

Varicella

Varicella is a Class C Disease and must be reported to the state within five business days.

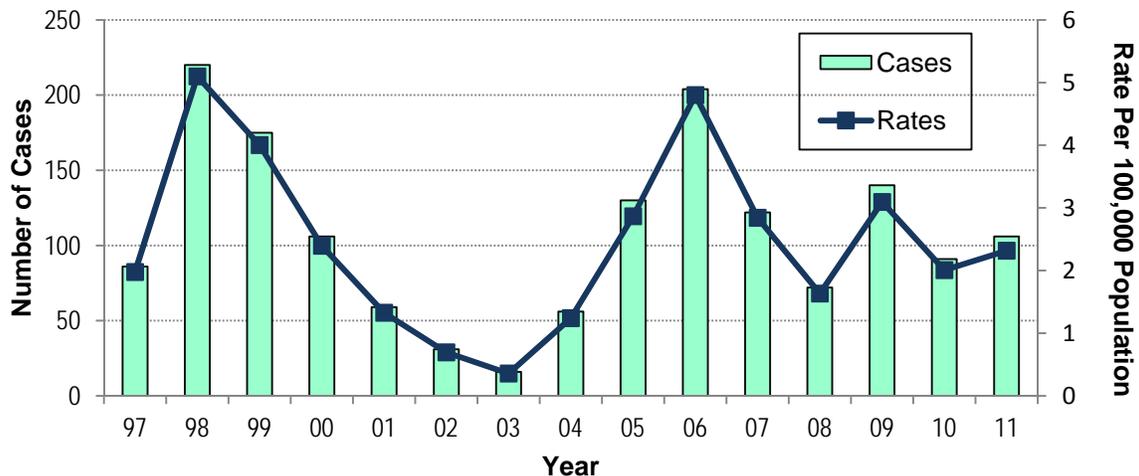
Varicella (chickenpox) is the primary infection caused by the varicella-zoster virus (VZV), which consists of blister-like rash, itching, fatigue and fever. Illness usually lasts five to ten days. Humans are the only source of infection. Varicella is highly infectious with secondary infection rates in susceptible household contacts approaching 90%. Transmission occurs from person-to-person, by direct contact with patients with either varicella or zoster lesions, or by airborne spread from respiratory secretions.

The varicella vaccine has been available since 1995 and is recommended in two doses for all susceptible persons aged greater than, or equal to, 12 months. Prior to the availability of the varicella vaccine, almost everyone developed varicella during their lifetime. About four million people would get chicken pox each year; there were about 10,500 to 13,000 hospitalizations and 100 to 150 deaths from chicken pox each year. In February 1999, the Advisory Committee on Immunization Practices (ACIP) recommended that varicella vaccine be required for child care and school entry. The ACIP also strengthened recommendations for the vaccination of susceptible adults at high risk for exposure. The ACIP continues to recommend that vaccination be considered for all susceptible adolescents and adults. In 2010 in the United States, 90% of children ages 19 to 35 months had received one dose of varicella vaccine; 58% of adolescents 13 to 17 years old had received two doses as recommended. Chickenpox infections, hospitalizations and deaths have decreased dramatically; in 2009, in four states that consistently reported to a national surveillance system, infection rates were 41% to 81% lower than years before the vaccine.

Varicella in Louisiana

Varicella became a reportable disease in 1997. In Louisiana, rates steadily declined from 1998 to 2003 but peaked again in 2006 with a rate of 4.8 cases per 100,000, population. (Figure 1)

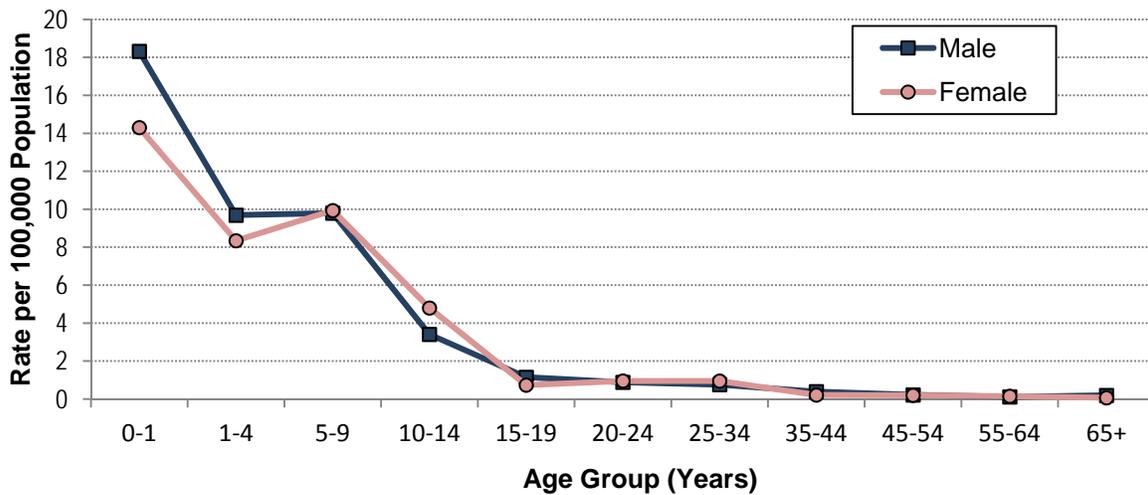
Figure 1. Varicella cases and incidence rates - Louisiana, 1997-2011



Age, Sex and Race

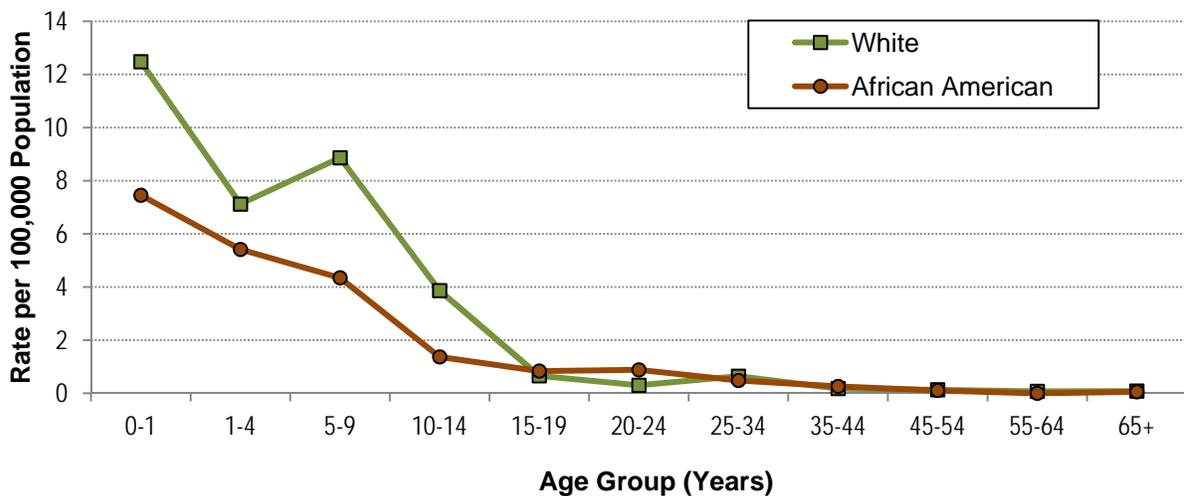
Varicella affects mainly children, with approximately 90% of cases occurring before the age of ten years. Younger age groups continue to be the demographic with the highest rates. Most cases among older individuals are the result of gaps in immunization coverage. The highest rate of reported varicella cases is among male infants, with an incidence rate of 18.3 reported cases per 100,000 population. Overall, male incidence rates for the years 1997 to 2011 are slightly higher than female incidence rates for this time period at 2.3 cases per 100,000 and 1.9 cases per 100,000 respectively (Pearson’s chi-square, $p=0.005$) (Figure 2).

Figure 2. Varicella incidence rates by gender and age - Louisiana, 1997-2011



The age group distribution by race shows that White infants (newborn to one year of age) have the highest rates of disease. Overall, incidence rates among Whites are slightly higher than African-Americans at 1.5 per 100,000 population compared to 1.3 per 100,000 population (Pearson’s chi-square, $p=0.033$) (Figure 3).

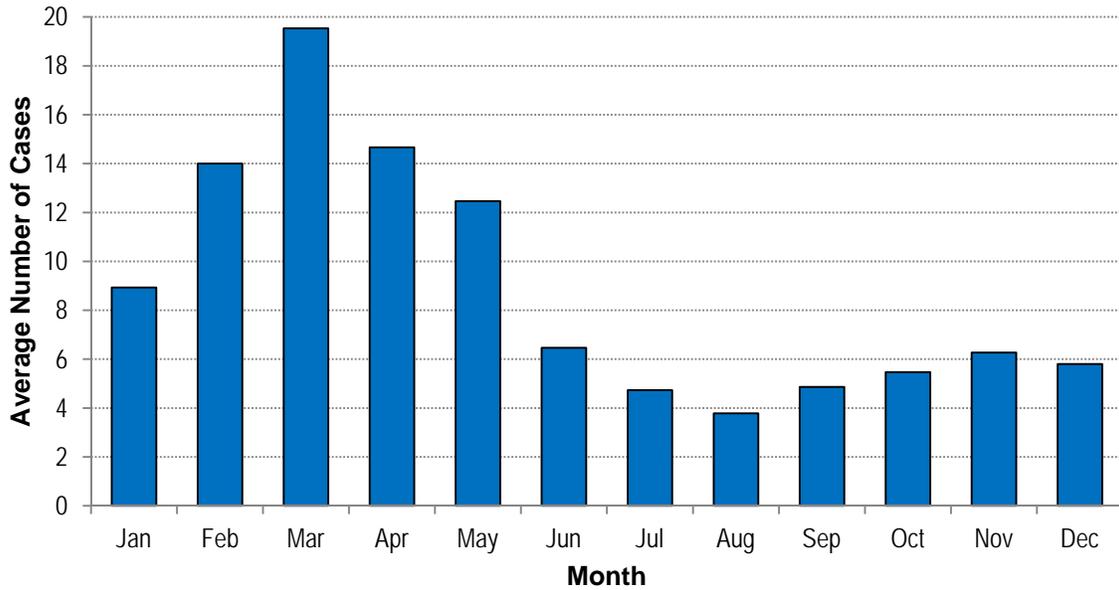
Figure 3. Varicella incidence rates by race and age - Louisiana, 1997-2011



Seasonality

Varicella is a disease that exhibits a seasonal trend with the majority of cases occurring in the winter and spring from January to May (Hewitt’s rank-sum test for seasonal peak, $p=0.015$) (Figure 4).

Figure 4. Varicella average monthly case distribution - Louisiana, 1997-2011



Varicella by Parish

Varicella occurs in both urban and rural parishes. Table 1 shows average incidence rates by parish. The parishes highlighted in yellow had particularly high incidence rates. Higher incidence rates are most often a result of outbreaks inflating average incidence rates.

Table 1. Varicella rates by parish – Louisiana, 2001-2011

Region	Parish	2001-2011 Average	Region	Parish	2001-2011 Average
1	Jefferson	1.96	6	Concordia	0.00
	Orleans	1.24		Grant	0.44
	Plaquemines	4.45		La Salle	1.25
	St. Bernard	0.59		Rapides	0.21
2	Ascension	1.45	7	Vernon	0.55
	E. Baton Rouge	0.87		Winn	0.58
	E. Feliciana	1.85		Bienville	0.00
	Iberville	0.57		Bossier	0.33
	Pointe Coupee	2.01		Caddo	0.43
	W. Baton Rouge	0.00		Claiborne	0.54
	W. Feliciana	0.00		De Soto	0.00
3	Assumption	0.00	8	Natchitoches	0.23
	Lafourche	13.84		Red River	0.97
	St. Charles	2.52		Sabine	0.00
	St. James	0.84		Webster	0.00
	St. John	0.40		Caldwell	0.00
	St. Mary	3.98		E. Carroll	8.81
	Terrebonne	1.26		Franklin	0.44
4	Acadia	0.61	9	Jackson	0.00
	Evangeline	4.78		Lincoln	1.43
	Iberia	3.57		Madison	0.00
	Lafayette	1.62		Morehouse	0.00
	St. Landry	3.24		Ouachita	0.24
	St. Martin	1.98		Richland	0.00
	Vermilion	0.98		Tensas	0.00
5	Allen	3.46	9	Union	0.00
	Beauregard	2.14		W. Carroll	0.00
	Calcasieu	2.92		Livingston	2.42
	Cameron	0.00		St. Helena	2.54
6	Jefferson Davis	0.00	9	St. Tammany	9.68
	Avoyelles	0.43		Tangipahoa	5.45
	Catahoula	0.00		Washington	1.22

Varicella in Hospital Discharge Data

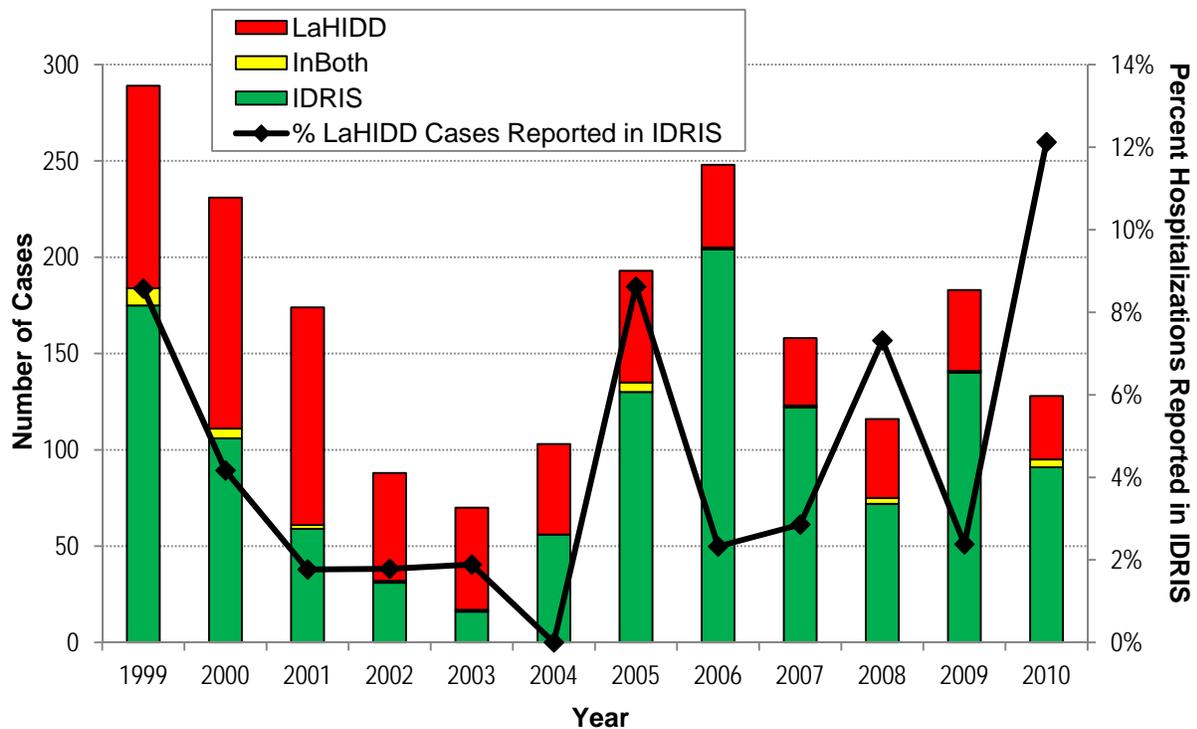
All patient cases from 1999 to 2010 with a diagnosis code representing a varicella infection were extracted from the Louisiana Hospital Inpatient Discharge Database (LaHIDD). The

International Statistical Classification of Diseases and Related Health Problems, Ninth Revision (ICD-9) codes used in extracting the data are as follows:

- Chickenpox (052)
- Chickenpox with other specified complications (052.7)
- Chickenpox with unspecified complications (052.8)
- Varicella without mention of complication (052.9)
- Varicella (Hemorrhagic) Pneumonitis (052.1)
- Postvaricella Encephalitis (052.0)
- Postvaricella Myelitis (052.2)

The number of hospital admissions with at least one of the ICD-codes listed above as well as the number of cases classified as confirmed or probable in the Infectious Disease Reporting Information System (IDRIS) from 1999 to 2010 are shown in Figure 5. Probabilistic data linkage techniques (linkage by first name, last name and date of birth) were used to determine how many varicella cases per year exist in both IDRIS and LaHIDD, as well as the percentage of hospitalizations that were reported in IDRIS each year.

Figure 5. Varicella cases reported in IDRIS, LaHIDD cases, and percentage of LaHIDD cases also reported in IDRIS – Louisiana, 1999-2010



Six of the cases in 2010 that had varicella diagnoses in LaHIDD but were not reported in IDRIS, were under the age of 16 years old. A chart review conducted of the six cases found one to be confirmed varicella, three to be probable varicella, and two being not true varicella cases.