

Quality Improvement Report

Report Highlights:

Recent research related to patients living with asthma, including:

- Factors related to emergency department visits;
- Treating asthma in patients who are pregnant; and
- The connection between respiratory infections and asthma.

RSV in Montana.

Program updates and upcoming educational opportunities.

Montana Asthma Control Program

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Introduction

Thank you for reading our third installment of the Montana Asthma Control Program's Quality Improvement Report. Please be aware that **October 18-24, 2015 is Healthcare Quality Week**, sponsored by the National Association for Healthcare Quality (NAHQ). Visit their website for resources to support quality improvement awareness in your facility, including a customizable PowerPoint presentation and press release:

<http://www.nahq.org/membership/content/hqwresources.html>

Research Updates

Asthma and Children

Sonnenschein-van der Voort, A.M.M., Howe, L.D., Granell, R., Duijts, L...&Henderson, A.J. (2015). Influence of childhood growth on asthma and lung function in adolescence. *The Journal of Allergy and Clinical Immunology*, 135 (6), 1435-1443.

9,723 children participated in a population-based prospective cohort study in the United Kingdom. Current asthma at age 8, 14, and 17 were assessed using questionnaires; lung function and bronchial responsiveness were measured during clinic visits at ages 8 and 15. Researchers concluded faster weight growth in early childhood is associated with asthma and bronchial hyperresponsiveness. Higher FVC and FEV₁ values are associated with faster weight growth across childhood.

Secondhand Smoke

Adams, T., Wan, E., Wei, Y., Wahab, R...& Jelic, S. (2015). Secondhand smoking is associated with vascular inflammation. *CHEST*, 148 (1), 112-119.

Researchers investigated the vascular endothelium in 23 healthy passive smokers, 25 healthy active smokers, and 23 healthy control subjects who had never smoked and who were not regularly exposed to secondhand smoke. It was found that secondhand smoking increases the vascular endothelial inflammation and reduces active eNOS to a similar extent as active cigarette smoking, indicating direct toxic effects of secondhand smoke on the vasculature.

Guidelines-Based Care

Assessing Severity and Prescribing ICS

Note: The EPR-3 Guidelines emphasize the importance of assessing severity at time of diagnosis and classifying the severity of an exacerbation. ED providers are encouraged to initiate ICS if appropriate for the patient to reduce potential for future exacerbations.

Wells, R.E., Garb, J., Fitzgerald, J., Kleppel, R., & Rothberg, M.B. (2015). Factors associated with emergency department visits in asthma exacerbation. *Southern Medical Journal*, 108 (5), 276-280.

A case-control analysis of asthma patients at three ambulatory care centers serving low-income populations examined factors associated with ED visits. Cases consisted of patients with asthma aged 18 to 45 years with ≥ 1 ED visit for an asthma exacerbation over a period of two years; 244 cases were ultimately included. ED visits were found to be associated with markers of severe disease, a lack of an influenza vaccination, and failure to prescribe either ICS or short-acting beta-agonists.

It is almost flu season! EPR-3 guidelines recommend flu vaccines for patients with asthma to reduce likelihood of exacerbations.

Asthma and Pregnancy

Note: The EPR-3 Guidelines suggest that asthma control be maintained throughout pregnancy. Asthma control should be checked at all prenatal visits, and ICS are the preferred long-term control medication.

Blackburn, H.K., Allington, D.R., Procacci, K.A., & Rivey, M.P. (2014). Asthma in pregnancy. *World Journal of Pharmacology*, 3 (4), 56-71.

This review of the impact of asthma during pregnancy outlines treatment of acute exacerbations and discusses how to manage asthma during pregnancy. It includes specific information on the various classes of medication used to treat asthma. Asthma can have a significant impact on maternal and fetal health; management should involve frequent monitoring, optimization of both pharmacological and nonpharmacological modalities, and patient self-management education. The benefits of maintaining asthma control outweigh the risks associated with medication use.

Asthma and Respiratory Infections

Note: According to the EPR-3 Guidelines, two major factors are the most important in the development, persistence, and possibly the severity of asthma: sensitization and exposure to airborne allergens and viral respiratory infections.

Bønnelykke, K., Hawwa Vissing, N., Sevelsted, A., Johnston, S.L., & Bisgaard, H. (2015). Association between respiratory infections in early life and later asthma is independent of virus type. *The Journal of Allergy and Clinical Immunology*, 136 (1), 81-86.

313 children were followed in the Copenhagen Prospective Studies of Asthma in Childhood high-risk birth cohort. 9 respiratory virus types and 3 pathogenic airway bacteria were identified in airway secretions sampled during episodes of troublesome lung symptoms until age 3. Later asthma development was associated with the number of respiratory episodes in the first years of life, but not the specific viral trigger.

Respiratory Syncytial Virus (RSV) in Montana

Sarah Crowley, RN, BAN, AE-C

RSV is the most common cause of bronchiolitis and pneumonia in children under 1 year of age. It is extremely contagious, and for infants and those aged 65 years and older it can be very serious. According to Wu and Hartert (2011), the “association between RSV infection in infancy and development of childhood asthma is well-documented, [but] causation has been long debated.” While the connection between RSV and asthma development is generally acknowledged, the exact relationship between the two remains unclear.

In Montana, the typical RSV season could be seen as early as December and may last into late spring. Montana experienced a busy season last year, with 1,510 total positive tests reported. Positive tests represented 22.3% of all tests conducted. The peak of positive tests occurred in week 5, or the first week of February 2015, with 199 (42.5%) total positive tests across the state.

Providers are encouraged to utilize the EPR-3 Guideline’s Asthma Predictive Index for children 4 years of age and younger, and should consider when low-dose ICS therapy may be appropriate. In summary, consider ICS therapy in the instances outlined below.

- When a child has had 4 or more episodes of wheezing in the past year that lasted more than 1 day and affected sleep, AND who have risk factors for developing persistent asthma, which are either:
 - One (1) of the following: a parent with asthma, history of eczema or atopy, or evidence of allergies, or
 - Two (2) of the following: evidence of sensitization to foods, $\geq 4\%$ peripheral blood eosinophilia, or wheezing apart from colds.
- When a child or infant consistently requires symptomatic treatment more than 2 days per week for a period of more than 4 weeks.
- When a child or infant has had a second asthma exacerbation requiring systemic corticosteroids within 6 months.

Recognition of these children and starting daily low-dose ICS therapy can significantly reduce the overall burden of symptoms and frequency of exacerbations. Providers should consider consulting an asthma specialist either when starting a low-dose ICS or when a child needs to be stepped up to a medium-dose ICS.

Find more information on RSV in Montana
online at:

[http://dphhs.mt.gov/publichealth/cdepi/
diseases/rsv.aspx](http://dphhs.mt.gov/publichealth/cdepi/diseases/rsv.aspx)

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Upcoming Events

Montana Diabetes Professional Conference

October 22-23, 2015
Kalispell, MT

For more information, please email Sarah Brokaw at sbrokaw@mt.gov

Montana Asthma Advisory Group Winter Meeting

December 2, 2015
Helena, MT and via WebEx

For more information, please email Jessie Fernandes at jfernandes@mt.gov

Montana Asthma Control Program Winter Webinar: Providing Standardized Asthma Patient Education

February 11, 2016 (Online)

For more information, please email Anna von Gohren at avongohren@mt.gov

Big Sky Pulmonary Conference

February 25-27, 2016
Fairmont Hot Springs

For more information, please email Jessie Fernandes at jfernandes@mt.gov

Review Course for Certified Asthma Educator Exam

May 20-21, 2016
Bozeman, MT

For more information, please email Anna von Gohren at avongohren@mt.gov

PROGRAM UPDATES

You can find the MACP's most recent webinar, *Reactive Airways Disease vs. Asthma*, provided by Michael Zacharisen, MD, at our website: <http://dphhs.mt.gov/Asthma/webinars>.

Congratulations to Gallatin City-County and Park County Health Departments for starting new Montana Asthma Home Visiting Programs (MAP)! To refer to these new programs, contact:

- Park County Health Department at (406) 222-4140, or
- Gallatin City-County Health Department at (406) 582-3100.

To learn more about the MAP and what resources may be in your area, please visit:

<http://dphhs.mt.gov/Asthma/astmahomevisiting.aspx>

Online Resources

dphhs.mt.gov/asthma

- Montana Asthma Control Program State Asthma Plan and Strategic Evaluation Plan
- Reports on the burden of asthma and environmental asthma triggers in Montana
- Archived asthma-related webinars with free CEUs
- Archived surveillance reports on asthma-related subjects
- Resources for health care facilities, asthma educators, schools and school nurses, coaches, day care providers, and people living with asthma