



Department of Health and Social Services  
Karleen Jackson, Commissioner

3601 C Street, Suite 540, PO Box 240249  
Anchorage, AK 99524-0249 <http://www.epi.Alaska.gov>

Division of Public Health  
Jay C. Butler, MD, Director

Local (907) 269-8000  
24 Hour Emergency 1-800-478-0084

Editors:

Jay C. Butler, MD  
Joe McLaughlin, MD, MPH  
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## Respiratory Syncytial Virus — Alaska, Winter 2006–07

### Background

Respiratory syncytial virus (RSV) causes acute respiratory tract illness in patients of all ages. It is the most common cause of serious respiratory infections in infants and young children. Children aged less than 6 weeks or with underlying conditions (prematurity, immunosuppression, cardiac and pulmonary disease) are at greater risk for severe disease and hospitalization. Native American and Alaska Native children have greater risk for severe disease, hospitalization, and death when compared to other U.S. children.<sup>1</sup>

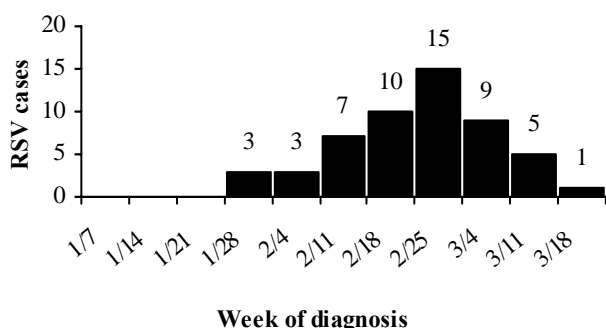
In the United States, the median duration of RSV season is 15 weeks (range: 13–20 weeks); however, the duration of RSV season in Alaska is typically much longer, often beginning as early as October and lasting well into May.<sup>1</sup>

### Outbreak

On February 21, 2007, the Alaska Section of Epidemiology received a report that eight infants with RSV had been transported from the North Slope to Anchorage hospitals for critical care and ventilator support. Following this report, additional children were transported to Anchorage hospitals with severe RSV disease.

Between January 28 and March 31, 53 infants and young children were hospitalized at Samuel Simmonds Memorial Hospital in Barrow (Figure 1); 28 (55%) required medical transport to Anchorage for intensive care, and 19 (37%) required mechanical ventilation.

**Figure 1. RSV Cases (N=53), by Week of Diagnosis — Samuel Simmonds Memorial Hospital, Jan 28–Mar 31, 2007**



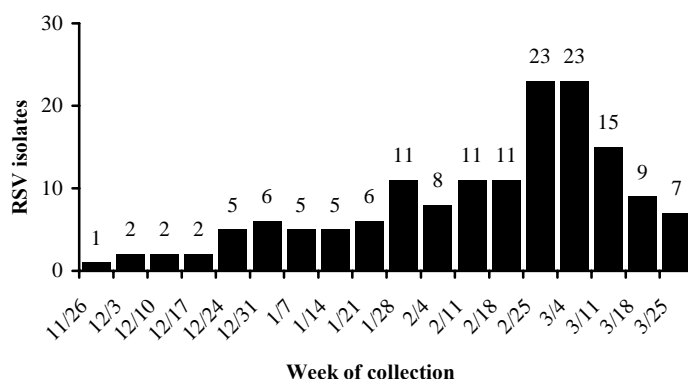
The North Slope RSV outbreak threatened to overwhelm hospital resources in Barrow and pediatric intensive care services in Anchorage hospitals. To respond to this situation, the Alaska Division of Public Health activated its Emergency Operations Center (EOC). Operating within an incident command structure,<sup>2</sup> the Division convened multi-agency teleconferences to identify and respond to hospital staffing and supply needs. A health advisory with information and recommendations was sent by e-mail via the Alaska Public Health Alert Network. In addition, hospital-based enhanced RSV surveillance was implemented and community prevention tools were developed and distributed.<sup>3</sup>

### Statewide RSV Activity

Between November 26, 2006 and March 31, 2007 the Alaska State Virology Laboratory (ASVL) identified RSV in 152 specimens from nine Alaska communities (Figure 2). These communities included Anchorage (11 positive out of 111 specimens submitted), Barrow (7 of 27), Bethel (1 of 20), Fairbanks (47 of 386), Ft. Wainwright (38 of 203),

Juneau (17 of 30), Kotzebue (29 of 118), Point Lay (1 of 2), and Yakutat (1 of 1).

**Figure 2. Laboratory-confirmed RSV Specimens (N=152), by Week of Collection — ASVL, Nov 26, 2006–Mar 31, 2007**



### Laboratory Diagnosis of RSV

RSV can be detected by viral culture, direct antigen immunofluorescence (DFA), molecular detection of viral RNA, and rapid immunoassay (rapid test). Most clinical laboratories use rapid test methods which are less sensitive (60-90%) than methods commonly used in reference laboratories (90-99.9%). ASVL, which tests respiratory specimens for RSV free of charge, uses DFA and viral culture methods to detect RSV.

A positive rapid test should be confirmed at a reference laboratory early in the RSV season and during the off-season. When disease incidence is low, the positive predictive value will be low; thus, false positive tests are more likely. However, once RSV circulation is confirmed, positive rapid tests are considered reliable. Conversely, when RSV is circulating, a negative rapid test from a suspected case should be considered for testing at a reference laboratory, as a sizable number will be positive with more sensitive methods.

### Recommendations

1. Report outbreaks of unusual numbers of any infectious disease to the Section of Epidemiology at (907) 269-8000 during office hours or (800) 478-0084 after hours.
2. Submit respiratory specimens to the ASVL for testing, especially at the onset of RSV season. Laboratories wishing to validate rapid EIA test results should contact ASVL at (907) 474-7018.
3. Administer palivizumab, an anti-RSV monoclonal antibody licensed to prevent RSV hospitalization in selected children aged <24 months, according to previously published Alaska-specific recommendations.<sup>4</sup>
4. During RSV and respiratory virus season, follow recommended prevention strategies.<sup>3</sup>

### References

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2. FEMA ICS Resource Center. Available at: <http://training.fema.gov/EMIWeb/IS/ICSResource/index.htm>
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4. Alaska Section of Epidemiology. Respiratory Syncytial Virus Seasonality in Alaska: Implications for Palivizumab Administration. *Bulletin* No. 15, July 27, 2006. Available at: [http://www.epi.hss.state.ak.us/bulletins/docs/b2006\\_15.pdf](http://www.epi.hss.state.ak.us/bulletins/docs/b2006_15.pdf)