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Inside this Issue

- 1** Guidelines for the Management of Asthma
- 3** DUR Board Calendar
- 3** The Indiana Medicaid OTC Drug Formulary
- 3** When Should an Asthma Inhaler be Thrown Away?
- 4** Top 25 Drugs
- 4** Pro-DUR Report – Late Refills

Indiana Medicaid DUR Board
402 West Washington Street
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Indianapolis, Indiana 46204

Indiana Medicaid Drug Utilization Review Board Newsletter

Guidelines for the Management of Asthma

Asthma is a common disease involving inflammation of the respiratory tract that results in constriction of the airways and obstruction to airflow. Under-treatment and inappropriate drug therapy are major contributors to asthma morbidity and mortality in the United States. The National Institutes of Health suggests that opportunities for improving the care of asthma patients exist and support their claim with the following data:¹

- Hospitalizations due to asthma are preventable or avoidable when patients receive appropriate primary care.
 - Asthma is the third leading cause of preventable hospitalizations in the United States.
 - There are about 470,000 hospitalizations and more than 5,000 deaths a year from asthma.
- Studies from two metropolitan areas of children with asthma who used the emergency department and adults hospitalized with asthma found that:
 - Less than half of these patients were receiving anti-inflammatory therapy as recommended in the *Expert Panel Report-2; Guidelines for the Diagnosis and Management of Asthma, 1997*.
 - Only 28 percent of the adult patients hospitalized for asthma had written action plans that

¹ National Heart, Lung, and Blood Institute. *Practical Guide for the Diagnosis and Management of Asthma*. U.S. Department of Health and Human Services; Oct 1997. NIH Publication 97-4053.

explained how to manage their asthma and control exacerbations.

Additional studies identify asthma as being responsible for 10.4 million physician office visits every year and one third of these are by patients under the age of 18 years. The direct expenditures for medical care related to pediatric asthma patients approach \$2 billion annually² with an estimated 54% of that amount involving inpatient hospitalizations.³ The total cost associated with treating asthma in the United States is estimated to be \$5.1 billion.⁴

The National Institutes of Health considers that airway inflammation plays a central role in asthma and its management. Their belief is that the management of asthma treatment needs to be responsive to the characteristics that define asthma. The relationships between these characteristics will be discussed in this document and are reported in NIH's Practical Guide for the Diagnosis and Management of Asthma.⁵ The guide reports that:

- Asthma is a chronic inflammatory disorder of the airways. Many cells

² Marwick C. Consortium Concurs on Care for Children with Asthma. *JAMA*. 1999; 282: 1804.

³ Weiss KB, Gergen PJ, Hodgson TA. An Economic Evaluation of Asthma in the United States. *N Engl J Med*. 1992; 326: 862-866.

⁴ Smith DH, Malone DC, Lawson KA, Okamoto LJ, Battista C, Saunders WB. A National Estimate on the Economic Costs of Asthma. *Am J Respir Crit Care Med*. 1997; 156: 787-793.

⁵ National Heart, Lung, and Blood Institute. *Practical Guide for the Diagnosis and Management of Asthma*. U.S. Department of Health and Human Services; Oct 1997. NIH Publication 97-4053.

and cellular elements play a role, in particular, mast cells, eosinophils, T-lymphocytes, macrophages, neutrophils, and epithelial cells.

- Environmental and other factors “cause” or provoke the airway inflammation in people with asthma. Examples of these factors include inhaled allergens to which the patient is sensitive, some irritants, and viruses. This inflammation is always present to some degree, regardless of the level of asthma severity.
- Airway inflammation causes recurrent episodes in asthma patients of wheezing, breathlessness, chest tightness, and coughing, particularly at night and in the early morning.
- These episodes of asthma symptoms are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. Airflow obstruction is caused by a variety of changes in the airway, including bronchoconstriction, airway edema, chronic mucus plug formation, and airway remodeling.
- Inflammation causes an associated increase in the existing airway hyper-responsiveness to a variety of stimuli, such as allergens, irritants, cold air, and viruses. These stimuli or precipitants result in airflow obstruction and asthma symptoms in the patient with asthma.

Asthma is a medical condition that changes over time. Patients whose asthma conditions are well controlled require periodic monitoring and treatment adjustments to maintain that control. Factors associated with changes in control of the disease include changes in the patient’s environment, changes in the patient’s activities and activity levels, and changes in the patient’s compliance and management of their disease. The NIH recommends appropriate monitoring and managing of patients with asthma, which requires training the

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patient to monitor their asthma condition and seeing the patient on a regular basis. Medical assessments should be performed as frequent as once a month, but no less than twice a year, even when the patient’s condition appears to be under control.

Pharmacologic Management of Asthma Long Term

Because pharmacologic agents play a critical role in managing asthma, the NIH recommends the following drug therapies for the long-term control of asthma and for the quick relief of acute exacerbations during the day and the night⁶:

- Long-term-control asthma medications are taken daily to achieve and maintain control of persistent asthma. The most effective long-term-control medications for asthma are those that reduce inflammation. Inhaled steroids are the most potent inhaled anti-inflammatory medications currently available. Another benefit associated with inhaled steroid use is that they are generally well tolerated and safe at recommended doses. To reduce the potential for adverse effects with inhaled steroids, the patient should:
 - Use a spacer/holding chamber.
 - Rinse and spit following inhalations.
 - Use the lowest possible dose to maintain control.
- Quick-relief medications are used to provide prompt treatment of acute airflow

⁶ National Heart, Lung, and Blood Institute. *Practical Guide for the Diagnosis and Management of Asthma*. U.S. Department of Health and Human Services; Oct 1997. NIH Publication 97-4053.

General Goals of Asthma Therapy⁶

- ❑ **Prevent chronic asthma symptoms and asthma exacerbation during the day and night.**
- ❑ **Maintain normal activity levels.**
- ❑ **Have normal or near-normal lung function.**
- ❑ **Be satisfied with the asthma care received.**
- ❑ **Have no or minimal side effects.**

obstruction and its accompanying symptoms such as cough, chest tightness, shortness of breath, and wheezing. These medications include short-acting inhaled beta₂-agonist and oral steroids. Anticholinergic products, such as inhaled ipratropium bromide, are included in special circumstances.

Continual assessment and monitoring of the patient is necessary to identify changes in the patient’s condition. The selection of pharmacologic agents that reduce inflammation should be considered and used for long-term control. Environmental and other factors that cause or provoke airway inflammation in patients with asthma should be identified and controlled. And educating the patient about asthma so that he/she becomes a partner in the management of their disease will ensure that medications are taken optimally, and changes in their condition will be communicated to their physician much earlier.

*Visit the Indiana Medicaid DUR Board Website at
indianamedicaid.com*

- ★ *To review the agenda of upcoming meetings.*
- ★ *To review the minutes of past DUR Board meetings*
- ★ *To download copies of past DUR Board Newsletters*
- ★ *To correspond via E-mail to the Board*

Asthma Long-Term-Control Medications⁶

Generic Name	Brand Name
Corticosteroids: Inhaled	
Beclomethasone	Beclovent [®] , Vanceril [®]
Budesonide	Pulmicort Turbohaler [®]
Flunisolide	AeroBid [®] , AeroBid-M [®]
Fluticasone	Flovent [®]
Triamcinolone	Azmacort [®]
Cromolyn and Nedocromil: Inhaled	
Cromolyn sodium	Intal [®]
Nedocromil sodium	Tilade [®]
Leukotriene Modifiers: Oral	
Zafirlukast	Accolate [®]
Montelukast	Singulair [®]
Zileuton	Zyflo [®]
Long-Acting Beta₂-Agonists	
Salmeterol (inhaled)	Serevent [®]
Albuterol (extended release)	Volmax [®] , Proventil Repetabs [®]
Theophylline: Oral	
	Aerolate [®] , Choledyl [®] , Elixophyllin [®] , Quibron [®] , Slo-bid [®] , Slo-Phyllin [®] , Theo-24 [®] , Theochron [®] , Theo-Dur [®] , Theolair [®] , T-Phyl [®] , Uni-Dur [®] , Uniphyll [®]

Asthma Quick-Relief Medications⁶

Generic Name	Brand Name
Short-Acting Beta₂-Agonists: Inhaled (Does not include metaproterenol, which is not recommended for relief of acute bronchospasm due to its potential for excessive cardiac stimulation)	
Albuterol	Airet [®] , Proventil [®] , Ventolin [®]
Bitolterol	Tornalate [®]
Pirbuterol	Maxair [®]
Terbutaline	Brethaire [®] , Brethine [®] (tablet only), Bricanyl [®] (tablet only)
Anticholinergics: Inhaled	
Ipratropium bromide	Atrovent [®]
Corticosteroids: Oral	
Methylprednisolone	Medrol [®]
Prednisone	Prednisone [®] , Deltasone [®] , Orasone [®] , Liquid Pred [®] , Prednisone Intensol [®]
Prednisolone	Prelone [®] , Pediapred [®]

The lists do not constitute endorsements of any of these product by the Indiana Medicaid DUR Board.

Q: When Should a Patient Throw Away an Inhaler for their Asthma?

A: According to the Institute for Safe Medication Practice, an inhaler should be thrown out after the number of doses in the container have been used. Asthma inhalers contain anywhere from 120-400 doses. After that, the amount of drug in each actuation begins to decrease. Many inhalers come with a log to write down the number of puffs that have been used. Because of the difficulty in remembering each puff, patients should be counseled to determine the life of the inhaler by dividing the number of inhalations per day from total doses provided in the container. Determine the date when the inhaler should be thrown out and write it on the label.

DUR Board Calendar

March 10, 2000

9:30 am, Indiana Government Center, South

Conference Room of Room W451

DUR Board Meeting

June 9, 2000

9:30 am, Indiana Government Center, South

Conference Center Room A

DUR Board Meeting

September 8, 2000

9:30 am, Indiana Government Center, South

Conference Room of Room W451

DUR Board Meeting

December 8, 2000

9:30 am, Indiana Government Center, South

Conference Center Room A

DUR Board Meeting

For more information call Ms.

Karen Baer at (317) 232-4391

The Indiana Medicaid OTC Drug Formulary

The OTC Drug Formulary was created and structured to allow for the use of medically necessary over-the-counter drugs, while not encouraging the prescribing or dispensing of more expensive legend drugs. A copy of the OTC Drug Formulary is provided in the Indiana Health Coverage Programs Provider Manual, Chapter 9, Appendix D. Only OTC Formulary drugs that are from manufacturers participating in the HCFA Drug Rebate Program are covered. Physicians and pharmacists with suggestions for inclusion of OTC drug products to the Formulary can forward their request in writing to the address on the front of this newsletter, or submit an E-Mail request through the DUR Board link to the Indiana Medicaid website (www.indianamedicaid.com). The Board intends to review comments and suggestions on the formulary in their quarterly meetings.

Pro-DUR Report The Occurrence of Late Refills

During the month of January 2000, prescriptions for anticonvulsants, oral hypoglycemics, ACE-related antihypertensives, and xanthine derivatives were reviewed for late refill alerts. The Pro-DUR system in IndianaAIM issues late refill alerts when the prescription's refill date is beyond 25% of the expected date of the refill. For example, if a patient has received a 30-day supply of a medication during the prior month, a "late refill" alert is issued when that prescription is refilled after 37 days. In January, 37,728 prescription claims for refills were submitted, containing a drug product from one of the four drug classes monitored. A total of 7,176 of those prescription refills set off a late refill alert message from the Pro-DUR system to the dispensing pharmacy.

A breakdown of the late refill alerts is presented in a table on this page, identifying the proportion of alerts to total claims for January. The Board hopes this information is useful to pharmacy providers. The evidence points toward opportunities to counsel and educate patients on their medication therapy with the intent to improve the patient's knowledge of their disease, improve compliance to their therapy, and reduce the occurrence of deteriorating conditions involving their illness.

Top 25 Drugs by the Total Dollars Paid In Fourth Quarter 1999

The top 25 drug products based on the total dollars spent for fourth quarter 1999, represented \$20,165,401 in Indiana Medicaid Payments to pharmacy providers. Antipsychotic agents topped the list with 6 products contributing to \$5,027,988 in Medicaid payments. Gastrointestinal agents and Selective Serotonin Reuptake Inhibitors represented 4 products each, with Medicaid payment amounts of \$4,671,051 and \$2,868,130, respectively. Anticonvulsant agents represented 3 products for \$1,786,015 and \$2,613,853 were paid in claims for two Anti-hemophilic products. Details as to what products made the list are reported in the table below:

Top 25 Drugs for 4Q99

Drug Product	Paid Claims	Quantity Dispensed	Total Payment
1. Prilosec 20mg Capsule	18,722	690,043 Caps	\$2,459,990
2. Zyprexa 10mg Tablet	6,535	311,865 Tabs	\$2,316,482
3. Recombinate AHFU Vial	222	1,689,965 U	\$1,604,013
4. Prevacid 30mg Capsule DR	11,695	419,723 Caps	\$1,402,018
5. Prozac 20mg Pulvule	12,416	576,507 Caps	\$1,324,209
6. Novoseven 4800mcg Vial	112	971,000 mcg	\$1,009,840
7. Celebrex 200mg Capsule	10,061	390,186 Caps	\$854,521
8. Depakote 500mg Tablet EC	6,852	583,005 Tabs	\$785,454
9. Risperdal 1mg Tablet	6,071	292,707 Tabs	\$659,820
10. Neurontin 300mg Capsule	5,417	601,089 Caps	\$615,703
11. Zyprexa 5mg Tablet	3,066	121,477 Tabs	\$601,291
12. Risperdal 3mg Tablet	2,405	126,248 Tabs	\$550,832
13. Paxil 20mg Tablet	7,129	256,297 Tabs	\$534,548
14. Zoloft 100mg Tablet	6,645	256,040 Tabs	\$530,029
15. Claritin 10mg Tablet	8,443	248,411 Tabs	\$511,196
16. Ultram 50mg Tablet	10,481	694,277 Tabs	\$501,142
17. Synagis 100mg Vial	294	426 Vials	\$479,620
18. Zoloft 50mg Tablet	6,575	232,717 Tabs	\$479,344
19. Clozaril 100mg Tablet	3,121	158,795 Tabs	\$477,491
20. Propoxy-N/APAP 100-650	23,618	1,226,162 Tabs	\$466,932
21. Risperdal 2mg Tablet	2,226	113,707 Tabs	\$422,072
22. Pepcid 20mg Tablet	5,186	256,157 Tabs	\$411,451
23. Axid 150mg Pulvule	4,569	251,108 Caps	\$397,592
24. Lipitor 10mg Tablet	6,710	223,796 Tabs	\$384,953
25. Depakote 250mg Tablet EC	5,825	511,058 Tabs	\$384,858

"Late Refill" Alerts in January 2000

Drug Class	Late Refills	Total Refills	% of Late Refills
Anticonvulsants	3,728	16,238	23.0
Oral Hypoglycemics	969	7,573	12.8
ACE-related Antihypertensives	2,040	11,966	17.0
Xanthine Derivatives	439	1,951	22.5
Total	7,176	37,728	19.0