedure is an AVR + MVR.   ProcID=6.
    if VSAV=1 and (VSAVPr=1 or VSAVPr=9) and VSMV=1 and VSMVPr=2 then
        if (OpCAB=2 or OpCAB is null) or (OpCAB=1 and UnplProc=3 and UnplCABG=1) then
            if (OCarCongProc1 is null or OCarCongProc1=10) and (OCarCongProc2 is null or OCarCongProc2=10)
and (OCarCongProc3 is null or OCarCongProc3=10) then
                Return 6;    -- AVR + MVR procedure.
            else
                Return null;
            end if;
        end if;
    end if;

    -- Determine whether the procedure is an MV Repair or MV Repair + CAB.   ProcID=7 or 8.
    if VSMV=1 and VSMVPr=1 then
        if (VSAV=2 or VSAV is null) or (VSAV=1 and UnplProc=3 and UnplAV=1) then
            if (OpCAB=2 or OpCAB is null) or (OpCAB=1 and UnplProc=3 and UnplCABG=1) then
                if (OCarCongProc1 is null or OCarCongProc1=10) and (OCarCongProc2 is null or
OCarCongProc2=10) and (OCarCongProc3 is null or OCarCongProc3=10) then
                    Return 7;    -- MV Repair procedure.
                else
                    Return null;
                end if;
            else
                -- OpCAB can only be 1 at this point.
                if (UnplProc=3 and (UnplCABG=2 or UnplCABG is null)) or (UnplProc=1 or UnplProc=2 or
UnplProc is null) then
                    if (OCarCongProc1 is null or OCarCongProc1=10 or OCarCongProc1=1291 or
OCarCongProc1=1305) and
                        (OCarCongProc2 is null or OCarCongProc2=10 or OCarCongProc2=1291 or
OCarCongProc2=1305) and
                        (OCarCongProc3 is null or OCarCongProc3=10 or OCarCongProc3=1291 or
OCarCongProc3=1305) then
                        Return 8;    -- MV Repair + CAB procedure.
                    else
                        Return null;
                    end if;
                end if;
            end if;
        end if;
    end if;

    -- If ProcID still has not been determined, then it is an Other procedure.   ProcID = null.
    return null;

```

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```
EXCEPTION  
  WHEN NO_DATA_FOUND THEN  
    NULL;  
  WHEN OTHERS THEN  
    Null;  
    RAISE;  
END getProclD;  
/
```

PQRS #45 / Previously NQF 0637: Discontinuation of Prophylactic Antibiotics (Cardiac Procedures)

Family	CPT	Descriptors	PQRS 2011	PQRS 2012	PQRS 2013	PQRS 2014
Cardiothoracic (Pacemaker)	33203	Insertion of epicardial electrode(s); endoscopic approach (eg, thoracoscopy, pericardioscopy)				
Cardiothoracic (Pacemaker)	33206	Insertion or replacement of permanent pacemaker with transvenous electrode(s): atrial				
Cardiothoracic (Pacemaker)	33207	Insertion or replacement of permanent pacemaker with transvenous electrode(s): ventricular				
Cardiothoracic (Pacemaker)	33208	Insertion or replacement of permanent pacemaker with transvenous electrode(s): atrial and ventricular				
Cardiothoracic (Pacemaker)	33212	Insertion or replacement of pacemaker pulse generator only; single chamber, atrial or ventricular				
Cardiothoracic (Pacemaker)	33213	Insertion or replacement of pacemaker pulse generator only; dual chamber				
Cardiothoracic (Pacemaker)	33214	Upgrade of implanted pacemaker system, conversion of single chamber system to dual chamber system (includes removal of previously placed				
Cardiothoracic (Pacemaker)	33215	Repositioning of previously implanted transvenous pacemaker or pacing cardioverter-defibrillator (right atrial or right ventricular) electrode				
Cardiothoracic (Pacemaker)	33216	Insertion of a single transvenous electrode, permanent pacemaker or cardioverter-defibrillator				
Cardiothoracic (Pacemaker)	33217	Insertion of 2 transvenous electrodes, permanent pacemaker or cardioverter-defibrillator				
Cardiothoracic (Pacemaker)	33218	Repair of single transvenous electrode for a single chamber, permanent pacemaker or single chamber pacing cardioverter-defibrillator				
Cardiothoracic (Pacemaker)	33220	Repair of 2 transvenous electrodes for a dual chamber permanent pacemaker or dual chamber pacing cardioverter-defibrillator				
Cardiothoracic (Pacemaker)	33222	Revision or relocation of skin pocket for pacemaker				
Cardiothoracic (Pacemaker)	33223	Revision of skin pocket for cardioverter-defibrillator				
Cardiothoracic (Pacemaker)	33224	Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, with attachment to previously placed pacemaker or pacing				
Cardiothoracic (Pacemaker)	33225	Insertion of pacing electrode, cardiac venous system, for left ventricular pacing, at time of insertion of pacing cardioverter-defibrillator or				
Cardiothoracic (Pacemaker)	33226	Repositioning of previously implanted cardiac venous system (left ventricular) electrode (including removal, insertion and/or replacement				
Cardiothoracic (Pacemaker)	33233	Removal of permanent pacemaker pulse generator				
Cardiothoracic (Pacemaker)	33234	Removal of transvenous pacemaker electrode(s); single lead system, atrial or ventricular				
Cardiothoracic (Pacemaker)	33235	Removal of transvenous pacemaker electrode(s); dual lead system				
Cardiothoracic (Pacemaker)	33236	Removal of permanent epicardial pacemaker and electrodes by thoracotomy; single lead system, atrial or ventricular				
Cardiothoracic (Pacemaker)	33237	Removal of permanent epicardial pacemaker and electrodes by thoracotomy; dual lead system				
Cardiothoracic (Pacemaker)	33238	Removal of permanent transvenous electrode(s) by thoracotomy				
Cardiothoracic (Pacemaker)	33240	Insertion of single or dual chamber pacing cardioverter-defibrillator pulse generator				
Cardiothoracic (Pacemaker)	33241	Subcutaneous removal of single or dual chamber pacing cardioverter-defibrillator pulse generator				
Cardiothoracic (Pacemaker)	33243	Removal of single or dual chamber pacing cardioverter-defibrillator electrode(s): by thoracotomy				
Cardiothoracic (Pacemaker)	33244	Removal of single or dual chamber pacing cardioverter-defibrillator electrode(s): by transvenous extraction				
Cardiothoracic (Pacemaker)	33249	Insertion or repositioning of electrode lead(s) for single or dual chamber pacing cardioverter-defibrillator and insertion of pulse generator				
Cardiothoracic (Pacemaker)	33254	Operative tissue ablation and reconstruction of atria, limited (eg, modified maze procedure)				
Cardiothoracic (Pacemaker)	33255	Operative tissue ablation and reconstruction of atria, extensive (eg, maze procedure): without cardiopulmonary bypass				
Cardiothoracic Surgery	33120	Excision of intracardiac tumor, resection with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33130	Resection of external cardiac tumor	X	X	X	X
Cardiothoracic Surgery	33140	Transmyocardial laser revascularization, by thoracotomy; (separate procedure)	X	X	X	X
Cardiothoracic Surgery	33141	Transmyocardial laser revascularization, by thoracotomy; performed at the time of other open cardiac procedure(s) (list separately in addition	X	X	X	X
Cardiothoracic Surgery	33202	Insertion of epicardial electrode(s); open incision (eg, thoracotomy, median sternotomy, subxiphoid approach)				
Cardiothoracic Surgery	33250	Operative ablation of supraventricular arrhythmogenic focus or pathway (eg, Wolff-Parkinson-White, atrioventricular node re-entry)	X	X		X
Cardiothoracic Surgery	33251	Operative ablation of supraventricular arrhythmogenic focus or pathway (eg, Wolff-Parkinson-White, atrioventricular node re-entry)	X	X	X	X

Cardiothoracic Surgery	33256	Operative tissue ablation and reconstruction of atria, extensive (eg, maze procedure); with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33261	Operative ablation of ventricular arrhythmogenic focus with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33305	Repair of cardiac wound; with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33315	Cardiotomy, exploratory (includes removal of foreign body, atrial or ventricular thrombus); with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33321	Suture repair of aorta or great vessels; with shunt bypass				
Cardiothoracic Surgery	33322	Suture repair of aorta or great vessels; with cardiopulmonary bypass				
Cardiothoracic Surgery	33332	Insertion of graft, aorta or great vessels; with shunt bypass	X	X	X	X
Cardiothoracic Surgery	33335	Insertion of graft, aorta or great vessels; with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33365	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; transaortic approach (eg, median sternotomy, mediastinotomy)				X
Cardiothoracic Surgery	33366	valve; transapical exposure (eg, left thoracotomy)				X
Cardiothoracic Surgery	33400	Valvuloplasty, aortic valve; open, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33401	Valvuloplasty, aortic valve; open, with inflow occlusion	X	X	X	X
Cardiothoracic Surgery	33403	Valvuloplasty, aortic valve; using transventricular dilation, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33404	Construction of apical-aortic conduit	X	X	X	X
Cardiothoracic Surgery	33405	Replacement, aortic valve, with cardiopulmonary bypass; with prosthetic valve other than homograft or stentless valve	X	X	X	X
Cardiothoracic Surgery	33406	Replacement, aortic valve, with cardiopulmonary bypass; with allograft valve (freehand)	X	X	X	X
Cardiothoracic Surgery	33410	Replacement, aortic valve, with cardiopulmonary bypass; with stentless tissue valve	X	X	X	X
Cardiothoracic Surgery	33411	Replacement, aortic valve; with aortic annulus enlargement, noncoronary sinus	X	X	X	X
Cardiothoracic Surgery	33413	Replacement, aortic valve; by translocation of autologous pulmonary valve with allograft replacement of pulmonary valve (Ross procedure)	X	X	X	X
Cardiothoracic Surgery	33416	Ventriculomyotomy (-myectomy) for idiopathic hypertrophic subaortic stenosis (eg, asymmetric septal hypertrophy)	X	X	X	X
Cardiothoracic Surgery	33422	Valvotomy, mitral valve; open heart, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33425	Valvuloplasty, mitral valve, with cardiopulmonary bypass;	X	X	X	X
Cardiothoracic Surgery	33426	Valvuloplasty, mitral valve, with cardiopulmonary bypass; with prosthetic ring	X	X	X	X
Cardiothoracic Surgery	33427	Valvuloplasty, mitral valve, with cardiopulmonary bypass; radical reconstruction, with or without ring	X	X	X	X
Cardiothoracic Surgery	33430	Replacement, mitral valve, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33460	Valvectomy, tricuspid valve, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33463	Valvuloplasty, tricuspid valve; without ring insertion	X	X	X	X
Cardiothoracic Surgery	33464	Valvuloplasty, tricuspid valve; with ring insertion	X	X	X	X
Cardiothoracic Surgery	33465	Replacement, tricuspid valve, with cardiopulmonary bypass	X	X	X	X
Cardiothoracic Surgery	33475	Replacement, pulmonary valve	X	X	X	X
Cardiothoracic Surgery	33496	Repair of non-structural prosthetic valve dysfunction with cardiopulmonary bypass (separate procedure)	X	X	X	X
Cardiothoracic Surgery	33510	Coronary artery bypass, vein only; single coronary venous graft	X	X	X	X
Cardiothoracic Surgery	33511	Coronary artery bypass, vein only; 2 coronary venous grafts	X	X	X	X
Cardiothoracic Surgery	33512	Coronary artery bypass, vein only; 3 coronary venous grafts	X	X	X	X
Cardiothoracic Surgery	33513	Coronary artery bypass, vein only; 4 coronary venous grafts	X	X	X	X
Cardiothoracic Surgery	33514	Coronary artery bypass, vein only; 5 coronary venous grafts	X	X	X	X
Cardiothoracic Surgery	33516	Coronary artery bypass, vein only; 6 or more coronary venous grafts	X	X	X	X
Cardiothoracic Surgery	33517	Coronary artery bypass, using venous graft(s) and arterial graft(s); single vein graft (list separately in addition to code for primary procedure)	X	X	X	X
Cardiothoracic Surgery	33518	Coronary artery bypass, using venous graft(s) and arterial graft(s); 2 venous grafts (list separately in addition to code for primary procedure)	X	X	X	X
Cardiothoracic Surgery	33519	Coronary artery bypass, using venous graft(s) and arterial graft(s); 3 venous grafts (list separately in addition to code for primary procedure)	X	X	X	X
Cardiothoracic Surgery	33521	Coronary artery bypass, using venous graft(s) and arterial graft(s); 4 venous grafts (list separately in addition to code for primary procedure)	X	X	X	X
Cardiothoracic Surgery	33522	Coronary artery bypass, using venous graft(s) and arterial graft(s); 5 venous grafts (list separately in addition to code for primary procedure)	X	X	X	X

Cardiothoracic Surgery	33523	Coronary artery bypass, using venous graft(s) and arterial graft(s); 6 or more venous grafts (List separately in addition to code for primary	X	X	X	X
Cardiothoracic Surgery	33530	Reoperation, coronary artery bypass procedure or valve procedure, more than 1 month after original operation (List separately in addition	X	X	X	X
Cardiothoracic Surgery	33533	Coronary artery bypass, using arterial graft(s); single arterial graft	X	X	X	X
Cardiothoracic Surgery	33534	Coronary artery bypass, using arterial graft(s); 2 coronary arterial grafts	X	X	X	X
Cardiothoracic Surgery	33535	Coronary artery bypass, using arterial graft(s); 3 coronary arterial grafts	X	X	X	X
Cardiothoracic Surgery	33536	Coronary artery bypass, using arterial graft(s); 4 or more coronary arterial grafts	X	X	X	X
Cardiothoracic Surgery	33542	Myocardial resection (eg, ventricular aneurysmectomy)	X	X	X	X
Cardiothoracic Surgery	33545	Repair of postinfarction ventricular septal defect, with or without myocardial resection	X	X	X	X
Cardiothoracic Surgery	33548	Surgical ventricular restoration procedure, includes prosthetic patch, when performed (eg, ventricular remodeling, SVR, SAVER, Dor	X	X	X	X
Cardiothoracic Surgery	33572	Coronary endarterectomy, open, any method, of left anterior descending, circumflex, or right coronary artery performed in	X	X	X	X
Cardiothoracic Surgery	35211	Repair blood vessel, direct; intrathoracic, with bypass				
Cardiothoracic Surgery	35241	Repair blood vessel with vein graft; intrathoracic, with bypass				
Cardiothoracic Surgery	35271	Repair blood vessel with graft other than vein; intrathoracic, with bypass				

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.

The summary statistic provided is the Participants' observed event rates. An exact 95% exact binomial confidence interval was calculated for each participant's observed rate. A higher rate indicates better performance. The percentiles were calculated after ordering the participants' measures from the smallest to the largest. The 10th percentile value, for example, is the value that is larger than 10% of all participants.

Distribution	July 2011 - June 2012 Observed rate	July 2012 - June 2013 Observed rate
# Participant	1011	1004
# Operations	262365	255263
Mean	0.98	0.99
STD	0.079	0.068
IQR	0.013	0.0092
0%	0.00	0.00
10%	0.97	0.98
20%	0.98	0.99
30%	0.99	0.99
40%	0.99	1.00
50%	1.00	1.00
60%	1.00	1.00
70%	1.00	1.00
80%	1.00	1.00
90%	1.00	1.00
100%	1.00	1.00
Midwest	301	299
Northeast	131	127
Other region	3	5
South	367	366
West	207	208

*Other region = outside of the four U.S. geographic regions.

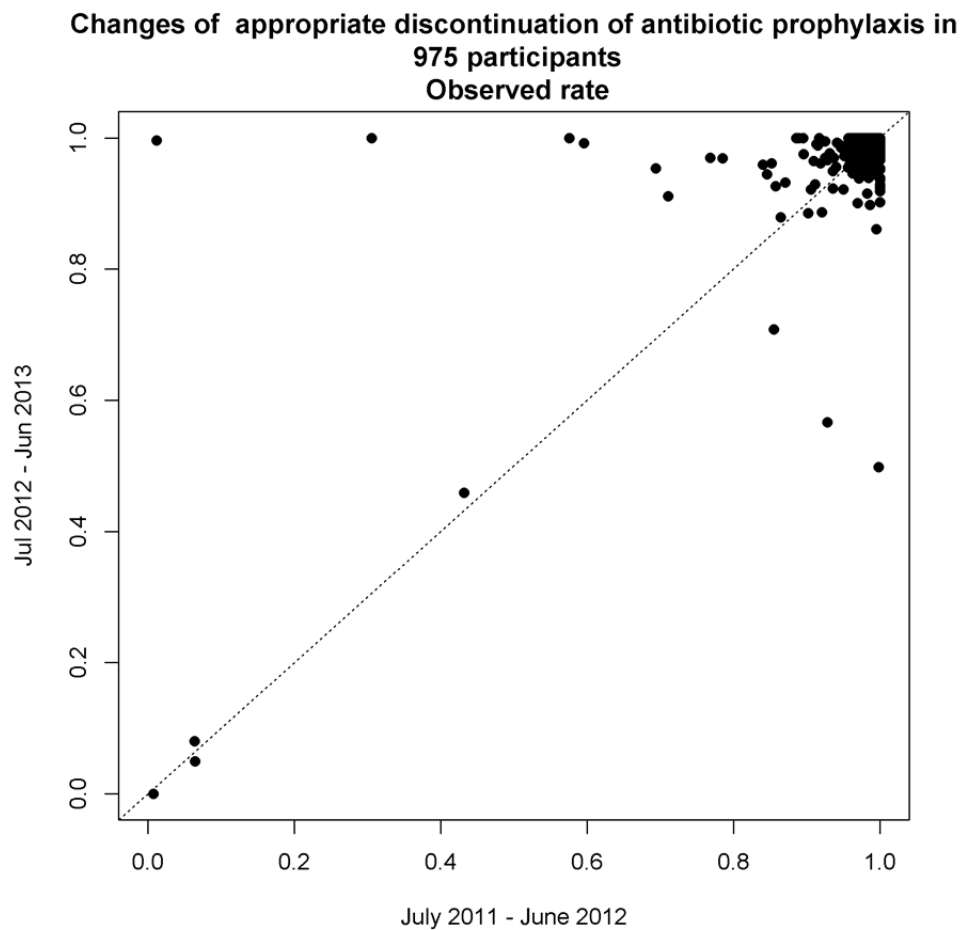
We report the measure for all STS participants with eligible cases even if the number of cases (denominator) is small. It is known that with or without risk adjustment, small number of cases yield less reliable estimates. Therefore, to facilitate a more reliable comparison across time periods, we also provided the measure summary in only participants with 50 or more cases in all 12 months of the corresponding year.

Distribution	July 2011 - June 2012 Observed rate	July 2012 - June 2013 Observed rate
# Participant	879	855
# Operations	253098	241130
Mean	0.98	0.99
STD	0.074	0.065
IQR	0.013	0.0088
0%	0.0072	0.00
10%	0.9710	0.98
20%	0.9838	0.99
30%	0.9905	0.99
40%	0.9945	1.00
50%	0.9967	1.00
60%	1.0000	1.00
70%	1.0000	1.00

80%	1.0000	1.00
90%	1.0000	1.00
100%	1.0000	1.00
Midwest	257	255
Northeast	122	110
Other region	2	2
South	313	308
West	185	180

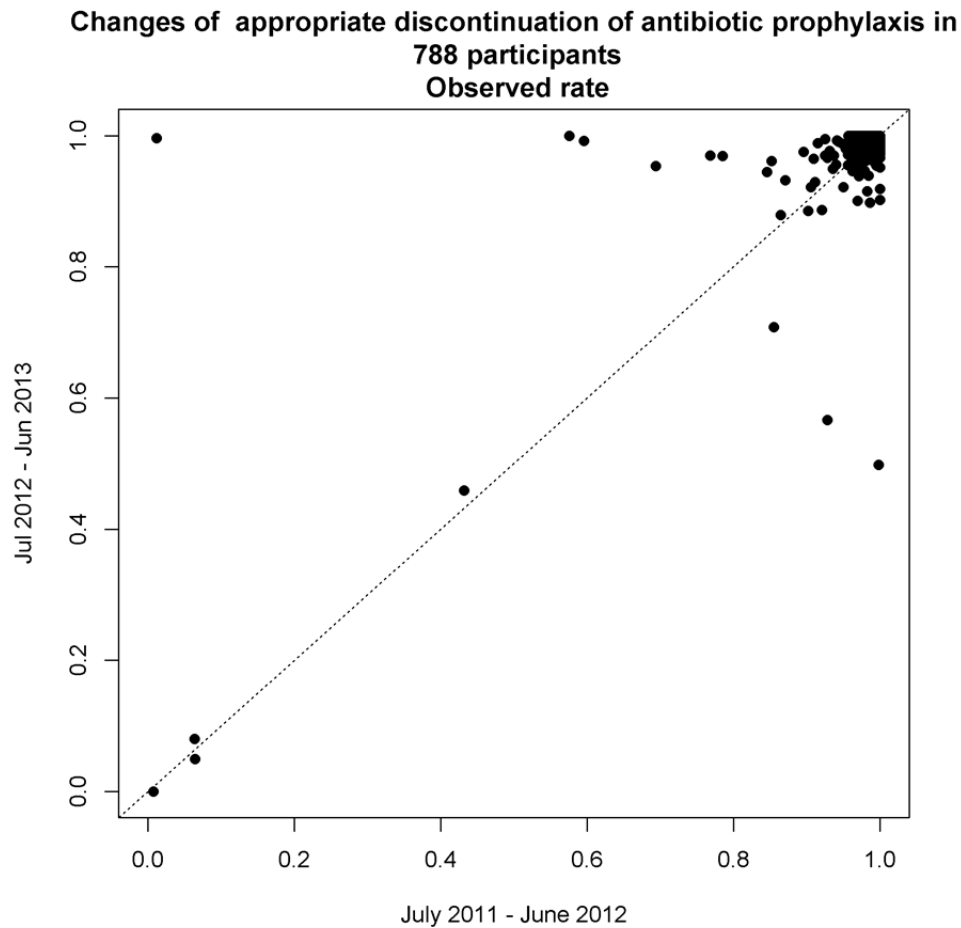
*Other region = outside of the four U.S. geographic regions.

The figures below show the changes in participant specific observed rates between two most recent adjacent years. Only participants that reported data to STS in both years are included.



The Spearman rank correlation of the measure between the two time periods is 0.40. The Pearson correlation is 0.72.

Similarly, we created the figures comparing the observed rates from the two years in participants with more than 50 cases or more and reported data every month in each year.



The Spearman rank correlation of the measure between the two time periods in these relatively larger participants is 0.43. The Pearson correlation is 0.76.