USER GUIDE:

SURGERY FLAG SOFTWARE FOR SERVICES AND PROCEDURES, v2020.1

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WHAT'S NEW IN V2020.1 OF THE SURGERY FLAGS SOFTWARE FOR SERVICES AND PROCEDURES?

- The Surgery Flags Software-Services and Procedures v2020.1 is based on CPT codes valid as of January 1, 2020, with the addition of CPT Category I and Proprietary Laboratory Analyses code changes related to COVID-19 which became effective between March and September, 2020.[1]

- v2020.1 includes an expanded range of codes that include Category I CPT codes under radiology and medicine services and procedures.

- During the review of the additional CPT codes, some inconsistences were identified in the identification of Narrow and Broad surgeries in the Category I surgical and Category III emerging technology codes. For this reason, all codes in v2020.1 were reviewed by certified clinical coding specialists and surgeons:
  - CPT Category I, Surgery:10004–69990
  - CPT Category I, Radiology Procedures: 70010–79999
  - CPT Category I, Medicine Services and Procedures: 90281–99756, excluding the evaluation and management codes in the range 99201-99499
  - CPT Category III Codes, Emerging Technology: 0042T–0593T.

- All codes in the above ranges are assigned surgical flag value. If the CPT code is out of range or invalid for the data year, the surgery flag is missing. This differs from previous versions of the software that identified out of range or invalid CPT codes as not a surgery.

- Additional documentation is available
  - A User Guide (this document) has been created.
  - A Change Log has been created to track changes between the prior and current versions of the tool.

[1] Information on the COVID-19 codes was released by the American Medical Association (AMA) and available at /www.ama-assn.org/system/files/2020-04/coronavirus-long-descriptors.pdf. Accessed October 4, 2020.

INTRODUCTION

This report provides technical documentation for the Healthcare Cost and Utilization Project (HCUP) Surgery Flags Software for Services and Procedures (referred to in this document as Surgery Flags Software-Services and Procedures).

The Surgery Flags Software-Services and Procedures identifies a subset of Healthcare Common Procedure Coding System (HCPCS) Level I codes, commonly referred to as Current Procedural Terminology (CPT®) codes, as surgical procedures. CPT is a proprietary coding system developed and maintained by the American Medical Association (AMA) for coding services provided by health care professionals.[2] There are three types of five-character CPT codes: Category I, which describe services and procedures performed by providers; Category II, which are used for tracking patient follow up and outcomes; and Category III, which indicate the use of emerging technologies. The Surgery Flags Software-Services and Procedures tool includes CPT codes in the following ranges that include at least some surgical procedures:

- CPT Category I, Surgery: 10004–69990
- CPT Category I, Radiology procedures (added in v2019.2): 70010–79999
- CPT Category I, Medicine services and procedures (added in v2019.2): 90281–99756, excluding the evaluation and management codes in the range 99201-99499
- CPT Category III Codes, Temporary codes for emerging or experimental services, technology, or procedures (added v2018): 0042T–0593T.

Excluded are all other ranges of CPT Category I codes (i.e., codes specific to anesthesia, pathology and laboratory procedures, evaluation and management services, laboratory analyses, multianalyte assay) and any CPT Category II codes. Also excluded are all HCPCS Level II codes.

Starting with v2020.1, CPT codes in the specified ranges are classified as one of three categories:

- A narrowly defined surgery (Narrow) that is usually a major therapeutic procedure
- A more broadly defined surgery (Broad) that includes major diagnostic and invasive minor therapeutic procedures
- Neither a narrowly nor broadly defined surgery (Neither).

Background on the development of the Surgery Flags Software-Services and Procedures is provided in Appendix A.

[2] More information on CPTs is available at the American Medical Association website at www.ama-assn.org/practice-management/cpt)

The AMA updates CPT codes on a calendar year basis with an extensive update effective on January 1 and a limited "early release" of codes effective on July 1. The Surgery Flags Software-Services and Procedures is updated annually to coincide with the January update. The Surgery Flags Software-Services and Procedures v2020.1 is based on CPT codes valid on January 1, 2020, with the addition of CPT Category I and Proprietary Laboratory Analyses code changes related to COVID-19 which became effective between March and September 2020.[3]

Files containing the mapping of CPT codes and their corresponding surgery flag assignment can be downloaded from the HCUP User Support (HCUP-US) website.[4]

DESCRIPTION OF THE SURGERY FLAGS SOFTWARE-SERVICES AND PROCEDURES

Definition of Surgery Flags

The Surgery Flags Software-Services and Procedures tool includes CPT codes—specifically, Category I codes in the surgery range (10004–69990), radiology range (70010–79999), medicine range (90281–99756, excluding the evaluation and management codes in the range 99201-99499), and the Category III code range (0042T–0593T). Procedures in these ranges are assigned into one of the three surgery flag assignments:

- **Narrow** surgical procedure
- **Broad** surgical procedure
- **Neither** a narrow nor broad surgical procedure.

Each eligible CPT procedure is clinically reviewed to determine the following characteristics that will determine the surgery flag assignment:

- Does the procedure need to be performed in an operating room (i.e., is it a major procedure)? All other procedures would be considered minor.
- Is the purpose of the major or minor procedure to determine the diagnosis of illness (diagnostic) or for the treatment of a condition (therapeutic)?
- How invasive is the procedure is to the human body?
- Does the procedure require that the patient receives some type of anesthesia or sedation for pain control?

[3] Information on the COVID-19 codes was released by the American Medical Association (AMA) and available at /www.ama-assn.org/system/files/2020-04/coronavirus-long-descriptors.pdf. Accessed October 4, 2020.

[4] The HCUP User Support website can be found at www.hcup-us.ahrq.gov/.

Narrow

An eligible CPT code is classified as a Narrow surgical procedure if it meets the following definition:

- A *major therapeutic procedure* involving incision, excision, manipulation, or suturing of tissue that—
    - Requires the use of an operating room and
    - Penetrates or breaks the skin and
    - Involves regional anesthesia, general anesthesia, or sedation to control pain.

Below are examples of procedures that are classified as Narrow:

- Transplantation of an organ
- Amputation of limb
- Arthroplasty
- Angiographic procedures or other catheter-based procedures that involve a major intervention such as percutaneous transluminal coronary angioplasty (PTCA), vascular stent placement, and transcatheter aortic valve replacement
- Extracorporeal membrane oxygenation (ECMO) if open or by sternotomy or thoracotomy
- Reconstruction (e.g., breast, atria, eyelid)
- Incisions and drainage if the procedure is for a deep abscess, bursa, or below the fascia
- Excision of a malignant lesion with an excised diameter of at least 3.0 cm
- Open treatment of fractures.

There are three notable exceptions to the above definition specifying that the Narrow surgery flag is specific to major therapeutic procedures. The following three procedures, which are primarily performed for a diagnostic purpose, are assigned a Narrow surgery flag based on the degree of their invasiveness:

- Biopsies if the procedure is within an internal organ (e.g., brain, deep cervical node, stomach)
- Thoracotomy with or without biopsy
- Exploratory laparotomy with or without biopsy.

Broad

An eligible CPT code is classified as a Broad surgical procedure if has not been classified as a Narrow surgical procedure and is defined as:

- A *major diagnostic procedure* or a *minor therapeutic procedure* involving incision, excision, manipulation, or suturing of tissue that—
    - Penetrates or breaks the skin and
    - Often requires the use of an operating room and
    - May involve regional anesthesia, general anesthesia, or sedation to control pain.

Below are examples of procedures that are classified as Broad:

- Endoscopic procedures if they include a therapeutic intervention (e.g., incision, destruction of lesion) or diagnostic removal of tissue (e.g., excision, removal of polyp)
- Biopsy of tissue (not within an internal organ)
- Exploratory laparoscopy if it is performed for a diagnostic purpose
- Episiotomy
- Percutaneous skeletal fixation
- Repair of wounds on the scalp or face
- Excision of a malignant lesion with an excised diameter less than 3.0 cm
- Excision of a non-malignant lesion or tumor, regardless of the excised diameter.

Exceptions to a major diagnostic procedure being classified as a Broad surgical procedure are noted under the definition of Narrow. There are also exceptions to a minor therapeutic procedure being classified as a Broad surgical procedure. The Broad assignment *depends on the invasiveness of the procedure*, including the location where the procedure is performed and the degree of anesthesia. If the minor therapeutic procedure does not qualify, it is assigned to Neither a narrow nor broad surgical procedure. Some examples of minor therapeutic procedures and their assigned surgery flag, with justifications, are provided below:

- Cranial puncture is classified as a Broad surgical procedure. It is a minor (percutaneous) procedure, requires minimal anesthesia, and is not routinely performed in the operating room; however, it involves the cranium, and there is a substantial invasive component to the procedure.
- Repair of wound on eyelid is classified as a Broad surgical procedure because, although it is not complex, requires minimal anesthesia, and is not routinely performed in the operating room, it is an invasive procedure.
- Spinal patch is not classified as a Broad surgical procedure because, although it is performed in the operating room under local anesthesia, it is not an invasive percutaneous procedure. Therefore, this procedure is classified as Neither a narrow nor a broad surgical procedure.
- Injection of chemotherapy is not classified as a Broad surgical procedure because it is does not require anesthesia and is not performed in the operating room. Therefore, this procedure is Neither a narrow nor broad surgical procedure.

Neither (Narrow nor Broad)

The Neither surgery flag is assigned to all eligible CPT codes that are *minor diagnostic procedures,* in addition to *minor therapeutic procedures* that do not meet the definition for a Broad surgical procedure. (All major therapeutic and diagnostic procedures are classified as Narrow or Broad surgical procedures.)

Below are examples of procedures that are classified as Neither (narrow nor broad):

- Lithotripsy

- Radiosurgery
- Shaving of epidermal or dermal lesion
- Endoscopy (including colonoscopy) without biopsy or removal of tissue; visual inspection for diagnostic purpose
- Angiography for diagnostic purpose
- Ablation of nerve or vein
- Injections, even if performed for catheter placement

In addition, a CPT code that is only to be reported in tandem with another code (i.e., the CPT code is paired with another code to provide additional information) is classified as Neither broad nor narrow. These paired codes can be identified, although not limited to, the following description within the CPT label: "List separately in addition to code for primary procedure". For example, the CPT code for "PTCA for each additional branch of a coronary artery (List separately in addition to code for primary procedure)" is coded as Neither because it must be reported with the CPT code listing the primary procedure "PTCA single major coronary artery or branch".

USING THE DOWNLOADABLE SURGERY FLAGS SOFTWARE-SERVICES AND PROCEDURES FILES

System Requirements

Using the Surgery Flags Software-Services and Procedures requires a program to decompress or "unzip" files.[5] Approximately 0.5 megabytes of disk space available on one's hard drive also will be needed to accommodate all the Surgery Flags Software-Services and Procedures files. Additional space is necessary for saving the Surgery Flags Software-Services and Procedures output files.

[5] Third-party zip utilities are available from the following reputable vendors on their official websites: ZIP Reader (Windows) (free download offered by PKWARE, Inc.), SecureZIP® for Mac or Windows (free evaluation and licensed/fee software offered by PKWARE, Inc.), WinZip (Windows) (evaluation and fee versions offered by the Corel Corporation), Stuffit Expander® (Mac) (free evaluation and licensed/fee software offered by Smith Micro Software Inc.).

Downloadable Files

Before downloading the Surgery Flags Software-Services and Procedures, users must agree to a license agreement with the AMA for using CPT codes.

The Surgery Flags Software-Services and Procedures zip file contains the following:

1. One translation table in comma separated values (CSV) file format that assigns surgery flags for data sets that contain CPT information. The surgical flag has the following values:[6]
    a. 0 (Neither)
    b. 1 (Broad)
    c. 2 (Narrow).
2. SAS program to apply the tool to the user's data
3. Surgery Flags Software-Services and Procedures User Guide (PDF)
4. Change log detailing changes between v2020.1 and v2019.

Table 1 includes detail on the names and purposes of each file contained in the Surgery Flags Software-Services and Procedures zip file.

Table 1. Contents of the Surgery Flags Software-Services and Procedures Zip File

File Name	Purpose
SurgeryFlags_Services_Procedures_v*yyyy-r*.csv where *yyyy* represents calendar year and *r* represents a release number within the year[a]	The CSV mapping file lists ranges of CPT codes, the surgery flag assignment (a numeric value of 0, 1, or 2), and a header row containing a key that assigns the surgery flag label to the corresponding numeric value. This file can be converted to Excel, where a filter can be applied to examine individual CPT code ranges or surgery flag values.
SurgeryFlags_Services_Procedures_Mapping_Program_v*yyyy-r*.SAS	SAS mapping program applies the Surgery Flags Software-Services and Procedures to the user's data.
SF-SvcProc-User-Guide-v*yyyy-r*.pdf where *yyyy* represents calendar year and *r* represents a release number within the year[a]	This document (i.e., User Guide for the Surgery Flags Software-Services and Procedures in PDF format).

[6] CPT codes outside the specified ranges of surgical, radiology, and medicine codes (in addition to any HCPCS level II codes) are not included in the CSV file. The SAS mapping program will assign these codes a missing surgery flag value (SAS missing value .).

File Name	Purpose
SurgeryFlags_ServicesProcedures_ ChangeLog_v*yyyy*-v*yyyy-r*.xlsx	A log (Microsoft® Excel) comparing two versions of the Surgery Flags Software-Services and Procedures software including a list of changes and assignment of CPT code ranges to a surgery flag value.

Abbreviations: CSV, comma separated values

[a]For example, the first mapping file release to include codes valid through calendar year 2020 is named SurgeryFlags_services_procedures_v2020-1_.csv.

Running the SAS Program to Add Surgery Flags to Data

To download, modify, and run the software to apply the Surgery Flags Software-Services and Procedures to an input dataset, follow these steps:

1. Users should download and extract the contents of the zip file containing the Surgery Flags Software-Services and Procedures tool to a saved location on their computer. Files included in the zip file are described in Table 1 and referenced below.
2. Users must set up the SAS program (SurgeryFlags_Services_Procedures_Mapping_vyyy-r.sas) to run on their data. They must specify or modify where appropriate:
    a. Change the paths in the SAS program to point to the computer location(s) of
        i. The CSV mapping file (SurgeryFlags_Services_Procedures_v*yyyy-r*.csv)
        ii. The input dataset
        iii. The output dataset
    b. Set the macro variables in the SAS program to match the data element names and file structure of the input dataset (Table 2).

Table 2. Modifiable Macro Variables and Directory Paths

Description of Macro Variables and Directory Paths	SAS Program Syntax
File Location	
Specify the location of the CSV mapping file	FILENAME INRAW1
Specify the location of the input dataset	LIBNAME IN1
Specify the location of the output dataset	LIBNAME OUT1
File Names	
Specify the file name of the input dataset	%LET CORE=YOUR_SAS_FILE
Specify the file name of the output dataset	%LET OUT1=OUTPUT_SAS_FILE

Description of Macro Variables and Directory Paths	SAS Program Syntax
Input Characteristics	
Specify the maximum number of CPT codes on any record in the input file. In this example the maximum number of CPT codes on any record is 15. The value of NUMCPT must be numeric and greater than or equal to 1; otherwise, the program will not read in any procedure codes for surgery flag assignment.	%LET NUMCPT=15
Specify the number of observations to use from the input dataset. Use MAX to use all observations; use a smaller value for testing the program.	%LET OBS = MAX
Output File Characteristics	
Specify if you want the output file to include a record-level data element that summarizes if there are any procedures that are Narrow or Broad surgeries. A value of 1 for RECORDLVL will enable the SAS code to create this data element; a value of 0 causes this data element to not be created.	%LET RECORDLVL = 0

Abbreviation: CSV, comma-separate values

Surgery Flag Data Elements in the Output File

This SAS program assumes the input file includes one or more CPT codes in an array. The output file includes all data elements from the input file, in addition to an array of surgery flag data elements (SURG_CPT_FLGn) with a one-to-one correspondence to the array of CPT codes. For example, SURG_CPT_FLG1 includes the surgery flag indication for the CPT code in the first position of the CPT code array. The values of the data elements SURG_CPT_FLGn indicate whether the corresponding CPT code is a surgery (value 2 for Narrow or value 1 for Broad) or not (value 0 for Neither broad nor narrow). The values 0-2 are only assigned to CPT codes in the following code ranges:

- CPT Category I, Surgery: 10004–69990
- CPT Category I, Radiology procedures (added in v2019.2): 70010–79999
- CPT Category I, Medicine services and procedures (added in v2019.2): 90281–99756, excluding the evaluation and management codes in the range 99201-99499
- CPT Category III Codes, Temporary codes for emerging or experimental services, technology, or procedures (added v2018): 0042T–0593T.

CPT codes outside the specified ranges (in addition to any HCPCS level II codes) are assigned a missing value for the surgery (SAS missing value .).

An additional data element, RECORDLVL, indicates if any CPT on the record is a Narrow or Broad surgery, respectively. It works by scanning the array of surgery flags (SURG_CPT_FLGn) created by the program. The record-level flag will indicate the highest surgery flag value on the record. For example, if a record had at least one surgery classified as Narrow, the record-level flag would have a value of 2 for Narrow.

CPT CODES VALID PRIOR TO JANUARY 1, 2020

For users interested in applying the Surgery Flags Software-Services and Procedures to CPT codes valid before January 1, 2020, two versions of the software are archived for download on the HCUP User Support (HCUP-US) website.

- **v2019.2** includes CPT codes valid at any time during calendar years 2018 and 2019. The identification of Surgery Flags is consistent with v2020.1 and includes the additional medicine and radiology codes and the revised coding of surgical codes.
- **v2019.1** includes CPT codes released at any time between January 2013 and January 1, 2019. The mapping of codes into Narrow or Broad surgeries may not take into consideration longitudinal changes in code definitions. This version does not include any of the additions or revisions implemented in v2020.1.

APPENDIX A: BACKGROUND ON THE DEVELOPMENT OF THE SURGERY FLAGS SOFTWARE FOR SERVICES AND PROCEDURES

The Surgery Flags Software for ICD-9-CM was used as the starting point for the Surgery Flags Software-Services and Procedures. The initial mapping of CPTs into the surgical and assignments utilized crosswalks that mapped ICD-9-CM procedure codes to CPT codes for data year 2013.[7] The information was used to identify CPT codes that were equivalent to ICD-9-CM procedure codes with a surgical assignment of Broad or Narrow. The CPT range was limited to the American Medical Association (AMA) code range for surgical codes 10021-69990. The code range was consistent with the CPTs listed as covered surgical procedures by the Center for Medicare and Medicaid Services (CMS) for ambulatory surgery centers (ASCs) in calendar year 2013. If the crosswalk mapped the CPT code to an ICD-9-CM procedure that was Narrow or Broad, the CPT code was also considered Narrow or Broad, respectively. A certified clinical coding specialist, a general surgeon, and AHRQ staff systematically reviewed questionable coding through the following process:

- Each CPT code was reviewed by a coder and categorized based on the definitions and key terms described under the above section, Definition of Surgery Flags. A coder rationale was provided for each questionable code.
- If there was not one best category or if there was lack of clarity about what the procedure involved, the general surgeon reviewed the code and categorized it based on the definitions. A surgeon rationale was provided for each questionable code.
- AHRQ staff reviewed the codes and the rationale.
- CPT code assignments were re-reviewed and discussed and reassignments were made based on consensus.
- A final review was conducted by AHRQ staff.

The Surgery Flags Software-Services and Procedures was first released in September 2014. Periodic updates to the tool were released with the range of eligible CPT codes expanded to include Category III emerging technology codes in 2018. Each new release replaced the old version and retained historical CPT codes.

In 2020, the Surgery Flags Software-Services and Procedures v2020.1 expanded the range of eligible codes to include Category I CPT codes under radiology and medicine services and procedures. The calendar year 2020 CMS list of covered surgical procedures for ASCs also includes CPT cardiac codes in the range 92920-93986. During the review of the additional CPT codes, some inconsistences were identified in the identification of Narrow and Broad surgeries in the Category I surgical and Category III emerging technology codes. For this reason, all codes in the following ranges were reviewed in 2020:

[7] The crosswalk was provided by Optum and Truven Health Analytics.

- CPT Category I, Surgery:10004–69990
- CPT Category I, Radiology Procedures: 70010–79999
- CPT Category I, Medicine Services and Procedures: 90281–99756, excluding the evaluation and management codes in the range 99201-99499
- CPT Category III Codes, Emerging Technology: 0042T–0593T.

A team of certified clinical coding specialists, surgeons, and AHRQ staff reviewed the assignment of CPT codes included in these ranges that were valid in 2018-2020. Codes were separately reviewed by the clinical coding expert and the surgeons. Coding assignments that were in disagreement were reviewed with AHRQ staff and resolved. In addition, the surgery flag designation was compared to the Clinical Classification Software (CCS) for Service and Procedures to ensure consistency between procedures identified as Narrow and CCS categories for operating room procedures. The updated coding is included in the Surgery Flags Software-Services and Procedures tool starting with v2019.2 and V2020.1.

Additional analysis of the updated coding in v2019.2 and v2020.1 of the tool is needed to see how the surgery flags align with utilization and costs. Ongoing analyses may also be needed as changes in surgical techniques and advancement of technology transition major surgeries into minor procedures and, therefore, affect the designation of surgery flags over time.