Reporting Procedure Duration

This guide will provide instructions on how to identify procedure duration outlier data using NHSN Analysis reports.

Background

Procedure duration outliers are defined by the universal exclusion criteria in "The NHSN Standardized Infection Ratio (SIR): A Guide to the SIR" as either a procedure duration that is less than 5 minutes or greater than five times the interquartile range (IQR5). The IQR5 is used as an indicator of an extreme outlier for procedure durations when calculating the surgical site infections (SSI) SIRs. The IQR5 is calculated as five times the interquartile range (Q1-Q3) above the 75th percentile among all procedures reported to NHSN during the 2015 baseline year. For example, if the national interquartile range for a specific procedure type is 30 minutes, and the 75th percentile is 100 minutes, the IQR5 would be calculated as: 100 + (30*5) = 250 minutes. Procedures with a duration greater than the IQR5 were excluded from the baseline data risk adjustment and will be excluded from all SSI SIR calculations for your facility.

In the NHSN Patient Safety Protocol, Procedure Duration is defined as:

Duration of operative procedure: The interval in hours and minutes between the Procedure/Surgery Start Time and the Procedure/Surgery Finish Time, as defined by the Association of Anesthesia Clinical Directors (AACD)[13]:

Procedure/Surgery Start Time (PST): Time when the procedure is begun (for example, incision for a surgical procedure).

Procedure/Surgery Finish (PF): Time when all instrument and sponge counts are completed and verified as correct, all postoperative radiologic studies to be done in the OR are completed, all dressings and drains are secured, and the physicians/surgeons have completed all procedure-related activities on the patient.

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The table below includes the NHSN Operative Procedure IQR5 thresholds for adult and pediatric patients:

Table 1. IQR5 Values for NHSN Operative Procedures, Adult and Pediatric Patients, all SSI SIR Models 2015 Rebaseline			
NHSN Operative Procedures	IQR5* (in minutes)	IQR5* (in hours and minutes)	
	Minutes	Hours	Minutes
AAA	1116	18	36
AMP	300	5	0
APPY	210	3	30
AVSD	471.5	7	51.5
BILI	1295	21	35
BRST	777	12	57
CARD	1001	16	41
CBGB	847	14	7
CBGC	847	14	7
CEA	376	6	16
CHOL	346	5	46
COLO	697	11	37
CRAN	904	15	4
CSEC	170	2	50
FUSN	874	14	34
FX	532	8	52
GAST	489	8	9
HER	521	8	41
HPRO	349	5	49
HTP	1355	22	35
HYST	547	9	7
KPRO	316	5	16
KTP	670	11	10
LAM	687	11	27
LTP	1243	20	43
NECK	1796	29	56
NEPH	774	12	54
OVRY	594	9	56
PACE	311	5	11
PRST	737	12	17
PVBY	850	14	10
REC	1136	18	56
RFUSN	1129	18	49
SB	856	14	16
SPLE	1073	17	53
THOR	721	12	1
THYR	506	8	26
VHYS	506	8	26
VSHN	378	6	18
XLAP	724	12	4

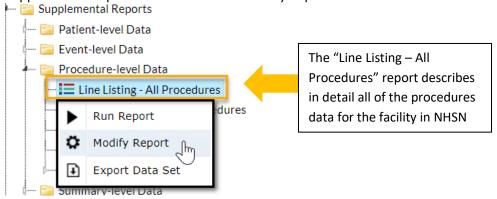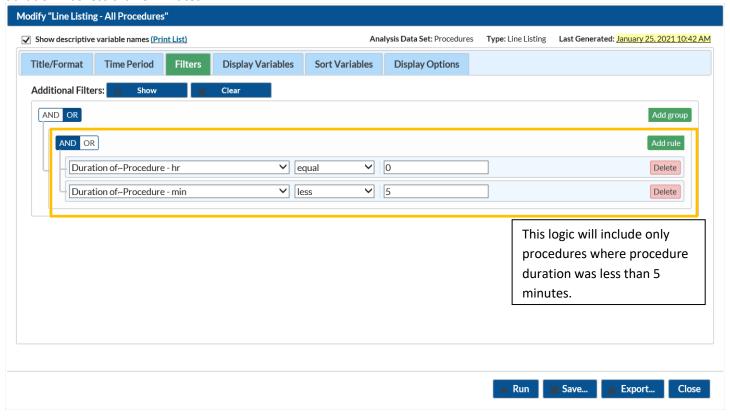| Table 1. IQR5 Values for NHSN Operative Procedures, Adult and Pediatric Patients, all SSI SIR Models 2022 Rebaseline			
NHSN Operative Procedures	IQR5* (in minutes)	IQR5* (in hours and minutes)	
	Minutes	Hours	Minutes
AAA	1359	22	39
AMP	277	4	37
APPY	228	3	48
AVSD	481	8	1
BILI	1265	21	5
BRST	840	14	0
CARD	863	14	23
CBGB	863	14	23
CBGC	1053	17	33
CEA	421	7	1
CHOL	378	6	18
COLO	783	13	3
CRAN	916	15	16
CSEC	173	2	53
FUSN	852	14	12
FX	572	9	32
GAST	511	8	31
HER	707	11	47
HPRO	336	5	36
HTP	1294	21	34
HYST	608	10	8
KPRO	310	5	10
KTP	673	11	13
LAM	794	13	14
LTP	1276.5	21	17
NECK	1738	28	58
NEPH	708	11	48
OVRY	744	12	24
PACE	368	6	8
PRST	746	12	26
PVBY	1000	16	40
REC	1177	19	37
SB	754	12	34
SPLE	1165	19	25
THOR	750	12	30
THYR	573	9	33
VHYS	591	9	51
VSHN	299	4	59
XLAP	813	13	33

How to Identify Procedures with an Outlier Duration
Method One: Line Listing - All Procedures report

The "Line Listing - All Procedures" report describes in detail all procedures entered into NHSN by the facility. For the example using this method we going to identify the procedures where procedure duration was less than 5 minutes.

Step 1: Access the "Line Listing – All Procedures" report located in the Procedure-level Data subfolder of the Supplemental Reports folder and select Modify Report.

The "Line Listing – All Procedures" report describes in detail all of the procedures data for the facility in NHSN

Step 2: On the modification page of the "Line Listing - All Procedures" report the "Show descriptive variables names" box has been checked. Use the Filters Tab below to request that the Line List include only procedures were procedure duration was less than 5 minutes.

This logic will include only procedures where procedure duration was less than 5 minutes.

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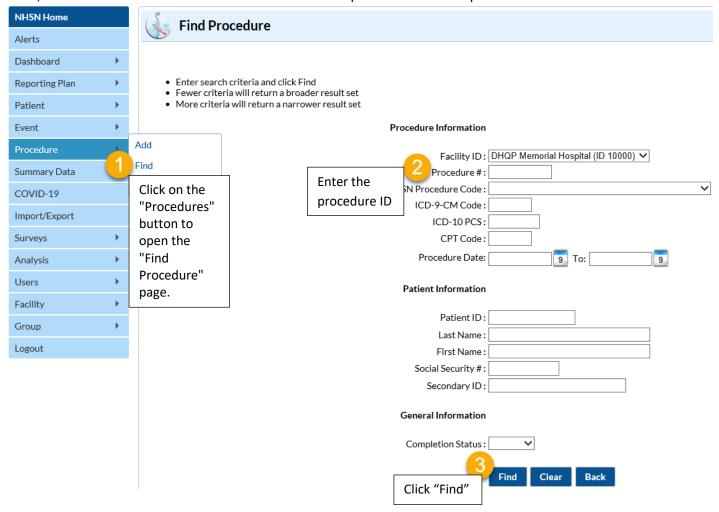Step 3. Let's review procedure duration in the report below:

This 2 minute procedure duration is an outlier, because the procedure duration is less than 5 minutes.

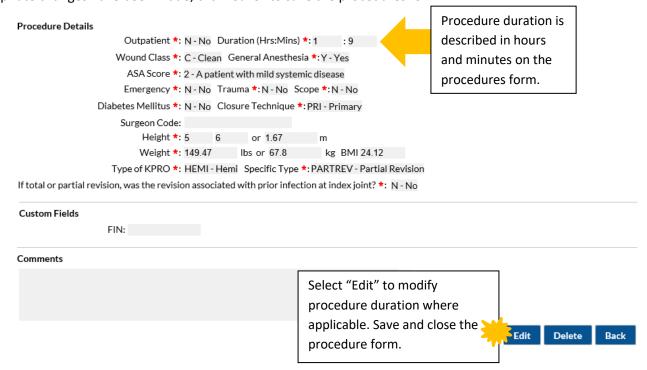| Procedure Code	Duration of~Procedure - hr	Duration of~Procedure - min
KPRO	0	2
AMP	4	10
GAST	5	8

Method Two: Search by Procedure ID and Review Procedures Form

Procedures data can be reviewed and entered through the procedures form. This form can be accessed through the Procedures button on the left-hand navigation panel.

Step 1. Procedure duration can by reviewed and modified through the procedure form. From the left-hand navigation menu in NHSN, click on the "Procedures" tab and select "Find". Enter procedure ID in the "procedure #" section and click "Find".

| NHSN Home |
| Alerts |
| Dashboard ▶ |
| Reporting Plan ▶ |
| Patient ▶ |
| Event ▶ |
| Procedure ▶ |
| Summary Data |
| COVID-19 |
| Import/Export |
| Surveys ▶ |
| Analysis ▶ |
| Users ▶ |
| Facility ▶ |
| Group ▶ |
| Logout |

Add
Find

Find Procedure

- Enter search criteria and click Find
- Fewer criteria will return a broader result set
- More criteria will return a narrower result set

1 Click on the "Procedures" button to open the "Find Procedure" page.

Procedure Information

Facility ID : DHQP Memorial Hospital (ID 10000) ▼

2 Procedure # :

Enter the procedure ID

SN Procedure Code : ▼
ICD-9-CM Code :
ICD-10 PCS :
CPT Code :
Procedure Date : [ ] 9 To: [ ] 9

Patient Information

Patient ID :
Last Name :
First Name :
Social Security # :
Secondary ID :

General Information

Completion Status : ▼

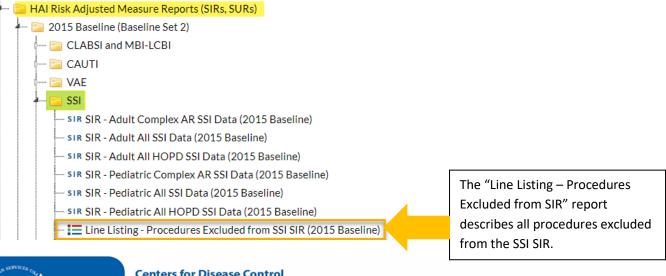**3** Find   Clear   Back

Click "Find"

Step 2. Review procedure duration hours and minutes for accuracy. If editing it is necessary, select "Edit" to make the appropriate correction to the procedure duration in hour and/or procedure duration in minutes fields. Once the appropriate changes have been made, click "Save" to save the procedures form.

Procedure Details

Outpatient *****: N - No Duration (Hrs:Mins) *****: 1   : 9

Wound Class *****: C - Clean General Anesthesia *****: Y - Yes

ASA Score *****: 2 - A patient with mild systemic disease

Emergency *****: N - No Trauma *****: N - No Scope *****: N - No

Diabetes Mellitus *****: N - No Closure Technique *****: PRI - Primary

Surgeon Code:

Height *****: 5   6   or 1.67   m

Weight *****: 149.47   lbs or 67.8   kg BMI 24.12

Type of KPRO *****: HEMI - Hemi Specific Type *****: PARTREV - Partial Revision

If total or partial revision, was the revision associated with prior infection at index joint? *****: N - No

> Procedure duration is described in hours and minutes on the procedures form.

Custom Fields

FIN:

Comments

> Select "Edit" to modify procedure duration where applicable. Save and close the procedure form.

[Edit] [Delete] [Back]

Method Three: Line Listing - Procedures Excluded from SIR Report
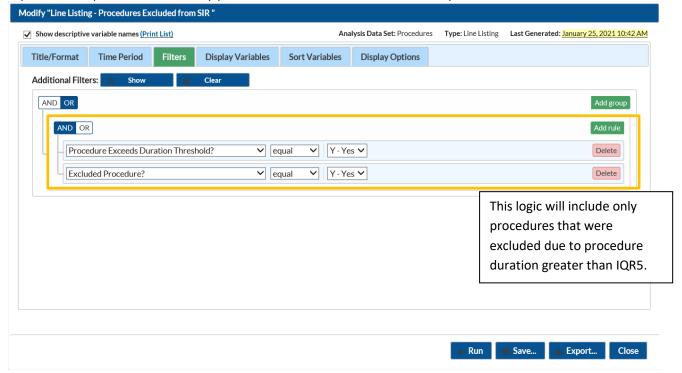
The "Line Listing - Procedures Excluded from SIR" report describes all procedures excluded from the SSI SIR. This report can be used to identify procedures that were excluded due to procedure duration outliers. For the example using this method we are going to identify the procedures that were excluded from the IQR5 and where procedure duration was greater than the IQR5.

Step 1. The "Line Listing Procedure Excluded from SIR" report can be accessed by opening the "SSI" sub-folder of the HAI Risk Adjusted Measure Reports (SIRs, SURs), folder. There are baseline specific versions of the line list report, thus you will find a report in the 2015 Baseline (Baseline Set 2) and the 2022 Baseline (Baseline Set 3) folders. You can then access the report and select "Modify Report".

📁 HAI Risk Adjusted Measure Reports (SIRs, SURs)
 📁 2015 Baseline (Baseline Set 2)
  📁 CLABSI and MBI-LCBI
  📁 CAUTI
  📁 VAE
  📁 SSI
   SIR SIR - Adult Complex AR SSI Data (2015 Baseline)
   SIR SIR - Adult All SSI Data (2015 Baseline)
   SIR SIR - Adult All HOPD SSI Data (2015 Baseline)
   SIR SIR - Pediatric Complex AR SSI Data (2015 Baseline)
   SIR SIR - Pediatric All SSI Data (2015 Baseline)
   SIR SIR - Pediatric All HOPD SSI Data (2015 Baseline)
   ☰ Line Listing - Procedures Excluded from SSI SIR (2015 Baseline)

> The "Line Listing – Procedures Excluded from SIR" report describes all procedures excluded from the SSI SIR.

Step 2. On the modification page of the "Line Listing - Procedures Excluded from SIR" report the "Show descriptive variables names" box has been checked. In the Filters Tab below for the "Line Listing – Procedures Excluded from SIR" report the output will contain only procedures that were excluded due to procedure duration that exceeded IQR5.

Step 3. Let's review procedure duration in the report below:

> This procedure duration outlier is 5 hours and 2 minutes. This procedure duration for APPY is greater than the IQR5 which is 3 hours and 30 minutes.

	A	B	C
	Procedure Code	Duration of~Procedure - hr	Duration of~Procedure - min
	THOR	8	4
	APPY	5	2
	GAST	4	0

Additional Resources

Line List: Procedure Excluded from the SIRs (2015 Baseline)
https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/line-list-procedures-excluded-sir.pdf

Generating Data Sets
https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/generatedatasets-psc-508.pdf

The NHSN Standardized Infection Ratio (SIR): A Guide to the SIR
https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf

Analysis Quick Reference Guides
https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html

National Healthcare Safety Network (NHSN) Patient Safety Component Manuel
https://www.cdc.gov/nhsn/PDFs/pscManual/pcsManual_current.pdf