Statistical Brief #13

Office of Quality and Patient Safety
Division of Information and Statistics

March 2016

Identifying Domestic Violence Events in New York State All Payer Inpatient Hospital Discharges and Emergency Room Visits, 2014

Stephen Goins, MS, Tatiana Ledneva, MS, Mary Beth Conroy, MPH

Introduction

Domestic Violence (DV) is a serious public health problem in the United States. In New York State (NYS), not including New York City, over 30,000 assaults by intimate partners were reported to police and over 209,000 orders of protection were recorded in the Unified Court System's Domestic Violence Registry[1]. Despite substantial evidence and growing awareness of Domestic Violence (DV) as a public health concern, the difficulties remain in determining how and when DV victims interact with the healthcare system and the literature examining DV reporting in a healthcare setting through medical coding is very limited.

This statistical brief implements a unique method of identifying DV events through diagnosis coding among hospital inpatient and emergency room discharges reported to the Statewide Planning and Research Cooperative System (SPARCS). This analysis will provide an insight into how DV is coded in these settings and will be used to estimate the characteristics of DV contact with the healthcare system in the all-payer population.

Methods

Inpatient discharges and emergency room (ER) visits by patients at least 18 years old as of January 1, 2014 and less than 65 years of age as of December 31, 2014 were examined for potential DV events. Age restrictions were implemented in order to reduce the likelihood of including child or elder abuse in our analysis. The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes identified in prior literature were used to create two distinct types of DV events: high-likelihood DV events and moderate-likelihood DV events. These event types were determined based on the presence of DV specific and DV non-specific diagnosis codes in any position on the discharge record, primary or secondary. A visit to the ER or inpatient admission was deemed a high-likelihood DV

Highlights

- There were a total of 5,008 Emergency Room visits (ER) and Inpatient admissions attributed to DV events in NYS hospitals in 2014, or 25.45 events per 100,000 residents
- ER visits accounted for 93.0% (4,659 total) of all identified DV events
- Women represented 87.2% of all DV events; Black/Non-Hispanics had the highest population rate of DV events (60.07 events per 100,000 population)
- Victims 25-34 years of age represented 36.6% of all DV events and had the highest DV events population rate of 66.6 per 100,000
- Medicaid was the most frequent primary payer for DV events among both males and females (42.5% and 57.5% respectively)
- The highest rate of DV events was found in the Western region of NYS (40.19 events per 100,000 population), while the lowest (11.39) was in Long Island
- Saturday and Sunday had highest proportion of the ER visits for DV events compared to other days of the week
- Close to half (45.56%) of DV event inpatient admissions lasted four days or longer, possibly indicating seriousness of injury

event if it had at least one of five DV specific diagnoses codes. The five diagnoses codes were selected based on the code's clear descriptive indication of DV or if it was previously shown to have a high predictive value positive (PVP) in indicating DV[2]. The ICD-9-CM external causes of injury codes (E-codes) E9672 and E9670 were not previously shown in the literature to have a high DV PVP, but were included because the analysis cohort's age range implies the likely possibility of abuse by a boyfriend or girlfriend, as indicated by the code's description. The five diagnoses codes, and their PVP as previously reported by Schafer et al when available, are listed in Table 1. Only high-likelihood DV events in 2014 were included in this analysis.

While clinical guidelines recommend that DV should be coded as the primary diagnosis, regardless of other presenting health problems, DV specific codes as they have been defined in this analysis are often under reported. This could be due to such factors as victim hesitance to disclose the nature of the injury, infrequent screening for DV and low reimbursement rates for DV diagnosis codes[3], resulting in potential DV events being undocumented. In an attempt to account for this limitation, a list of non-specific DV diagnoses codes that may signal current or past incidents of DV was compiled that, when reported during a hospitalization or ER visit, may indicate a moderate-likelihood DV event. Table 1A provides the list of DV non-specific codes that based on recommendations from other researchers[2,3]. The diagnoses used to identify these non-specific DV events include assault and abuse codes which may be indicative of DV but do not explicitly implicate a domestic partner as the perpetrator of abuse (as do codes E9672 and E9670). Figure 1 illustrates the logic of high-likelihood and moderate-likelihood DV events identification.

Data Source

SPARCS is a comprehensive all-payer hospital discharge data reporting system established in 1979 as a result of cooperation between the health care industry and government. SPARCS currently collects claim level detail on patient characteristics, diagnoses, treatments, services, and charges for every hospital discharge, ambulatory surgery visit, emergency room visit, and visits to hospital-based outpatient clinics in New York State. More information on SPARCS may be found on the DOH public website at: http://www.health.ny.gov/statistics/sparcs/.

Findings

In 2014 there were 4,248 total events (ER visits and inpatient discharges) that had a DV-specific diagnosis identifying them as high-likelihood DV events. The ICD-9-CM diagnosis '99581: Adult physical abuse' was the most commonly reported DV specific diagnosis and was recorded for approximately 50% of these visits, although multiple DV-specific diagnoses may be reported for the same event. Table 2 shows that the total number of high-likelihood events reported to SPARCS has decreased from 2012 (4,696 events) to 2014 (4,248 events). Additionally, despite a decrease in total number of DV events, there has been an increase in the proportion of events that report the E-code 'E9673: Abuse by spouse or partner' from 30% in 2012 to 35% in 2014.

Table 3 represents DV event distribution by type. There were a total of 5,008 DV events identified in 2014. High-Likelihood DV events accounted for the majority of identified events (84.82%). Moderate Likelihood events in 2014 accounted for a much lower proportion of DV events (15.18%), mostly due to the inclusion requirement that a high likelihood event must also be reported for the same victim in that calendar year.

Table 4 illustrates the high-likelihood DV event history of victims in the years 2012-2014 and moderate-likelihood events in 2014. Subjects were split into three cohorts based on the existence and type of DV events in 2014. There were a total of 4,099 victims (Cohort 1) with at least one high-likelihood event in 2014, accounting for 4,248 high-likelihood events. Of these individuals, 136 (3.32%) also had a high-likelihood event in either 2012 or 2013, and 510 (12.44%) also had a moderate-likelihood event in 2014. There were 537 subjects (Cohort 2) that had both an event with a DV non-specific diagnosis in 2014 and a high-likelihood event in 2012 or 2013 and 8,002 individuals (Cohort 3) that had a previous (2012 or 2013) high-likelihood event but did not have any potential DV event in 2014. These individuals and events were excluded from subsequent analysis. Our final analysis cohort consists of only the 4,099 individuals that had a DV-specific diagnosis in 2014; including a total of 5,008 high- and moderate-likelihood DV events.

Table 5 shows the distribution of select characteristics among identified DV events and event rates based on the NYS population wherever available. Overall there were 25.45 DV events per 100,000 population in NYS in 2014. Females had a much higher DV events rate compared to males (43.08 vs. 6.74 per 100,000 population) and accounted for over 87% of all DV events in 2014. DV rates were highest in the 25 to 34 years old age group at 66.60 events per 100,000 population. This age group also represented 36.60% of all DV events, the largest proportion of any age group. Events for victims in 45 to 64 age group accounted for the smallest proportion of all events (19.03%) and also had the lowest rate at 17.93 DV events per 100,000 population. White Non-Hispanics and Black Non-Hispanics each accounted for approximately 34% of all DV events, but Black Non-Hispanics had the highest event rate (60.07 per 100,00 population) while White Non-Hispanics had the lowest event rate of any race/ethnicity (15.64 per 100,000 population). There were slightly fewer DV events in New York City compared to Rest of State (45.51% vs. 50.92% of events), although New York City did have a higher event rate relative to Rest of State (27.01 vs 22.69 per 100,000 population). DV events for victims from out of state and for those who had an unknown residence comprised 3.57% of all DV events.

Table 6 shows the frequency of DV identifying diagnoses among all events in 2014. The most common DV specific diagnosis recorded '99581: Adult physical abuse' was reported on 25.83% of all events, followed in frequency (19.18%) by 'E9673: Abuse by spouse or partner'. The least commonly reported DV specific diagnosis was 'E9672: Abuse by mother, stepmother, or girlfriend' which was only recorded on 1.31% of all event records. Among non-specific diagnoses attributed to DV based on a victims DV history, the E-code 'E9600: Unarmed Fight or Brawl' was the most commonly reported diagnosis, present on 15.03% of all DV records. Some of the other most common DV non-specific diagnoses include other E-codes for assault ('E9688: Assault by other specified means', 'E9689: Assault by unspecified means', 'E9682: Assault by striking by blunt or thrown object') and '99583: Adult sex abuse'.

Table 7 shows the distribution of DV events by service type. Of all DV events there were a total of 4,659 ER treat and release visits, which accounts for the vast majority of events (93.03%). There were 349 inpatient admissions that were identified as DV events, accounting for 6.97% of all DV events. Table 7A shows that of these admissions, 246 (79.08%) were admitter through the ER.

Table 8 represents the top 15 most common primary diagnoses among both ER visits and inpatient admissions. The most common primary diagnoses among DV events in both settings was '99581: Adult physical abuse', which was the primary diagnosis on 28.03% of ER visits and 9.74% of inpatient admissions. The next two most common primary diagnoses among DV ER visits were '920: Contusion of face, scalp, and neck except eye(s)' and '95901: Head injury, unspecified' which were reported on 7.81% and 6.74% of visits respectively. The next two most common primary diagnoses among DV inpatient admissions were '64893: Other current conditions classifiable elsewhere of mother, antepartum condition or complication' and '29181: Alcohol withdrawal' that represented 4.87% and 4.01% of admissions respectively. In addition to the top ranked primary diagnosis, only three of the other top 15 most common primary diagnoses were shared between ER visits and inpatient admissions: '64893: Other current conditions classifiable elsewhere of mother, antepartum condition or complication', '99583: Adult sexual abuse' and '8020: Closed fracture of nasal bones'. The top 15 most common primary diagnoses represented approximately 63% of all ER primary diagnoses and 39% of inpatient primary diagnoses.

Table 9 shows 15 most common procedures performed during DV related ER visits. The two most common procedures reported indicate ER evaluation for issues of high and moderate severity (HCPCS procedures 99284 and 99283). These procedures were performed in 8.66% and 6.96% of visits respectively. Other common procedures included two CT scans: '70450: CT head/brain w/o dye' (5.15%), '70486: CT maxillofacial w/o due' (3.46%) and complete blood counts '85025: Complete CBC with auto diff WBC' (3.04%).

Table 10 shows 15 most common procedures performed during DV related inpatient admissions. The most frequently performed procedure was '8703: CAT Scan of head', performed in 4.99% of admissions. Other common procedures included '9929: Injection/infusion NEC' (4.19%), '9921: Injection antibiotic' (3.59%) and '8659: Skin suture NEC' (3.39%).

Table 11 shows the distribution of length of stay for DV inpatient admissions. Of 349 admissions, 23.21% of victims stayed only one day. Close to half (45.56%) of the DV inpatient admissions were for four days or longer, with 15.9% of admissions resulting in stays longer than a week.

Figure 2 illustrates the distribution of victims' principal health care coverage at the time of the DV event. Medicaid was the most represented payer among both sexes, although Medicaid was more common among females than males, accounting for 57.48% and 42.46% of events respectively. Self-Pay was the second most common payer for both sexes, though with an opposite trend, with males being disproportionately represented. Self-Pay accounted for 28.93% of male visits, compared to 18.97% of visits among females. Both sexes were similarly represented in all other payer groups, with 'Other' payment representing the smallest proportion of events, 3.60% among females and 5.13% among males.

Figure 3 shows the distribution of DV events and DV event rate per 100,000 population by region. New York City represented the largest proportion of DV events (45.43%). The second largest proportion of visits (16.25%) were reported in the Western region, which also had the highest DV event rate of any region, at 40.19 DV events per 100,000 population. The two lowest DV event rates were found in the Long Island and Mid-Hudson regions, with event rates of 11.39 and 12.49 per 100,000 population respectively. The Mid-Hudson region also represented the lowest proportion of total DV events (2.32%).

Figure 4 shows the distribution of DV events by service type and the day of the visit or admission. For ER visits, Saturday and Sunday had the highest volume of events accounting for 16.10% and 18.05% of ER visits respectively. ER volume by day during the weekdays ranged from 12.41% (Friday) to 13.72% (Wednesday) of visits. In contrast, among inpatient events Saturday accounted for the smallest proportion of inpatient volume (11.75%). There appears to be no clear pattern in day of admission relative to volume across all days of the week, though Friday accounts for the largest inpatient DV volume (15.76%).

Figure 5 shows the distribution of DV events by service type and the hour of the visit or admission. For both ER visits and inpatient admissions volume trends lower in the early morning hours from 4am to 9am. ER visit distribution is somewhat bimodal, with visit volume peaks at 1pm and 10pm-1am. Variation in time of admission is more pronounced among inpatient events. There are three peaks throughout the day and evening at 1pm, around 6pm and at 10pm.

Figure 6 shows the distribution of DV events by payer and time of day. With regards to total volume, the largest proportion of DV events were seen between 10 pm and 1am (20.98%), while the smallest proportion of events were seen in the morning between 6am and 9am. The distribution of events by payer was fairly consistent throughout the day, with Medicaid accounting for over 50% of visits during all times of the day and peaking from 10am to 1pm, where Medicaid accounted for 58.72% of all DV events during that timeframe.

Conclusions

There were 5,008 total inpatient admissions or ER visits to NYS hospitals by victims aged 18-64 years in 2014 that had ICD-9-CM coding that reflected a high- or moderate-likelihood DV event. Women represented nearly 90% of all events and the primary payer in over half of all DV events was Medicaid. Nearly half of all DV events were reported in NYC, accounting for the highest percentage of all DV events (45.43%). However, the highest rate per 100,000 population was in the Western region (40.19), about 1.5 times as much as in the next highest region which was NYC with 26.97 events per 100,000 population. ER visits represented the vast majority (93.03%) of all DV events. Distributions of total DV events and trends by day and hour of admission follow ER specific trends closely due to this disproportionate sample size. This limited inpatient volume also contributes to the difficulty in identifying trends among inpatient admissions.

A certain proportion of the analysis cohort had a history of DV events, as defined in this analysis, identified from previous years' data. The analysis revealed a pattern of repeated incidence/events that supports DV as a recurring concern and pattern for victims. In addition, although only victims that had a DV high-likelihood event in 2014 were included in this analysis, there were a number of victims that could have been included based on a prior history of DV events from previous years. These individuals were excluded to adopt a more conservative methodological approach, with the intention of increasing the sensitivity of the methods and reducing the misidentification of DV events, but these people plausibly could represent other instances of repeat DV events.

The relatively low number of DV events identified in this work is in contrast to the much larger counts available from criminal justice and other data sources. Although not all DV incidents may result in injuries or other conditions that require hospital admission or ER care, the total number of events identified is still likely an under-representation of all DV incidents that result in this type of contact with the healthcare system. One reason for this reduced count is that data quality issues in the SPARCS unique personal identifier used to identify individual victims may inhibit the ability to identify all possible events for a victim. This limitation in following victims longitudinally to identify moderate-likelihood events may have exacerbated under-counting. However, the most likely contributing factor to under-counting is that, as previously noted, there remains a number of barriers to ensuring that DV is identified in the healthcare setting and properly documented, including a lack of exhaustive patient evaluation, poor diagnosis reimbursement rates and the stigma associated with DV that may contribute to under-counting in this analysis[3].

By using SPARCS hospital inpatient and ER records, DV documentation in a hospital setting in NYS can be evaluated and improved upon. In addition, the extent to which incidents of DV result in NYS hospital care can begin to be examined to identify potential problem areas and assist with program and intervention designs to prevent DV-related hospitalizations and ER visits.

Figures and Tables

Table 1. Domestic Violence (DV) Specific Diagnoses and Their Predictive Value Positive (PVP) Used to Identify High-Likelihood DV Events

ICD-9 Code	Diagnosis Description	Previously Reported PVP*
99580	Adult maltreatment, unspecified	64.7
99581	Adult physical abuse	91
E9670	Abuse by father, stepfather, or boyfriend	-
E9672	Abuse by mother, stepmother, or girlfriend	-
E9673	Abuse by spouse or partner	99.1

*PVP is defined as the number of confirmed DV events among possible events listing the code(s)

Table 1A. DV Non-Specific Diagnoses Used in Identifying Moderate-Likelihood Domestic Violence Events

ICD-9 Code	Diagnosis Description
99550	CHILD ABUSE NOS
99551	CHILD PSYCH ABUSE
99552	CHILD NEGLECT
99553	CHILD SEX ABUSE
99554	CHILD PHYSICAL ABUSE
99555	SHAKEN INFANT SYND
99559	OTHER CHILD ABUSE
99582	ADULT PSYCH ABUSE
99583	ADULT SEX ABUSE
99584	ADULT NEGLECT
99585	OTHER ADULT ABUSE
E9600	UNARMED FIGHT OR BRAWL
E9601	RAPE
E961	ASSAULT-CORROSIV/CAUST
E9620	ASSAULT-POIS W MEDIC AGT
E9621	ASSAULT-POIS W SOLID/LIQ
E9622	ASSAULT-POIS W GAS/VAPOR
E9629	ASSAULT-POISONING NOS
E963	ASSAULT-HANGING/STRANGUL
E964	ASSAULT-SUBMERSION
E9650	ASSAULT-HANDGUN
E9651	ASSAULT-SHOTGUN
E9652	ASSAULT-HUNTING RIFLE
E9653	ASSAULT-MILITARY WEAPON
E9654	ASSAULT-FIREARM NEC
E9655	ASSAULT-ANTIPERSON BOMB
E9656	ASSAULT-GASOLINE BOMB
E9657	ASSAULT-LETTER BOMB
E9658	ASSAULT-EXPLOSIVE NEC
E9659	ASSAULT-EXPLOSIVE NOS
E966	ASSAULT-CUTTING INSTR
E9671	CHILD ABUSE BY PERS NEC
E9674	BATTERING BY CHILD
E9675	BATTERING BY SIBLING
E9676	BATTERING BY GRANDPARENT
E9677	BATTER BY OTHER RELATIVE
E9678	BATTER BY NON-RELATIVE
E9679	CHILD ABUSE NOS
E9680	ASSAULT-FIRE
E9681	ASSLT-PUSH FROM HI PLACE
E9682	ASSAULT-STRIKING W OBJ

ICD-9 Code	Diagnosis Description
E9683	ASSAULT-HOT LIQUID
E9684	ASSAULT-CRIMINAL NEGLECT
E9685	ASSLT-TRANSPORT VEHICLE
E9686	ASSAULT - AIR GUN
E9687	HUMAN BITE - ASSAULT
E9688	ASSAULT NEC
E9689	ASSAULT NOS
V1541	HISTORY OF PHYSICAL ABUSE
V1542	HISTORY OF EMOTIONAL ABUSE
V1549	PSYCHOLOGICAL TRAUMA - OTHER
V6110	COUNSEL MARITAL
V6111	COUNSEL ABUSE – VICTIM
V6112	COUNSEL ABUSE – PERP
V715	OBSERV FOLLOWING RAPE
V7181	SPEC SUSPECTED COND-ABUSE & NEGLECT

Figure 1. Identifying High- and Moderate-Likelihood DV Events

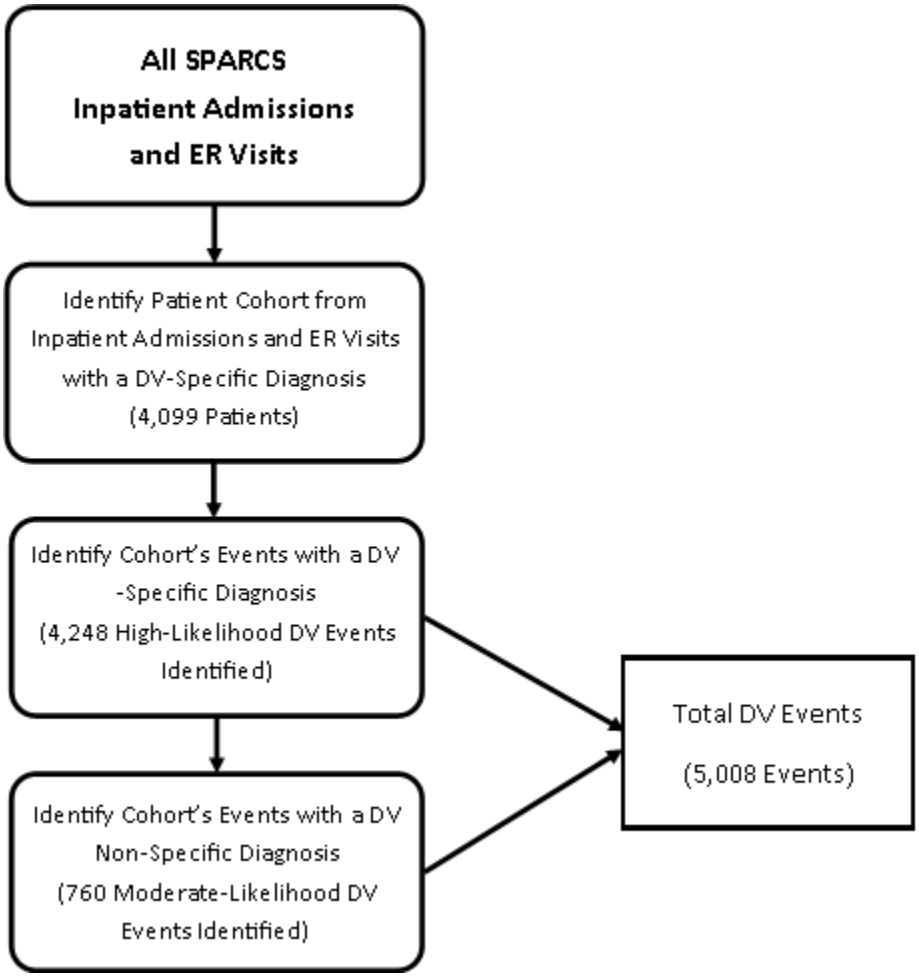


Table 2. Domestic Violence Diagnoses Identifying High-Likelihood Events by Year, Inpatient Discharges and ER Visits, SPARCS 2012-2014

ICD-9 Code	Diagnosis Description	Events w/ Diagnosis (N)*			Events w/ Diagnosis (%)		
		2014	2013	2012	2014	2013	2012
99580	Adult maltreatment, unspecified	150	146	139	3.53	3.30	2.96
99581	Adult physical abuse	2,045	2,181	2,416	48.14	49.32	51.45
E9670	Abuse by father, stepfather, or boyfriend	1,136	1,157	1,181	26.74	26.16	25.15
E9672	Abuse by mother, stepmother, or girlfriend	104	109	123	2.45	2.46	2.62
E9673	Abuse by spouse or partner	1,519	1,507	1,436	35.76	34.08	30.58
Total Events		4,248	4,422	4,696	-	-	-

*Multiple diagnoses may be present on a single record, diagnosis-specific events counts do not sum to total events.

Table 3. DV Event Distribution by Type, 2014

Event Type	Events (N)	Events (%)
High Likelihood DV Event	4,248	84.82
Moderate Likelihood DV Event	760	15.18
Total	5,008	100.00

Table 4. Patient Distribution by Domestic Violence Likelihood Events and Year (1=Event, 0=No Event); SPARCS 2012-2014

	High-Likelihood Event*			Moderate Likelihood Event		
	2014	2013	2012	2014	Victims (N)	Victims (%)
At Least One High Likelihood DV Event in 2014, With or Without a Moderate Likelihood DV Event (Analysis Cohort)	1	1	1	1	3	0.07
	1	1	0	1	30	0.73
	1	0	1	1	19	0.46
	1	0	0	1	458	11.17
	1	1	1	0	2	0.05
	1	1	0	0	49	1.20
	1	0	1	0	33	0.81
	1	0	0	0	3,505	85.51
Total (Cohort 1)					4,099**	100.00
Moderate-Likelihood DV Event in 2014 and at least one prior High-Likelihood Event (Excluded)	0	1	1	1	20	3.72
	0	1	0	1	290	54.00
	0	0	1	1	227	42.27
Total (Cohort 2)					537	100.00
At least one prior High Likelihood Event, but No DV Events in 2014 (Excluded)	0	1	1	0	77	0.96
	0	1	0	0	3,793	47.40
	0	0	1	0	4,132	51.64
Total (Cohort 3)					8,002	100.00

*Cohorts 2 and 3 are examining the possible history of high-likelihood DV events over time. Events with at least one DV specific diagnosis are considered High Likelihood Events. Events with an abuse or assault DV non-specific diagnosis in the absence of a DV specific diagnosis are considered Moderate Likelihood Events.
**The 4,099 victims in the analysis cohort (Cohort 1) accounted for a total of 5,008 DV events in 2014, including 4,248 high likelihood and 760 moderate likelihood events

Table 5. Select Demographic Characteristics of DV Event Inpatient Admissions and Emergency Room Visits, 2014

Characteristic	Level	Events (N)	Events (%)	Event Rate per 100,000 Population
Sex	Female	4,365	87.16	43.08
	Male	643	12.84	6.74
Age	18-24	1,195	23.86	61.00
	25-34	1,833	36.60	66.60
	35-44	1,027	20.51	40.82
	45-64	953	19.03	17.93
Race/Ethnicity	Hispanic	903	18.03	24.41
	White/Non-Hispanic	1,740	34.74	15.64
	Black/Non-Hispanic	1,696	33.87	60.07
	Other/Unknown	669	13.36	33.03
Region of Residence	New York City	2,279	45.51	27.01
	Rest of State	2,550	50.92	22.69
	Out of State and Unknown	179	3.57	
Total		5,008	100.00	25.45

Table 6. Identifying Diagnosis Frequency among All DV Events, 2014

Diagnosis Type	ICD-9 Code	Diagnosis Description	Events (N)	Events (%)
DV Specific	99581	Adult physical abuse	2,045	25.83
	E9673	Abuse by spouse or partner	1,519	19.18
	E9670	Abuse by father, stepfather, or boyfriend	1,136	14.35
	99580	Adult maltreatment, unspecified	150	1.89
	E9672	Abuse by mother, stepmother, or girlfriend	104	1.31
DV Non-Specific	V7181	Observation and evaluation for suspected abuse and neglect	16	0.20
	V715	Observation following alleged rape or seduction	52	0.66
	V6111	Counseling for victim of spousal and partner abuse	4	0.05
	V6110	Counseling for marital and partner problems, unspecified	22	0.28
	V1549	Other psychological trauma	2	0.03
	V1542	History of emotional abuse	11	0.14
	V1541	History of physical abuse	97	1.23
	E9689	Assault by unspecified means	256	3.23
	E9688	Assault by other specified means	496	6.26
	E9687	Assault by human bite	74	0.93
	E9685	Assault by transport vehicle	5	0.06
	E9683	Assault by hot liquid	2	0.03
	E9682	Assault by striking by blunt or thrown object	172	2.17
	E9681	Assault by pushing from a high place	12	0.15
	E9680	Assault by fire	2	0.03
	E9679	Perpetrator of child and adult abuse, by unspecified person	94	1.19
	E9678	Perpetrator of child and adult abuse, by non-related caregiver	2	0.03
	E9677	Perpetrator of child and adult abuse, by other relative	21	0.27
	E9675	Perpetrator of child and adult abuse, by sibling	12	0.15
	E9674	Perpetrator of child and adult abuse, by child	21	0.27
	E9671	Perpetrator of child and adult abuse, by other specified person	56	0.71
	E966	Assault by cutting and piercing instrument	81	1.02
	E9658	Assault by other specified explosive	1	0.01
	E9654	Assault by other and unspecified firearm	1	0.01
	E963	Assault by hanging and strangulation	25	0.32
	E9622	Assault by other gases and vapors	2	0.03
	E9621	Assault by other solid and liquid substances	1	0.01
	E9601	Rape	44	0.56
	E9600	Unarmed fight or brawl	1,190	15.03
	99585	Other adult abuse and neglect	17	0.21
	99584	Adult neglect (nutritional)	1	0.01

Diagnosis Type	ICD-9 Code	Diagnosis Description	Events (N)	Events (%)
	99583	Adult sexual abuse	126	1.59
	99582	Adult emotional/psychological abuse	46	0.58
Total			5,008	100.00

Table 7. DV Event Frequency by Service Type, 2014

Service Type	Events (N)	Events (%)
Emergency Room Visit	4,659	93.03
Inpatient Admission	349	6.97
Total	5,008	100.00

Table 7A. Frequency of DV Event Inpatient Admissions Admitted through the Emergency Room, 2014

Inpatient Source	Admissions (N)	Admissions (%)
Admitted through Emergency Room	276	79.08
Not Admitted through Emergency Room	73	20.92
Total	349	100.00

Table 8. Top 15 Primary Diagnoses Reported for DV Event ER Visits and Inpatient Admissions, 2014

ICD-9 Code	Diagnosis Description	ER Rank	Inpatient Rank	ER Visits (%)	Inpatient Admissions (%)
99581	Adult physical abuse	1	1	28.03	9.74
920	Contusion of face, scalp, and neck except eye(s)	2	26	7.81	0.57
95901	Head injury, unspecified	3	-	6.74	-
64893	Other current conditions classifiable elsewhere of mother, antepartum condition or complication	4	2	3.73	4.87
99583	Adult sexual abuse	5	15	2.10	0.86
95909	Injury of face and neck	6	50	2.06	0.29
9248	Contusion of multiple sites, not elsewhere classified	7	51	1.87	0.29
8020	Closed fracture of nasal bones	8	10	1.85	1.43
9221	Contusion of chest wall	9	-	1.67	-
9100	Abrasion or friction burn of face, neck, and scalp except eye, without mention of infection	10	52	1.48	0.29
87342	Open wound of forehead, without mention of complication	11	53	1.46	0.29
8470	Sprain of neck	12	-	1.42	-
99580	Adult maltreatment, unspecified	13	54	1.27	0.29
87343	Open wound of lip, without mention of complication	14	-	1.09	-
7840	Headache	15	-	0.94	-
29181	Alcohol withdrawal	-	3	-	4.01
8026	Closed fracture of orbital floor (blow-out)	24	4	0.47	3.15
64843	Mental disorders of mother, antepartum condition or complication	-	5	-	2.87
29633	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	217	6	0.02	2.29
311	Depressive disorder, not elsewhere classified	42	7	0.34	1.72
29570	Schizoaffective disorder, unspecified	155	8	0.04	1.72
29284	Drug-induced mood disorder	218	9	0.02	1.72
29680	Bipolar disorder, unspecified	-	11	-	1.43
34590	Epilepsy, unspecified, without mention of intractable epilepsy	156	12	0.04	1.15
29690	Unspecified episodic mood disorder	219	13	0.02	1.15

ICD-9 Code	Diagnosis Description	ER Rank	Inpatient Rank	ER Visits (%)	Inpatient Admissions (%)
28264	Sickle-cell/Hb-C disease with crisis	-	14	-	1.15
	All Other Diagnoses			35.50	58.74
Total				100.00	100.00

Table 9. Top 15 Procedures Reported on DV Related ER Visits, 2014

CPT/HCPCS Code	Code Description	Visits (N)	Visits (%)
99284	EMERGENCY DEPT VISIT (HIGH SEVERITY)	2,085	8.66
99283	EMERGENCY DEPT VISIT (MODERATE SEVERITY)	1,675	6.96
70450	CT HEAD/BRAIN W/O DYE	1,240	5.15
70486	CT MAXILLOFACIAL W/O DYE	832	3.46
85025	COMPLETE CBC W/AUTO DIFF WBC	732	3.04
81025	URINE PREGNANCY TEST	662	2.75
36415	ROUTINE VENIPUNCTURE	637	2.65
90471	IMMUNIZATION ADMIN	569	2.36
99285	EMERGENCY DEPT VISIT (HIGH SEVERITY, HIGH COMPLEXITY)	449	1.87
72125	CT NECK SPINE W/O DYE	430	1.79
90715	TDAP VACCINE 7 YRS/> IM	421	1.75
96372	THER/PROPH/DIAG INJ SC/IM	412	1.71
80053	COMPREHEN METABOLIC PANEL	396	1.64
81001	URINALYSIS AUTO W/SCOPE	350	1.45
71020	CHEST X-RAY 2VW FRONTAL&LATL	344	1.43
	ALL OTHER PROCEDURES	12,840	53.34
Total		24,074	100.00

Table 10. Top 15 Procedures Reported on DV Related Inpatient Admissions, 2014

ICD-9 Procedure Code	Code Description	Admissions (N)	Admissions (%)
8703	C.A.T. SCAN OF HEAD	25	4.99
9929	INJECT/INFUSE NEC	21	4.19
9921	INJECT ANTIBIOTIC	18	3.59
8659	SKIN SUTURE NEC	17	3.39
8801	C.A.T. SCAN OF ABDOMEN	16	3.19
9904	PACKED CELL TRANSFUSION	16	3.19
9425	PSYCHIAT DRUG THERAP NEC	15	2.99
7534	FETAL MONITORING NOS	14	2.79
8838	OTHER C.A.T. SCAN	14	2.79
9462	ALCOHOL DETOXIFICATION (Begin 1989)	13	2.59
8872	DX ULTRASOUND-HEART	9	1.80
7359	MANUAL ASSIST DELIV NEC	8	1.60
7679	FACE FX	8	1.60
8876	DX ULTRASOUND-ABDOMEN	8	1.60
9444	OTHER GROUP THERAPY	8	1.60
	ALL OTHER PROCEDURES	291	58.08
Total		501	100.00

Table 11. Length of Stay for DV Event Inpatient Admissions, 2014

Days	Admissions (N)	Admissions (%)
1	81	23.21
2-3	109	31.23
4-7	106	30.37
8+	53	15.19
Total	349	100.00

Figure 2. DV Events Distribution by Payer and Sex, 2014

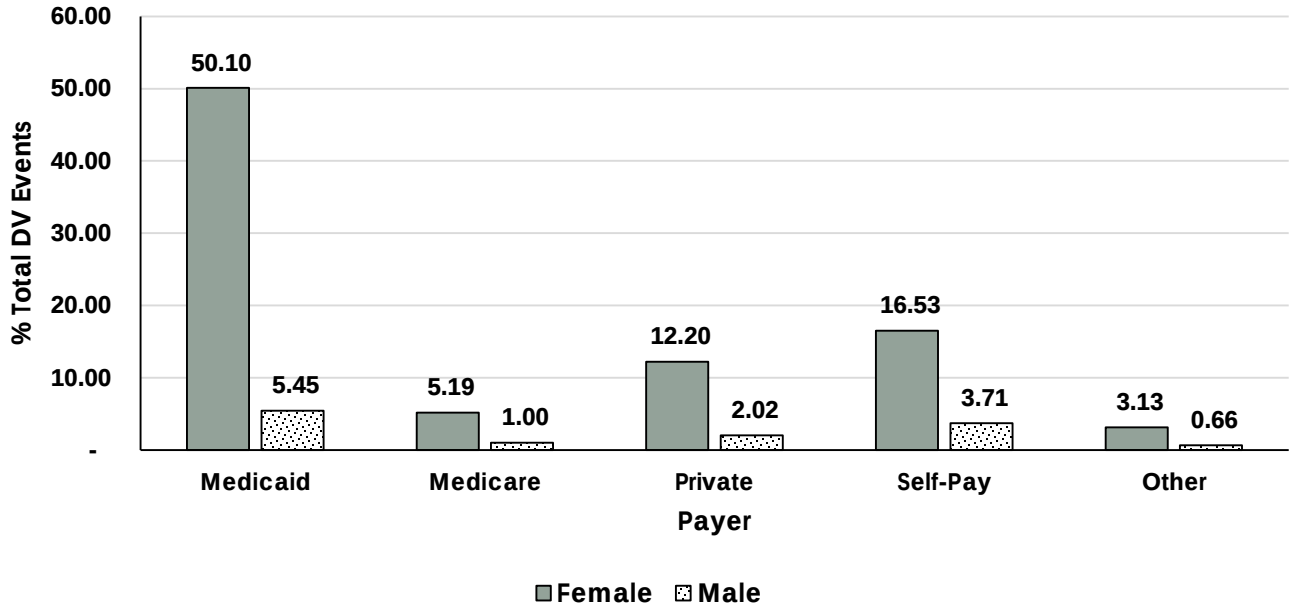
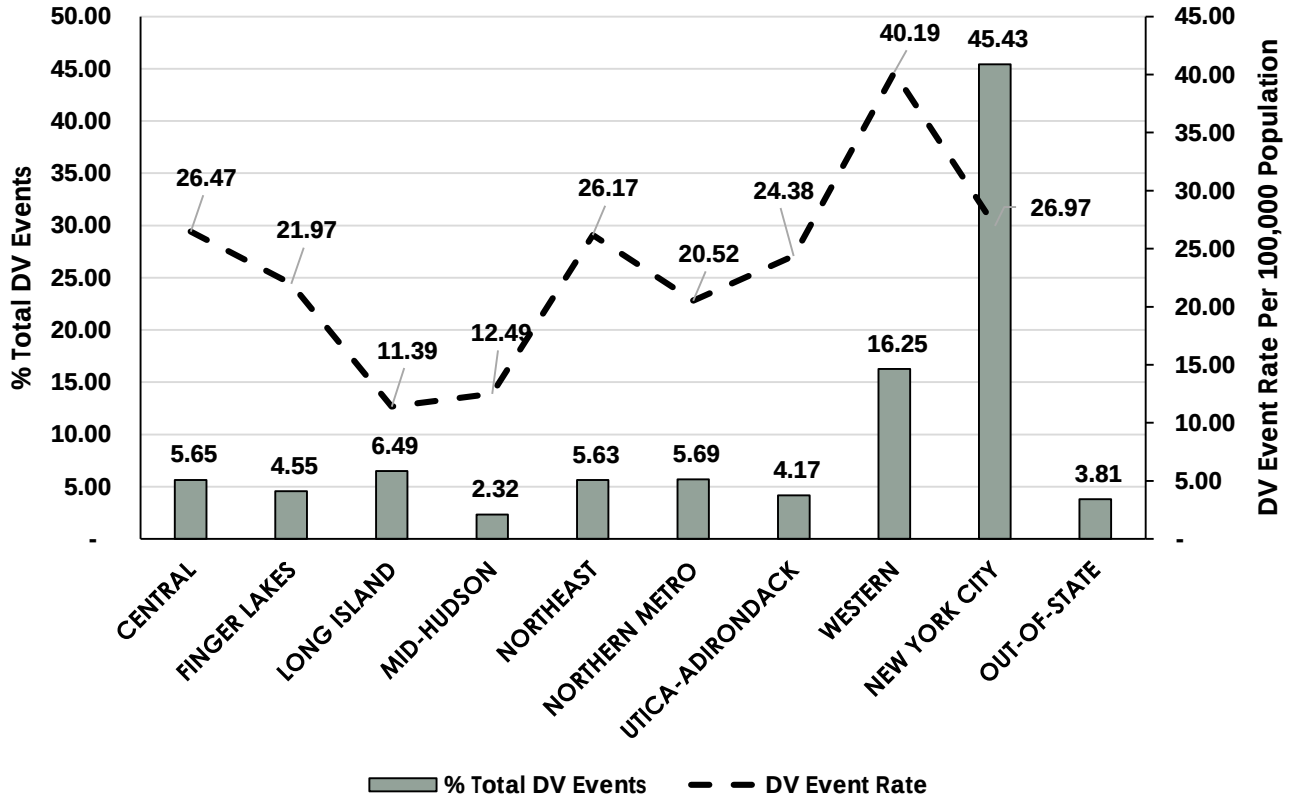


Figure 3. DV Event Frequency and Event Rate per 100,000 Population by Region*, 2014



*Since DV event rate is based on NYS population estimates, no rate was calculated for out-of-state residents

Figure 4. Distribution of DV Events by Day of the Week, 2014

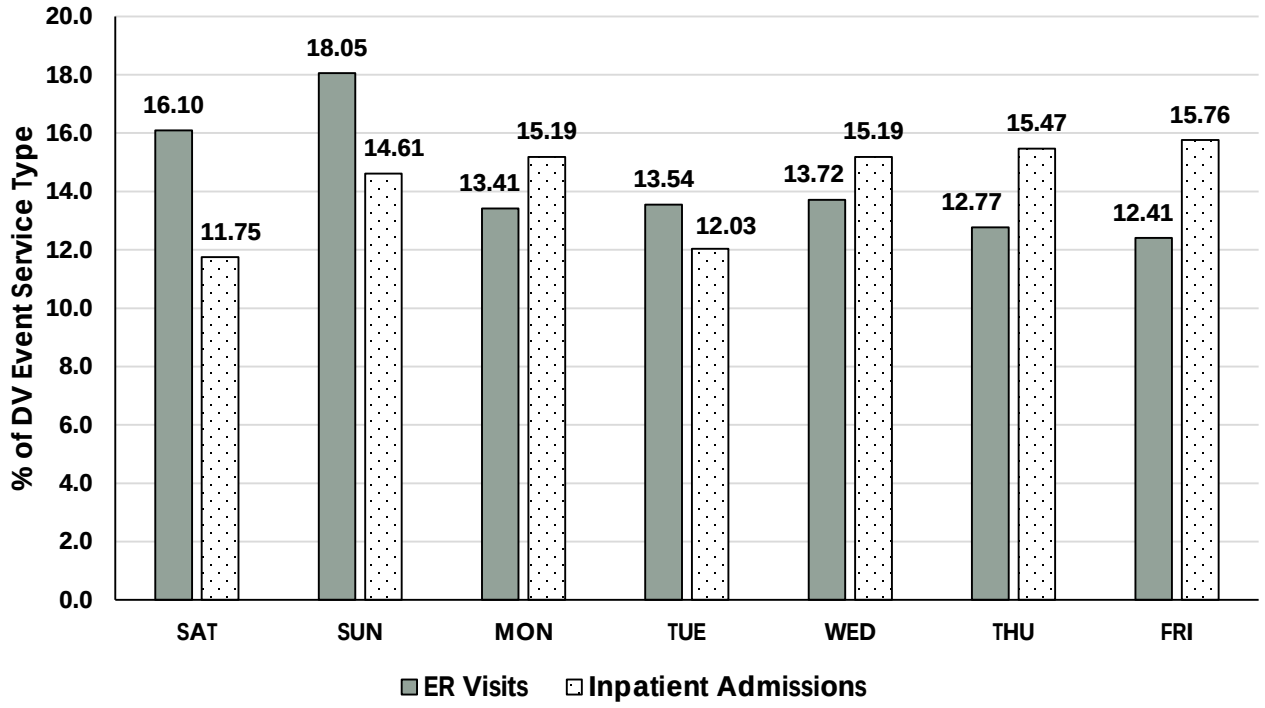


Figure 5. Distribution of DV Events by Hour of Admission, 2014

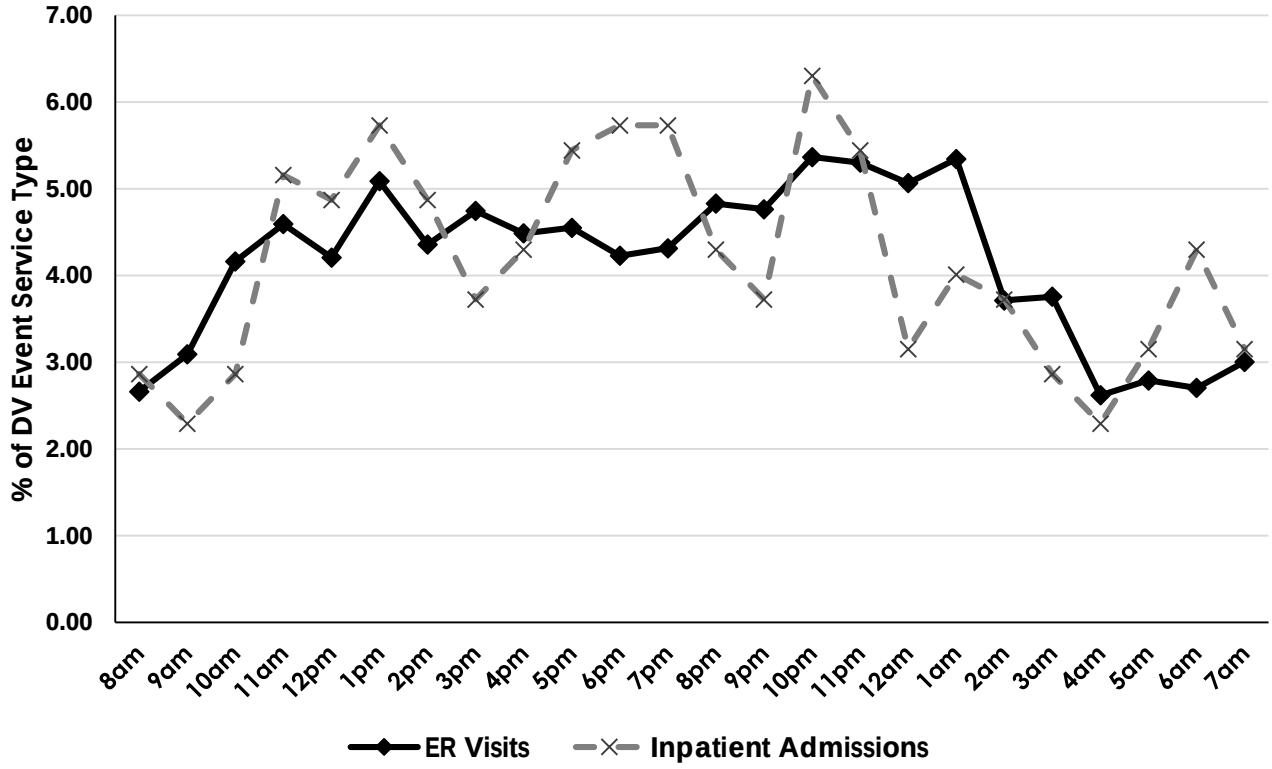
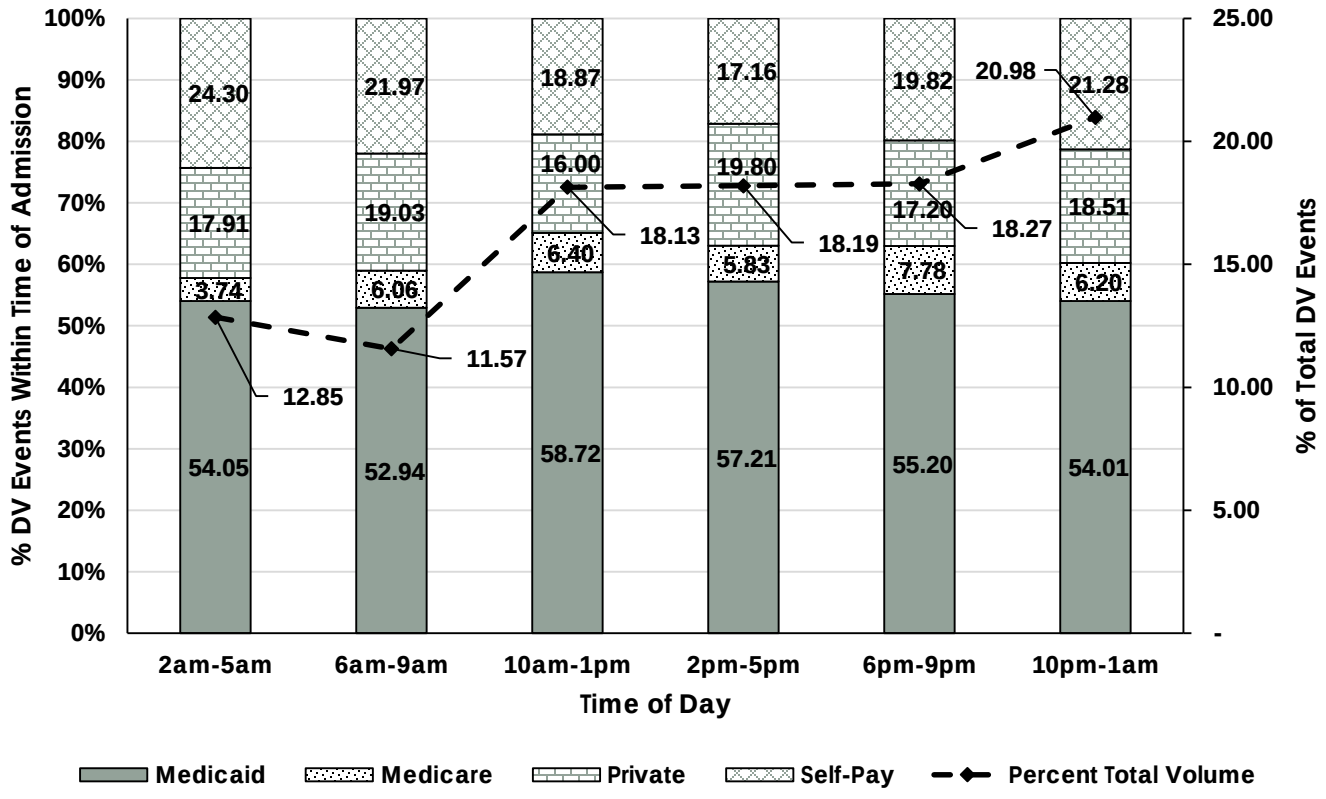


Figure 6. Distribution of DV Events by Payer and Time of Day



Definitions

Victims

Individual victims were defined by their enhanced unique personal identifier which uses elements of a patient's name, date of birth, sex and social security number on the date of admission or start of care. This field is designed to enhance matching criteria for individual patient records for longitudinal analysis without compromising the confidentiality of the record.

Unit of analysis

The unit of analysis is either the inpatient hospital discharge or the emergency room visit, not a person or patient. This means that if a person is discharged from the hospital, and/or visits the emergency room multiple times in a year, each incident will be counted as a separate event. Therefore, a person can have more than one event in the data sets.

Payer

Medicare- Medicare Managed Care, Medicare Non-managed Care, Medicare Other
Private-Private Managed Care, Private Health Insurance, Blue Cross/Blue Shield
Self-Pay-Self-Pay
Other- Government Programs (ex. Corrections, Veterans), Managed Care Other, Charity, Workers Compensation, Other, Unknown
Medicaid Non-CHP- Medicaid Managed Care, Medicaid Non-managed Care
Medicaid CHP-Child Health Plus

Population

Where population rates are provided, the denominator population base was identified through the use of proprietary Claritas files. Claritas data and have been purchased from Claritas for use by employees of the State Department of Health. Data from these files cannot be released to any third party without the prior written consent of Claritas, therefore these publicly released rates do not contain denominator counts.

Race/Ethnicity

Both the race and ethnicity variables on SPARCS were used to create this one combination race/ethnicity variable.
Hispanic-a patient's whose ethnicity was Spanish/Hispanic origin, regardless of their race
White, non-Hispanic- a patient's whose ethnicity was Unknown or not of Spanish/Hispanic origin, and race was White.
Black, non-Hispanic- a patient's whose ethnicity was Unknown or not of Spanish/Hispanic origin, and race was Black or African American.
Other- a patient's whose ethnicity was Unknown or not of Spanish/Hispanic origin, and race was Asian, Native American, Alaskan Native, Native Hawaiian, Other Pacific Islander, Other race or Unknown.

Region

Region is defined by the patient's county of residence as indicated on the SPARCS record. Regions were defined based upon Medicaid rating regions which break down as follows:

- **Northern Metro**- Putnam, Rockland, Westchester
- **Northeast**- Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Warren, Washington
- **Utica-Adirondack**- Clinton, Essex, Franklin, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Oswego, St. Lawrence
- **Central**- Cayuga, Chenango, Columbia, Cortland, Delaware, Greene, Madison, Onondaga, Otsego, Schoharie, Tomkins
- **Finger Lakes**- Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Livingston, Ontario, Schuyler, Seneca, Steuben, Tioga, Wayne, Yates
- **Western**- Erie, Genesee, Monroe, Niagara, Orleans, Wyoming
- **Long Island**- Nassau, Suffolk
- **Mid-Hudson**- Dutchess, Orange, Sullivan, Ulster
- **New York City**- Bronx, Kings, New York, Queens, Richmond
- **Other**- All others, including out of state

SPARCS

The Statewide Planning and Research Cooperative System (SPARCS) is a comprehensive data reporting system established in 1979 as a result of cooperation between the health care industry and government. Initially created to collect information on discharges from hospitals, SPARCS currently collects patient level detail on patient characteristics, diagnoses and treatments, services, and charges for every Article 28 (acute care) hospital discharge, ambulatory surgery, emergency room visits, and visits to hospital-based outpatient clinics in New York State. More information on SPARCS may be found at the following direct link: http://www.health.ny.gov/statistics/sparcs/.

References

1. New York State Domestic Violence Dashboard Project 2013 Data. New York State Office for the Prevention of Domestic Violence, 2014. http://www.opdv.ny.gov/statistics/nydata/2013/nys2013data.pdf
2. Schafer, Sean D. et al. "Using Diagnostic Codes to Screen for Intimate Partner Violence in Oregon Emergency Departments and Hospitals." Public Health Reports 123.5 (2008): 628–635.
3. Rudman, W. "Coding and documentation of domestic violence." Family Violence Prevention Fund (2002).

Acknowledgments

The authors would like to acknowledge and thank Natalie Helbig, PhD for her diligent and astute review and editing of this Statistical Brief prior to publication.

Contact Information

We welcome questions, comments and feedback on this Statistical Brief.

Please contact us at:

Division of Information and Statistics
Office of Quality and Patient Safety
New York State Department of Health
Corning Tower, Room 1911
Albany, New York 12237

Phone: (518) 474-3189
Fax: (518) 486-3518

Email: BHI@health.ny.gov