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EVALUATION OF THE STATE AMBULATORY SURGERY DATABASES AVAILABLE THROUGH THE HCUP CENTRAL DISTRIBUTOR, 2002

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INTRODUCTION

Ambulatory surgeries have become more common over the past two decades. Between 1990 and 2000, the number of surgeries performed in freestanding ambulatory surgery centers rose from 2.3 million to 6.7 million.[1] Outpatient surgeries also account for a growing proportion of total surgeries. The National Center for Health Statistics (NCHS) reports that outpatient surgeries accounted for 63 percent of all surgeries performed in community hospitals in 2002, compared with only 16 percent in 1980.[2] This growth was fueled by cost concerns and new medical technologies that made ambulatory surgery more practical.

In 1997, the Healthcare Cost and Utilization Project (HCUP) began collecting ambulatory surgery data under funding from the Agency for Healthcare Research and Quality (AHRQ). This report evaluates the completeness of the 2002 State Ambulatory Surgery Databases (SASD) for each of the 11 States that provide ambulatory surgery data to HCUP and make the data available via the HCUP Central Distributor. The method used to accomplish this evaluation was to compare the counts of ambulatory surgery facilities and the counts of visits to corresponding counts reported in the 2002 American Hospital Association (AHA) survey of hospitals.

The 11 states that contributed visit-level data to the HCUP Central Distributor SASD include Colorado, Florida, Kentucky, Maine, Maryland, Nebraska, New Jersey, New York, North Carolina, Utah, and Wisconsin. These 2002 SASD files are available to researchers for a fee, either through the appropriate state agency or the HCUP Central Distributor. Each state determines the cost and criteria for distribution of its data files. Complete and detailed information about the HCUP Central Distributor is available on the HCUP User Support Website (http://www.hcup-us.ahrq.gov).

The first section of this report contains an overview of the 2002 SASD. In the second section, we consider alternative sources of comparative data and determine that the AHA Annual Survey of hospitals is the best comparative database for our purposes. The third section compares the SASD counts to the counts reported in the AHA Annual Survey. The fourth section gives a brief summary of the distribution of ambulatory surgeries contained in the SASD, broken out by body system. The final section offers some conclusions on the usefulness and potential research value of the 2002 SASD.

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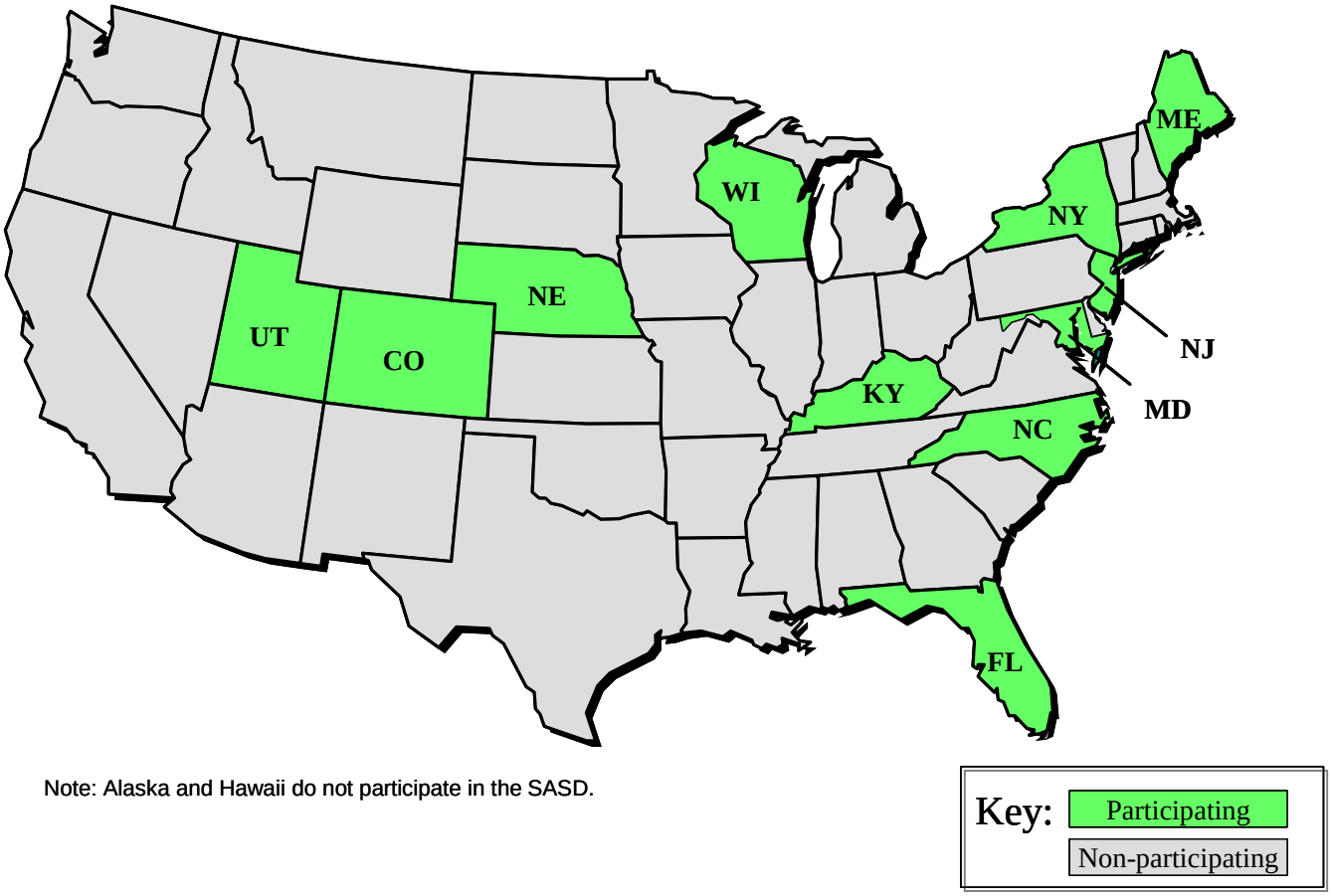
[1]Surgical Alliance Corporation. *Ambulatory Surgery Center*. http://www.surgicalalliance.com/asc.htm. Accessed March 17, 2004.
[2]National Center for Health Statistics. *Health, United States, 2004 with Chartbook on Trends in the Health of Americans*. Hyattsville, Maryland: 2004.

HCUP States with 2002 SASD Databases Available Through the HCUP Central Distributor



Note: Alaska and Hawaii do not participate in the SASD.

2002 HCUP STATE AMBULATORY SURGERY DATABASES (SASD) AVAILABLE THROUGH THE HCUP CENTRAL DISTRIBUTOR

Ambulatory surgery visit data were collected as part of HCUP beginning in 1997. For 2002, 11 standardized state databases were constructed and provided to AHRQ as restricted access public release databases. The types of facilities contained in the SASD databases varied across the 11 states. All of the states supplied ambulatory surgery records from hospital-based and hospital-affiliated ambulatory surgery centers. Some states, but not all, also supplied ambulatory surgery records from freestanding facilities.

Table 1 presents the number of hospital-based and freestanding facilities included in each SASD. The HCUP SASD definition of a hospital-based facility is used. Namely, SASD facilities that could be matched to a facility contained in the 2002 American Hospital Association survey of hospitals (discussed in the next section) were considered to be hospital-based; all others were considered freestanding.

TABLE 1. Number of Hospital-Based and Freestanding Facilities by State Available Through the HCUP Central Distributor, 2002 SASD

State	Number of Hospital-based Facilities	Number of Freestanding Facilities	Total Number Facilities
Colorado	71	0	71
Florida	202	350	552
Kentucky	98	2	100
Maine	47	0	47
Maryland	48	0	48
Nebraska	81	0	81
New Jersey	86	0	86
New York	228	38	266
North Carolina	111	40	151
Utah	46	15	61
Wisconsin	127	33	160

POTENTIAL COMPARATIVE AMBULATORY SURGERY DATABASES

We identified three databases that could potentially be used to assess the completeness of the 2002 SASD. All three databases contain only facility-level data. None contain visit-level data. The three 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 of Hospitals fielded and maintained by the American Hospital Association (AHA).

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, such as laser eye surgery centers and sports medicine clinics, 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 Ambulatory Surgery Facility Information Sources

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

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 lists facilities that provide outpatient surgery in all settings, the information is limited to participating Medicare facilities and it does not contain counts of surgeries. Consequently, we elected not to use this file for assessing the completeness of the SASD.

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.

We have previously compared the SASD to the FOSC database because it provided nearly complete coverage (e.g., it contained data from more than 98 percent of facilities surveyed in 1999). However, the response rates for the 2001 and 2002 surveys were under 50 percent. Consequently, we did not use the 2002 FOSC data in this report.

AHA Annual Survey of Hospitals

The AHA Annual Hospital Survey 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 most freestanding outpatient surgery facilities lacking a hospital affiliation. Even accounting for this deficit, the AHA survey data represent the best comparative database among those considered for this report.

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

COMPARISONS BETWEEN THE SASD AND THE AHA SURVEY DATA

To compare the SASD to the AHA Annual Survey data, we constructed a crosswalk (match) between AHA facility identifiers and SASD facility identifiers for each of the 11 states participating in the HCUP Central Distributor. Importantly, the AHA and SASD have different definitions for *freestanding facilities*. The AHA data define freestanding facilities as outpatient surgery centers housed outside the hospital and *operated by a hospital*. In contrast, the SASD defines freestanding facilities as surgery centers housed outside the hospital and *operated by a third party*. Therefore, SASD freestanding facilities are not matched to AHA facilities.

Table 3 presents the number of facilities and ambulatory surgeries by state captured in the 2002 SASD and AHA databases. 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 simply referred to as *surgeries*. For each state in the table, the first row (SASD+AHA) lists the number of facilities that were matched between the databases, and it lists the number of surgeries performed in each facility as contained in each data source. The second row (SASD only) shows the number of facilities and surgeries contained in the SASD that could not be matched to the AHA data. The third row (AHA only) provides the number of facilities and surgeries reported by facilities in the AHA survey data that were not matched to the SASD data.

For most states, the majority of facilities are captured in both the SASD and AHA Annual Survey data, although the AHA generally includes more facilities than the SASD. The most dramatic exception occurs in the state of Florida. For this state, the SASD-only subset contains 156 more facilities compared with the SASD+AHA subset, possibly indicating that there are a large number of freestanding facilities operated by third parties in Florida. Over the remaining states, the AHA includes an average of nine more facilities per state when compared with the SASD.

Comparing the count of surgeries for matched facilities, we see that the SASD captures more procedures than the number reported in the AHA Annual Survey except for New Jersey and New York, where the AHA indicates 23 percent and 10 percent more surgeries, respectively. In the case of Maine, the SASD file includes over 20 times more surgeries than the number indicated by the AHA data. Among other states combined, the SASD files include an average of 36 percent more surgeries than the number reported in the AHA data.

It is important to acknowledge that the sum of facility and surgery counts taken over the three rows for each state may overstate the true total counts of facilities and surgeries because of double-counting. It is possible that the crosswalk did not match some facilities that should have been matched between the SASD and AHA databases. Therefore, some facilities categorized as "SASD only" may also be designated as "AHA only."

Table 3. Number of Facilities and Surgeries by State and Data Source Available Through the HCUP Central Distributor, 2002

State	Data Source	Number of Facilities	Number of SASD Surgeries	Number of AHA Surgeries
Colorado	SASD + AHA	71	384,268	184,855
	SASD only	0	0	0
	AHA only	15	0	6,531
Florida	SASD + AHA	198	1,680,454	896,148
	SASD only	354	1,298,657	0
	AHA only	60	0	36,716
Kentucky	SASD + AHA	97	672,004	360,143
	SASD only	3	6,190	0
	AHA only	26	0	17,018
Maine	SASD + AHA	47	2,420,308	97,665
	SASD only	0	0	0
	AHA only	4	0	2,686
Maryland	SASD + AHA	48	396,036	347,499
	SASD only	0	0	0
	AHA only	29	0	11,878
Nebraska	SASD + AHA	80	205,371	129,929
	SASD only	1	3	0
	AHA only	13	0	8,856
New Jersey	SASD + AHA	86	334,567	414,790
	SASD only	0	0	0
	AHA only	22	0	5,049
New York	SASD + AHA	226	1,253,082	1,373,988
	SASD only	40	116,095	0
	AHA only	59	0	25,646
North Carolina	SASD + AHA	110	886,099	518,523
	SASD only	41	151,256	0
	AHA only	33	0	25,687
Utah	SASD + AHA	45	201,208	156,195
	SASD only	16	57,494	0
	AHA only	8	0	2,096
Wisconsin	SASD + AHA	120	610,248	388,879
	SASD only	40	127,040	0
	AHA only	19	0	4,830

TYPES OF SURGERIES CAPTURED BY THE SASD

The table in Appendix 1 offers some insight into the nature of the visit data captured in the 2002 SASD. That table presents the number of surgeries classified by 15 major body systems:

- Nervous
- Endocrine
- Eye
- Ear
- Nose, mouth, and pharynx
- Respiratory
- Cardiovascular
- Hemic and lymphatic
- Digestive
- Urinary
- Male genital
- Female genital
- Obstetrical
- Musculoskeletal
- Integumentary

This classification was accomplished using AHRQ's Clinical Classification Software (CCS) for procedures. The CCS program aggregates ICD-9-CM procedure codes into 231 mutually exclusive procedure categories. For this report, we grouped these 231 categories into ranges defining the 15 major body systems. The range of CCS categories is shown under each column heading. Two additional categories are also shown: "Miscellaneous Diagnostic and Therapeutic Procedures" and "Other." The "Other" category includes procedures that are missing. It also includes procedures considered invalid by the CCS software. Importantly, CPT-4 procedure codes are considered invalid by the CCS software, which operates only on ICD-9-CM codes.

The greatest proportion of ambulatory surgeries is performed on the digestive system (17%). The next most frequently-treated body system is the integumentary system (7%), followed by the musculoskeletal system (6%). A number of categories have very few procedures. Those body systems that account for less than one percent of all ambulatory surgery procedures are: endocrine (0.19%), respiratory (0.85%), heme and lymphatic (0.32%), male genital (0.81%), and obstetrical (0.55%).

Some states have a relatively high percentage of surgeries classified as "Other." In particular, the percentages for Florida and Maine are 66 percent and 90 percent, respectively. We concluded that these two states tend to use CPT-4 codes more often for surgeries rather than ICD-9-CM codes.

CONCLUSION

Our findings indicate that the types of facilities covered by the 2002 SASD varied across states. By matching SASD facilities with those in the AHA data, we could classify many of them as either hospital-based or freestanding. In terms of facilities, the SASD from some states appear to include mainly hospital-based facilities, while the SASD from other states also include a substantial portion of freestanding facilities. This limitation, however, may not pose severe constraints. Estimates reveal that in the year 2000, only six percent of outpatient surgeries were performed in freestanding facilities.[4] Consequently, the SASD files available through the HCUP Central Distributor provide coverage for the vast majority of ambulatory surgeries performed in the 11 states.

In terms of surgery visit counts, the data for most facilities in the SASD appear to be complete, exceeding the number of surgeries reported by the AHA survey data. In terms of the types of

[4]Surgical Alliance Corporation. *Ambulatory Surgery Center*. http://www.surgicalalliance.com/asc.htm. Accessed March 17, 2004.

surgery, the greatest proportions of ambulatory surgeries are related to the digestive system, the integumentary system, and the musculoskeletal system.

We conclude that the 2002 SASD files available through the HCUP Central Distributor, containing 10,800,380 ambulatory surgery records from 1,623 facilities, can be very useful, especially for state-specific analyses.

APPENDIX 1. NUMBER OF SURGERIES BY STATE AND BODY SYSTEM AVAILABLE THROUGH THE HCUP CENTRAL DISTRIBUTOR, 2002 SASD

State	Measure	Nervous System (1-9)	Endocrine System (10-12)	Eye (13-21)
Colorado	Number of cases	33,952	1,602	21,975
	Percent of state total	9%	0%	6%
Florida	Number of cases	61,539	5,873	51,253
	Percent of state total	2%	0%	2%
Kentucky	Number of cases	46,461	1,750	31,909
	Percent of state total	7%	0%	5%
Maine	Number of cases	10,212	529	11,631
	Percent of state total	0%	0%	0%
Maryland[5]	Number of cases	N/A	N/A	N/A
	Percent of state total	N/A	N/A	N/A
Nebraska	Number of cases	17,390	745	12,189
	Percent of state total	8%	0%	6%
New Jersey	Number of cases	17,522	350	28,888
	Percent of state total	5%	0%	9%
New York	Number of cases	78,986	2,749	171,548
	Percent of state total	6%	0%	13%
North Carolina	Number of cases	81,976	3,234	104,449
	Percent of state total	8%	0%	10%
Utah	Number of cases	14,199	700	16,727
	Percent of state total	5%	0%	6%
Wisconsin	Number of cases	79,166	2,164	69,302
	Percent of state total	11%	0%	9%

[5]Maryland did not provide ICD-9 codes in its ambulatory surgery data for the 2002 data year. As a result, their surgeries cannot be categorized using the CCS software tool. All analyses within this report that are based on this appendix have been completed without Maryland. For a list of the states that include ICD-9 codes, CPT codes, or both, see Appendix 2.

NUMBER OF SURGERIES BY STATE AND BODY SYSTEM, 2002 SASD (continued)

State	Measure	Ear (22-26)	Nose, Mouth, and Pharynx (27-33)	Respiratory System (34-42)
Colorado	Number of cases	6,112	22,894	5,465
	Percent of state total	2%	6%	1%
Florida	Number of cases	10,354	28,325	24,259
	Percent of state total	0%	1%	1%
Kentucky	Number of cases	13,672	22,244	7,527
	Percent of state total	2%	3%	1%
Maine	Number of cases	3,232	6,696	2,943
	Percent of state total	0%	0%	0%
Maryland	Number of cases	N/A	N/A	N/A
	Percent of state total	N/A	N/A	N/A
Nebraska	Number of cases	6,061	12,570	2,995
	Percent of state total	3%	6%	1%
New Jersey	Number of cases	7,948	21,583	3,762
	Percent of state total	2%	6%	1%
New York	Number of cases	25,343	66,734	16,297
	Percent of state total	2%	5%	1%
North Carolina	Number of cases	23,582	52,977	14,153
	Percent of state total	2%	5%	1%
Utah	Number of cases	8,246	17,922	1,985
	Percent of state total	3%	7%	1%
Wisconsin	Number of cases	16,675	33,228	8,690
	Percent of state total	2%	5%	1%

NUMBER OF SURGERIES BY STATE AND BODY SYSTEM, 2002 SASD (continued)

State	Measure	Cardiovascular System (43-63)	Heme and Lymphatic System (64-67)	Digestive System (68-99)
Colorado	Number of cases	15,774	2,128	94,840
	Percent of state total	4%	1%	25%
Florida	Number of cases	60,199	5,988	309,977
	Percent of state total	2%	0%	10%
Kentucky	Number of cases	30,057	2,398	168,496
	Percent of state total	4%	0%	25%
Maine	Number of cases	6,961	1,170	63,646
	Percent of state total	0%	0%	3%
Maryland	Number of cases	N/A	N/A	N/A
	Percent of state total	N/A	N/A	N/A
Nebraska	Number of cases	8,304	1,259	52,902
	Percent of state total	4%	1%	26%
New Jersey	Number of cases	11,898	2,314	71,966
	Percent of state total	4%	1%	22%
New York	Number of cases	65,022	7,335	413,923
	Percent of state total	5%	1%	30%
North Carolina	Number of cases	52,933	5,129	319,543
	Percent of state total	5%	0%	31%
Utah	Number of cases	9,563	1,056	66,581
	Percent of state total	4%	0%	26%
Wisconsin	Number of cases	31,416	4,174	259,593
	Percent of state total	4%	1%	35%

NUMBER OF SURGERIES BY STATE AND BODY SYSTEM, 2002 SASD (continued)

State	Measure	Urinary System (100-112)	Male Genital System (113-118)	Female Genital System (119-121, 123-132)
Colorado	Number of cases	9,231	3,408	15,013
	Percent of state total	2%	1%	4%
Florida	Number of cases	36,039	12,386	46,642
	Percent of state total	1%	0%	2%
Kentucky	Number of cases	17,903	6,376	24,508
	Percent of state total	3%	1%	4%
Maine	Number of cases	8,037	3,306	7,975
	Percent of state total	0%	0%	0%
Maryland	Number of cases	N/A	N/A	N/A
	Percent of state total	N/A	N/A	N/A
Nebraska	Number of cases	6,828	1,582	6,167
	Percent of state total	3%	1%	3%
New Jersey	Number of cases	16,397	7,343	42,658
	Percent of state total	5%	2%	13%
New York	Number of cases	56,299	26,120	108,346
	Percent of state total	4%	2%	8%
North Carolina	Number of cases	33,197	11,092	49,456
	Percent of state total	3%	1%	5%
Utah	Number of cases	5,256	2,647	8,892
	Percent of state total	2%	1%	3%
Wisconsin	Number of cases	26,737	9,623	28,642
	Percent of state total	4%	1%	4%

NUMBER OF SURGERIES BY STATE AND BODY SYSTEM, 2002 SASD (continued)

State	Measure	Obstetrical (122, 133-141)	Musculoskeletal System (142-164)	Integumentary System (165-175)
Colorado	Number of cases	3,935	53,130	93,920
	Percent of state total	1%	14%	24%
Florida	Number of cases	16,115	82,024	139,820
	Percent of state total	1%	3%	5%
Kentucky	Number of cases	10,651	49,177	76,713
	Percent of state total	2%	7%	11%
Maine	Number of cases	2,767	16,222	19,027
	Percent of state total	0%	1%	1%
Maryland	Number of cases	N/A	N/A	N/A
	Percent of state total	N/A	N/A	N/A
Nebraska	Number of cases	1,847	24,915	38,000
	Percent of state total	1%	12%	19%
New Jersey	Number of cases	661	53,887	36,364
	Percent of state total	0%	16%	11%
New York	Number of cases	1,719	178,211	114,222
	Percent of state total	0%	13%	8%
North Carolina	Number of cases	13,827	116,161	127,619
	Percent of state total	1%	11%	12%
Utah	Number of cases	204	32,991	6,977
	Percent of state total	0%	13%	3%
Wisconsin	Number of cases	5,266	89,876	65,608
	Percent of state total	1%	12%	9%

NUMBER OF SURGERIES BY STATE AND BODY SYSTEM, 2002 SASD (continued)

State	Measure	Miscellaneous Diagnostics and Therapeutic (176-231)	Other
Colorado	Number of cases	599	290
	Percent of state total	0%	0%
Florida	Number of cases	109,616	1,978,702
	Percent of state total	4%	66%
Kentucky	Number of cases	166,277	2,075
	Percent of state total	25%	0%
Maine	Number of cases	86,855	2,169,099
	Percent of state total	4%	90%
Maryland	Number of cases	N/A	N/A
	Percent of state total	N/A	N/A
Nebraska	Number of cases	5,759	5,861
	Percent of state total	3%	3%
New Jersey	Number of cases	8,899	2,127
	Percent of state total	3%	1%
New York	Number of cases	36,040	283
	Percent of state total	3%	0%
North Carolina	Number of cases	28,002	25
	Percent of state total	3%	0%
Utah	Number of cases	3,914	60,842
	Percent of state total	2%	24%
Wisconsin	Number of cases	6,861	267
	Percent of state total	1%	0%