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Evaluation of the State Ambulatory Surgery Databases Available through the HCUP Central Distributor, 2003
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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.

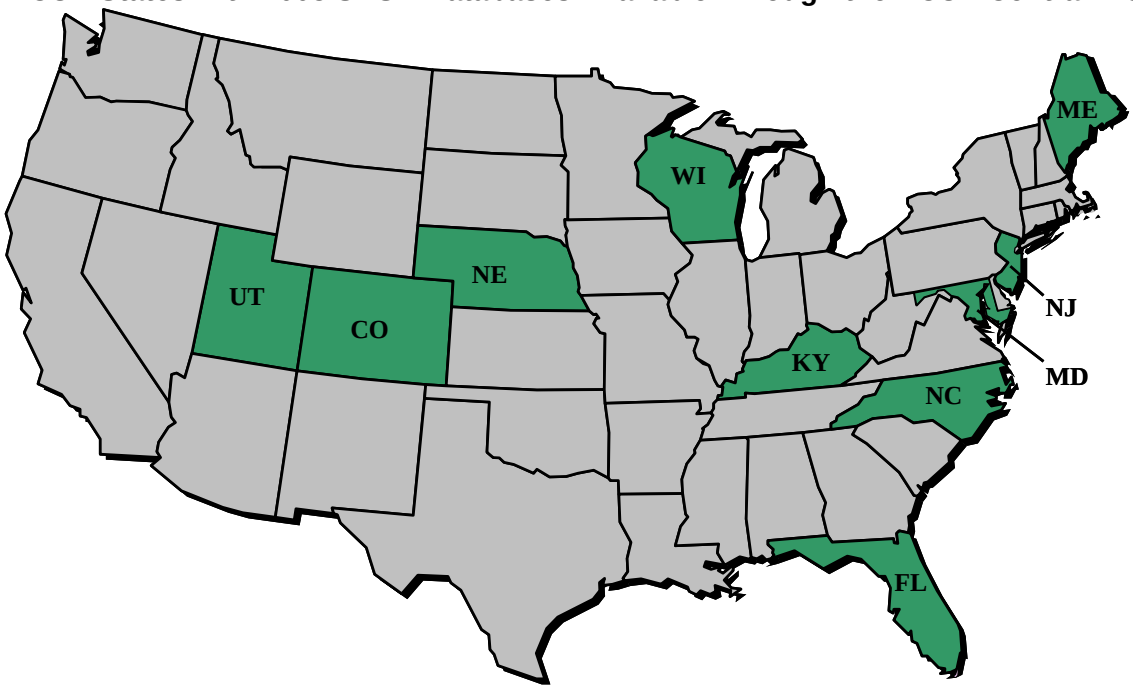
In 1997, the Agency for Healthcare Research and Quality (AHRQ) began collecting ambulatory surgery data as part of the Healthcare Cost and Utilization Project (HCUP) and making public versions of these databases available via the HCUP Central Distributor. This report describes the 2003 State Ambulatory Surgery Databases (SASD) for each of the 10 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 2003 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 2003 American Hospital Association (AHA) Annual Survey Database and the 2003 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 10 states that contributed data to the HCUP Central Distributor SASD (hereafter SASD-CD) are Colorado, Florida, Kentucky, Maryland, Maine, Nebraska, New Jersey, North Carolina, Utah, and Wisconsin.

The first section of this report contains an overview of the 2003 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 10 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 2003 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 2003 SASD Databases Available Through the HCUP Central Distributor



Note: Alaska and Hawaii do not participate in the SASD

Key: Participating; Non-Participating

2003 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 2003, 10 standardized state databases were constructed and made available to the researchers via the HCUP Central Distributor. These 10 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 2003 American Hospital Association Annual Survey Database (discussed in the next section) were considered to be hospital-based; all others were considered freestanding. In the 2003 SASD-CD, 922 ambulatory surgical facilities were hospital-based (70 percent) and 389 were freestanding facilities (30 percent). The two states with the greatest number of ambulatory surgical facilities in the 2003 SASD-CD were Florida and Wisconsin.

The 2003 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, 2003 SASD-CD

State	Number of Hospital-based Facilities	Number of Freestanding Facilities	Total Number of Facilities
Colorado	69	0	69
Florida	202	298	500
Kentucky	98	2	100
Maine	42	0	42
Maryland	49	0	49
Nebraska	84	0	84
New Jersey	86	0	86
North Carolina	109	43	152
Utah	53	10	63
Wisconsin	130	36	166
Totals	**922**	**389**	**1,311**

POTENTIAL COMPARATIVE AMBULATORY SURGERY DATABASES

In order to describe the completeness of the 2003 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 2003 SASD-CD surgery counts from the 2003 AHA and FOSC data for 20 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 52,545 surgeries, the AHA reports 23,283 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 (7,452,176) than AHA surgery counts (3,629,860) 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 7,452,176 surgeries in the SASD, 5,941,527 (80%) were contained in the 904 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, 2003 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	68	378,285	176,451	0
	SASD only	1	1,812	0	0
	AHA only	18	0	10,002	0
	FOSC only	5	0	0	21,571
	Total	92	380,097	186,453	21,571
Florida	SASD + AHA +FOSC	5	52,545	23,283	0
	SASD+AHA	194	1,462,826	795,822	0
	SASD only	301	1,139,046	0	0
	AHA only	60	0	35,832	0
	FOSC only	32	0	0	124,979
	Total	592	2,654,417	854,937	124,979
Kentucky	SASD + AHA +FOSC	-	-	-	-
	SASD+AHA	96	505,045	367,888	0
	SASD only	3	9,863	0	0
	AHA only	26	0	15,473	0
	FOSC only	9	0	0	33,689
	Total	134	514,908	383,361	33,689
Maine	SASD + AHA +FOSC	-	-	-	-
	SASD+AHA	45	479,651	115,169	0
	SASD only	0	0	0	0
	AHA only	5	0	2,964	0
	FOSC only	2	0	0	3,720
	Total	52	479,651	118,113	3,720
Maryland	SASD + AHA +FOSC	-	-	-	-
	SASD+AHA	48	543,494	347,520	0
	SASD only	1	1,414	0	0
	AHA only	26	0	13,168	0
	FOSC only	23	0	0	66,771
	Total	98	544,908	360,688	66,771
Nebraska	SASD + AHA +FOSC	-	-	-	-
	SASD+AHA	83	209,680	131,134	0
	SASD only	1	2	0	0
	AHA only	11	0	6,651	0
	FOSC only	2	0	0	1,058
	Total	97	209,682	137,785	1,058
New Jersey	SASD + AHA +FOSC	-	-	-	-
	SASD+AHA	85	330,766	417,231	0
	SASD only	1	2,350	0	0
	AHA only	22	0	4,797	0
	FOSC only	12	0	0	56,940
	Total	120	333,116	422,028	56,940

Table 3: Number of Facilities and Surgeries by State and Data Source Available through the HCUP Central Distributor, 2003 SASD

State	Data Source	Number of Facilities	Number of SASD Surgeries	Number of AHA Surgeries	Number of FOSC Surgeries
North Carolina	SASD + AHA +FOSC	2	62,492	18,220	0
	SASD+AHA	107	990,881	526,258	0
	SASD only	43	162,322	0	0
	AHA only	33	0	36,945	0
	FOSC only	7	0	0	35,593
	Total	192	1,215,695	581,423	35,593
Utah	SASD + AHA +FOSC	0	0	0	0
	SASD+AHA	45	272,756	155,086	0
	SASD only	18	65,549	0	0
	AHA only	8	0	2,920	0
	FOSC only	4	0	0	16,261
	Total	75	338,305	158,006	16,261
Wisconsin	SASD + AHA + FOSC	3	28,469	19,286	0
	SASD+AHA	123	624,637	403,853	0
	SASD only	40	128,291	0	0
	AHA only	21	0	3,877	0
	FOSC only	5	0	0	21,767
	Total	192	781,397	427,016	21,767
Totals	SASD + AHA + FOSC	10	143,506	60,789	0
	SASD+AHA	894	5,798,021	3,436,412	0
	SASD&AHA Total	904	5,941,527	3,497,201	0
	SASD only	409	1,510,649	0	0
	SASD Total	1,313	7,452,176	3,497,201	0
	AHA only	230	0	132,629	0
	FOSC only	101	0	0	382,349
	Total	1,644	7,452,176	3,629,860	382,349

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 2003 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, 2003 SASD

Description	ICD CCS		CPT CCS	
	Number of Procedure Codes	Percent	Number of Procedure Codes	Percent
Digestive System	1,488,509	27.5	1,673,248	21.0
Integumentary System	729,600	13.5	760,086	9.6
Miscellaneous Diagnostic and Therapeutic	617,976	11.4	2,032,713	25.6
Musculoskeletal System	514,453	9.5	605,446	7.6
Nervous System	403,026	7.4	501,054	6.3
Eye	361,889	6.7	563,406	7.1
Nose, Mouth, and Pharynx	257,013	4.7	215,619	2.7
Cardiovascular System	240,116	4.4	268,598	3.4
Female Genital System	238,592	4.4	232,713	2.9
Urinary System	180,466	3.3	195,206	2.5
Ear	116,780	2.2	108,768	1.4
Respiratory System	78,874	1.5	96,744	1.2
Male Genital System	66,109	1.2	75,619	1.0
Obstetrical	54,343	1.0	122,602	1.5
Heme and Lymphatic System	42,088	0.8	34,505	0.4
Endocrine System	20,337	0.4	14,621	0.2
Invalid or Inconsistent	1068	0.1	2342	0.1
HCPCS	0	0	449,746	5.7
Total	**5,411,239**	**100**	**7,953,036**	**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 11 percent of the ICD-9-CM procedures compared with 27 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 46 percent of procedures and the top five for almost 66 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 281,757 procedure codes using the ICD-9-CM coding system compared to 50,325 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. 21 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 (11 percent ICD-9-CM vs. 33 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 6 of 10 states, but fell to only 30 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 2003 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 genitals 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 6 to 20 percent range, while CPT codes reached 70 to 88 percent in the most extreme states. Even those states with substantial coding in both systems, like Florida, reflected CPT coding in the 35 to 44 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 2003 SASD-CD is a rich source of ambulatory surgery data, providing information on 7,452,176 encounters in 1,311 facilities in 10 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, 2003 SASD

State	Measure	Nervous System (1-9)		Endocrine System (10-12)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	36,232	32,743	1,783	999
	Percent of State Total	9.53	8.61	0.47	0.26
Florida	Number of Codes	59,726	265,371	7,044	8,059
	Percent of State Total	2.25	10.00	0.27	0.30
Kentucky	Number of Codes	49,868	N/A	2,158	N/A
	Percent of State Total	9.68	N/A	0.42	N/A
Maine	Number of Codes	11,268	13,271	542	445
	Percent of State Total	2.35	2.77	0.11	0.09
Maryland	Number of Codes	N/A	33,769	N/A	891
	Percent of State Total	N/A	6.20	N/A	0.16
Nebraska	Number of Codes	19,021	17,438	880	673
	Percent of State Total	9.07	8.32	0.42	0.32
New Jersey	Number of Codes	19,751	N/A	546	N/A
	Percent of State Total	5.93	N/A	0.16	N/A
North Carolina	Number of Codes	96,329	96,027	3,944	2,611
	Percent of State Total	7.92	7.90	0.32	0.21
Utah	Number of Codes	19,139	21,678	984	901
	Percent of State Total	5.66	6.41	0.29	0.27
Wisconsin	Number of Codes	91,692	20,757	2,456	42
	Percent of State Total	11.73	2.66	0.31	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, 2003 SASD
(continued)

State	Measure	Eye (13-21)		Ear (22-26)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	21,761	15,852	6,367	3,851
	Percent of State Total	5.73	4.17	1.68	1.01
Florida	Number of Codes	48,312	352,644	11,018	38,763
	Percent of State Total	1.82	13.29	0.42	1.46
Kentucky	Number of Codes	33,797	N/A	15,735	N/A
	Percent of State Total	6.56	N/A	3.06	N/A
Maine	Number of Codes	12,316	10,299	4,453	4,859
	Percent of State Total	2.57	2.15	0.93	1.01
Maryland	Number of Codes	N/A	27,007	N/A	8,073
	Percent of State Total	N/A	4.96	N/A	1.48
Nebraska	Number of Codes	11,261	9,998	6,681	6,166
	Percent of State Total	5.37	4.77	3.19	2.94
New Jersey	Number of Codes	28,500	N/A	9,548	N/A
	Percent of State Total	8.56	N/A	2.87	N/A
North Carolina	Number of Codes	110,843	99,834	33,333	31,081
	Percent of State Total	9.12	8.21	2.74	2.56
Utah	Number of Codes	20,532	26,013	10,698	11,260
	Percent of State Total	6.07	7.69	3.16	3.33
Wisconsin	Number of Codes	74,567	21,759	18,947	4,715
	Percent of State Total	9.54	2.78	2.42	0.60

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	Nose, Mouth, and Pharynx (27-33)		Respiratory System (34-42)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	24,315	13,662	5,587	4,526
	Percent of State Total	6.40	3.59	1.47	1.19
Florida	Number of Codes	29,627	81,284	24,545	47,270
	Percent of State Total	1.12	3.06	0.92	1.78
Kentucky	Number of Codes	25,701	N/A	8,014	N/A
	Percent of State Total	4.99	N/A	1.56	N/A
Maine	Number of Codes	9,303	5,645	3,164	4,576
	Percent of State Total	1.94	1.18	0.66	0.95
Maryland	Number of Codes	N/A	17,504	N/A	18,401
	Percent of State Total	N/A	3.21	N/A	3.38
Nebraska	Number of Codes	13,204	9,649	3,312	2,649
	Percent of State Total	6.30	4.60	1.58	1.26
New Jersey	Number of Codes	23,466	N/A	4,301	N/A
	Percent of State Total	7.04	N/A	1.29	N/A
North Carolina	Number of Codes	66,697	58,720	17,626	15,922
	Percent of State Total	5.49	4.83	1.45	1.31
Utah	Number of Codes	26,094	24,143	2,482	2,646
	Percent of State Total	7.71	7.14	0.73	0.78
Wisconsin	Number of Codes	38,606	5,012	9,843	754
	Percent of State Total	4.94	0.64	1.26	0.10

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	Cardiovascular System (43-63)		Heme and Lymphatic System (64-67)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	16,629	6,815	3,867	2,705
	Percent of State Total	4.37	1.79	1.02	0.71
Florida	Number of Codes	60,636	139,556	7,193	17,212
	Percent of State Total	2.28	5.26	0.27	0.65
Kentucky	Number of Codes	29,843	N/A	4,021	N/A
	Percent of State Total	5.80	N/A	0.78	N/A
Maine	Number of Codes	7,751	10,630	1,792	1,449
	Percent of State Total	1.62	2.22	0.37	0.30
Maryland	Number of Codes	N/A	30,272	N/A	4,188
	Percent of State Total	N/A	5.56	N/A	0.77
Nebraska	Number of Codes	7,984	7,816	1,907	1,645
	Percent of State Total	3.81	3.73	0.91	0.78
New Jersey	Number of Codes	13,493	N/A	4,695	N/A
	Percent of State Total	4.05	N/A	1.41	N/A
North Carolina	Number of Codes	60,418	62,044	9,612	6,923
	Percent of State Total	4.97	5.10	0.79	0.57
Utah	Number of Codes	10,891	10,648	1,933	N/A
	Percent of State Total	3.22	3.15	0.57	N/A
Wisconsin	Number of Codes	32,471	817	7,068	383
	Percent of State Total	4.16	0.10	0.90	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, 2003 SASD
(continued)

State	Measure	Digestive System (68-99)		Urinary System (100-112)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	93,663	80,705	10,087	7,976
	Percent of State Total	24.64	21.23	2.65	2.10
Florida	Number of Codes	299,929	863,475	37,667	103,383
	Percent of State Total	11.30	32.53	1.42	3.89
Kentucky	Number of Codes	171,346	N/A	18,235	N/A
	Percent of State Total	33.28	N/A	3.54	N/A
Maine	Number of Codes	68,555	63,584	9,468	9,295
	Percent of State Total	14.29	13.26	1.97	1.94
Maryland	Number of Codes	N/A	111,285	N/A	24,246
	Percent of State Total	N/A	20.42	N/A	4.45
Nebraska	Number of Codes	53,427	52,382	7,360	6,964
	Percent of State Total	25.48	24.98	3.51	3.32
New Jersey	Number of Codes	81,197	N/A	17,867	N/A
	Percent of State Total	24.37	N/A	5.36	N/A
North Carolina	Number of Codes	359,905	354,744	42,733	41,276
	Percent of State Total	29.60	29.18	3.52	3.40
Utah	Number of Codes	78,730	96,748	7,563	N/A
	Percent of State Total	23.27	28.60	2.24	N/A
Wisconsin	Number of Codes	281,757	50,325	29,486	2,066
	Percent of State Total	36.06	6.44	3.77	0.26

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	Male Genital System (113-118)		Female Genital System (119-121, 123-132)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	4,133	2,840	15,508	13,453
	Percent of State Total	1.09	0.75	4.08	3.54
Florida	Number of Codes	12,398	42,652	44,807	101,331
	Percent of State Total	0.47	1.61	1.69	3.82
Kentucky	Number of Codes	7,136	N/A	24,883	N/A
	Percent of State Total	1.39	N/A	4.83	N/A
Maine	Number of Codes	3,419	3,031	8,291	8,475
	Percent of State Total	0.71	0.63	1.73	1.77
Maryland	Number of Codes	N/A	8,692	N/A	34,499
	Percent of State Total	N/A	1.60	N/A	6.33
Nebraska	Number of Codes	1,827	1,698	6,195	6,459
	Percent of State Total	0.87	0.81	2.95	3.08
New Jersey	Number of Codes	9,556	N/A	44,201	N/A
	Percent of State Total	2.87	N/A	13.27	N/A
North Carolina	Number of Codes	12,978	11,696	53,951	53,176
	Percent of State Total	1.07	0.96	4.44	4.37
Utah	Number of Codes	3,356	3,704	10,441	10,342
	Percent of State Total	0.99	1.09	3.09	3.06
Wisconsin	Number of Codes	11,306	1,306	30,315	4,978
	Percent of State Total	1.45	0.17	3.88	0.64

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	Obstetrical (122, 133-141)		Musculoskeletal System (142-164)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	5,055	3,807	53,694	47,465
	Percent of State Total	1.33	1.00	14.13	12.49
Florida	Number of Codes	21,107	59,518	79,368	232,263
	Percent of State Total	0.80	2.24	2.99	8.75
Maine	Number of Codes	3,353	12,268	19,872	19,775
	Percent of State Total	0.70	2.56	4.14	4.12
Maryland	Number of Codes	N/A	30,754	N/A	56,512
	Percent of State Total	N/A	5.64	N/A	10.37
Nebraska	Number of Codes	2,290	979	25,384	21,353
	Percent of State Total	1.09	0.47	12.11	10.18
New Jersey	Number of Codes	693	N/A	56,269	N/A
	Percent of State Total	0.21	N/A	16.89	N/A
North Carolina	Number of Codes	15,438	14,884	134,410	163,024
	Percent of State Total	1.27	1.22	11.06	13.41
Utah	Number of Codes	345	150	45,387	48,051
	Percent of State Total	0.10	0.04	13.42	14.20
Wisconsin	Number of Codes	6,062	242	100,069	17,003
	Percent of State Total	0.78	0.03	12.81	2.18

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	Integumentary System (165-175)		Miscellaneous Diagnostic and Therapeutic (176-237)	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	97,707	87,186	39,980	24,705
	Percent of State Total	25.71	22.94	10.52	6.50
Florida	Number of Codes	145,366	302,216	86,325	937,807
	Percent of State Total	5.48	11.39	3.25	35.33
Kentucky	Number of Codes	76,876	N/A	91,470	N/A
	Percent of State Total	14.93	N/A	17.76	N/A
Maine	Number of Codes	46,905	46,587	45,332	422,205
	Percent of State Total	9.78	9.71	9.45	88.02
Maryland	Number of Codes	N/A	96,440	N/A	386,547
	Percent of State Total	N/A	17.70	N/A	70.94
Nebraska	Number of Codes	39,214	20,216	38,685	8,288
	Percent of State Total	18.70	9.64	18.45	3.95
New Jersey	Number of Codes	40,413	N/A	22,522	N/A
	Percent of State Total	12.13	N/A	6.76	N/A
North Carolina	Number of Codes	159,522	189,803	199,528	186,448
	Percent of State Total	13.12	15.61	16.41	15.34
Utah	Number of Codes	47,530	9,928	25,221	57,997
	Percent of State Total	14.05	2.93	7.46	17.14
Wisconsin	Number of Codes	76,067	7,710	68,913	8,716
	Percent of State Total	9.73	0.99	8.82	1.12

Table A-1: Number of Procedure Codes by State and Body System, ICD CCS and CPT CCS Classification Available through the HCUP Central Distributor, 2003 SASD
(continued)

State	Measure	HCPCS		Invalid or Inconsistent	
		ICD-9	CPT	ICD-9	CPT
Colorado	Number of Codes	0	7,497	1	350
	Percent of State Total	0.00	1.97	0.00	0.09
Florida	Number of Codes	0	208,476	8	0
	Percent of State Total	0.00	7.85	0.00	0.00
Kentucky	Number of Codes	0	N/A	0	N/A
	Percent of State Total	0.00	N/A	0.00	N/A
Maine	Number of Codes	0	96,957	5	0
	Percent of State Total	0.00	20.21	0.00	0.00
Maryland	Number of Codes	N/A	107,197	N/A	0
	Percent of State Total	N/A	19.67	N/A	0.00
Nebraska	Number of Codes	0	0	0	9
	Percent of State Total	0.00	0.00	0.00	0.00
New Jersey	Number of Codes	0	N/A	0	N/A
	Percent of State Total	0.00	N/A	0.00	N/A
North Carolina	Number of Codes	0	7,521	1	1,964
	Percent of State Total	0.00	0.62	0.00	0.16
Utah	Number of Codes	0	20,587	1,012	19
	Percent of State Total	0.00	6.09	0.30	0.01
Wisconsin	Number of Codes	0	1,511	41	0
	Percent of State Total	0.00	0.19	0.01	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
Maine	X	N/A	X
Maryland	N/A	X	X
Nebraska	X	X	X
New Jersey	X	N/A	N/A
North Carolina	X	X	N/A
Tennessee	X	N/A	N/A
Utah	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 1.8 CPT codes in the core file and 4.6 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, 84 percent of the records employ both systems and 16 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, 2003 SASD, among all records

State	Number of Records	Percent Both ICD-9-CM and CPT	Percent ICD-9-CM Only	Percent CPT Only
Colorado	380,097	83.8	16.2	0
Florida	2,654,417	36.7	0	63.3
Maine	479,651	47.3	0.4	52.4
Nebraska	209,682	73.6	19.6	6.8
North Carolina	1,215,695	100	0.0	0
Utah	338,305	61.5	19.8	18.7
Wisconsin	781,397	17.5	82.5	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, 2003 SASD

State	Percent of ICD CCS Matched	Percent of CPT CCS Matched
Colorado	62	79
Florida	85	15
Maine	69	13
North Carolina	79	79
Nebraska	56	80
Utah	62	53
Wisconsin	13	80

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, five states (Colorado, Florida, Nebraska, Utah and Wisconsin) have match rates in excess of 80 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, 2003 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	185,389	82.3
Florida	272,867	80.7
Maine	8,978	41.1
Nebraska	76,905	82.4
North Carolina	752,311	74.2
Utah	77,282	81.2
Wisconsin	90,106	80.5

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, 2003 SASD

ICD-CCS				CPT-CCS			
Rank	N	CCS Group	Description	Rank of CPT CCS Code	CCS Group	Description	Percent
1	241,328	76	Colonoscopy and biopsy	1	76	Colonoscopy and biopsy	90.1
				2	92	Other bowel diagnostic procedures	5.8
				3	77	Proctoscopy and anorectal biopsy	3.9
				4	70	Upper gastrointestinal endoscopy; biopsy	0.0
				5	234	Pathology	0.0
2	118,161	171	Suture of skin and subcutaneous tissue	1	171	Suture of skin and subcutaneous tissue	98.1
				2	227	Other diagnostic procedures (interview; evaluation; consultation)	1.8
				3	19	Other therapeutic procedures on eyelids; conjunctiva; cornea	0.1
				4	175	Other OR therapeutic procedures on skin and breast	0.0
				5	214	Traction; splints; and other wound care	0.0
3	112,211	70	Upper gastrointestinal endoscopy; biopsy	1	70	Upper gastrointestinal endoscopy; biopsy	99.2
				2	71	Gastrostomy; temporary and permanent	0.2
				3	96	Other OR lower GI therapeutic procedures	0.1
				4	237	Ancillary services	0.1
				5	69	Esophageal dilatation	0.1
4	111,356	95	Other non-OR lower GI therapeutic procedures	1	76	Colonoscopy and biopsy	92.5
				2	77	Proctoscopy and anorectal biopsy	6.7
				3	96	Other OR lower GI therapeutic procedures	0.4
				4	70	Upper gastrointestinal endoscopy; biopsy	0.2
				5	234	Pathology	0.1

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, 2003 SASD

ICD-CCS				CPT-CCS			
Rank	N	CCS Group	Description	Rank of CPT CCS Code	CCS Group	Description	Percent
5	55,022	214	Traction; splints; and other wound care	1	214	Traction; splints; and other wound care	49.0
				2	144	Treatment; facial fracture or dislocation	44.1
				3	148	Other fracture and dislocation procedure	2.2
				4	169	Debridement of wound; infection or burn	2.1
				5	147	Treatment; fracture or dislocation of lower extremity (other than hip or femur)	1.0
6	38,321	231	Other therapeutic procedures	1	231	Other therapeutic	91.1
				2	5	Insertion of catheter or spinal stimulator and injection into spinal canal	3.2
				3	156	Injections and aspirations of muscles; tendons; bursa; joints and soft tissue	2.8
				4	175	Other OR therapeutic procedures on skin and breast	0.8
				5	63	Other non-OR therapeutic cardiovascular procedures	0.6
7	35,805	5	Insertion of catheter or spinal stimulator and injection into spinal canal	1	5	Insertion of catheter or spinal stimulator and injection into spinal canal	96.5
				2	1	Incision and excision of CNS	3.1
				3	226	Other diagnostic radiology and related techniques	0.1
				4	227	Other diagnostic procedures (interview; evaluation; consultation)	0.1
				5	3	Laminectomy; excision intervertebral disc	0.1
8	34,333	30	Tonsillectomy and/or adenoidectomy	1	30	Tonsillectomy and/or adenoidectomy	98.3
				2	32	Other non-OR therapeutic procedures on nose; mouth and pharynx	1.1
				3	33	Other OR therapeutic procedures on nose; mouth and pharynx	0.6
				4	27	Control of epistaxis	0.0
				5	234	Pathology	0.0

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, 2003 SASD

ICD-CCS				CPT-CCS			
Rank	N	CCS Group	Description	Rank of CPT CCS Code	CCS Group	Description	Percent
9	33,952	160	Other therapeutic procedures on muscles and tendons	1	160	Other therapeutic procedures on muscles and tendons	80.1
				2	162	Other OR therapeutic procedures on joints	6.1
				3	169	Debridement of wound; infection or burn	3.7
				4	164	Other OR therapeutic procedures on musculoskeletal system	2.6
				5	170	Excision of skin lesion	2.4
10	33,811	169	Debridement of wound; infection or burn	1	169	Debridement of wound; infection or burn	99.4
				2	175	Other OR therapeutic procedures on skin and breast	0.2
				3	214	Traction; splints; and other wound care	0.1
				4	227	Other diagnostic procedures (interview; evaluation; consultation)	0.1
				5	170	Excision of skin lesion	0.1

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, 2003 SASD

CPT-CCS				ICD-CCS			
Rank	N	CCS Group	Description	Rank of ICD CCS Code	CCS Group	Description	Percent
1	323,248	76	Colonoscopy and biopsy	1	76	Colonoscopy and biopsy	67.3
				2	95	Other non-OR lower GI therapeutic procedures	31.9
				3	77	Proctoscopy and anorectal biopsy	0.6
				4	92	Other bowel diagnostic procedures	0.2
				5	70	Upper gastrointestinal endoscopy; biopsy	0.0
2	135,609	171	Suture of skin and subcutaneous tissue	1	171	Suture of skin and subcutaneous tissue	85.5
				2	19	Other therapeutic procedures on eyelids; conjunctiva; cornea	6.3
				3	32	Other non-OR therapeutic procedures on nose; mouth and pharynx	4.9
				4	28	Plastic procedures on nose	1.5
				5	26	Other therapeutic ear procedures	1.0
3	113,983	70	Upper gastro-intestinal endoscopy; biopsy	1	70	Upper gastrointestinal endoscopy; biopsy	97.7
				2	93	Other non-OR upper GI therapeutic procedures	1.7
				3	229	Nonoperative removal of foreign body	0.2
				4	95	Other non-OR lower GI therapeutic procedures	0.2
				5	76	Colonoscopy and biopsy	0.1
				6	231	Other therapeutic procedures	0.1
				7	92	Other bowel diagnostic procedures	0.1
				8	94	Other OR upper GI therapeutic procedures	0.0
				9	96	Other OR lower GI therapeutic procedures	0.0
				10	69	Esophageal dilatation	0.0

CPT-CCS				ICD-CCS			
Rank	N	CCS Group	Description	Rank of ICD CCS Code	CCS Group	Description	Percent
4	37,231	169	Debridement of wound; infection or burn	1	169	Debridement of wound; infection or burn	90.3
				2	160	Other therapeutic procedures on muscles and tendons	3.4
				3	214	Traction; splints; and other wound care	3.1
				4	142	Partial excision bone	1.5
				5	164	Other OR therapeutic procedures on musculoskeletal system	0.8
5	36,487	5	Insertion of catheter or spinal stimulator and injection into spinal canal	1	5	Insertion of catheter or spinal stimulator and injection into spinal canal	94.7
				2	231	Other therapeutic procedures	3.3
				3	8	Other non-OR or closed therapeutic nervous system procedures	1.2
				4	9	Other OR therapeutic nervous system procedures	0.6
				5	163	Other non-OR therapeutic procedures on musculoskeletal system	0.0
6	35,620	170	Excision of skin lesion	1	170	Excision of skin lesion	61.9
				2	166	Lumpectomy; quadrantectomy of breast	21.8
				3	174	Other non-OR therapeutic procedures on skin and breast	3.7
				4	160	Other therapeutic procedures on muscles and tendons	2.3
				5	26	Other therapeutic ear procedures	2.3
7	35,397	231	Other therapeutic procedures	1	231	Other therapeutic procedures	98.6
				2	156	Injections and aspirations of muscles; tendons; bursa; joints and soft tissue	0.4
				3	224	Cancer chemotherapy	0.4
				4	174	Other non-OR therapeutic procedures on skin and breast	0.2
				5	61	Other OR procedures on vessels other than head and neck	0.1

CPT-CCS				ICD-CCS			
Rank	N	CCS Group	Description	Rank of ICD CCS Code	CCS Group	Description	Percent
8	33,780	30	Tonsillectomy and/or adenoidectomy	1	30	Tonsillectomy and/or adenoidectomy	99.9
				2	33	Other OR therapeutic procedures on nose; mouth and pharynx	0.1
				3	26	Other therapeutic ear procedures	0.0
				4	28	Plastic procedures on nose	0.0
				5			0.0
9	32,268	15	Lens and cataract procedures	1	15	Lens and cataract procedures	99.8
				2	20	Other intraocular therapeutic procedures	0.1
				3	21	Other extraocular muscle and orbit therapeutic procedures	0.1
				4	231	Other therapeutic procedures	0.0
				5	19	Other therapeutic procedures on eyelids; conjunctiva; cornea	0.0
10	29,917	214	Traction; splints; and other wound care	1	214	Traction; splints; and other wound care	90.1
				2	163	Other non-OR therapeutic procedures on musculoskeletal system	9.5
				3	169	Debridement of wound; infection or burn	0.1
				4	171	Suture of skin and subcutaneous tissue	0.1
				5	231	Other therapeutic procedures	0.0

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.