

## Guillain-Barré Syndrome

*Guillain-Barré Syndrome is not a reportable condition.*

### Epidemiology

Guillain-Barré syndrome (or acute infective polyneuritis) is an autoimmune disorder of the peripheral nervous system. Symptoms of the disorder include varying degrees of muscle weakness or tingling sensations. In many instances, the weakness and abnormal sensations spread from the legs to the arms and upper body. These symptoms can increase in intensity and result in paralysis. Guillain-Barré syndrome is rare. The incidence rate in the United States is estimated to be one to two cases per 100,000 population. The incidence of this syndrome increases with age; people older than 50 years of age are at greatest risk for developing it. Guillain-Barré is called a syndrome rather than a disease because it is not clear that a specific disease-causing agent is involved. Usually Guillain-Barré occurs a few days or weeks after the patient has had symptoms of a respiratory or gastrointestinal viral infection. The most commonly identified infectious trigger of Guillain-Barré syndrome is *Campylobacter jejuni*, but up to 60% of Guillain-Barré syndrome cases have no known etiology. Occasionally, surgery or vaccinations will trigger the syndrome. The disorder can develop over the course of hours or days, or it may take up to three to four weeks.

### Hospitalization Surveillance

Hospitalization surveillance is based on the Louisiana Inpatient Hospital Discharge Data (LaHIDD). In 1997, the Louisiana legislature mandated the reporting of hospital discharge data. LaHIDD serves as the state registry containing hospital discharge data submitted to the Department of Health and Hospitals (DHH). The Office of Public Health (OPH) is responsible for making the data available to OPH sections as needed. The data is available with a delay of two years. The Infectious Disease Epidemiology Section uses these data sets for the surveillance of infectious diseases in hospitals. LaHIDD data sets contain demographic information (names, gender, age, date of birth, address, admit diagnosis, discharge diagnoses (main plus eight more diagnoses), procedures (main plus five), charges, length of stay and hospital name. The diagnoses and procedures are coded with ICD-9 codes. Repeat hospitalizations are not included. The data are based on the years 1999 to 2007.

Records of patients with Guillain Barré were extracted using the following ICD9 codes whether in the main diagnosis or in the eight additional secondary diagnoses.

<u>CODE</u>	<u>DISEASE</u>
357.0	ACUTE INFECTIVE POLYNEURITIS

## Guillain-Barré syndrome -Associated Hospitalizations

The following statistics are based on unduplicated patients. There were a total of 1830 Guillain-Barré syndrome related hospitalizations between 1999 and 2007. (Table 1)

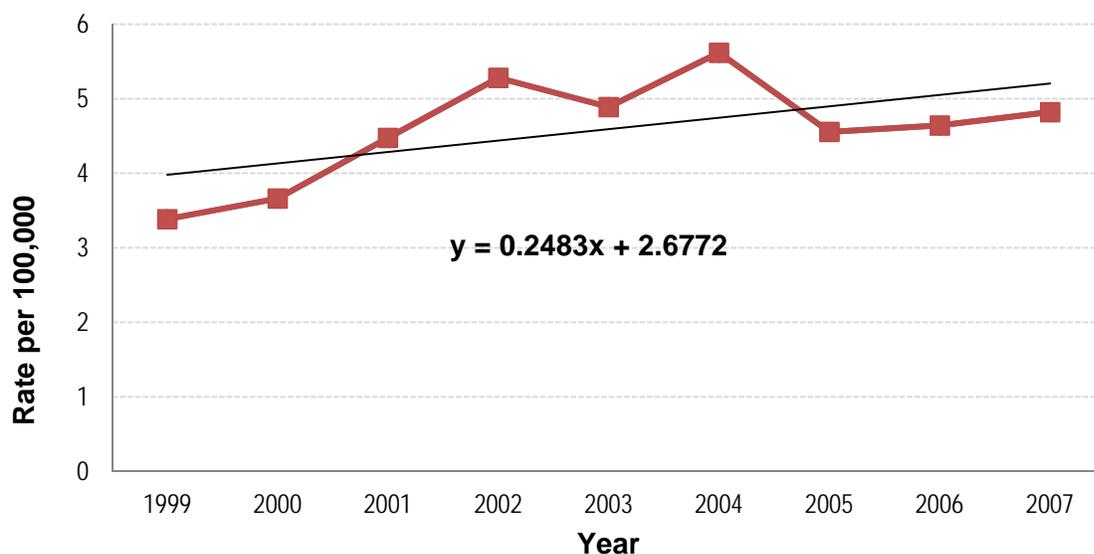
**Table 1:** Hospitalized patient number for Guillain-Barré syndrome – Louisiana, 1999-2007

Year	Number of Hospitalizations
1999	148
2000	162
2001	199
2002	236
2003	220
2004	254
2005	205
2006	199
2007	207

Since these data represent all the hospitalizations occurring in Louisiana, it is reasonable to assume that these are population based data and rates can be calculated for the entire Louisiana population.

For the entire period (1999-2007) the number of hospitalizations varies from 150 to 250 cases per year. The overall hospitalization rate was 4.6 hospitalizations per 100,000 population. The regression line shows an increasing trend. The Cochran-Armitage test for linear trend shows a significant trend: chi-sq = 65804.98 (DF: 1) P = 0.000 (Figure 1)

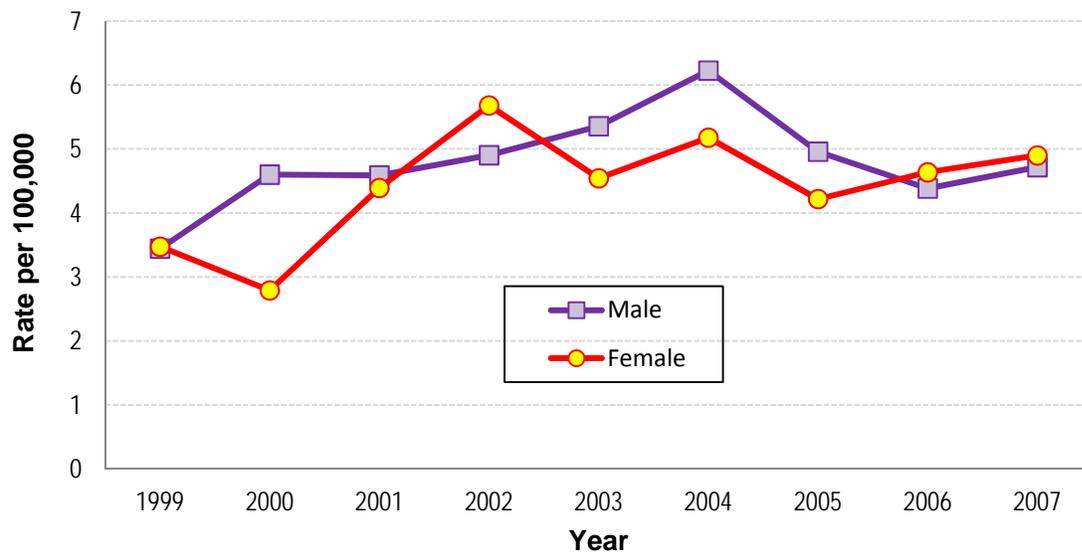
**Figure 1:** Guillain-Barré syndrome hospitalization rate per 100,000 population Louisiana, 1999-2007



## Gender Distribution

Though there is some variation, there is not a much difference in hospitalization rates between males and females. For the period between 1999 to 2007, the overall male hospitalization rate was 4.8 per 100,000 population; the overall female hospitalization rate was 4.4 per 100,000 population.

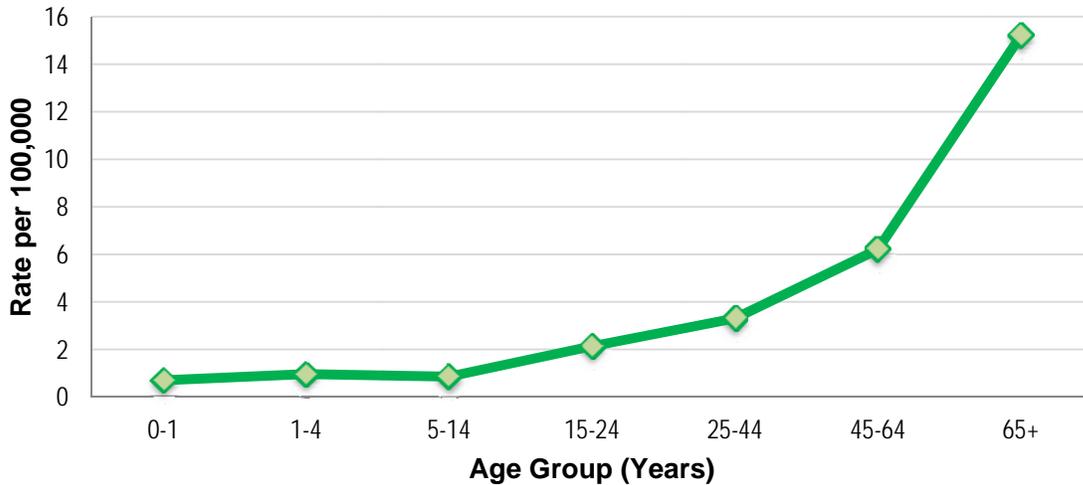
**Figure 2:** Guillain-Barré syndrome hospitalization rate per 100,000 population by gender Louisiana, 1999-2007



## Age Group Distribution

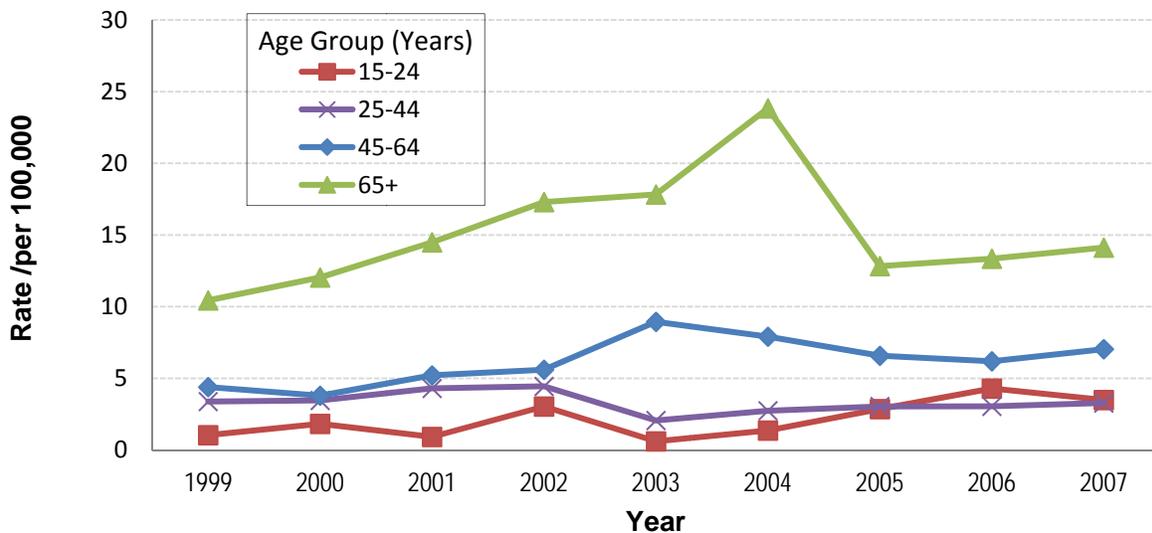
Guillain-Barré hospitalizations most commonly occurred among adults. The hospitalization rate increases as age increases. The highest hospitalization rate was seen among adults older than 65 years of age. (Figures 3 and 4)

**Figure 3:** Total Guillain-Barré syndrome hospitalization rate per 100,000 population by age group - Louisiana, 1999-2007



There was no difference in trends by age group over the years.

**Figure 4:** Guillain-Barré syndrome hospitalization rate per 100,000 population by age group Louisiana, 1999-2007



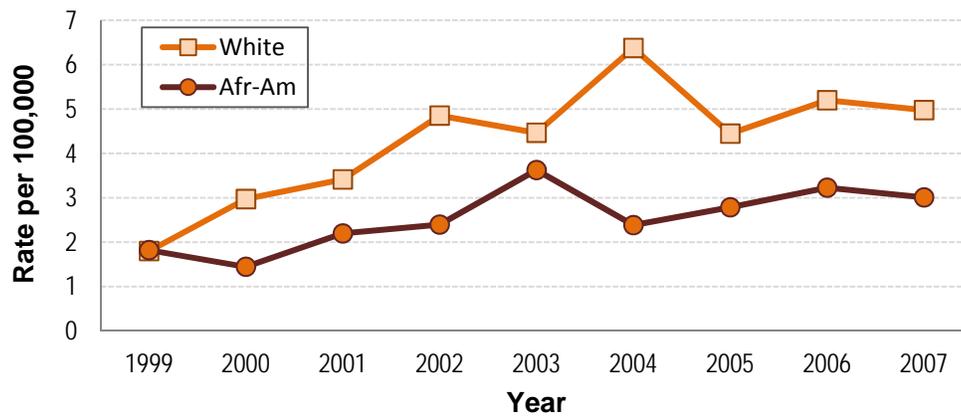
**Race Distribution**

Rates were calculated for Whites and African-Americans only. Numbers for other race and ethnic groups are small and the populations are often inaccurate. Rates based on rates are

underestimates of real rates since a good proportion of cases do not have race reported.

The overall rate of Guillain-Barré hospitalizations was 4.3 per 100,000 population for Whites and 2.5 per 100,000 for African-Americans. There is an increasing trend with a higher rate among Whites.

**Figure 5:** Guillain-Barré syndrome hospitalization rate per 100,000 population by race Louisiana, 1999-2007



### Main Diagnosis Distribution

The main diagnoses were in the groups of central nervous system and ill-defined conditions. Out of 1930 diagnoses, 1015 (55%) were not attributed to any specific cause. (Table 2)

**Table 2:** Percent main diagnosis for Guillain-Barré syndrome patients— Louisiana, 1999-2007

Main Diagnosis	Percent	Number
CNS/ Sensory	43	786
Ill-Defined/Misc.	12.5	229
Circulatory	9.3	171
Respiratory	7.4	136
Digestive	4	73
Infectious Diseases	3.6	66
Genial/Uro	3.4	63
Injury/Poisonings	2.6	48
Musculo/Skeletal/Connective	2.6	47
Endocrine/Metabolic/Immune	2.2	40
Cancer	2.1	39
Mental Health	1.8	33
Skin/Soft Tissue	1.3	23
Blood	0.8	15
Pregnancy/Neonate	0.5	10

Displaying the individual diagnoses does not bring more information on the possible etiology of the syndrome. (Table 3)

**Table 3:** Number of patients with differing main diagnoses for Guillain-Barré syndrome Louisiana, 1999-2007

Diagnosis Main Label	Diagnosis Main Clinical Classification of Symptoms	Count Of Diagnosis Main Label
ACUTE INFECTIVE POLYNEURITIS	CNS/ Sensory	731
CARE INVOLVING OTHER SPECIFIED REHABILITATION PROCEDURE	Ill-Defined/Misc.	200
CONGESTIVE HEART FAILURE	Circulatory	38
PNEUMONIA, ORGANISM UNSPECIFIED	Respiratory	38
URINARY TRACT INFECTION, SITE NOT SPECIFIED	Genial/Uro	35
RESPIRATORY FAILURE	Respiratory	25
OBSTRUCTIVE CHRONIC BRONCHITIS, WITH ACUTE EXACERBATION	Respiratory	20
CRNRY ATHRSCLE NATVE VSSL	Circulatory	17
UNSPECIFIED SEPTICEMIA	Infectious Diseases	16
VOLUME DEPLETION DISORDER	Endocrine/Metabolic/Immune	12
HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION WITH SPECIFIED CONDITIONS	Infectious Diseases	10
ACUTE RENAL FAILURE, UNSPECIFIED	Genial/Uro	10

### Mortality

From 1999 to 2007, 3.2% of patients with Guillain-Barré syndrome diagnoses expired.