

## Respiratory Syncytial Virus (RSV)

*Respiratory Syncytial virus (RSV) infections are not reportable to the state of Louisiana.*

*Respiratory syncytial virus (RSV)* causes acute respiratory tract infections in persons of all ages. In infants and young children, RSV is the most important cause of bronchiolitis and pneumonia. Illness usually begins with fever, runny nose, cough and sometimes wheezing. During their first RSV infection, between 25% and 40% of infants and young children have signs or symptoms of bronchiolitis or pneumonia and 0.5% to 2% require hospitalization. RSV pneumonia causes few deaths among infants and children in Louisiana, and most children recover from illness within eight to 15 days. RSV is extremely common and almost all children are infected at least once by the time they are two years of age. Re-infection throughout life is common. In older children and adults, RSV infection manifests as upper respiratory tract illness, but more serious disease can develop in elderly and immunocompromised persons.

RSV is spread via respiratory secretions through direct or close contact with contaminated secretions, which may involve droplets or contaminated surfaces or objects. RSV can remain infective for many hours on environmental surfaces and for a half-hour or more on hands. Infection occurs when infectious materials contact mucous membranes of the eyes, mouth or nose and possibly through the inhalation of droplets generated by sneezing and coughing.

RSV infections usually occur in annual epidemics during winter and early spring that often last from four to six months in temperate climates. The timing and severity of outbreaks varies from year to year. Spreading among household and child care contacts is common. There is currently no vaccine for RSV. The best prevention of RSV is thorough and frequent handwashing or use of alcohol-based hand rubs. Children in the hospital should be placed under contact isolation. Immunoprophylaxis with palivizumab decreases the rate of hospitalization due to RSV bronchiolitis in high-risk children. It is administered as an intramuscular injection starting just before RSV season and continued monthly for a total of five doses. It has been shown to decrease the rate of RSV-associated hospitalization; however, it offers no significant decrease in mortality and has not been shown to be cost-effective for use in all at-risk children.

Prophylaxis is only needed for the first RSV season before the age of one for high-risk children. RSV infection is more likely to lead to hospitalization if the child attends day care, has school-age siblings, exposure to environmental air pollution, congenital abnormalities of airways or severe neuromuscular disease; such risk factors are additive, so the cost and benefits of prophylaxis should be considered individually for each patient.

Because palivizumab prophylaxis must be initiated before RSV season begins, it is important for physicians to know the timing of RSV season in their area.

### Hospitalization Numbers, Rates and Trends

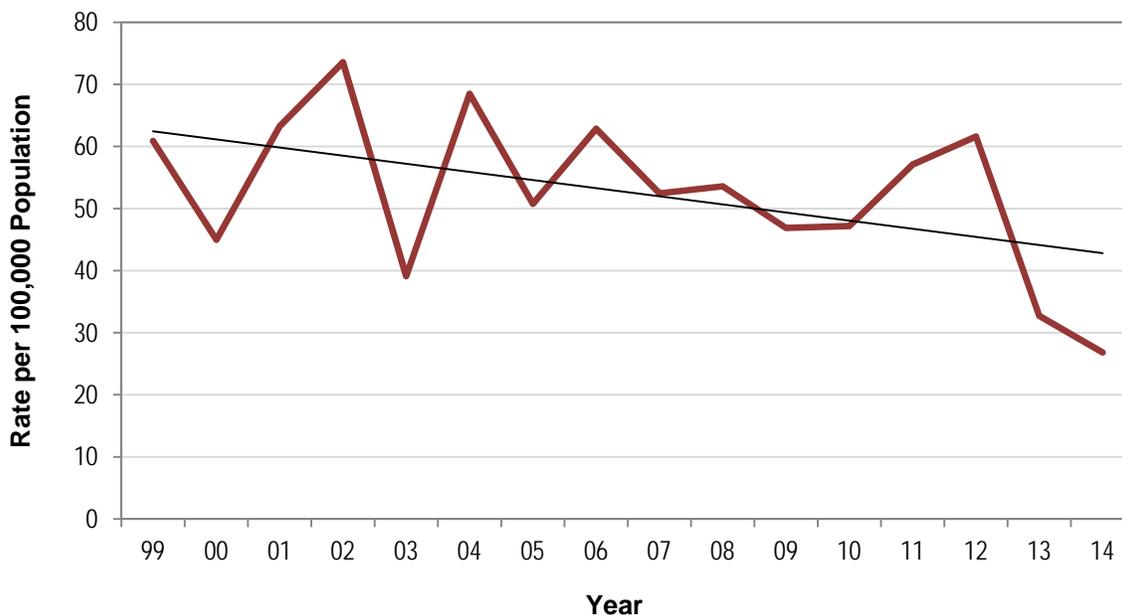
Records of patients with RSV were extracted using the ICD9 code of 480.1, 079.6 and 466.11 whether in the main diagnosis or in the eight additional secondary diagnoses. Readmissions within 60 days of a hospitalization were excluded from the statistics. The data are based on the

years from 1999 to 2014.

For the entire period, the number of yearly hospitalizations from RSV-related illness ranged from 1289 to 3304; rates ranged from 2.4 to 5.9 per 1,000 total hospitalizations.

For the entire period the hospitalization case rate was 52.6 per 100,000 populations. 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. The yearly case rates calculated per 100,000 populations ranged from 26.8 to 73.6. There is a slight trend of decreasing rates; however, the numbers jump up and down throughout the years (Figure 1).

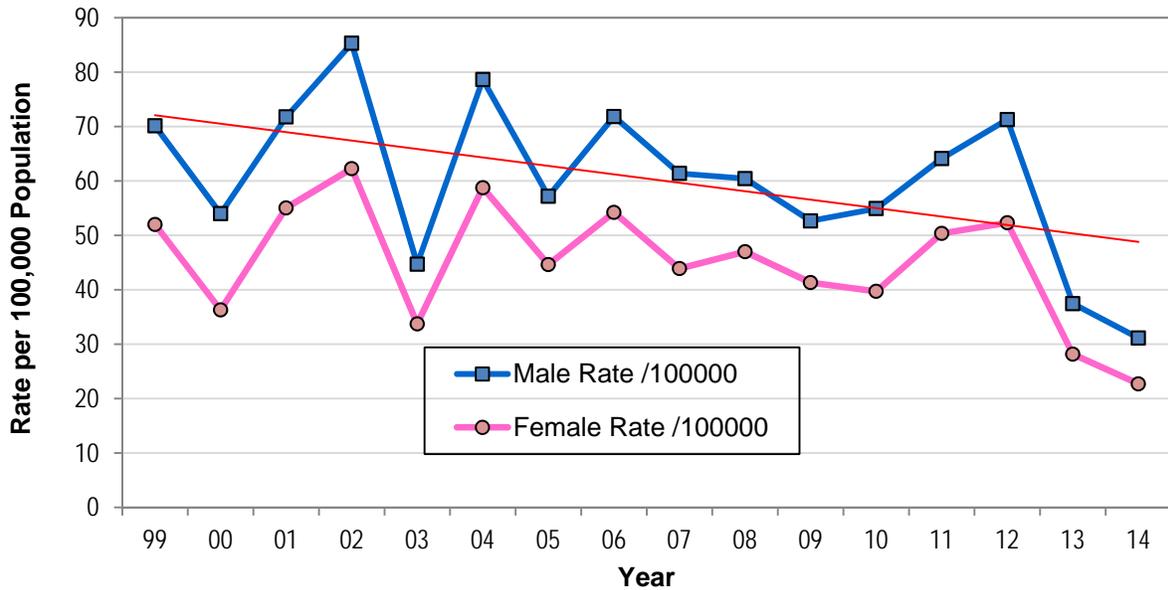
Figure 1: Hospitalized case rates per 100,000 population – Louisiana, 1999-2014



### Age, Sex and Race Distribution

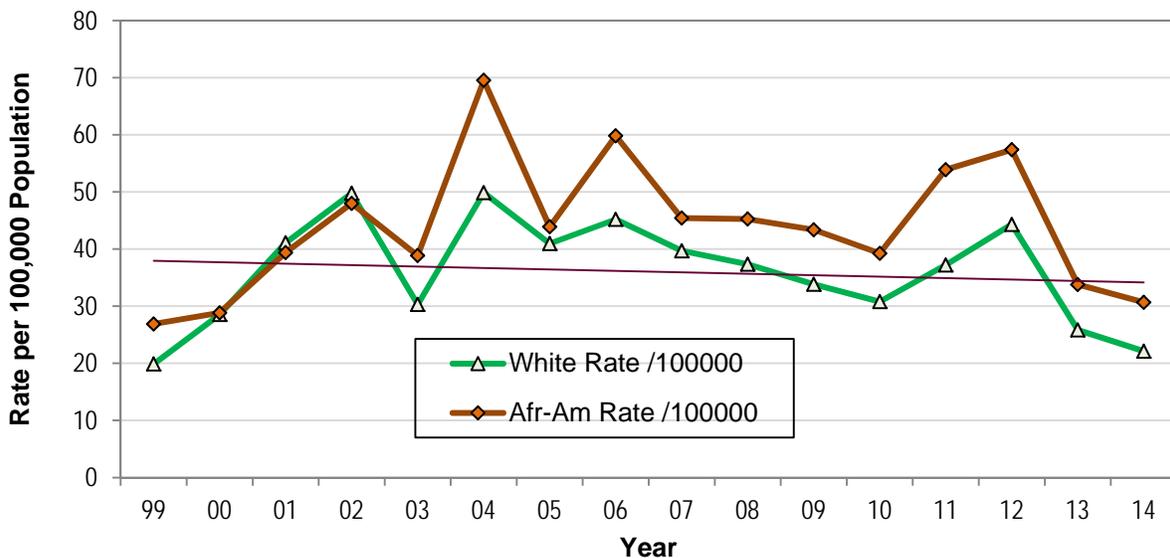
The overall rates of RSV hospitalizations were 63.55 for males and 47.39 for females per 100,000 population. Males have a higher rate per population (Figure 2).

Figure 2: Hospitalized case rates per 100,000 population by gender – Louisiana, 1999-2014



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 under-estimates of real rates since a good proportion of cases do not have race reported. The overall rates of RSV hospitalization were 37.2 per 100,000 for Whites and 44.0 per 100,000 for African-Americans (Figure 3).

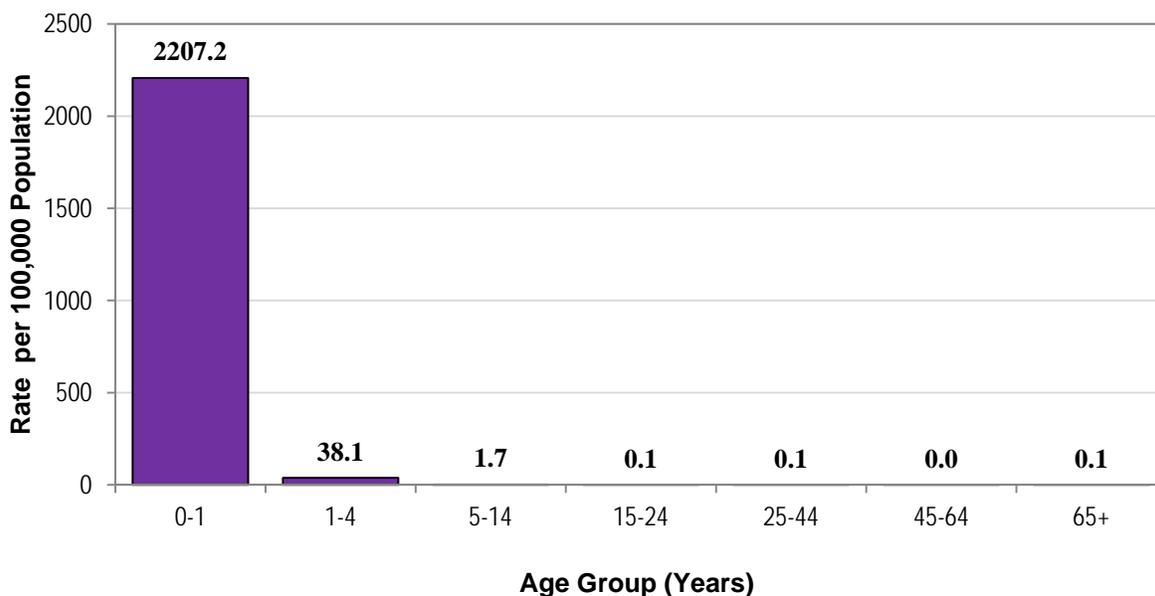
Figure 3: Hospitalized case rates by race - Louisiana, 1999-2014



Almost all children will have had an RSV infection by their second birthday. When infants and children are exposed to RSV for the first time, 25% to 40% of them have signs or symptoms of bronchiolitis or pneumonia and 0.5% to 2% will require hospitalization. Most children that are hospitalized for RSV infection are younger than six months of age.

The rates of hospitalization for RSV are significantly higher for infants aged newborn to one year (2207.2 per 100,000) as well as those in ages one year to four years (38.1 per 100,000). The rates drop off dramatically after those ages, with the remaining age group rates falling between 0.0 and 1.7 (Figure 4).

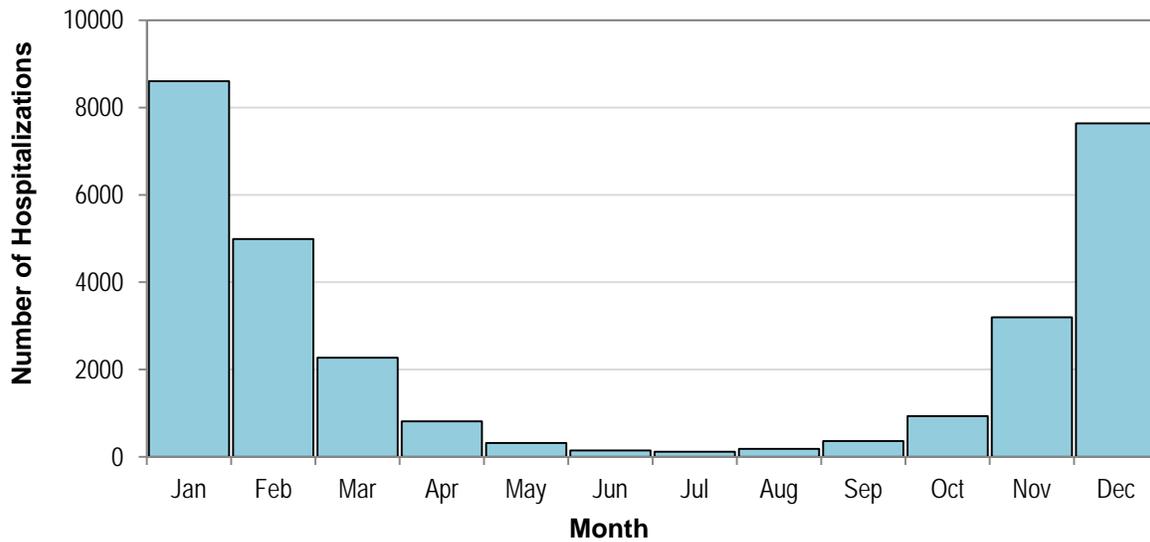
Figure 4: Age group distribution – Louisiana, 1999-2014



### Seasonality

There is a distinct trend in the seasonality of RSV, with the highest number of cases falling in December, January and February, decreasing into the spring, the least number of cases occurring in the summer months of June, July and August and then the numbers rising again into the winter. Year after year, the seasonality remains constant (Figure 5).

Figure 5: Seasonality of RSV – Louisiana, 1999-2014



### Mortality

The mortality rate for RSV among hospitalized patients is very low, with only 35 deaths occurring between the years of 1999 to 2014. (Table 1)

Table 1. RSV mortality – Louisiana, 1999-2014

Year	Hospitalizations	Deaths	Percent Deaths
1999	2,706	1	0.0
2000	2,010	0	0.0
2001	2,833	1	0.0
2002	3,304	3	0.1
2003	1,758	0	0.0
2004	3,092	4	0.1
2005	2,298	1	0.0
2006	2,695	1	0.0
2007	2,252	2	0.1
2008	2,363	1	0.0
2009	2,120	1	0.0
2010	2,138	3	0.1
2011	2,612	2	0.1
2012	2,835	5	0.2
2013	1,538	4	0.3
2014	1,289	6	0.5