



# Epi Data Brief

New York City Department of Health and Mental Hygiene

June 2016, No. 71

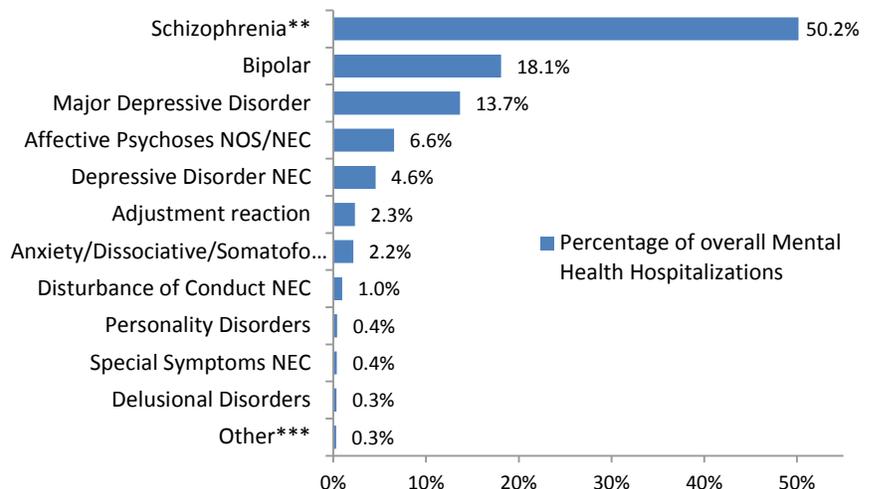
## Adult Psychiatric Hospitalizations in New York City

In 2012, an estimated 239,000 adults living in New York City (NYC) (4%) had a Serious Mental Illness (SMI).<sup>1†</sup> Many individuals with mental illness do not need to be hospitalized, however, hospitalization may help to stabilize an individual who is experiencing worsening symptoms. A psychiatric hospitalization is defined as an overnight stay or longer in a psychiatric inpatient unit (excluding emergency room visits without an inpatient admission) for individuals with behaviors or symptoms that are likely to result in harm to themselves or others. Variations in hospitalization rates among different populations may reflect differences in rates of illness and other social and cultural factors. While psychiatric hospitalizations can indicate need or burden of mental illness, it likely also reflects the adequacy of non-hospital care and access.

### Patterns of psychiatric hospitalizations among New Yorkers with mental illness

- The rate of psychiatric hospitalization among NYC adults remained stable from 2004 to 2013. In 2013, the hospitalization rate was 676 per 100,000 adults.
- In 2013, over 31,400 individuals accounted for almost 45,000 psychiatric hospitalizations in acute care NYC hospitals.
- About 1 in 11 adults (9%) who were hospitalized for mental illness in NYC in 2013 had three or more psychiatric hospitalizations during the calendar year. Psychiatric hospitalizations among these adults accounted for a quarter (26%) of all psychiatric hospitalizations.
- Schizophrenia, bipolar and major depressive disorder made up 82% of hospitalizations for mental illness, with schizophrenia comprising the majority.
- Approximately 43% of hospitalizations for a psychiatric condition also indicated a co-occurring substance use disorder.
- The median length of stay among adults who were hospitalized for mental illness in NYC was 11 days.
- Medicaid was the source of reimbursement for more than half (58%) of psychiatric hospitalizations in NYC, while Medicare accounted for almost a quarter of it. The median length of stay of psychiatric hospitalizations for the Medicaid population (11 days) did not differ from the overall adult population. The Medicare population had a slightly higher median length of stay (13 days).

### Primary psychiatric diagnoses\* among New York City adults hospitalized for mental illness, 2013



\*Primary Diagnosis is the condition recorded to be chiefly responsible for the admission of the patient to the hospital for care.

\*\*Schizophrenia includes diagnoses of Schizophrenia and Psychosis Not Otherwise Specified.

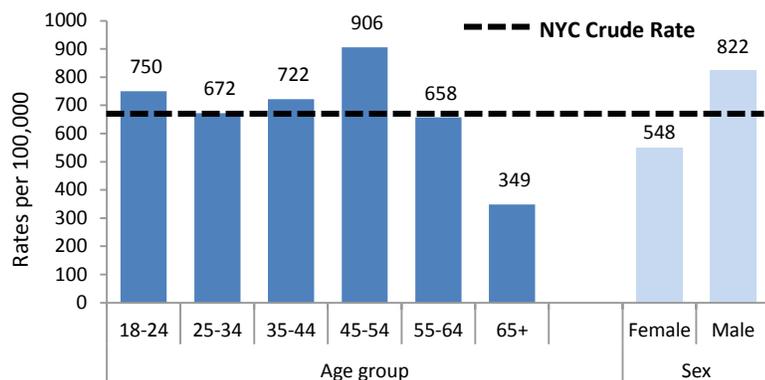
\*\*\*Other include: diagnoses of other nonorganic psychoses, physiological malfunction arising from mental factors, sexual and gender identity disorders, acute reaction to stress, disturbance of conduct, and hyperkinetic syndrome of childhood.

Source: Statewide Planning and Research Collaborative System 2013. Data prepared by DOHMH Division of Mental Hygiene.

**Definition:** †Adults with serious mental illness (SMI) currently or at some time during the past year had a diagnosable mental, behavioral or emotional disorder (excluding developmental and substance use disorders) that resulted in functional impairment that substantially interfered with or limited functioning in one or more major life activities.

## Demographic characteristics of adults hospitalized for psychiatric stays

### Adult psychiatric hospitalization rates by age and sex, New York City, 2013



Source: Statewide Planning and Research Collaborative System 2013. Data prepared by DOHMH Division of Mental Hygiene.

- The rate of psychiatric hospitalization was highest among adults ages 45 to 54 (906 per 100,000) compared with other age groups.
- The psychiatric hospitalization rate among individuals ages 65 years and older (349 per 100,000) was 48% lower than the overall NYC psychiatric hospitalization rate (676 per 100,000 adults).
- The rates of hospitalization for schizophrenia and major depressive disorder were highest among adults ages 45 to 54 (469 and 128 per 100,000, respectively) compared with other age groups.
- Among adults with schizophrenia, the psychiatric hospitalization rate was almost twice as high among men than among women (451 vs. 241 per 100,000).

### Adult psychiatric hospitalization rates by sex and major diagnosis, New York City, 2013

Diagnosis	Crude rate per 100,000 adults	
	Female	Male
Schizophrenia**	241	451
Bipolar	114	132
Major Depressive Disorder	90	95
Other	103	144

\*\*Schizophrenia includes diagnoses of Schizophrenia and Psychosis Not Otherwise Specified  
Source: Statewide Planning and Research Collaborative System 2013. Data prepared by DOHMH Division of Mental Hygiene.

**Note: All rates are crude unless otherwise noted.**

#### Data sources:

**Statewide Planning and Research Collaborative System (SPARCS) 2013:** SPARCS is an administrative database of all hospital discharges reported by New York State (NYS) hospitals to the NYS Department of Health. Diagnoses are coded according to the International Statistical Classification of Diseases and Related Health Problems-9th Revision framework. All data presented in this report are limited to NYC residents ages 18 years old and older who had a hospitalization for a psychiatric condition (3 digit ICD-9 codes : 295, 296, 297, 298, 300, 301, 302, 306, 307, 308, 309, 311, 312, 313, 314 excluding ICD-9 30252).

**NYC Department of Health and Mental Hygiene Population Estimates** modified from US Census Bureau intercensal population estimates 2000-2013, updated August 8, 2014, were used for denominators in rate calculations.

**American Community Survey (ACS) 2009-2013** Neighborhood poverty is based on ZIP code and is defined as the percentage of residents with incomes below 100% of the Federal Poverty Level, per ACS 09-13, in four groups: low (<10%), medium (10%-<20%), high (20%-<30%), and very high (>=30%).

#### References:

<sup>1</sup>Norman C, Goldmann E, Staley B, Duchon R. Serious Mental Illness among New York City Adults. *NYC Vital Signs* 2015, Volume 14, No. 2; 1-4.

<sup>2</sup>Snowden LR, Hastings JF, Alvidrez J. Over-representation of black Americans in psychiatric inpatient care. *Psychiatr Serv* 2009; 60(6): 779-85.

**Comment:** Due to concerns about the reliability of race/ethnicity data in SPARCS,<sup>1</sup> those data are not reported here. Data from the Community Health Survey indicate that the prevalence of Serious Mental Illness is lower among Blacks (1%) and Asians (1%) than among Whites (5%) or Hispanics (7%). Yet, national studies show that Blacks are twice as likely as Whites to be hospitalized for mental illness.<sup>2</sup> These differences could be driven by institutional, structural and community factors that differentially impact these various groups. Consideration of race in addition to poverty is important for understanding population patterns. The New York State Department of Health is taking steps to improve the quality of race/ethnicity data collection. In addition, the New York City Department of Health and Mental Hygiene is developing a methodology to impute race/ethnicity. We hope to report further analysis in future publications.

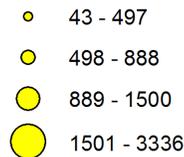
<sup>1</sup>The New York State Department of Health identified patient's race and ethnicity in both 2012 SPARCS records and Medicaid enrollment forms. Concordance rates varied significantly across hospitals: among 22 of 62 New York City hospitals, less than 50% of matched patients' race was consistent in both data sets. ([http://www.health.ny.gov/statistics/sparcs/reports/race\\_eth/](http://www.health.ny.gov/statistics/sparcs/reports/race_eth/)).

## Geographic and economic characteristics of psychiatric hospital stays (age adjusted)

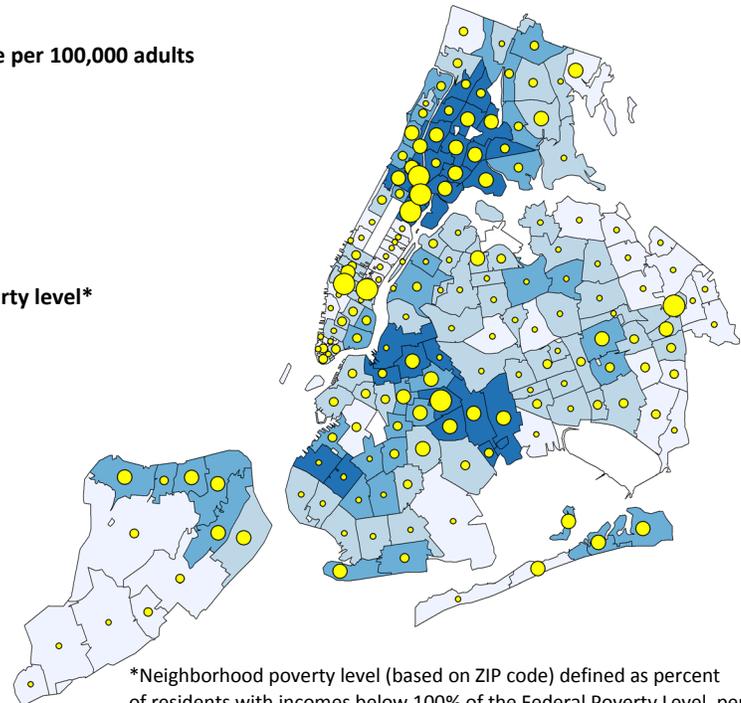
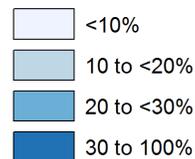
- Psychiatric hospitalization rates differed by geographic area in NYC. The highest rates (more than 1,500 per 100,000 adults) were concentrated in East and Central Harlem, Chelsea, Gramercy Park, Queens Village, and Ocean Hill. Some of these high rates could be explained, in part, by the presence of homeless shelters and mental health residential programs in these areas.
- The psychiatric hospitalization rate was lowest among Queens residents (508 per 100,000 adults).
- The psychiatric hospitalization rate among adults living in the highest poverty areas was higher (1,001 cases per 100,000 adults) than the lowest poverty areas (399 cases per 100,000).

### Adult psychiatric hospitalization rates by neighborhood poverty level\* and modified Zip Code Tabulation Area (ZCTA)\*\* in New York City, 2013

#### Hospitalization rate per 100,000 adults



#### Neighborhood poverty level\*



\*Neighborhood poverty level (based on ZIP code) defined as percent of residents with incomes below 100% of the Federal Poverty Level, per American Community Survey 2009-2013, in four groups: low (<10%), medium (10 %-< 20%), high (20 %-< 30%), and very high (>=30%).

\*\* ZIP Code Tabulation Areas (ZCTA) are generalized areal representations of the United States Postal Service (USPS) ZIP Code service areas. Modified ZCTA: some ZCTA's with low population count are merged together to match population denominators.

Source: Statewide Planning and Research Collaborative System, 2013 and American Community Survey, 2009-13

## 30- and 90-day readmissions rates

It is not uncommon for individuals who have been hospitalized for mental illness to be hospitalized again within a 30-day period after discharge. Psychiatric hospital readmission rates within 30 days of discharge are considered an indicator of the quality of mental health treatment.

- In 2013 in NYC, the rate of psychiatric hospitalization readmissions within 30 days to any NYC hospital was 13%. The rate of readmission within 90 days was 22%.
- In 2013, rates of readmissions within 90 days to a NYC hospital were highest for hospitalizations that had a primary diagnosis of Schizophrenia (25%) or Bipolar Disorder (22%) followed by hospitalizations with Major Depressive Disorder (16%).
- Adults between ages 30 and 44 had the highest 30-day readmission rate (15%), while adults 65 years and older had the lowest readmission rate (8%).

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# Epi Data Tables

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## Adult Psychiatric Hospitalizations in New York City

### Data Tables

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- Table 2.** Adult psychiatric hospitalization rates, New York City 2004 to 2013
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### Data Sources

**Statewide Planning and Research Collaborative System (SPARCS) 2013:** SPARCS is an administrative database of all hospital discharges reported by New York State (NYS) hospitals to the NYS Department of Health. Diagnoses are coded according to the International Statistical Classification of Diseases and Related Health Problems-9th Revision framework. All data presented in this report are limited to NYC residents ages 18 years old and older who had a hospitalization for a psychiatric condition (3 digit ICD-9 codes : 295, 296, 297, 298, 300, 301, 302, 306, 307, 308, 309, 311, 312, 313, 314 excluding ICD-9 30252).

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**Table 1. Primary psychiatric diagnoses\* among New York City adults hospitalized for mental illness, 2013**

Source: Statewide Planning and Research Collaborative System (SPARCS) 2013

<b>Primary Psychiatric Diagnosis</b>	<b>Percent of overall mental health hospitalizations</b>	<b>Hospitalizations (count)</b>
Schizophrenia**	50.2%	22,544
Bipolar	18.1%	8,134
Major Depressive Disorder	13.7%	6,138
Affective Psychoses NOS/NEC	6.6%	2,945
Depressive Disorder NEC	4.6%	2,050
Adjustment reaction	2.3%	1,052
Anxiety/Dissociative/Somatoform Disorders	2.2%	976
Disturbance of Conduct NEC	1.0%	430
Personality Disorders	0.4%	191
Special Symptoms NEC	0.4%	174
Delusional Disorders	0.3%	156
Other***	0.3%	152

\*Primary Diagnosis is the condition recorded to be chiefly responsible for the admission of the patient to the hospital for care.

\*\*Schizophrenia includes diagnoses of Schizophrenia and Psychosis Not Otherwise Specified (NOS)

\*\*\*Other include: diagnoses of other nonorganic psychoses, physiological malfunction arising from mental factors, sexual and gender identity disorders, acute reaction to stress, disturbance of conduct, and hyperkinetic syndrome of childhood .

**Table 2. Adult psychiatric hospitalization rates, New York City 2004 to 2013***Source: Statewide Planning and Research Collaborative System (SPARCS) 2013*

<b>Year</b>	<b>Population</b>	<b>Hospitalizations (count)</b>	<b>Age adjusted rate per 100,000</b>	<b>Crude rate per 100,000</b>
2004	6,214,736	45,141	721	726
2005	6,221,987	43,422	693	698
2006	6,234,394	43,556	694	699
2007	6,275,800	43,190	685	688
2008	6,338,995	44,422	699	701
2009	6,409,645	43,811	683	684
2010	6,472,047	43,597	674	674
2011	6,512,793	45,031	693	691
2012	6,585,984	45,266	690	687
2013	6,651,304	44,942	680	676

**Table 3. Length of stay: Psychiatric hospitalizations, New York City 2004 to 2013***Source: Statewide Planning and Research Collaborative System (SPARCS) 2013*

<b>Year</b>	<b>Mean length of stay (days)</b>	<b>Median length of stay (days)</b>
2004	19.1	12.0
2005	19.4	12.0
2006	19.0	12.0
2007	18.7	12.0
2008	18.0	11.0
2009	17.7	11.0
2010	18.1	11.0
2011	17.9	11.0
2012	17.6	11.0
2013	16.2	11.0

**Table 4. Adult psychiatric hospitalization by gender, age group, borough, and neighborhood poverty level, New York City 2013**

Source: Statewide Planning and Research Collaborative System (SPARCS) 2013, American Community Survey 2009-2013

	Hospitalizations (count)	Population	Age-adjusted rate per 100,000	Crude rate per 100,000
<b>Gender</b>				
Male	25,541	3,108,764	814	822
Female	19,401	3,542,540	555	548
<b>Age group</b>				
18-24	6,320	842,858		750
25-34	9,975	1,484,062		672
35-44	8,496	1,177,010		722
45-54	10,121	1,117,252		906
55-64	6,283	955,447		658
65+	3,747	1,074,675		349
<b>Borough</b>				
Bronx	8,611	1,060,308	809	812
Brooklyn	13,963	1,997,419	703	699
Manhattan	10,448	1,392,052	775	751
Queens	9,221	1,834,580	508	503
Staten Island	2,699	366,946	754	736
<b>Neighborhood poverty level*</b>				
0 to <10% (low)	4,551	1,187,800	399	383
10% to- <20%	14,218	2,461,272	583	578
20% to <30%	12,474	1,647,297	759	757
30% to 100% (very high)	13,699	1,354,910	1,001	1,011

\* Neighborhood poverty level is defined as percent of residents with incomes below 100% of the Federal Poverty Level, per American Community Survey 2009-2013.

**Table 5. Expected payer for psychiatric hospitalizations,\* New York Ci***Source: Statewide Planning and Research Collaborative System (SPARCS) 2013*

<b>Payer source</b>	<b>Hospitalizations (count)</b>	<b>Hospitalizations (percent)</b>
Medicaid	26,233	58.4
Medicare	10,714	23.8
Commercial	4,313	9.6
Self-pay	2,272	5.1
Other**	1,410	3.1

\*Per PSREIM code

\*\*Other includes the following PSREIM categories: Corrections-local, Self-insured, CHAMPUS/VA, Other government, Workers Compensation, Corrections-state, No-fault, No charge and Other

**Table 6. Adult psychiatric hospitalization by age and major diagnosis, New York City 2013***Source: Statewide Planning and Research Collaborative System (SPARCS) 2013*

Age group	Hospitalizations (count)				Population	Crude rate per 100,000			
	Schizophrenia*	Bipolar	Major Depressive Disorder	Other		Schizophrenia*	Bipolar	Major Depressive Disorder	Other
18-24	2,767	1,319	697	1,537	842,858	328	156	83	182
25-34	5,229	2,031	999	1,716	1,484,062	352	137	67	116
35-44	4,378	1,596	1,046	1,476	1,177,010	372	136	89	125
45-54	5,244	1,697	1,428	1,752	1,117,252	469	152	128	157
55-64	3,257	975	1,084	967	955,447	341	102	113	101
65+	1,669	516	884	678	1,074,675	155	48	82	63

\*Schizophrenia includes diagnoses of Schizophrenia and Psychosis Not Otherwise Specified (NOS)

**Table 7. Adult psychiatric hospitalization by sex and major diagnosis, New York City 2013**

Source: Statewide Planning and Research Collaborative System (SPARCS) 2013

Diagnosis	Hospitalizations (count)		Population		Crude rate per 100,000	
	Female	Male	Female	Male	Female	Male
Schizophrenia*	8,525	14,019	3,542,540	3,108,764	241	451
Bipolar	4,042	4,092	3,542,540	3,108,764	114	132
Major Depressive Disorder	3,198	2,940	3,542,540	3,108,764	90	95
Other	3,636	4,490	3,542,540	3,108,764	103	144

\*Schizophrenia includes diagnoses of Schizophrenia and Psychosis Not Otherwise Specified (NOS)