



How to Import Patient Safety Procedure Data

March 2014

Objectives

- ❑ **Describe the options for importing data into NHSN**
- ❑ **Review specifications for .csv file and steps for importing**
- ❑ **Discuss helpful tips for a successful import**
- ❑ **Illustrate the use of NHSN Analysis Output Options for data quality**

Options for Importing

- ❑ **Selected event and associated denominators can be imported using the Clinical Document Architecture (CDA) function; files created by an infection control software vendor.**
- ❑ **Import procedures and surgeons into NHSN using a comma delimited ASCII file created by the facility.**

The person importing these data must be a user of NHSN.

Import via CDA

- ❑ **Clinical Document Architecture (CDA) is a Health Level 7 (HL7) standard which provides framework for format of electronic documents. NHSN has been enabled to accept electronic infection reports, denominator data, and process of care data from commercial infection surveillance systems.**

To implement CDA for NHSN, facilities should contact their Infection Control Software vendor to inquire about the availability of generating CDA events records for importation into NHSN.

<http://www.cdc.gov/nhsn/CDA/index.html>

Import via CDA

- ❑ Before using the NHSN Import Data function, CDA zip files must be generated that contain the event and/or denominator records to be imported.
- ❑ In most cases, this file can be generated using an Export function provided by the Infection Control software used at the facility.
- ❑ For details on generating the CDA zip files, facilities should consult with their Infection Control software vendor representative.
- ❑ More information is available at:
<http://www.cdc.gov/nhsn/CDA/index.html>

Options for Importing

- ❑ Select event and associated denominators can be imported using the Clinical Document Architecture (CDA) function; files created by an infection control software vendor.
- ❑ **Import procedures and surgeons into NHSN using a comma delimited ASCII file (.txt or .csv) created by the facility.** *[will refer to this as the “.csv Import”]*

The person importing these data must be a user of NHSN.

Procedure Import via .csv

- ❑ **NHSN will allow importation of procedure data in an ASCII comma delimited .txt or .csv file format.**
- ❑ **Can be generated from different external sources, such as databases or hospital information systems.**
- ❑ **Will need assistance of OR and/or IT staff.**

.csv File Specifications & Resources

Supporting Materials

- CDC Location Labels and Location Descriptions
 [PDF - 379 KB] January 2014
- NHSN Key Terms  [PDF - 228 KB] January 2014
- CDC/NHSN Surveillance Definitions for Specific Types of Infections  [PDF - 607 KB] January 2014
- ICD9-CM Procedure Code Mapping to NHSN Operative Procedure Categories
 [XLS - 173 KB] January 2013. Mapping of ICD-9-CM Procedure Codes to NHSN Operative Procedure categories.
- ICD-9 Mapping Tool for HPRO and KPRO
 [PDF - 71KB] February 2014
This is an update to the Mapping Tool guidance that was sent out last week for those NHSN users who are following HPRO – hip Arthroplasty and KPRO – Knee Arthroplasty in their monthly surveillance plan. We realized there is a defect in the NHSN system that will cause an error message with the mapping tool we provided. This update addresses how to work around this issue.
- NHSN Organisms Lists (All Organisms, Top Organisms, Common Commensals, MBI Organisms, & Uropathogens)
 [XLS - 223 KB] January 2014
- Current Patient Safety Procedure Data Import File Specifications  [PDF - 215 KB] January 2014
- Current Sample Procedure Import File
 [XLSX - 15 KB] January 2014
- Improving Risk-Adjusted Measures of Surgical Site Infection for the National Healthcare Safety Network  [PDF - 528 KB]

- All applicable documentation can be found under ‘Supporting Materials’ on the SSI page

<http://www.cdc.gov/nhsn/acute-care-hospital/ssi/index.html#sm>

.csv File Specifications

Importing Patient Safety Procedure Data

NHSN v8.1
January 2014

Importing Patient Safety Procedure Data

NOTE: The procedure import file specifications contained in this document will be implemented in NHSN version 8.1, planned for late-January 2014. Facilities will not be able to import procedure data according to these specifications prior to that time. For current procedure import file specifications, please visit:

http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf

NHSN will allow importation of procedure data in an ASCII comma delimited text file format. You can generate the import files from different external sources, such as databases or hospital information systems. The default import option allows the importation of procedures where the procedure date occurs in a month for which a Monthly Reporting Plan exists and the Plan specifies the procedure code in the import file record. If you wish to import records for procedures not in the Plan, you must specify which procedures to include. Custom procedures can also be imported if they are first created on the custom options page.

NOTES:

1. Data in the import file must be in the same order as described in the table below, not as they appear on the Denominator for Procedure form.
2. The comma delimited text file format defined in the below table requires commas

.csv File Specifications

- ❑ Procedure data that are imported must follow the NHSN file specifications.
- ❑ Be sure to pay special attention to the notes!
 - Data in the import file must be in same order described in specifications document.

Importing Patient Safety Procedure Data

NOTE: The procedure import file specifications contained in this document will be implemented in NHSN version 8.1, planned for late-January 2014. Facilities will not be able to import procedure data according to these specifications prior to that time. For current procedure import file specifications, please visit:
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NOTES:

1. Data in the import file must be in the same order as described in the table below, not as they appear on the Denominator for Procedure form.
2. The comma delimited text file format defined in the below table requires commas between fields even if no data values exist (e.g., optional or empty fields).
3. If a bilateral procedure is performed, two procedure records are required. Refer to the NHSN Procedure Codes table for a list of procedures that can be bilateral.
4. There should be a unique duration for each bilateral procedure. If only one total time is available for both procedures, estimate the duration for each or split the time evenly between them.
5. For procedures, if Outpatient = Y, then the procedure must be one of those listed in the NHSN Procedure Codes table as an Outpatient Procedure.
6. If you are importing Surgeon Code, all surgeon codes must be set-up in NHSN prior to importing.
7. If you are importing custom fields, all custom fields must be set up in NHSN prior to importing data in these fields.
8. If the optional Procedure Comment field has text that contains commas you must place a double quote at the beginning and end of the string of text (e.g., "with allograft, dowels, plates").
9. When creating comma delimited files, be careful to exclude non-printable characters as they may actually cause the data to be improperly imported and result in errors.
10. You must delete the header line from the CSV file prior to importing the data.
11. Data must be entered in all fields marked as "Required" for both in plan and off plan procedure records. Fields marked as "Optional for Import" allow an incomplete



Procedure Import via .csv

NHSN Procedure Import File Format**:

Field	Required/ Optional	Values	Format
Patient ID	Required		Character Length 15
Gender	Required	M- Male F - Female	Character Length 1
Date of Birth	Required		mm/dd/yyyy
NHSN Procedure Code	Required	See NHSN procedure codes	Character Length 5
Date of Procedure	Required		mm/dd/yyyy
Outpatient	Required	Y - Yes N - No Note: Some procedures may only be inpatient or outpatient. See NHSN procedure codes below.	Character Length 1
Duration Hours	Required		Numeric Length 2
Duration Minutes	Required		Numeric Length 2

- ❑ **Specifications for values, format, and data requirements must be followed!**
 - **Facilities cannot use their own format for wound class, ASA, etc.**

.csv File Specifications

Comments	Optional		Character length 1000
Custom fields 1-14	Optional		Format and order according to custom field set up and sort order, per procedure code: Alphanumeric field length = 15 character Numeric field length decimal(12,3) 999999999.999 Date field = mm/dd/yyyy
EMPTY (formerly Implant)	Required to be left blank	<i>This empty column is considered a placeholder and must be included in the import file. Any data contained in this placeholder will be ignored upon</i>	

- ❑ **Data for custom fields can be imported**
 - Custom fields must first be set up in NHSN prior to importing data in these fields

Procedure Import via .csv

- ❑ **Data Requirements assume in-plan reporting**
- ❑ **“Optional for Import”**
 - Required for a complete in-plan record.
 - Think of the import file specifications as a **companion to**, and not in place of, the full requirements for procedures as described in the Tables of Instructions.
 - Some fields are marked as “optional for import” as they were considered unobtainable through OR systems.
 - In-plan records missing these values would be included on the “Incomplete” Procedure list after data are imported.

http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf

Procedure Import via .csv

- ❑ **Custom fields and surgeons codes must be set-up in NHSN prior to importing these optional data.**
 - Remember: custom fields are set up per NHSN operative procedure category!
- ❑ **Data in the import file must be in same order described in specifications document.**
 - Includes leaving empty placeholders for optional fields that are not imported
 - Differs from order appearing on “Denominator for Procedure” form
 - Many errors during import are the result of these fields being out of order

Procedure Import via .csv

The screenshot shows the CDC NHCN web application interface. At the top left is the CDC logo. The header text reads "Department of Health and Human Services" and "Centers for Disease Control and Prevention". Below this, it says "NHCN - National Healthcare Safety Network (ISD-CLFT-NHCN1)" and "Logged into DHQP MEMORIAL HOSPITAL (ID 10018) as MAGGIE. Facility DHQP MEMORIAL HOSPITAL (ID 10018) is following the PS component." The main heading is "Import/Export Data". On the left is a navigation menu with items: "NHCN Home", "Reporting Plan", "Patient", "Event", "Procedure", "Summary Data", "Import/Export", "Analysis", "Surveys", "Users", "Facility", "Group", and "Log Out". The "Import/Export" menu item is selected. The main content area shows "Import/Export Type:" followed by a dropdown menu. The dropdown menu is open, showing the following options: "Import Patients", "Import Surgeons", "Import Procedures (comma delimited)", "Import BSI events, Procedures, BSI Summary Data (CDA)", "Import SSI events (CDA)", and "Export Data". The "Import Procedures (comma delimited)" option is highlighted.

Select Import file:

C:\My Documents\ImportDemo.csv

Browse...

Submit

Back

- ❑ Click "Browse" to search for and select the file to import. Once the file has been selected, click "Submit."
- ❑ As the file is being submitted, a progress bar will appear; depending on the size of the file, it may take a few moments for the entire file to be submitted.

Procedure Import via .csv

- **Once the entire file has been submitted, the Procedure Import screen will appear. The Procedure Import screen may have up to 5 tabs of procedure data:**
 - Inserts
 - Bad Data
 - Updates
 - Multiple Records
 - Duplicate Data

Procedure Import via .csv

- ❑ **Inserts:** This tab includes all procedure records that have passed the quality acceptance checks. These records can be imported without any additional editing.

Inserts Duplicate Data Bad Data												
Delete	patid	gender	dob	proccode	procdate	outpatient	procdurationhr	procdurationmin	swclass	asa	endoscope	surgeon
<input type="checkbox"/>	Edit	MD-5002	F	03/25/1962	KPRO	01/12/2009	Y	1	25	C	1	N
<input type="checkbox"/>	Edit	MD-5002	F	03/25/1962	KPRO	01/12/2009	Y	1	25	C	1	N
<input type="checkbox"/>	Edit	MD-5004	F	09/02/1976	CSEC	01/13/2009	N		35	C	1	N
<input type="checkbox"/>	Edit	MD-5005	F	04/29/1974	CSEC	01/13/2009	N		53	C	1	N
<input type="checkbox"/>	Edit	MD-5006	F	08/24/1982	CSEC	01/14/2009	N		44	C	1	N
<input type="checkbox"/>	Edit	MD-5008	M	10/17/1963	FUSN	01/22/2009	N	2	12	C	1	N

NOTE: All other tabs must be resolved before any data can be imported.

Procedure Import via .csv

- ❑ **Duplicate Data:** The tab lists all procedure records in the import file that are considered duplicates. **NOTE:** You must either select one of the duplicate records, or delete both records from the import file before proceeding. If you select one of the duplicate records, as shown below, click "Transfer selected duplicate records for import."

Inserts Duplicate Data Bad Data

[Transfer selected duplicate records for import](#)

Delete	patid	gender	dob	proccode	procddate	outpatient	procdurationhr	procdurationmin	swclass	asa	endoscope	surgeon
<input type="checkbox"/>	Select one of the following duplicate records											
<input checked="" type="radio"/>	MD-5009	F	01/22/1960	CRAN	01/25/2009	N	3	36	C	2	N	
<input type="radio"/>	MD-5009	F	01/22/1960	CRAN	01/25/2009	N	3	36	C	2	N	

Update Delete Back

Procedure Import via .csv

- ❑ **Bad Data:** This tab lists all procedure records in the import file that cannot be imported for one or more reasons. Beneath each record, details are provided that will assist you in fixing each record. **NOTE:** Each record in the Bad Data tab must either be fixed (click "Edit") or deleted in order to import your file.

Delete	patid	gender	dob	proccode	procddate	outpatient	procdurationhr	procdurationmin	swclass	asa	endoscope	surgeon
<input type="checkbox"/>	Edit MD-5000	M	02/15/1944	COLO	01/12/2009	N	1	12	CC	6	N	
(asa is not valid.)												
<input type="checkbox"/>	Edit MD-5001	M	06/10/1952	HYST	01/12/2009	Y	2	3	CC	1	N	
(Procedure code and patient gender is not valid.)												
<input type="checkbox"/>	Edit MD-5003	M	07/11/1946	COLO	01/12/2009	N		94	CC	2	N	
(Procedure Duration (mins) is not in the range 0 through 59.)												
<input type="checkbox"/>	Edit MD-5007	F	06/12/1952	FUSN	01/15/2009	N	3	16	C	2	N	
(spinallevel is not valid.)												

Procedure Import via .csv

- Updates: This tab lists all procedure records that already exist in the NHSN database, but have updates in one or more columns. You can either choose to delete the new record, or choose one or more columns to update, as shown below.

Updates

Delete		<input type="checkbox"/> patid	<input type="checkbox"/> gender	<input type="checkbox"/> dob	<input type="checkbox"/> proccode	<input type="checkbox"/> proccdate	<input type="checkbox"/> outpatient	<input type="checkbox"/> procdurationhr	<input checked="" type="checkbox"/> procdurationmin	<input type="checkbox"/> swclass	<input checked="" type="checkbox"/> asa
<input type="checkbox"/>	Edit	MD-5000	M	02/15/1944	COLO	01/12/2009	N	1	23	CC	3
Old data		MD-5000	M	02/15/1944	COLO	01/12/2009	N	1	12	CC	3
<input type="checkbox"/>	Edit	MD-5001	F	06/10/1952	HYST	01/12/2009	Y	2	3	CC	2
Old data		MD-5001	F	06/10/1952	HYST	01/12/2009	Y	2	3	CC	1

Procedure Import via .csv

- Multiple Records:** This tab lists all procedure records that already exist in the NHSN database. In this tab, you must either select the existing record you wish to update (record will move to the Updates tab), or insert as a new record (record will move to Inserts tab).

Multiple Records													
Delete		procid	patid	gender	dob	proccode	procdte	outpatient	procdurationhr	procdurationmin	swclass	asa	endoscc
<input type="checkbox"/>	Edit	<input type="radio"/> Insert as new	1234928	F	04/02/1959	KPRO	10/09/2008	N	3	14	C	2	N
Existing data		<input type="radio"/> 2674292	1234928	F	04/02/1959	KPRO	10/09/2008	N	3	14	C	2	N
<input type="checkbox"/>	Edit	<input type="radio"/> Insert not allowed	1234644	F	05/03/1949	KPRO	09/12/2008	N	1	26	C	2	N
Existing data		<input type="radio"/> 2674269	1234644	F	05/03/1949	KPRO	09/12/2008	N	1	26	C	2	N
Existing data		<input type="radio"/> 2674270	1234644	F	05/03/1949	KPRO	09/12/2008	N	1	26	C	2	N

Procedure Import via .csv

- Once all desired edits and deletions have been made, you should have only the Inserts and/or Updates tab(s). Click "Update". When all records have been imported, you will see a message confirming the data file has been successfully imported.

Inserts

Delete		patid	gender	dob	proccode	proccdate	outpatient	procdurationhr	procdurationmin	swclass	asa	endoscope	surgeonc
<input type="checkbox"/>	Edit	MD-5000	M	02/15/1944	COLO	01/12/2009	N	1	12	CC	3	N	
<input type="checkbox"/>	Edit	MD-5001	F	06/10/1952	HYST	01/12/2009	Y	2	3	CC	1	N	
<input type="checkbox"/>	Edit	MD-5002	F	03/25/1962	KPRO	01/12/2009	Y	1	25	C	1	N	
<input type="checkbox"/>	Edit	MD-5002	F	03/25/1962	KPRO	01/12/2009	Y	1	25	C	1	N	
<input type="checkbox"/>	Edit	MD-5003	M	07/11/1946	COLO	01/12/2009	N	1	34	CC	2	N	
<input type="checkbox"/>	Edit	MD-5004	F	09/02/1976	CSEC	01/13/2009	N		35	C	1	N	
<input type="checkbox"/>	Edit	MD-5005	F	04/29/1974	CSEC	01/13/2009	N		53	C	1	N	
<input type="checkbox"/>	Edit	MD-5006	F	08/24/1982	CSEC	01/14/2009	N		44	C	1	N	
<input type="checkbox"/>	Edit	MD-5008	M	10/17/1963	FUSN	01/22/2009	N	2	12	C	1	N	
<input type="checkbox"/>	Edit	MD-5009	F	01/22/1960	CRAN	01/25/2009	N	3	36	C	2	N	

Troubleshooting

- ❑ **"Unable to extract the year from the procedure date".**
 - Make sure there are no extra or missing columns. This would cause all of the data to shift one column - which means NHSN would see an invalid value for procedure date.
 - Be sure that there is no header row or empty row in the import file.
 - Check all of the procedure dates to make sure they are in mm/dd/yyyy format. If only one procedure date is missing a / or includes a special character, it will throw off the entire import file.

Import/Export Data

 Unable to extract the year from the procedure date.

Import/Export Type: 

Troubleshooting

- ❑ **"Unable to read uploaded file..."**
 - Can be caused by invalid NHSN operative procedure code(s)
 - Can be caused by trailing, special characters

Import/Export Data

 Unable to read uploaded file test_procs.txt. Invalid data file. Only ASCII comma delimited text files are supported.

Import/Export Type: 

Troubleshooting

❑ "Unable to import data"

- Can be caused by missing patient information, such as DOB or gender.

Import/Export Data

 Unable to import data.

Import/Export Type: 

Helpful Tips

- ❑ **Facilities will be stopped if the data are not in correct order, or if they do not leave empty placeholders for optional fields.**

Helpful Tips

- ❑ **It's extremely important that the same definitions and protocols are followed - many times, the OR staff or IT staff are not aware of the standard CDC definitions for these data fields**
 - Requires teamwork at the facility – keep lines of communication open!
 - Data managers/IT staff/OR staff can email NHSN directly with questions.
 - Equally important for IP to understand data elements captured from OR/other systems

Helpful Tips

❑ Make sure the patient IDs are correct!

- If patient IDs have leading zeros, make sure these leading zeros are captured upon import
- May need to change format of this column to “text”, as opposed to “general” or “number”
- When entering subsequent SSIs, patient ID must match exactly

00-11-22-33 ≠ 00112233

00112233 ≠ 112233

MR112233 ≠ 112233

Helpful Tips

- ❑ **“Can I import a sample or test file??”**
 - NO!
 - ALL data would exist in the live, national database – therefore, only real data should be imported/tested
 - Removing test data can be a time-consuming task for facility users
 - NHSN team can help troubleshoot any errors/review files

Checking the Data

- ❑ **Imported data should be checked to insure accurate data have been collected**
- ❑ **Facility and Group users can utilize NHSN Analysis Output Options to accomplish this**
- ❑ **New variable has been added to analysis datasets**
 - Variable name = imported
 - Y/N values
 - Will not assign this value to older (pre-6.3) imported records

Checking the Data: Procedure Duration

- ❑ **Example:** You wish to check the procedure duration for all CBGB and CBGC procedures imported.
- ❑ **SOLUTION:** Run the “Line List – All Procedures” and modify the following:
 - Limit to imported = Y AND procCode IN (CBGB, CBGC)
 - Include only the necessary variables, (e.g., procID, procCode, procDate, procDurationHr, procDurationMin)
 - Sort by procDurationHr and procDurationMin
 - May make other modifications, as necessary
- ❑ *NOTE: Similar modifications can be made to check CSEC height/weight/duration of labor/blood loss*

Checking the Data: Procedure Duration

National Healthcare Safety Network

Line Listing for All Procedures

As of: September 22, 2010 at 2:58 PM

Date Range: All PROCEDURES

Org ID	Patient ID	Date of Birth	Gender	Procedure ID	Procedure Date	Procedure Code	Duration of Procedure - hr	Duration of Procedure - min
10018	829204	10/20/1925	F	21790	07/27/2009	CBGB	1	6
10018	250754	08/23/1941	M	21664	07/31/2009	CBGB	1	42
10018	789995	08/05/1925	F	21750	08/13/2009	CBGB	1	47
10018	814096	02/12/1931	M	21766	07/23/2009	CBGB	1	51
10018	838249	03/20/1930	M	21873	07/02/2009	CBGB	1	55
10018	838231						2	0
10018	527318						2	7
10018	836570						2	12
10018	739259						2	15
10018	744782						2	15

Notice that all of the procedure durations are <3hours. This is an indication that an incorrect duration was imported for these procedures.

Checking the Data: ASA Score

- ❑ **Example:** You wish to check the ASA score imported for all CBGB and CBGC procedures
- ❑ **SOLUTION:** Run the “Frequency Table – All Procedures” and modify the following:
 - Limit to imported = Y and procCode IN (CBGB, CBGC)
 - Row = ASA
 - Column = procCode
 - May make other modifications, as necessary
- ❑ *NOTE: Similar modifications can be made to check other variables, such as Emergency, Wound Class, Trauma, etc.*

Checking the Data: ASA Score

National Healthcare Safety Network
Frequency Table for All Procedures
As of: September 22, 2010 at 3:15 PM
Date Range: All PROCEDURES

Frequency Col Pct	Table of asa by proccode			Total
	asa	CBGB	CBGC	
	2	1 1.75	0 0.00	1
	3	1 1.75	0 0.00	1
	4	26 45.83	1 100.00	27
	5	29 50.88	0 0.00	29
	Total	57	1	58

ASA Score of 5 =
Moribund patient who is
not expected to survive
for 24 hours with or
without the operation.

*It is unlikely that 50% of the
patients undergoing CBGB
would be classified as a 5.*

Checking the Data: Next Steps

- ❑ **Discuss issues with OR staff, IT staff, and/or data manager**
- ❑ **Determine source of data & source of problem**
- ❑ **Do these results differ from manual entry of data? If so, why is there a difference?**
- ❑ **Have default values been used in the absence of electronic capture of variables?**
- ❑ **Perform data checks on a regular basis!**
 - Especially after any changes in source database(s) and/or NHSN protocol

Resources

❑ Template File

- Includes a header row as a guide – remember: header rows cannot be imported.
- Available at: http://www.cdc.gov/nhsn/forms/instr/57_121.pdf

❑ Procedure Import File Specifications

- Available at:
http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf

❑ SSI Data Collection Protocol and Forms

- Available at:
<http://www.cdc.gov/nhsn/acute-care-hospital/ssi/index.html>

QUESTIONS???

Contact us at:

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