



The Montana Respiratory Syncytial Virus Surveillance System (MRSS): Moving Forward

Respiratory Syncytial Virus (RSV) is recognized as one of the most common causes of childhood illness. More specifically, RSV is the leading cause of bronchiolitis and pneumonia in U.S. children aged less than one year, and especially infants born prematurely. MRSS captures RSV-specific antigen direct detection testing data (rapid or molecular) contributed from over sixty laboratories and provider offices across Montana. Physicians and local public health partners use these data to verify when RSV season begins and ends, and to support efforts to minimize cost and maximize the clinical benefit of RSV prophylaxis. Laboratory data from individual facilities is not shared publicly, but is used to determine regional and state-wide RSV activity levels. MRSS was designed to be user-friendly and flexible, offering each registered user the ability to add, delete, or edit RSV testing denominator (total RSV tests performed) and numerator (total positive RSV tests) data on a weekly basis. Recently revised Administrative Rules of Montana (ARM 37.114.205 (6)) require laboratories to report weekly RSV testing data during October 1 to June 1 each RSV season.

In this issue of *Montana Public Health*, we offer updated RSV prophylaxis guidance, and a descriptive summary of the 2013-2014 RSV season using MRSS.

Update: RSV Prophylaxis for High-Risk Infants¹

The American Academy of Pediatrics (AAP) recently published updated RSV prophylaxis recommendations. Major points of revision include:

- Palivizumab prophylaxis is recommended for infants born at less than 29 weeks gestation.
- Infants with chronic lung disease qualify for prophylaxis only if supplemental oxygen required for more than 28 days after birth.
- With rare exception, prophylaxis not recommended during the second year of life.
- Monthly prophylaxis should be discontinued in any infant or young child who experiences a breakthrough RSV infection requiring hospitalization.

MRSS Descriptive Summary

Introduction and Methods

Sixty-two laboratories and provider offices in Montana were identified by local public health agencies as having in-house RSV testing capabilities. These sites contributed RSV testing data, including both positive and negative test results, to the MRSS during October 1 to June 1, 2014.

2012–2013 and 2013–2014 RSV season onset and offset determined via MRSS (N=62) was compared with season onset and offset determined via three National Respiratory and Enteric Virus Surveillance System (NREVSS) regions: U.S. Department of Health and Human Services Region 8 (n=29), Mountain census division (n=62), and Western U.S. census division (n=138). Each NREVSS region includes 5 Montana labs that voluntarily report to NREVSS. Season onset is considered the first of two consecutive weeks with $\geq 10\%$ of specimens testing positive. Conversely, season offset is considered to be the last of two consecutive weeks with $\geq 10\%$ of specimens testing positive.

Results

Of the 4604 total RSV tests reported during the 2013–2014 season, 625 (13.6%) were positive. Season onset and offset were determined to be January 18, 2014 and May 31, 2014, respectively. RSV testing peaked during mid-February (**Figure**). Season onset was identified as four weeks earlier in three different NREVSS regions/divisions, all of which included Montana (**Table**). Season offset was two to four weeks earlier using the same NREVSS regions and divisions for comparison. The median reporting compliance by week was 90%, with a range of 37–100%.

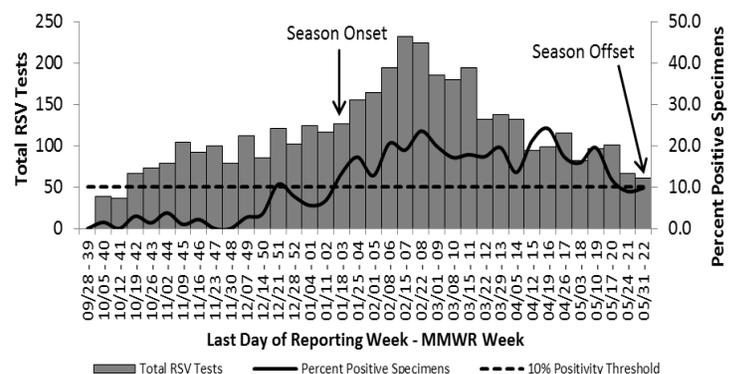


Figure. Number and percent-positive RSV tests in Montana (n=62), 2013–2014

Discussion

More accurate identification of the RSV season in Montana can help coordinate timing of RSV immunoprophylaxis (palivizumab). MRSS data clearly demonstrates substantial variability in the timing of RSV activity in Montana. This was noted in three NREVSS-based geographic strata using 2012-2014 data. Better understanding of the Montana-specific RSV season might impact immunoprophylaxis prescribing practices.

Table. Season onset and offset by RSV surveillance system — 2012–2014

Surveillance System	2012–2013		2013–2014	
	Onset	Offset	Onset	Offset
MRSS	*	*	1/18	5/31
NREVSS[†]				
HHS Region 8 ¹	12/8	5/11	12/21	5/17
Mountain census division ²	11/24	3/13	12/21	5/17
Western census division ³	11/10	3/6	12/21	5/3

Abbreviations: MRSS (Montana RSV Surveillance System); NREVSS (National Respiratory and Enteric Virus Surveillance System); HHS (United States Department of Health and Human Services)

[†]Date determined based on raw data which have not been delimited based on standard inclusion criteria described in annual NREVSS summary reports.

¹No statewide surveillance data available

²Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

³Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming

⁴Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Wyoming

2013–2014 MRSS data suggest an improved ability to detect late season activity in Montana compared with NREVSS, and detects specimens from 9x as many in-state laboratories. Late season RSV activity in Montana suggests a potential need to both delay early season prophylaxis, and extend late season prophylaxis, but more data are needed to fully understand this RSV activity in Montana.

Limitations of MRSS data include (1) the inability to capture Montana residents tested outside of Montana or testing data from reference laboratories; (2) MRSS data are self-reported; (3) MRSS data can be used to approximate regional RSV activity in Montana, but cannot be used to estimate RSV activity in each county because participation and compliance varies among counties; (4) deduplication of de-identified test results is not possible; and (5) MRSS users require additional software (Microsoft[®] SilverLight[®] plug-in) that might not be compatible with local firewall settings and might contribute to varying weekly compliance.

Conclusions

MRSS provides the Montana Department of Public Health and Human Services useful data to guide appropriate timing of immunoprophylaxis. In addition, an improved understanding of RSV season in Montana might offer a competing diagnosis for idiopathic respiratory illness. RSV laboratory surveillance for the 2014–2015 season begins October 1, 2014.

Recommendations for healthcare providers concerning RSV surveillance, testing, and prophylaxis

1. Clinicians should visit <http://www.rsv.mt.gov> to view summarized RSV testing data by region in Montana. This website will be updated every Friday beginning the week of October 1, 2014 through the end of the 2014–2015 RSV season.
2. Current RSV prophylaxis guidelines (<http://pediatrics.aappublications.org/content/134/2/415>) should be used in concert with RSV testing data to support clinical recommendations for appropriate RSV testing and palivizumab administration.
3. Medicaid will begin authorizing Synagis[®] on December 15, 2014. Reimbursement is not available for Synagis[®] until December 15, 2014. The *Request for Drug Prior Authorization* form is available at <http://medicaidprovider.hhs.mt.gov/pdf/forms/2012/requestfordrugpriorauthorization.pdf> or by visiting <http://www.rsv.mt.gov>.

For More information contact the Communicable Disease Epidemiology Section, 406-444-0273

References:

1. AAP Committee on Infectious Diseases. *Modified Recommendations for Updated Guidance for Palivizumab Prophylaxis Among Infants and Young Children at Increased Risk of Hospitalization for Respiratory Syncytial Virus Infection*. Pediatrics. 2014; 134: 415–420.

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