

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 this syndrome.

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.

Several Zika-affected countries have reported an increase in Guillain-Barré incidence. The Centers for Disease Control and Prevention is continuing to investigate the association between this arboviral disease and Guillain-Barré syndrome.

Hospitalization Surveillance

Hospitalization surveillance is based on Louisiana Hospital Inpatient Discharge Data (LaHIDD). In 1997, the Louisiana legislature mandated the reporting of hospital discharge data. LaHIDD serves as the state registry for hospital discharge data submitted to the Louisiana Department of Health (LDH). The Office of Public Health (OPH) is responsible for providing the data to OPH sections as needed. The Infectious Disease Epidemiology Section uses these data sets for surveillance of infectious diseases in hospitals. The data is available after a delay of two years. LaHIDD data sets contain demographic information (names, gender, age, date of birth, address), admit diagnosis, discharge diagnoses (main diagnosis plus eight additional 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 in the analysis. The data are based on the years 2000 to 2014.

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 de-duplicated patient records. There were a total of 2,021 Guillain-Barré syndrome related hospitalizations between 2000 and 2014 (Table 1).

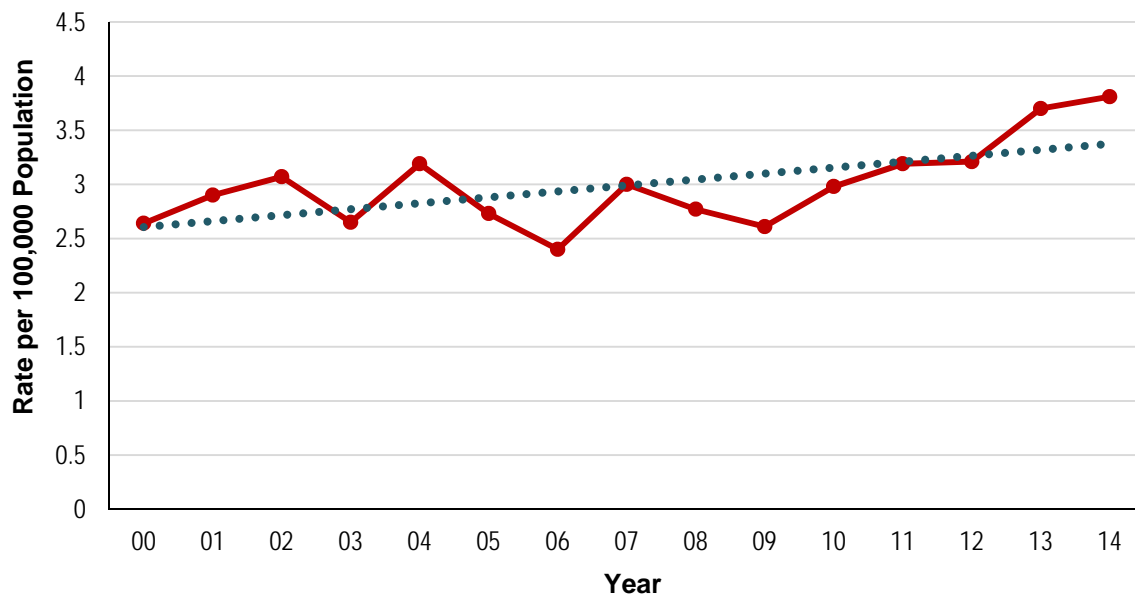
Year	Number of Hospitalizations
2000	117
2001	129
2002	137
2003	119
2004	144
2005	124
2006	102
2007	129
2008	122
2009	118
2010	135
2011	146
2012	148
2013	174
2014	177

Table 1: Hospitalized patient numbers for Guillain-Barré syndrome – Louisiana, 2000-2014

Since these data represent all the hospitalizations that occurred 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 (2000-2014) the number of hospitalizations varied from 100 to 180 cases per year. The overall hospitalization rate was 2.99 hospitalizations per 100,000 population. The regression line shows an increasing trend (Figure 1).

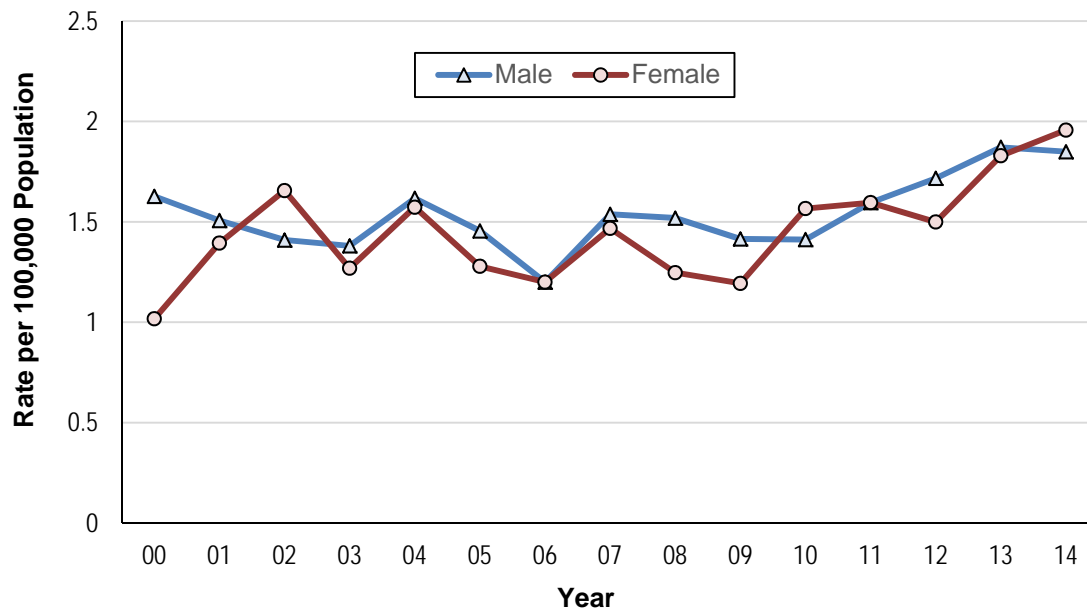
Figure 1: Guillain-Barré syndrome hospitalization rate per 100,000 population Louisiana, 2000-2014



Gender Distribution

Although there was some variation, there was not much difference in hospitalization rates between males and females. For the period between 2000 and 2014, the overall male hospitalization rate was 1.54 per 100,000 population; the overall female hospitalization rate was 1.45 per 100,000 population.

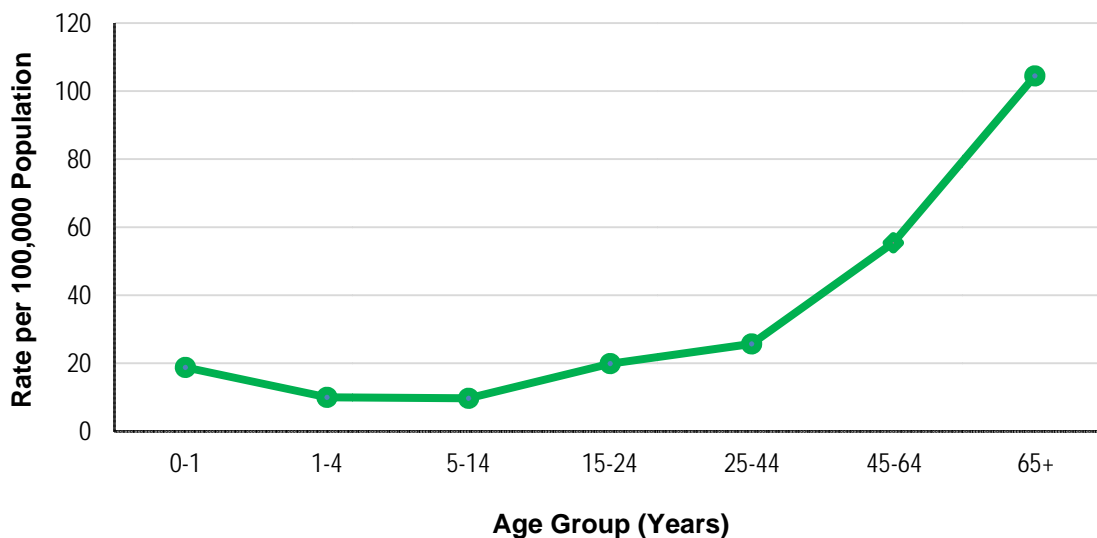
Figure 2: Guillain-Barré syndrome hospitalization rate per 100,000 population by gender Louisiana, 2000-2014



Age Group Distribution

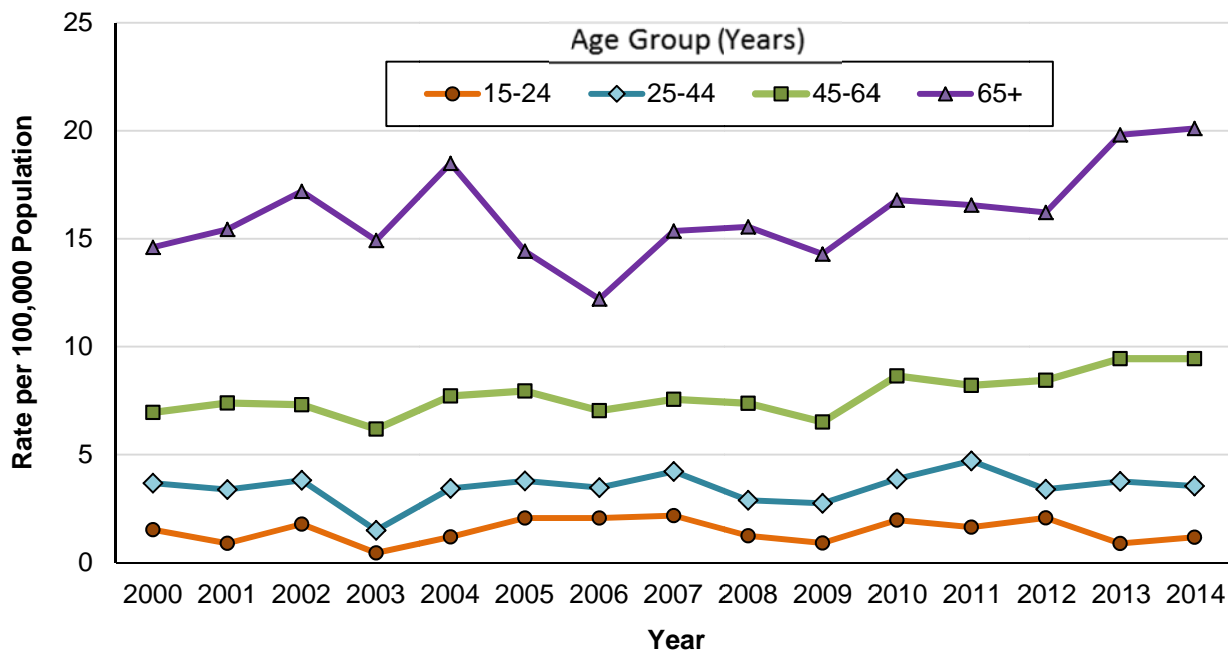
Guillain-Barré hospitalizations most commonly occurred among adults. The hospitalization rate increased as age increased. The highest hospitalization rate was seen among adults older than 65 years of age. (Figures 3 and 4)

Figure 3: Total Guillain-Barré syndrome hospitalization rate per 100,000 population by age group - Louisiana, 2000-2014



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, 2000-2014

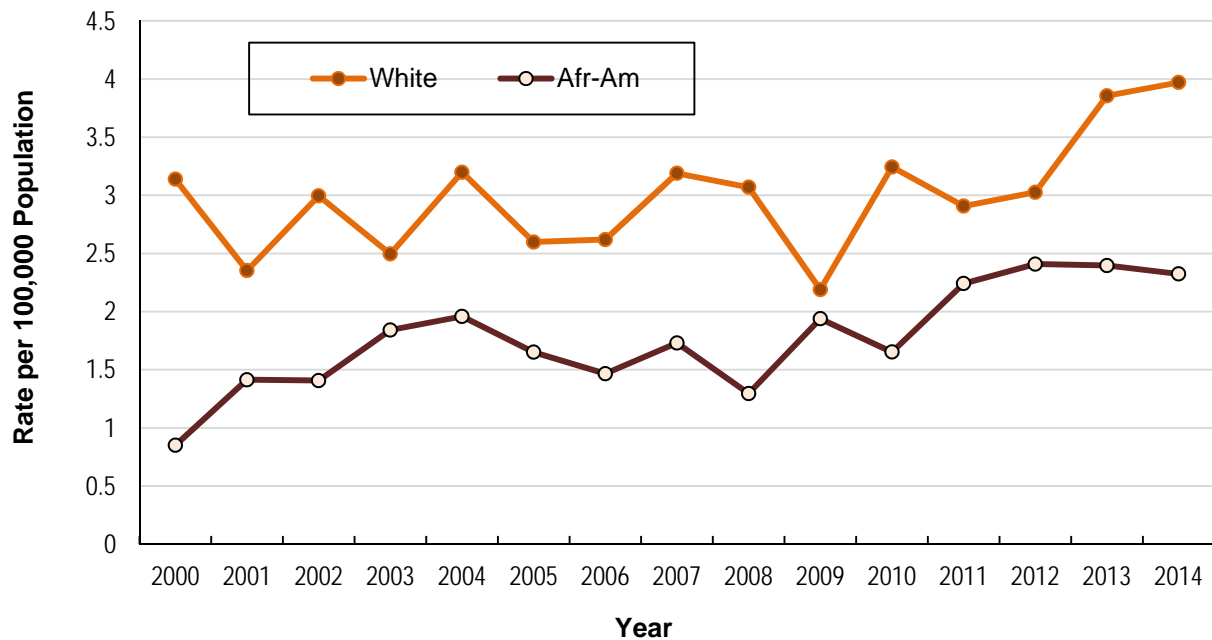


Race Distribution

Rates were calculated for Whites and African-Americans only. Numbers for other race and ethnic groups were small and population estimates were deemed to be inaccurate. Rates based on race were underestimates of actual rates, since a good proportion of cases did not report race.

The overall rate of Guillain-Barré hospitalizations was 2.98 per 100,000 population for Whites and 1.77 per 100,000 for African-Americans. Figure 5 illustrates an increasing trend in both African-Americans and Whites, and a higher rate among Whites.

Figure 5: Guillain-Barré syndrome hospitalization rate per 100,000 population by race Louisiana, 2000-2014



Main Diagnosis Distribution

The main diagnoses reflected central nervous system disease as well as ill-defined conditions. Out of 2,021 diagnoses, 1,112 (55%) were not attributed to any specific cause (Table 2).

Table 2: Percent main diagnosis for Guillain-Barré syndrome patients – Louisiana, 2000-2014

Main Diagnosis	Percent
CNS/ Sensory	43
Ill-Defined/Misc.	12.5
Circulatory	9.3
Respiratory	7.4
Digestive	4
Infectious Diseases	3.6
Genial/Uro	3.4
Injury/Poisonings	2.6
Musculo/Skeletal/Connective	2.6
Endocrine/Metabolic/Immune	2.2
Cancer	2.1
Mental Health	1.8
Skin/Soft Tissue	1.3
Blood	0.8
Pregnancy/Neonate	0.5

The individual diagnoses do not provide additional valuable information on the possible etiology of the syndrome. (Table 3)

Table 3: Number of patients with differing main diagnoses for Guillain-Barré syndrome Louisiana, 2000-2014

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
Coronary Atherosclerosis Native Vessel	Circulatory	17
Unspecified Septicemia	Infectious Diseases	16

Diagnosis Main Label	Diagnosis Main Clinical Classification of Symptoms	Count Of Diagnosis Main Label
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 2000 to 2014, 3.2% of patients with diagnoses of Guillain-Barré syndrome expired.