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HEALTHCARE COST AND UTILIZATION PROJECT

# HCUP Methods Series

## Evaluation of the State Ambulatory Surgery Databases Available through the HCUP Central Distributor, 2004
## Report# 2007-04

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## INTRODUCTION

Ambulatory surgeries have become more common over the past two decades, and the number of ambulatory surgical centers has reflected similar growth. For example, between 1988 and 2002, the number of surgeries reported by Colorado, New Jersey, and New York rose from 0.9 million to 2.1 million.[1] In addition, the last two decades have witnessed a steep rise in the number of ambulatory surgical centers: these facilities have increased from 336 in 1985 to 3,567 in 2003.[2] This dramatic growth in ambulatory surgeries and surgical centers was fueled by cost concerns and new medical technologies that made ambulatory surgery more practical.

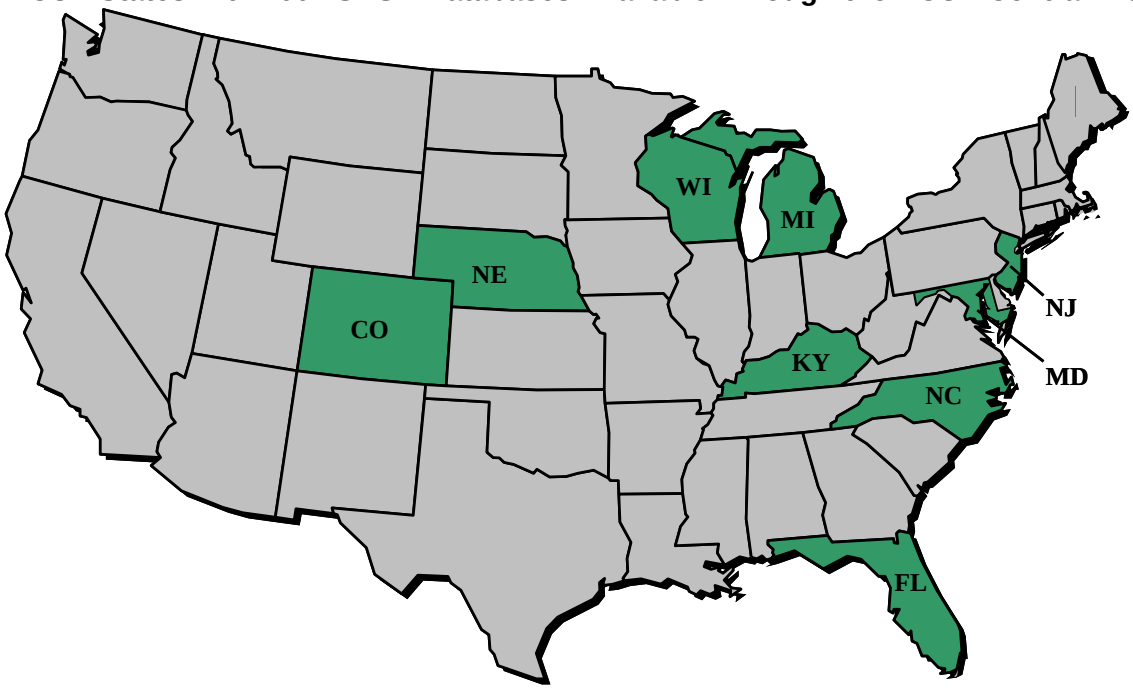
In 1997, the Agency for Healthcare Research and Quality (AHRQ) began collecting ambulatory surgery data as part of the Healthcare Cost and Utilization Project (HCUP) and making public versions of these databases available via the HCUP Central Distributor. This report describes the 2004 State Ambulatory Surgery Databases (SASD) for each of the 9 states that provide ambulatory surgery data to HCUP and make the data available via the HCUP Central Distributor. The report also describes the completeness of the 2004 SASD with respect to ambulatory surgical facilities. The method used to accomplish this evaluation was to compare the SASD counts of ambulatory surgery facilities and visits to corresponding numbers reported in the 2004 American Hospital Association (AHA) Annual Survey Database and the 2004 Freestanding Outpatient Surgery Center (FOSC) file maintained by Verispan. This report also describes the number of surgeries by body system and illustrates how some states use two types of coding systems in their classification of procedures.

The 9 states that contributed data to the HCUP Central Distributor SASD (hereafter SASD-CD) are Colorado, Florida, Kentucky, Maryland, Michigan, Nebraska, New Jersey, North Carolina, and Wisconsin.

The first section of this report contains an overview of the 2004 SASD-CD. In the second section, alternative sources of comparative data are considered and it is determined that the two above-mentioned sources, the AHA Annual Survey Database and the FOSC file, are the best comparative databases for our purposes. Consequently, the third section compares the SASD-CD counts to the counts reported in the AHA and the FOSC for the 9 states participating in the SASD-CD. The fourth section provides the frequencies of ambulatory surgeries contained in the SASD-CD, by body system. The final section offers some conclusions on the usefulness and potential research value of the 2004 SASD available through the HCUP Central Distributor.

[1]Number of records in HCUP SASD files. Accessed at http://www.hcup-us.ahrq.gov/ on May 24, 2006.
[2]Centers for Medicare & Medicaid Services. "CMS Benefit Payments by Major Program Service Categories, Fiscal Year 2001." *2003 CMS Data Compendium*. November 2003. Accessed at http://www.cms.hhs.gov/DataCompendium/02_2003_Data_Compendium.asp on January 12, 2006.

**HCUP States with 2004 SASD Databases Available Through the HCUP Central Distributor**




Note: Alaska and Hawaii do not participate in the SASD

Key: Participating; Non-Participating

## 2004 HCUP STATE AMBULATORY SURGERY DATABASES (SASD) AVAILABLE THROUGH THE HCUP CENTRAL DISTRIBUTOR

Ambulatory surgery visit data have been disseminated via the HCUP Central Distributor beginning in data year 1997. For 2004, nine standardized state databases were constructed and made available to the researchers via the HCUP Central Distributor. These nine databases contain all of the ambulatory surgery records publicly available through HCUP and include approximately 7.5 million surgeries. The types of facilities contained in the publicly-available SASD varied across states. States supplied ambulatory surgery records from hospital-based and hospital-affiliated ambulatory surgery centers. Select states also supplied ambulatory surgery records from freestanding facilities.

Table 1 presents the number of hospital-based and freestanding facilities included in each HCUP Central Distributor state SASD file. The HCUP SASD-CD definition of a hospital-based facility is used. Namely, SASD facilities that could be matched to a facility contained in the 2004 American Hospital Association Annual Survey Database (discussed in the next section) were considered to be hospital-based; all others were considered freestanding. In the 2004 SASD-CD, 975 ambulatory surgical facilities were hospital-based (72 percent) and 385 were freestanding facilities (28 percent). The two states with the greatest number of ambulatory surgical facilities in the 2004 SASD-CD were Florida and Wisconsin.

The 2004 SASD-CD are defined in a substantially different way than is the case for other data years. In an attempt to create uniformly defined outpatient databases, AHRQ approved screening the outpatient data provided by the HCUP Partners and assigning records to the SASD-CD or State Emergency Department Databases (SEDD) based on information coded on the record. For the SASD-CD, the criteria for identifying ambulatory surgery records include a

range of International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) and Current Procedural Terminology (CPT) procedures codes indicating surgery, in addition to a one-day limit on the length of stay. Records satisfying the ambulatory surgery criteria were assigned to the SASD-CD without regard for their origin in an ambulatory surgery or emergency department file. Those records that satisfied both ambulatory surgery and emergency department criteria were included in the SASD-CD files.

**Table 1: Number of Hospital-Based and Freestanding Facilities by State Available Through the HCUP Central Distributor, 2004 SASD-CD**

| State | Number of Hospital-based Facilities | Number of Freestanding Facilities | Total Number of Facilities |
|---|---|---|---|
| Colorado | 71 | 0 | 71 |
| Florida | 206 | 311 | 517 |
| Kentucky | 100 | 2 | 102 |
| Maryland | 48 | 0 | 48 |
| Michigan | 132 | 0 | 132 |
| Nebraska | 84 | 0 | 84 |
| New Jersey | 85 | 0 | 85 |
| North Carolina | 120 | 34 | 154 |
| Wisconsin | 129 | 38 | 167 |
| **Total** | **975** | **385** | **1,360** |

## POTENTIAL COMPARATIVE AMBULATORY SURGERY DATABASES

In order to describe the completeness of the 2004 SASD-CD, three potential comparative databases were identified. These databases are: 1) the Provider of Services (POS) file maintained by the Centers for Medicare and Medicaid Services (CMS), 2) the Freestanding Outpatient Surgery Center (FOSC) file maintained by Verispan, and 3) the Annual Survey Database, fielded and maintained by the American Hospital Association (AHA). All three databases contain only summarized, facility-level data; none contains visit-level data.

Each database encompasses a slightly different set of facilities, as shown in Table 2. In this table, facilities are defined as *hospital-based* only if they are physically connected to main hospital facilities. All other facilities are considered to be *freestanding*. Regardless of setting, facilities may be operated either by a hospital or by a third party.

**Table 2: Comparison of Types of Ambulatory Surgery (AS) Facilities in Each Information Source**

| Type of Facility | FOSC | POS[3] | AHA |
|---|---|---|---|
| AS facility – hospital-based and controlled | No | Yes | Yes |
| AS facility – hospital-based, third-party control | Yes | Yes | Yes |
| AS facility – freestanding, hospital affiliation | Yes | Yes | Yes |
| AS facility – freestanding, with no hospital affiliation | Yes | Yes | No |
| Services originating at other sites, such as physician offices | No | Yes | No |

[3]Note: Coverage is limited to providers reimbursed for Medicare covered services.

Provider of Services (POS) File

The Centers for Medicare and Medicaid Services (CMS) Provider of Services (POS) file lists facilities certified for Medicare participation. It contains facility name and location information and specifies the type of provider, but omits service count information. The POS is used for claim adjudication; Medicare reimbursements are made only to listed facilities. Quarterly updates are available with little or no lag time.

While the POS file lists facilities that provide outpatient surgery in all settings, the information is limited to participating Medicare facilities and does not contain counts of surgeries. Consequently, this file was not used for assessing the completeness of the SASD-CD.

Freestanding Outpatient Surgery Center (FOSC) Data

The FOSC profiles freestanding ambulatory surgery centers on an annual basis. Data are collected by Verispan through an annual survey of freestanding outpatient surgery centers and all data are self-reported by the facilities. Verispan attempts to survey all except the most recently opened outpatient surgery centers. In 2003, Verispan estimated that they were able to obtain responses from 75% of existing outpatient surgical centers.

The FOSC file does not include identifiers compatible to those on the HCUP or AHA files, so a manual comparison was employed to assign a linkable variable to the FOSC data. Because the FOSC file includes only information on freestanding facilities, and only a subset of states (Florida, North Carolina, Utah, and Wisconsin) collect data from such facilities, manual matching was limited to only these states.

AHA Annual Survey Database

The AHA Annual Survey Database identifies hospital-associated ambulatory surgery facilities. These survey-based data include hospital descriptors and counts of outpatient surgeries from nearly all hospital-affiliated facilities nationwide. Annual updates are generally available toward the end of the year following the survey. AHA data exclude freestanding outpatient surgery facilities lacking a hospital affiliation.

## COMPARISONS BETWEEN THE SASD-CD, THE AHA ANNUAL SURVEY, AND FOSC DATA

Table 3 compares 2004 SASD-CD surgery counts from the 2004 AHA and FOSC data for nine states. The definition of “surgeries” is determined by each individually-reporting state. For the purposes of this report, all encounters that were defined by a state as ambulatory surgery encounters are referred to as *surgeries*. For each state, the table presents the number of facilities and the number of surgeries for each combination of data sources. As an example, for Colorado, the first row shows no facilities were matched to all three data sources. In the case of Florida, the first row reveals that five facilities were present in all three data sources. For those facilities combined, the SASD-CD reports 10,175 surgeries, the AHA reports 7,959 surgeries and the FOSC reports zero surgeries. The low frequency of facilities matched in all three data sources in Florida was consistent with the frequency found in other states.

The “Totals” portion of Table 3 also demonstrates how the SASD-CD and the AHA files compare. For facilities matched between these two files (the row labeled “SASD&AHA Total” near the bottom of the table), a higher number of SASD-CD surgery counts (9,032,338) than AHA surgery counts (4,203,926) are noted. In comparing the three files, the highest number of

facility matches was between the SASD-CD and the AHA file, which contains facilities that are hospital-based or hospital-affiliated.

Despite efforts to match facilities between the SASD-CD and the FOSC files, no facilities were found with exclusive matches between these two files. Similarly, there were no facilities matched exclusively between the AHA file and the FOSC file. Hence, Table 3 does not present rows for matches exclusively between the SASD-CD and the FOSC or exclusively between the AHA and the FOSC.

Comparing the total number of surgeries reported for the SASD-CD ("SASD Total" row) with the number of surgeries in both the AHA and SASD-CD ("SASD&AHA Total" row) implies that the vast majority of SASD-CD surgeries occurred in hospital-based or hospital-affiliated facilities. Of the 7,513,743 surgeries in the SASD, 9,032,338 (83%) were contained in the 959 facilities matched to the AHA file.

It is important to recognize that the facility and discharge totals might possibly double- or even triple-count some units contained in multiple files that could not be matched for some reason.

**Table 3: Number of Facilities and Surgeries by State and Data Source Available through the HCUP Central Distributor, 2004 SASD**

| State | Data Source | Number of Facilities | Number of SASD Surgeries | Number of AHA Surgeries | Number of FOSC Surgeries |
|---|---|---|---|---|---|
| Colorado | SASD + AHA +FOSC | - | - | - | - |
| | SASD+AHA | 69 | 389,286 | 195,119 | 0 |
| | SASD only | 2 | 3,466 | 0 | 0 |
| | AHA only | 20 | 0 | 11,352 | 0 |
| | FOSC only | 10 | 0 | 0 | 23,251 |
| | Total | 101 | 392,752 | 206,471 | 23,251 |
| Florida | SASD + AHA +FOSC | 1 | 10,175 | 7,959 | 0 |
| | SASD+AHA | 200 | 1,526,912 | 797,341 | 0 |
| | SASD only | 316 | 1,210,410 | 0 | 0 |
| | AHA only | 62 | 0 | 35,144 | 0 |
| | FOSC only | 84 | 0 | 0 | 369,305 |
| | Total | 663 | 2,747,497 | 840,444 | 369,305 |
| Kentucky | SASD + AHA +FOSC | 1 | 22,188 | 4,923 | 0 |
| | SASD+AHA | 99 | 691,086 | 357,838 | 0 |
| | SASD only | 2 | 9,358 | 0 | 0 |
| | AHA only | 26 | 0 | 12,760 | 0 |
| | FOSC only | 6 | 0 | 0 | 27,310 |
| | Total | 134 | 722,632 | 375,521 | 27,310 |
| Maryland | SASD + AHA + FOSC | 1 | 21,612 | 2,842 | 0 |
| | SASD+AHA | 47 | 864,436 | 358,915 | 0 |
| | SASD only | | | | |
| | AHA only | 26 | 0 | 11,241 | 0 |
| | FOSC only | 39 | 0 | 0 | 92,738 |
| | Total | 113 | 886,048 | 372,998 | 92,738 |
| Michigan | SASD + AHA + FOSC | - | - | - | - |
| | SASD+AHA | 131 | 1,519,925 | 757,543 | 0 |
| | SASD only | 1 | 3,851 | 0 | 0 |
| | AHA only | 44 | | 37,190 | 0 |
| | FOSC only | 14 | 0 | 0 | 59,890 |

| State | Data Source | Number of Facilities | Number of SASD Surgeries | Number of AHA Surgeries | Number of FOSC Surgeries |
|---|---|---|---|---|---|
| | Total | 190 | 1,523,776 | 794,733 | 59,890 |
| Nebraska | SASD + AHA + FOSC | - | - | - | - |
| | SASD+AHA | 83 | 172,424 | 124,259 | 0 |
| | SASD only | 1 | 2,866 | 0 | 0 |
| | AHA only | 10 | 0 | 6,723 | 0 |
| | FOSC only | 3 | 0 | 0 | 6,100 |
| | Total | 97 | 175,290 | 130,982 | 6,100 |
| New Jersey | SASD + AHA + FOSC | 1 | 10,045 | 11,253 | 0 |
| | SASD+AHA | 83 | 340,032 | 412,016 | 0 |
| | SASD only | 1 | 37 | 0 | 0 |
| | AHA only | 23 | 0 | 2,200 | 0 |
| | FOSC only | 23 | 0 | 0 | 109,929 |
| | Total | 131 | 350,114 | 425,489 | 109,929 |
| North Carolina | SASD + AHA + FOSC | 1 | 4,418 | 2,802 | 0 |
| | SASD+AHA | 118 | 1,254,457 | 599,709 | 0 |
| | SASD only | 35 | 140,320 | 0 | 0 |
| | AHA only | 32 | 0 | 22,546 | 0 |
| | FOSC only | 12 | 0 | 0 | 86,100 |
| | Total | 198 | 1,399,195 | 625,057 | 86,100 |
| Wisconsin | SASD + AHA + FOSC | 2 | 6,051 | 3,421 | 0 |
| | SASD+AHA | 122 | 680,696 | 422,811 | 0 |
| | SASD only | 43 | 148,287 | 0 | 0 |
| | AHA only | 22 | 0 | 6,019 | 0 |
| | FOSC only | 5 | 0 | 0 | 14,454 |
| | Total | 194 | 835,034 | 432,251 | 14,454 |
| Totals | SASD + AHA + FOSC | 7 | 74,489 | 33,200 | 0 |
| | SASD+AHA | 952 | 7,439,254 | 4,025,551 | 0 |
| | SASD&AHA Total | 959 | 7,513,743 | 4,058,751 | 0 |
| | SASD only | 401 | 1,518,595 | 0 | 0 |
| | SASD Total | 1,360 | 9,032,338 | 4,058,751 | 0 |
| | AHA only | 265 | 0 | 145,175 | 0 |
| | FOSC only | 196 | 0 | 0 | 789,077 |
| | Total | 1,821 | 9,032,338 | 4,203,926 | 789,077 |

Note: an entry of "-" indicates that the information required to calculate this value was not available. The state does not collect data from freestanding facilities so the crosswalk required to compare the FOSC and other data was not prepared. Rows for FOSC and SASD-CD or FOSC and AHA are suppressed in the table because no exclusive matches existed.

## TYPES OF SURGERIES CAPTURED BY THE SASD

Table 4 offers some insight into the nature of the visit data captured in the 2004 SASD-CD. This table presents the number of surgeries classified by 16 major body systems. This classification was accomplished using AHRQ's Clinical Classification Software (CCS). There are two versions of the software, one for ICD-9-CM procedure codes and another for CPT procedure codes. The ICD CCS program aggregates procedure codes into 231 mutually exclusive procedure categories. The CPT CCS program aggregates procedure codes into the same 231 categories

plus six additional, CPT-specific categories. For this report, these categories were grouped into 16 major body systems. Table 4 provides the number of surgeries by these two coding systems. For both coding systems, all listed procedures are examined. Missing values are ignored.

**Table 4: Number of ICD-9-CM and CPT Surgeries by CCS Procedure Category Available through the HCUP Central Distributor, 2004 SASD**

| Description | ICD-9-CM | | CPT CCS | |
|---|---|---|---|---|
| | Number of Procedure Codes | Percent | Number of Procedure Codes | Percent |
| Digestive System | 2,220,590 | 22.9 | 433,354 | 6.0 |
| Miscellaneous Diagnostics and Therapeutic | 1,336,038 | 13.8 | 3,741,652 | 51.6 |
| Integumentary System | 1,091,663 | 11.2 | 262,452 | 3.6 |
| Musculoskeletal System | 1,066,769 | 11.0 | 220,143 | 3.0 |
| Eye | 767,584 | 7.9 | 134,544 | 1.9 |
| Nervous System | 678,902 | 7.0 | 147,181 | 2.0 |
| Cardiovascular System | 609,653 | 6.3 | 109,045 | 1.5 |
| Nose, Mouth, and Pharynx | 506,662 | 5.2 | 89,293 | 1.2 |
| Female Genital System | 421,644 | 4.3 | 84,860 | 1.2 |
| Urinary System | 314,990 | 3.2 | 61,155 | 0.8 |
| Ear | 217,572 | 2.2 | 36,938 | 0.5 |
| Respiratory System | 114,505 | 1.2 | 37,241 | 0.5 |
| Obstetrical | 111,762 | 1.2 | 45,221 | 0.6 |
| Male Genital System | 90,661 | 0.9 | 19,383 | 0.3 |
| Heme and Lymphatic System | 61,865 | 0.6 | 12,168 | 0.2 |
| Endocrine System | 27,661 | 0.3 | 4,192 | 0.1 |
| HCPCS | - | - | 1,746,633 | 24.1 |
| Invalid or Inconsistent | 71,605 | 0.7 | 70,203 | 1.0 |
| **Total** | **9,710,126** | **100** | **7,255,658** | **100** |

* HCPCS refers to Health Care Procedure Coding System National Level II codes, which are often used with CPT codes to enhance their scope. They are not used to categorize procedures in this table because no mapping to CCS exists at the present time.

As shown in Table 4, the rank orderings of the surgery categories are similar, with two notable exceptions. One exception, Miscellaneous Diagnostics and Therapeutic procedures, represents almost 14 percent of the ICD-9-CM procedures compared with more than 51 percent of the CPT procedures. This result probably reflects the greater emphasis placed on these types of procedures in the CPT system. The second exception, the “HCPCS” category, includes codes focusing on supplies, materials, injections, and services. Although some overlap exists between HCPCS and CPT codes, it is likely that a preponderance of this category represents information not captured by the CPT or ICD-9-CM.

Table 4 demonstrates that ambulatory surgery care is strongly concentrated in treatments for only a few body systems. Surgeries related to the digestive system account for more than 24 percent. The top three body systems account for more than 45 percent of procedures and the top five for 60 percent of procedures.

Appendix A contains a large table presenting CCS statistics derived from the ICD-9-CM and CPT procedures for all the HCUP SASD-CD states by body system. In this table, the range of CCS categories included in each column is shown under each column heading. Two additional

categories not related to body systems are also presented as columns: HCPCS codes, which are only encountered in conjunction with CPT codes, and Invalid or Inconsistent. This latter category includes only those records with no valid codes and one or more invalid or inconsistent codes. The rows of this table, organized by state, capture the number of times each body system CCS code appears on a record. Because a single record can have more than one procedure, it is important to note that more than one body system code can appear on a single record. The percentages represent the proportion of records from a specific state that included one or more body system codes in a category in relation to the total number of records for that state. Because there may be more than one code per record, the sum of the percentages for each state does not add to one.

Appendix A reflects the diversity in the use of both ICD-9-CM and CPT coding by state in the SASD. Some States, such as Kentucky and New Jersey, use only ICD-9-CM coding in their SASD-CD data. One state, Maryland, uses only CPT coding. Hence, some states in Appendix A will not have observations for a particular coding system. The remaining states, which use both coding systems, have body system values for each coding system. Appendix B contains more details on the states that use both coding systems.

States that use ICD-9-CM codes on more than half their records generally have a greater number of observations for ICD-9-CM than CPT codes for a particular body system. For the digestive system, for example, Wisconsin has 299,679 procedure codes using the ICD-9-CM coding system compared to 55,532 codes using the CPT coding system. Other states such as Florida have more CPT codes than ICD-9-CM codes for a particular body system category: more than 60% of Florida records use only the CPT coding system. Florida has more CPT codes than ICD-9 codes for all 16 body system categories.

The influence of the reporting practices and capabilities of the states may be seen by comparing the percentages reported between coding systems for a single category. For example, in Colorado where the ICD-9-CM and CPT systems each have 15 fields on a record, and where the hospitals are encouraged to provide both coding systems, the percentage of records with digestive codes are nearly equal (25 percent ICD-9-CM vs. 22 percent CPT). In contrast, in Florida where there is only a single ICD-9-CM field and 15 CPT fields, the percentage of records with digestive codes differs greatly between the two systems (10 percent ICD-9-CM vs. 32 percent CPT).

Appendix A shows how the use of these coding systems by state. In addition, the high percentages of HCPCS codes in some states mean that even using both ICD-9-CM and CPT codes may not completely characterize care provided in these states. Analysts should be aware of the utilization of different procedure coding systems in their analyses of SASD-CD data.

## COMPARISONS BETWEEN ICD-9-CM CODES AND CPT CODES

Appendix B provides additional information for analysts who are interested in working with SASD-CD data. Comparisons are made between the ICD-9-CM and CPT codes, including direct, record-level comparisons for states that use both systems. The states that use each coding system are identified, and the number of SASD-CD records using each system are presented. Similarities and differences between the ICD-9-CM and CPT coding systems are illustrated by comparing CCS categories for both coding systems. The level of agreement between the two systems based on data from states that use both coding systems is also evaluated.

The number of codes reported depends on the file type from which they were obtained. The lowest average number of codes on a record was reported using ICD-9-CM. More CPT codes

were used, with the average number being higher for the states where these codes were included in the line item charge detail files. These consist of files with records providing detailed information about individual charges. For these states, there is no upper limit on the number of codes per record.

To obtain a complete view of the procedures performed during a visit, it is generally necessary to refer to both the ICD-9-CM and CPT codes. In one state (North Carolina) every record with ICD-9-CM codes also includes CPT codes. For the remainder of the states providing codes in both systems, the coding frequencies are mixed: some records contain only ICD-9-CM codes, some records contain only CPT codes, and some records contain both types of codes.

When ICD-9-CM and CPT codes are both present on a record, they often provide different information. The frequency with which the information provided in the two systems translates to the same set of CCS categories varies widely, ranging from 13 percent to 85 percent, depending on the state.

For records with only a single ICD-9-CM and CPT code, the CCS categories matched more than 80 percent of the time for 2 of 9 states, but fell to less than 20 percent in the state with the lowest match rate. Eight of the top 10 CCS categories were the same for both systems and there was a high degree of agreement between the CCS categories derived from both systems. The CCS CPT matched the ICD-9-CM CPT more than 90 percent of the time in 8 of 10 categories, and the ICD-9-CM CPT matched the CCS CPT over 90 percent of the time in 7 of 10 categories.

## CONCLUSION

The types of facilities covered by the 2004 SASD-CD vary substantially across states. By matching SASD-CD facilities with those reported in the AHA and FOSC survey data, it was possible to classify most of the SASD-CD facilities as either hospital-based or freestanding. The SASD-CD from some states appear to be limited mainly to hospital-based facilities, while the SASD-CD from other states also includes a substantial number of freestanding facilities.

In terms of the types of surgeries recorded in the SASD-CD files, the greatest proportions of ambulatory surgeries are related to the digestive system, the integumentary system, and the musculoskeletal system.

Overall, the pattern of use by body system appears relatively consistent among states. However, for states like Florida, which have little overlap between ICD-9-CM and CPT coding, reporting of use is split between the two systems. Especially in these cases, information from both coding systems must be utilized to obtain a complete picture of the procedures performed.

Substantial variability exists in the utilization for particular body systems. A notable example is found in the unusually high utilization of procedures on female genital sysytem and on the musculoskeletal system. The cause of this variation is unclear and might serve as an interesting research topic in the future.

The disparity in utilization displayed for the category Diagnostic and Therapeutic Procedures that might be expected given the differing emphasis accorded this category of procedures by the coding systems was evident in the data. The percentage of codes reported using ICD-9-CM were in the 3 to 23 percent range, while CPT codes reached 80 percent in the most extreme state. Even those states with substantial coding in both systems, like Florida, reflected CPT coding in the 35 percent range.

Using the CCS as a means to compare and combine information from the ICD-9-CM and CPT codes proved to be a fruitful approach. Using it as a grouper allowed consistent comparisons without encountering the problems associated with attempting to translate directly between incompatible coding systems.

In sum, this report demonstrated that although a substantial amount of information is duplicated between the two coding systems, there is still an appreciable amount of information that is unique to one or the other set of codes. This is especially important for the Diagnostic and Therapeutic category.

In conclusion, the 2004 SASD-CD is a rich source of ambulatory surgery data, providing information on 9,032,338 encounters in 1,360 facilities in 9 states. These files can be useful to a broad range of researchers and policy analysts, especially for state-specific analyses.

## APPENDIX A: COMPARISON OF ICD-9-CM AND CPT PROCEDURE CODE USE BY BODY SYSTEM IN SELECT STATES

### Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD

| | | Nervous System (1-9) | | Endocrine System (10-12) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 36,371 | 33,231 | 2,101 | 1,060 |
| | Percent of State Total | 9.26 | 8.46 | 0.53 | 0.27 |
| Florida | Number of Codes | 56,873 | 278,670 | 7,706 | 8,190 |
| | Percent of State Total | 2.07 | 10.14 | 0.28 | 0.30 |
| Kentucky | Number of Codes | 51,019 | N/A | 2,680 | N/A |
| | Percent of State Total | 7.06 | N/A | 0.37 | N/A |
| Maryland | Number of Codes | N/A | 35,241 | N/A | 1,104 |
| | Percent of State Total | N/A | 3.98 | N/A | 0.12 |
| Michigan | Number of Codes | 89,601 | 66,998 | 4,212 | 2,128 |
| | Percent of State Total | 5.88 | 4.40 | 0.28 | 0.14 |
| Nebraska | Number of Codes | 11,641 | 16,044 | 591 | 682 |
| | Percent of State Total | 6.64 | 9.15 | 0.34 | 0.39 |
| New Jersey | Number of Codes | 21,739 | N/A | 513 | N/A |
| | Percent of State Total | 6.21 | N/A | 0.15 | N/A |
| North Carolina | Number of Codes | 3,093 | 95,442 | 4,780 | 3,026 |
| | Percent of State Total | 0.22 | 6.82 | 0.34 | 0.22 |
| Wisconsin | Number of Codes | 102,575 | 26,094 | 2,804 | 68 |
| | Percent of State Total | 12.28 | 3.12 | 0.34 | 0.01 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Eye (13-21) | | Ear (22-26) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 22,058 | 16,691 | 6,247 | 4,533 |
| | Percent of State Total | 5.62 | 4.25 | 1.59 | 1.15 |
| Florida | Number of Codes | 46,381 | 363,870 | 10,527 | 37,941 |
| | Percent of State Total | 1.69 | 13.24 | 0.38 | 1.38 |
| Kentucky | Number of Codes | 35,035 | N/A | 15,206 | N/A |
| | Percent of State Total | 4.85 | N/A | 2.10 | N/A |
| Maryland | Number of Codes | N/A | 26,889 | N/A | 6,559 |
| | Percent of State Total | N/A | 3.03 | N/A | 0.74 |
| Michigan | Number of Codes | 96,136 | 71,174 | 31,562 | 21,574 |
| | Percent of State Total | 6.31 | 4.67 | 2.07 | 1.42 |
| Nebraska | Number of Codes | 5,655 | 8,407 | 2,718 | 5,228 |
| | Percent of State Total | 3.23 | 4.80 | 1.55 | 2.98 |
| New Jersey | Number of Codes | 28,033 | N/A | 9,838 | N/A |
| | Percent of State Total | 8.01 | N/A | 2.81 | N/A |
| North Carolina | Number of Codes | 116,067 | 102,799 | 32,190 | 29,705 |
| | Percent of State Total | 8.30 | 7.35 | 2.30 | 2.12 |
| Wisconsin | Number of Codes | 78,153 | 23,005 | 18,695 | 4,832 |
| | Percent of State Total | 9.36 | 2.75 | 2.24 | 0.58 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Nose, Mouth, and Pharynx (27-33) | | Respiratory System (34-42) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 24,553 | 14,591 | 6,288 | 4,512 |
| | Percent of State Total | 6.25 | 3.72 | 1.60 | 1.15 |
| Florida | Number of Codes | 29,061 | 80,899 | 23,596 | 45,713 |
| | Percent of State Total | 1.06 | 2.94 | 0.86 | 1.66 |
| Kentucky | Number of Codes | 26,828 | N/A | 8,693 | N/A |
| | Percent of State Total | 3.71 | N/A | 1.20 | N/A |
| Maryland | Number of Codes | N/A | 16,308 | N/A | 18,817 |
| | Percent of State Total | N/A | 1.84 | N/A | 2.12 |
| Michigan | Number of Codes | 71,251 | 44,043 | 20,766 | 19,318 |
| | Percent of State Total | 4.68 | 2.89 | 1.36 | 1.27 |
| Nebraska | Number of Codes | 6,258 | 8,656 | 1,689 | 2,363 |
| | Percent of State Total | 3.57 | 4.94 | 0.96 | 1.35 |
| New Jersey | Number of Codes | 23,767 | N/A | 4,102 | N/A |
| | Percent of State Total | 6.79 | N/A | 1.17 | N/A |
| North Carolina | Number of Codes | 69,891 | 60,755 | 18,745 | 17,407 |
| | Percent of State Total | 5.00 | 4.34 | 1.34 | 1.24 |
| Wisconsin | Number of Codes | 39,838 | 5,804 | 10,172 | 950 |
| | Percent of State Total | 4.77 | 0.70 | 1.22 | 0.11 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Cardiovascular System (43-63) | | Heme and Lymphatic System (64-67) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 17,914 | 5,781 | 4,223 | 3,031 |
| | Percent of State Total | 4.56 | 1.47 | 1.08 | 0.77 |
| Florida | Number of Codes | 61,172 | 129,759 | 7,244 | 18,450 |
| | Percent of State Total | 2.23 | 4.72 | 0.26 | 0.67 |
| Kentucky | Number of Codes | 32,276 | N/A | 4,352 | N/A |
| | Percent of State Total | 4.47 | N/A | 0.60 | N/A |
| Maryland | Number of Codes | N/A | 29,768 | N/A | 5,598 |
| | Percent of State Total | N/A | 3.36 | N/A | 0.63 |
| Michigan | Number of Codes | 77,852 | 45,824 | 12,340 | 8,298 |
| | Percent of State Total | 5.11 | 3.01 | 0.81 | 0.54 |
| Nebraska | Number of Codes | 5,126 | 7,284 | 1,101 | 1,563 |
| | Percent of State Total | 2.92 | 4.16 | 0.63 | 0.89 |
| New Jersey | Number of Codes | 14,032 | N/A | 4,985 | N/A |
| | Percent of State Total | 4.01 | N/A | 1.42 | N/A |
| North Carolina | Number of Codes | 64,586 | 66,584 | 10,177 | 7,002 |
| | Percent of State Total | 4.62 | 4.76 | 0.73 | 0.50 |
| Wisconsin | Number of Codes | 35,617 | 2,431 | 7,099 | 437 |
| | Percent of State Total | 4.27 | 0.29 | 0.85 | 0.05 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Digestive System (68-99) | | Urinary System (100-112) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 97,662 | 85,951 | 11,502 | 9,734 |
| | Percent of State Total | 24.87 | 21.88 | 2.93 | 2.48 |
| Florida | Number of Codes | 279,550 | 889,776 | 38,431 | 107,105 |
| | Percent of State Total | 10.17 | 32.38 | 1.40 | 3.90 |
| Kentucky | Number of Codes | 177,554 | N/A | 21,320 | N/A |
| | Percent of State Total | 24.57 | N/A | 2.95 | N/A |
| Maryland | Number of Codes | N/A | 114,801 | N/A | 24,170 |
| | Percent of State Total | N/A | 12.96 | N/A | 2.73 |
| Michigan | Number of Codes | 449,969 | 367,595 | 58,058 | 42,217 |
| | Percent of State Total | 29.53 | 24.12 | 3.81 | 2.77 |
| Nebraska | Number of Codes | 31,449 | 46,558 | 4,108 | 6,505 |
| | Percent of State Total | 17.94 | 26.56 | 2.34 | 3.71 |
| New Jersey | Number of Codes | 71,624 | N/A | 22,102 | N/A |
| | Percent of State Total | 20.46 | N/A | 6.31 | N/A |
| North Carolina | Number of Codes | 374,349 | 368,800 | 46,569 | 44,909 |
| | Percent of State Total | 26.75 | 26.36 | 3.33 | 3.21 |
| Wisconsin | Number of Codes | 299,679 | 55,532 | 31,818 | 3,156 |
| | Percent of State Total | 35.89 | 6.65 | 3.81 | 0.38 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Male Genital System (113-118) | | Female Genital System (119-121, 123-132) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 4,778 | 3,993 | 15,834 | 13,854 |
| | Percent of State Total | 1.22 | 1.02 | 4.03 | 3.53 |
| Florida | Number of Codes | 12,087 | 43,606 | 43,810 | 103,505 |
| | Percent of State Total | 0.44 | 1.59 | 1.59 | 3.77 |
| Kentucky | Number of Codes | 6,768 | N/A | 27,194 | N/A |
| | Percent of State Total | 0.94 | N/A | 3.76 | N/A |
| Maryland | Number of Codes | N/A | 8,530 | N/A | 35,288 |
| | Percent of State Total | N/A | 0.96 | N/A | 3.98 |
| Michigan | Number of Codes | 18,634 | 15,346 | 73,359 | 58,662 |
| | Percent of State Total | 1.22 | 1.01 | 4.81 | 3.85 |
| Nebraska | Number of Codes | 917 | 1,507 | 3,505 | 5,437 |
| | Percent of State Total | 0.52 | 0.86 | 2.00 | 3.10 |
| New Jersey | Number of Codes | 9,754 | N/A | 43,947 | N/A |
| | Percent of State Total | 2.79 | N/A | 12.55 | N/A |
| North Carolina | Number of Codes | 13,200 | 11,947 | 55,441 | 54,360 |
| | Percent of State Total | 0.94 | 0.85 | 3.96 | 3.89 |
| Wisconsin | Number of Codes | 11,370 | 1,733 | 30,867 | 5,277 |
| | Percent of State Total | 1.36 | 0.21 | 3.70 | 0.63 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Obstetrical (122, 133-141) | | Musculoskeletal System (142-164) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 6,328 | 5,197 | 54,088 | 48,111 |
| | Percent of State Total | 1.61 | 1.32 | 13.77 | 12.25 |
| Florida | Number of Codes | 20,338 | 65,962 | 78,657 | 240,896 |
| | Percent of State Total | 0.74 | 2.40 | 2.86 | 8.77 |
| Kentucky | Number of Codes | 9,610 | N/A | 56,345 | N/A |
| | Percent of State Total | 1.33 | N/A | 7.80 | N/A |
| Maryland | Number of Codes | N/A | 26,035 | N/A | 53,683 |
| | Percent of State Total | N/A | 2.94 | N/A | 6.06 |
| Michigan | Number of Codes | 41,213 | 21,493 | 176,208 | 135,998 |
| | Percent of State Total | 2.70 | 1.41 | 11.56 | 8.93 |
| Nebraska | Number of Codes | 617 | 1,462 | 13,892 | 17,263 |
| | Percent of State Total | 0.35 | 0.83 | 7.93 | 9.85 |
| New Jersey | Number of Codes | 644 | N/A | 58,680 | N/A |
| | Percent of State Total | 0.18 | N/A | 16.76 | N/A |
| North Carolina | Number of Codes | 20,070 | 19,494 | 145,635 | 196,644 |
| | Percent of State Total | 1.43 | 1.39 | 10.41 | 14.05 |
| Wisconsin | Number of Codes | 5,975 | 939 | 107,117 | 20,157 |
| | Percent of State Total | 0.72 | 0.11 | 12.83 | 2.41 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | Integumentary System (165-175) | | Miscellaneous Diagnostics and Therapeutic (176-231) | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 98,652 | 84,140 | 41,352 | 31,578 |
| | Percent of State Total | 25.12 | 21.42 | 10.53 | 8.04 |
| Florida | Number of Codes | 146,654 | 290,875 | 85,790 | 956,498 |
| | Percent of State Total | 5.34 | 10.59 | 3.12 | 34.81 |
| Kentucky | Number of Codes | 85,889 | N/A | 260,957 | N/A |
| | Percent of State Total | 11.89 | N/A | 36.11 | N/A |
| Maryland | Number of Codes | N/A | 56,030 | N/A | 733,345 |
| | Percent of State Total | N/A | 6.32 | N/A | 82.77 |
| Michigan | Number of Codes | 273,752 | 227,854 | 171,380 | 235,102 |
| | Percent of State Total | 17.97 | 14.95 | 11.25 | 15.43 |
| Nebraska | Number of Codes | 20,260 | 16,429 | 22,886 | 7,177 |
| | Percent of State Total | 11.56 | 9.37 | 13.06 | 4.09 |
| New Jersey | Number of Codes | 44,323 | N/A | 36,976 | N/A |
| | Percent of State Total | 12.66 | N/A | 10.56 | N/A |
| North Carolina | Number of Codes | 181,002 | 208,411 | 335,124 | 290,718 |
| | Percent of State Total | 12.94 | 14.90 | 23.95 | 20.78 |
| Wisconsin | Number of Codes | 82,344 | 10,294 | 81,556 | 15,223 |
| | Percent of State Total | 9.86 | 1.23 | 9.77 | 1.82 |

**Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2004 SASD**
(continued)

| | | HCPCS | | Invalid or Inconsistent | |
|---|---|---|---|---|---|
| State | Measure | ICD-9 | CPT | ICD-9 | CPT |
| Colorado | Number of Codes | 0 | 17,524 | 4 | 29 |
| | Percent of State Total | 0.00 | 4.46 | 0.00 | 0.01 |
| Florida | Number of Codes | 0 | 275,303 | 1,170 | 42 |
| | Percent of State Total | 0.00 | 10.02 | 0.04 | 0.00 |
| Kentucky | Number of Codes | 0 | N/A | 1,548 | N/A |
| | Percent of State Total | 0.00 | N/A | 0.21 | N/A |
| Maryland | Number of Codes | N/A | 163,659 | N/A | 18 |
| | Percent of State Total | N/A | 18.47 | N/A | 0.00 |
| Michigan | Number of Codes | 0 | 112,250 | 246 | 11 |
| | Percent of State Total | 0.00 | 7.37 | 0.02 | 0.00 |
| Nebraska | Number of Codes | 0 | 2,854 | 12 | 13 |
| | Percent of State Total | 0.00 | 1.63 | 0.01 | 0.01 |
| New Jersey | Number of Codes | 0 | N/A | 4 | N/A |
| | Percent of State Total | 0.00 | N/A | 0.00 | N/A |
| North Carolina | Number of Codes | 0 | 26,655 | 18 | 8,656 |
| | Percent of State Total | 0.00 | 1.91 | 0.00 | 0.62 |
| Wisconsin | Number of Codes | 0 | 3,330 | 192 | 2 |
| | Percent of State Total | 0.00 | 0.40 | 0.02 | 0.00 |

## APPENDIX B: COMPARISON OF ICD-9-CM AND CPT PROCEDURE CODE USE IN SELECT STATES

The main body of this report concentrates on comparisons between the SASD-CD and other data sources that collect information on the number of facilities and on the number of records. This appendix is concerned with comparisons between ICD-9-CM procedure codes and CPT procedure codes among states that employ both coding systems.

The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes were originally developed as a modification of the World Health Organization (WHO) ICD system for statistical and epidemiological research. Eventually they became a means to calculate diagnosis related groups (DRGs) for inpatient prospective payment systems. The ICD-9-CM procedure codes are used to classify surgical procedures and some diagnostic procedures in the inpatient setting. The procedures are organized by body system (e.g., nervous, endocrine, respiratory, digestive, obstetrical procedures, musculoskeletal, etc.). Procedures are coded using approximately 3,500 codes comprised of two main digits followed by a decimal and one or two additional digits.

Current Procedural Terminology (CPT), developed by the American Medical Association (AMA), is a collection of terms and codes to describe medical, surgical, and diagnostic services and procedures performed by physicians in the outpatient setting. Because they were created for physician billing purposes, the CPT codes are significantly more detailed than the ICD-9-CM codes. In addition to a surgery section which parallels the ICD-9-CM procedure codes, the CPT codes are also used for evaluation and management, anesthesia, radiology, lab and pathology, and medicine. CPT codes comprise a major portion of the Health Care Procedure Coding System (HCPCS). Procedures are coded using approximately 8,000 codes comprised of five digits, to which two-digit modifiers may be added to explain unusual circumstances. CPT or HCPCS codes are becoming the standard for outpatient data because they are required for ambulatory patient classification systems, such as the Ambulatory Payment Classification (APC) and the Ambulatory Patient Grouper (APG).

HCUP Central Distributor States that use both coding systems include Colorado, Florida, North Carolina, Nebraska, Utah, and Wisconsin. For users of the SASD, understanding which coding system a state uses is important because there are subtle differences between the two systems.

Table B-1 lists the states that use each coding system. There are two types of records that contain CPT codes: the “core” files and the “charge detail” files. The core file supplies a fixed number of CPT code variables on a single record for each encounter. In contrast, the charge detail file may include a CPT code for each individual charge. A single encounter is represented by as many records as necessary to supply all of the charge information. As shown in Table B-1, most states that supply CPT codes supply them in a “core” file along with diagnostic and demographic information.

**Table B-1: Use of ICD-9-CM and the CPT Procedure Codes Available through the HCUP Central Distributor, by State**

| State | ICD-9-CM Procedures | Core File CPT Variables | Charge Detail File CPT Records |
|---|---|---|---|
| Colorado | X | X | N/A |
| Florida | X | X | N/A |
| Kentucky | X | N/A | N/A |
| Maryland | N/A | X | X |
| Michigan | X | X | - |
| Nebraska | X | X | X |
| New Jersey | X | N/A | N/A |
| North Carolina | X | X | N/A |
| Wisconsin | X | X | N/A |

For states that use both coding systems, the average number of ICD-9-CM codes is 1.1 compared with 1.9 CPT codes in the core file and 3.8 CPT codes in the charge detail file. Thus, there tend to be more CPT codes than ICD-9-CM codes, especially if the CPT codes are derived from the charge detail file.

Among states that employ both coding systems, Table B-2 shows the percentage of records that have 1) both CPT codes and ICD-9-CM codes, 2) only ICD-9-CM codes, and 3) only CPT codes. For example, in Colorado, 85 percent of the records employ both systems and 15 percent employ only the ICD-9-CM system.

**Table B-2: Percent of Records by Coding System, ICD-9-CM and CPT Available through the HCUP Central Distributor, by State, 2004 SASD, among all records**

| State | Number of Records | Percent Both ICD-9-CM and CPT | Percent ICD-9-CM Only | Percent CPT Only |
|---|---|---|---|---|
| Colorado | 392,752 | 84.53 | 15.19 | 0.21 |
| Florida | 2,747,497 | 34.54 | 0 | 65.46 |
| Michigan | 1,523,776 | 77.08 | 19.03 | 0.89 |
| North Carolina | 1,399,195 | 99.83 | 0.17 | 0 |
| Nebraska | 175,290 | 46.44 | 14.47 | 39 |
| Wisconsin | 835,034 | 19.38 | 80.62 | 0 |

From this point forward the comparisons between the ICD-9-CM and CPT coding systems are performed by comparing CCS categories. This approach is used because it is not possible to directly compare, or even unambiguously map codes, between the ICD-9-CM and CPT coding systems. The CCS categories serve as a bridge because the categories have the same meaning regardless of the coding system.

Table B-3 shows the percentage of CCS categories that match between the two systems among encounters that code procedures using both coding systems (dual coding). As an example, in Colorado 62 percent of the ICD CCS categories had matching CPT CCS categories on dually coded records. Conversely, 79 percent of the CPT CCS categories had matching ICD CCS categories on dually coded records. The numerator (number of matches) is the same for both coding systems. However, there are fewer CPT codes than ICD-9-CM codes. Therefore, the denominator (number of CPT CCS categories) is smaller, causing a higher match rate for CPT CCS categories compared with ICD CCS categories. This effect is particularly evident for Florida, where each record accommodates 15 CPT codes, but only one ICD-9-CM code.

These percentages indicate the extent to which the procedure information overlaps between the two coding systems. For example, Colorado and Nebraska both collect dual-coded data from their hospitals and show similar match rates between the two systems. In contrast, Florida mandates submission of only CPT codes. Consequently, there is often not a matching ICD-9-CM code for each CPT code.

**Table B-3: Percent of Records with Matching CCS Categories from Among All Records with Dual Coding Available through the HCUP Central Distributor, by State, 2004 SASD**

| State | Percent of ICD CCS Matched | Percent of CPT CCS Matched |
|---|---|---|
| Colorado | 62.26 | 77.47 |
| Florida | 83.57 | 13.58 |
| Michigan | 60.46 | 68.88 |
| North Carolina | 74.15 | 75.73 |
| Nebraska | 52.54 | 50.09 |
| Wisconsin | 14.52 | 79.08 |

To reiterate, among records that contain both types of codes, the number of codes differs between the two systems, especially when the CPT codes are derived from the charge detail file. Because no standards exist for the ordering of outpatient procedure codes, from this point forward, all of the comparisons between the ICD-9-CM system and the CPT system are based on the subset of encounters that contain exactly one CPT procedure code and one ICD-9-CM procedure code. This subset of records was selected to eliminate as much ambiguity as possible when comparing the consistency of procedure coding between the two systems. Although this simplification is necessary to allow direct comparisons of codes, the conclusions reached may not apply to observations where multiple ICD-9-CM and CPT codes appear on a record.

Table B-4 gives the rates of CCS matches among only those records that have a single ICD-9-CM code and a single CPT code. The CCS categories match when the ICD CCS category matches the CPT CCS category for that record.

Of the six states in Table B-4, two states (Colorado and Wisconsin) have match rates in excess of 80 percent, although all states have match rates exceeding 70 percent.

**Table B-4: Percent of Records with Matching CCS Categories from Among Records with a Single Procedure Code of Each Type Available through the HCUP Central Distributor, 2004 SASD**

| State | Number of Records with a Single Procedure Code of Each Type | Percent Records with Matching CCS ICD-9-CM and CCS CPT |
|---|---|---|
| Colorado | 185,691 | 80.66 |
| Florida | 245,558 | 78.9 |
| Michigan | 599,582 | 78.45 |
| Nebraska | 38,115 | 78.52 |
| North Carolina | 872,752 | 71.68 |
| Wisconsin | 101,685 | 81.68 |

The nature of the disagreements between the ICD-9-CM codes and the CPT codes on single-procedure records, were investigated further by comparing the CPT CCS categories that were paired with the 10 most frequent ICD CCS categories. For these analyses, data from the intramural SASD files was used in order to produce more robust estimates than those obtained from the subset of databases available through the HCUP Central Distributor.

For each of the top 10 ICD CCS groups, Table B-5 presents the top five CPT CCS groups that are paired with it. For example, the most common ICD CCS group was CCS 76: *colonoscopy and biopsy*. The same CPT CCS group, CCS 76, was paired with it 90 percent of the time. Other paired CPT CCS groups were *other bowel diagnostic procedures* (5.8 percent), *proctoscopy and anorectal biopsy* (3.9 percent), *upper gastrointestinal endoscopy* (under 1 percent), and *biopsy* and *pathology* (under 1 percent).

Of the 10 most frequent ICD CCS groups, seven were paired with the matching CPT CCS category over 90 percent of the time. This implies that despite the difficulty of directly translating between the two procedure coding systems, there is a strong agreement between the two systems based on the broader CCS classes.

The largest discrepancy occurred for ICD CCS category 95: *other non-OR lower GI therapeutic procedures,* which was paired with CPT CCS category 76: *colonoscopy and biopsy* 93 percent of the time. In addition, the ICD CCS category 214: *traction and splints, and other wound care*, was paired with the matching CPT CCS category only 49 percent of the time. The ICD CCS category 214 was also paired with the CPT CCS category 144: *treatment, facial fracture or dislocation* 44 percent of the time. Finally, the ICD CCS category 160: *other therapeutic procedures on muscles and tendons* was paired with the matching CPT CCS category 80 percent of the time.

**Table B-5: Pairing Between ICD CCS and CPT CCS Categories for Top 10 ICD-9-CM Categories, Records with a Single ICD-9-CM Code and a Single CPT Code Available through the HCUP Central Distributor, 2004 SASD**

| ICD-CCS | | | | CPT-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | CCS Group | Description | Rank of CPT Code | CCS Group | Description | Percent |
| 1 | 332,349 | 76 | 76: Colonoscopy and biopsy | 1 | 76 | 76: Colonoscopy and biopsy | 91.894 |
| | | | | 2 | 92 | 92: Other bowel diagnostic procedures | 4.803 |
| | | | | 3 | 77 | 77: Proctoscopy and anorectal biopsy | 2.983 |
| | | | | 4 | 231 | 231: Other therapeutic procedures | 0.194 |
| | | | | 5 | 234 | 234: Pathology | 0.074 |
| | | | | 6 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 0.022 |
| | | | | 7 | 96 | 96: Other O.R. lower GI therapeutic procedures | 0.007 |
| | | | | 8 | 233 | 233: Laboratory - Chemistry and Hematology | 0.007 |
| | | | | 9 | 229 | 229: Nonoperative removal of foreign body | 0.004 |
| | | | | 10 | 232 | 232: Anesthesia | 0.002 |
| 2 | 155,692 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 1 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 99.305 |
| | | | | 2 | 76 | 76: Colonoscopy and biopsy | 0.129 |
| | | | | 3 | 71 | 71: Gastrostomy, temporary and permanent | 0.127 |
| | | | | 4 | 231 | 231: Other therapeutic procedures | 0.088 |
| | | | | 5 | 234 | 234: Pathology | 0.084 |
| | | | | 6 | 96 | 96: Other O.R. lower GI therapeutic procedures | 0.057 |
| | | | | 7 | 69 | 69: Esophageal dilatation | 0.050 |
| | | | | 8 | 94 | 94: Other O.R. upper GI therapeutic procedures | 0.047 |
| | | | | 9 | 82 | 82: Endoscopic cannulation of pancreas (ERCP) | 0.024 |
| | | | | 10 | 206 | 206: Microscopic examination (bacterial smear, culture, toxicology) | 0.017 |
| 3 | 148,768 | 171 | 171: Suture of skin and subcutaneous tissue | 1 | 171 | 171: Suture of skin and subcutaneous tissue | 99.780 |
| | | | | 2 | 175 | 175: Other O.R. therapeutic procedures on skin and breast | 0.088 |
| | | | | 3 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.051 |
| | | | | 4 | 19 | 19: Other therapeutic procedures on eyelids, conjunctiva, cornea | 0.045 |
| | | | | 5 | 214 | 214: Traction, splints, and other wound care | 0.014 |
| | | | | 6 | 168 | 168: Incision and drainage, skin and subcutaneous tissue | 0.007 |
| | | | | 7 | 231 | 231: Other therapeutic procedures | 0.003 |

| ICD-CCS | | | | CPT-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | CCS Group | Description | Rank of CPT Code | CCS Group | Description | Percent |
| | | | | 8 | 170 | 170: Excision of skin lesion | 0.002 |
| | | | | 9 | 172 | 172: Skin graft | 0.002 |
| | | | | 10 | 169 | 169: Debridement of wound, infection or burn | 0.001 |
| 4 | 145798 | 95 | 95: Other non-O.R. lower GI therapeutic procedures | 1 | 76 | 76: Colonoscopy and biopsy | 93.333 |
| | | | | 2 | 77 | 77: Proctoscopy and anorectal biopsy | 5.387 |
| | | | | 3 | 96 | 96: Other O.R. lower GI therapeutic procedures | 0.443 |
| | | | | 4 | 234 | 234: Pathology | 0.314 |
| | | | | 5 | 231 | 231: Other therapeutic procedures | 0.202 |
| | | | | 6 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 0.174 |
| | | | | 7 | 95 | 95: Other non-O.R. lower GI therapeutic procedures | 0.062 |
| | | | | 8 | 186 | 186: Lower gastrointestinal X-ray | 0.022 |
| | | | | 9 | 170 | 170: Excision of skin lesion | 0.017 |
| | | | | 10 | 99 | 99: Other O.R. gastrointestinal therapeutic procedures | 0.014 |
| 5 | 59311 | 214 | 214: Traction, splints, and other wound care | 1 | 144 | 144: Treatment, facial fracture or dislocation | 83.203 |
| | | | | 2 | 214 | 214: Traction, splints, and other wound care | 14.156 |
| | | | | 3 | 148 | 148: Other fracture and dislocation procedure | 2.180 |
| | | | | 4 | 147 | 147: Treatment, fracture or dislocation of lower extremity (other than hip or femur) | 0.200 |
| | | | | 5 | 145 | 145: Treatment, fracture or dislocation of radius and ulna | 0.182 |
| | | | | 6 | 169 | 169: Debridement of wound, infection or burn | 0.043 |
| | | | | 7 | 146 | 146: Treatment, fracture or dislocation of hip and femur | 0.014 |
| | | | | 8 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 0.007 |
| | | | | 9 | 174 | 174: Other non-O.R. therapeutic procedures on skin and breast | 0.005 |
| | | | | 10 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.004 |
| 6 | 54596 | 231 | 231: Other therapeutic procedures | 1 | 231 | 231: Other therapeutic procedures | 94.497 |
| | | | | 2 | 156 | 156: Injections and aspirations of muscles, tendons, bursa, joints and soft tissue | 1.958 |
| | | | | 3 | 5 | 5: Insertion of catheter or spinal stimulator and injection into spinal canal | 0.576 |
| | | | | 4 | 63 | 63: Other non-O.R. therapeutic cardiovascular procedures | 0.526 |
| | | | | 5 | 54 | 54: Other vascular catheterization, not heart | 0.333 |
| | | | | 6 | 9 | 9: Other O.R. therapeutic nervous system procedures | 0.325 |
| | | | | 7 | 32 | 32: Other non-O.R. therapeutic procedures on nose, mouth and pharynx | 0.258 |

| ICD-CCS | | | | CPT-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | CCS Group | Description | Rank of CPT Code | CCS Group | Description | Percent |
| | | | | 8 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.247 |
| | | | | 9 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 0.212 |
| | | | | 10 | 61 | 61: Other O.R. procedures on vessels other than head and neck | 0.153 |
| 7 | 44886 | 160 | 160: Other therapeutic procedures on muscles and tendons | 1 | 160 | 160: Other therapeutic procedures on muscles and tendons | 80.201 |
| | | | | 2 | 162 | 162: Other O.R. therapeutic procedures on joints | 5.107 |
| | | | | 3 | 169 | 169: Debridement of wound, infection or burn | 3.574 |
| | | | | 4 | 164 | 164: Other O.R. therapeutic procedures on musculoskeletal system | 2.923 |
| | | | | 5 | 170 | 170: Excision of skin lesion | 2.810 |
| | | | | 6 | 154 | 154: Arthroplasty other than hip or knee | 1.798 |
| | | | | 7 | 168 | 168: Incision and drainage, skin and subcutaneous tissue | 0.856 |
| | | | | 8 | 171 | 171: Suture of skin and subcutaneous tissue | 0.787 |
| | | | | 9 | 142 | 142: Partial excision bone | 0.677 |
| | | | | 10 | 150 | 150: Division of joint capsule, ligament or cartilage | 0.446 |
| 8 | 42514 | 174 | 174: Other non-O.R. therapeutic procedures on skin and breast | 1 | 174 | 174: Other non-O.R. therapeutic procedures on skin and breast | 57.979 |
| | | | | 2 | 168 | 168: Incision and drainage, skin and subcutaneous tissue | 10.961 |
| | | | | 3 | 175 | 175: Other O.R. therapeutic procedures on skin and breast | 10.344 |
| | | | | 4 | 170 | 170: Excision of skin lesion | 9.165 |
| | | | | 5 | 165 | 165: Breast biopsy and other diagnostic procedures on breast | 7.070 |
| | | | | 6 | 231 | 231: Other therapeutic procedures | 1.400 |
| | | | | 7 | 62 | 62: Other diagnostic cardiovascular procedures | 1.221 |
| | | | | 8 | 171 | 171: Suture of skin and subcutaneous tissue | 0.410 |
| | | | | 9 | 61 | 61: Other O.R. procedures on vessels other than head and neck | 0.295 |
| | | | | 10 | 173 | 173: Other diagnostic procedures on skin and subcutaneous tissue | 0.263 |
| 9 | 41333 | 139 | 139: Fetal monitoring | 1 | 139 | 139: Fetal monitoring | 90.715 |
| | | | | 2 | 137 | 137: Other procedures to assist delivery | 8.142 |
| | | | | 3 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.540 |
| | | | | 4 | 206 | 206: Microscopic examination (bacterial smear, culture, toxicology) | 0.426 |
| | | | | 5 | 200 | 200: Nonoperative urinary system measurements | 0.092 |
| | | | | 6 | 197 | 197: Other diagnostic ultrasound | 0.048 |
| | | | | 7 | 233 | 233: Laboratory - Chemistry and Hematology | 0.017 |

| ICD-CCS | | | | CPT-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | CCS Group | Description | Rank of CPT Code | CCS Group | Description | Percent |
| | | | | 8 | 108 | 108: Indwelling catheter | 0.007 |
| | | | | 9 | 132 | 132: Other O.R. therapeutic procedures, female organs | 0.002 |
| | | | | 10 | 138 | 138: Diagnostic amniocentesis | 0.002 |
| 10 | 39225 | 30 | 30: Tonsillectomy and/or adenoidectomy | 1 | 30 | 30: Tonsillectomy and/or adenoidectomy | 98.445 |
| | | | | 2 | 32 | 32: Other non-O.R. therapeutic procedures on nose, mouth and pharynx | 0.956 |
| | | | | 3 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 0.566 |
| | | | | 4 | 27 | 27: Control of epistaxis | 0.008 |
| | | | | 5 | 234 | 234: Pathology | 0.008 |
| | | | | 6 | 200 | 200: Nonoperative urinary system measurements | 0.005 |
| | | | | 7 | 23 | 23: Myringotomy | 0.003 |
| | | | | 8 | 41 | 41: Other non-O.R. therapeutic procedures on respiratory system | 0.003 |
| | | | | 9 | 54 | 54: Other vascular catheterization, not heart | 0.003 |
| | | | | 10 | 76 | 76: Colonoscopy and biopsy | 0.003 |

For each of the top 10 CPT CCS categories, Table B-6 presents the top five ICD-9-CM CCS categories that are paired with it. Once again this table includes only those records with a single ICD-9-CM code and a single CPT code. In Table B-6, seven of the top 10 CPT CCS classifications were paired with the same ICD-9-CM classification at least 90 percent of the time. For the remaining three categories, the CPT CCS category matched the ICD CCS category the majority of the time.

The top three CPT CCS categories shown in Table B-6 are the same as the top three ICD CCS categories shown in Table B-5. However, the fourth most frequent CPT CCS category, 169: *debridement of wound; infection or burn* was the tenth most common ICD CCS category in Table B-5. The fifth most frequent CPT CCS classification, 5: *Insertion of a catheter or spinal stimulator and injection into the spinal canal* was the seventh most common category on the list of ICD CCS categories.

**Table B-6: Pairing Between CPT CCS and ICD CCS Categories for Top 10 CPT Categories, Records with a Single ICD-9-CM Code and a Single CPT Code Available through the HCUP Central Distributor, 2004 SASD**

| CPT-CCS | | | | ICD-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | Code | Description | Rank of CPT Code | Code | Description | Percent |
| 1 | 471,003 | 76 | 76: Colonoscopy and biopsy | 1 | 76 | 76: Colonoscopy and biopsy | 67.893 |
| | | | | 2 | 95 | 95: Other non-O.R. lower GI therapeutic procedures | 30.908 |
| | | | | 3 | 77 | 77: Proctoscopy and anorectal biopsy | 0.917 |
| | | | | 4 | 92 | 92: Other bowel diagnostic procedures | 0.187 |
| | | | | 5 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 0.045 |
| | | | | 6 | 96 | 96: Other O.R. lower GI therapeutic procedures | 0.030 |
| | | | | 7 | 231 | 231: Other therapeutic procedures | 0.011 |
| | | | | 8 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.002 |
| | | | | 9 | 69 | 69: Esophageal dilatation | 0.001 |
| | | | | 10 | 79 | 79: Local excision of large intestine lesion (not endoscopic) | 0.001 |
| 2 | 174,543 | 171 | 171: Suture of skin and subcutaneous tissue | 1 | 171 | 171: Suture of skin and subcutaneous tissue | 84.906 |
| | | | | 2 | 19 | 19: Other therapeutic procedures on eyelids, conjunctiva, cornea | 6.351 |
| | | | | 3 | 32 | 32: Other non-O.R. therapeutic procedures on nose, mouth and pharynx | 5.150 |
| | | | | 4 | 28 | 28: Plastic procedures on nose | 1.482 |
| | | | | 5 | 26 | 26: Other therapeutic ear procedures | 1.144 |
| | | | | 6 | 175 | 175: Other O.R. therapeutic procedures on skin and breast | 0.248 |
| | | | | 7 | 160 | 160: Other therapeutic procedures on muscles and tendons | 0.203 |
| | | | | 8 | 132 | 132: Other O.R. therapeutic procedures, female organs | 0.120 |
| | | | | 9 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 0.117 |
| | | | | 10 | 118 | 118: Other O.R. therapeutic procedures, male genital | 0.083 |
| 3 | 169,662 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 1 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 98.061 |
| | | | | 2 | 93 | 93: Other non-O.R. upper GI therapeutic procedures | 1.408 |
| | | | | 3 | 95 | 95: Other non-O.R. lower GI therapeutic procedures | 0.161 |
| | | | | 4 | 229 | 229: Nonoperative removal of foreign body | 0.089 |
| | | | | 5 | 231 | 231: Other therapeutic procedures | 0.072 |
| | | | | 6 | 92 | 92: Other bowel diagnostic procedures | 0.065 |

| CPT-CCS | | | | ICD-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | Code | Description | Rank of CPT Code | Code | Description | Percent |
| | | | | 7 | 76 | 76: Colonoscopy and biopsy | 0.045 |
| | | | | 8 | 94 | 94: Other O.R. upper GI therapeutic procedures | 0.033 |
| | | | | 9 | 97 | 97: Other gastrointestinal diagnostic procedures | 0.009 |
| | | | | 10 | 227 | 227: Other diagnostic procedures (interview, evaluation, consultation) | 0.007 |
| 4 | 52,723 | 231 | 231: Other therapeutic procedures | 1 | 231 | 231: Other therapeutic procedures | 96.706 |
| | | | | 2 | 76 | 76: Colonoscopy and biopsy | 1.212 |
| | | | | 3 | 174 | 174: Other non-O.R. therapeutic procedures on skin and breast | 0.585 |
| | | | | 4 | 95 | 95: Other non-O.R. lower GI therapeutic procedures | 0.567 |
| | | | | 5 | 70 | 70: Upper gastrointestinal endoscopy, biopsy | 0.262 |
| | | | | 6 | 156 | 156: Injections and aspirations of muscles, tendons, bursa, joints and soft tissue | 0.240 |
| | | | | 7 | 189 | 189: Contrast aortogram | 0.104 |
| | | | | 8 | 222 | 222: Blood transfusion | 0.033 |
| | | | | 9 | 61 | 61: Other O.R. procedures on vessels other than head and neck | 0.031 |
| | | | | 10 | 228 | 228: Prophylactic vaccinations and inoculations | 0.031 |
| 5 | 50,431 | 144 | 144: Treatment, facial fracture or dislocation | 1 | 214 | 214: Traction, splints, and other wound care | 92.821 |
| | | | | 2 | 32 | 32: Other non-O.R. therapeutic procedures on nose, mouth and pharynx | 4.632 |
| | | | | 3 | 144 | 144: Treatment, facial fracture or dislocation | 1.755 |
| | | | | 4 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 0.746 |
| | | | | 5 | 9 | 9: Other O.R. therapeutic nervous system procedures | 0.028 |
| | | | | 6 | 164 | 164: Other O.R. therapeutic procedures on musculoskeletal system | 0.014 |
| | | | | 7 | 148 | 148: Other fracture and dislocation procedure | 0.002 |
| | | | | 8 | 163 | 163: Other non-O.R. therapeutic procedures on musculoskeletal system | 0.002 |
| 6 | 50,376 | 170 | 170: Excision of skin lesion | 1 | 170 | 170: Excision of skin lesion | 64.899 |
| | | | | 2 | 166 | 166: Lumpectomy, quadrantectomy of breast | 16.082 |
| | | | | 3 | 174 | 174: Other non-O.R. therapeutic procedures on skin and breast | 4.409 |
| | | | | 4 | 160 | 160: Other therapeutic procedures on muscles and tendons | 2.794 |
| | | | | 5 | 26 | 26: Other therapeutic ear procedures | 2.167 |
| | | | | 6 | 132 | 132: Other O.R. therapeutic procedures, female organs | 2.070 |
| | | | | 7 | 19 | 19: Other therapeutic procedures on eyelids, conjunctiva, cornea | 1.757 |
| | | | | 8 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 1.671 |

| CPT-CCS | | | | ICD-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | Code | Description | Rank of CPT Code | Code | Description | Percent |
| | | | | 9 | 32 | 32: Other non-O.R. therapeutic procedures on nose, mouth and pharynx | 1.434 |
| | | | | 10 | 96 | 96: Other O.R. lower GI therapeutic procedures | 0.917 |
| 7 | 43,349 | 169 | 169: Debridement of wound, infection or burn | 1 | 169 | 169: Debridement of wound, infection or burn | 92.149 |
| | | | | 2 | 160 | 160: Other therapeutic procedures on muscles and tendons | 4.082 |
| | | | | 3 | 142 | 142: Partial excision bone | 1.512 |
| | | | | 4 | 164 | 164: Other O.R. therapeutic procedures on musculoskeletal system | 0.893 |
| | | | | 5 | 148 | 148: Other fracture and dislocation procedure | 0.280 |
| | | | | 6 | 26 | 26: Other therapeutic ear procedures | 0.206 |
| | | | | 7 | 19 | 19: Other therapeutic procedures on eyelids, conjunctiva, cornea | 0.165 |
| | | | | 8 | 166 | 166: Lumpectomy, quadrantectomy of breast | 0.127 |
| | | | | 9 | 172 | 172: Skin graft | 0.122 |
| | | | | 10 | 147 | 147: Treatment, fracture or dislocation of lower extremity (other than hip or femur) | 0.092 |
| 8 | 42,902 | 30 | 30: Tonsillectomy and/or adenoidectomy | 1 | 30 | 30: Tonsillectomy and/or adenoidectomy | 99.917 |
| | | | | 2 | 33 | 33: Other O.R. therapeutic procedures on nose, mouth and pharynx | 0.078 |
| | | | | 3 | 231 | 231: Other therapeutic procedures | 0.005 |
| 9 | 41,175 | 160 | 160: Other therapeutic procedures on muscles and tendons | 1 | 160 | 160: Other therapeutic procedures on muscles and tendons | 94.979 |
| | | | | 2 | 162 | 162: Other O.R. therapeutic procedures on joints | 3.137 |
| | | | | 3 | 99 | 99: Other O.R. gastrointestinal therapeutic procedures | 0.776 |
| | | | | 4 | 42 | 42: Other O.R. therapeutic procedures on respiratory system | 0.351 |
| | | | | 5 | 150 | 150: Division of joint capsule, ligament or cartilage | 0.195 |
| | | | | 6 | 161 | 161: Other O.R. therapeutic procedures on bone | 0.158 |
| | | | | 7 | 143 | 143: Bunionectomy or repair of toe deformities | 0.087 |
| | | | | 8 | 6 | 6: Decompression peripheral nerve | 0.066 |
| | | | | 9 | 170 | 170: Excision of skin lesion | 0.063 |
| | | | | 10 | 154 | 154: Arthroplasty other than hip or knee | 0.040 |
| 10 | 40,413 | 139 | 139: Fetal monitoring | 1 | 139 | 139: Fetal monitoring | 99.947 |
| | | | | 2 | 231 | 231: Other therapeutic procedures | 0.027 |
| | | | | 3 | 137 | 137: Other procedures to assist delivery | 0.005 |
| | | | | 4 | 141 | 141: Other therapeutic obstetrical procedures | 0.005 |

| CPT-CCS | | | | ICD-CCS | | | |
|---|---|---|---|---|---|---|---|
| Rank | N | Code | Description | Rank of CPT Code | Code | Description | Percent |
| | | | | 5 | 110 | 110: Other diagnostic procedures of urinary tract | 0.003 |
| | | | | 6 | 131 | 131: Other non-O.R. therapeutic procedures, female organs | 0.003 |
| | | | | 7 | 138 | 138: Diagnostic amniocentesis | 0.003 |
| | | | | 8 | 146 | 146: Treatment, fracture or dislocation of hip and femur | 0.003 |
| | | | | 9 | 161 | 161: Other O.R. therapeutic procedures on bone | 0.003 |
| | | | | 10 | 197 | 197: Other diagnostic ultrasound | 0.003 |

## Summary

All but one of the states in the SASD-CD use ICD-9-CM procedure codes. Most states employ both ICD-9-CM and CPT codes, and one state—Maryland—uses only CPT codes. Among states that employ both coding systems, varying levels of agreement exist between the two. CPT codes may be supplied in the core file or in the charge detail file. The number of CPT codes averages higher than the number of ICD-9-CM codes. Also, the number of CPT codes in the charge detail file averages higher than the number of CPT codes in the core file.

Among records with a single ICD-9-CM code and a single CPT code, there tends to be a high level of agreement between the CCS categories generated by the two coding systems. However, there are subtle differences between the two systems that result in slightly different classifications for some procedures using the two types of codes. Consequently, analysts should exercise care when combining SASD data across states that use different procedure coding systems.