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Policy Evaluation:
Step Therapy Prior Authorization of Combination Inhaled Corticosteroid / Long-Acting Beta-Agonists

This review evaluates the effect of enforcing either the trial of an inhaled corticosteroid or evidence of severe disease for asthma or a trial of an anti-cholinergic and long-acting beta-agonist for Chronic Obstructive Pulmonary Disease (COPD) prior to approval of a combination inhaler.[1] This policy was initiated on January 1, 2011 and grandfathered all current patients. Automatic electronic approvals for COPD with prior use of an anti-cholinergic and long-acting beta-agonist were implemented on September 1, 2011.

Background

The Oregon Drug Use Review (DUR) Board reviewed combination inhaled corticosteroid / long-acting beta-agonist (ICS/LABA) use and literature at the March 2010 meeting.[2]

Major literature findings from the review include:

- Overall, systematic reviews and guidelines consistently demonstrate that adding LABA to ICS in adults and children with persistent asthma will improve airway function, asthma symptoms, quality of life and reduce short-acting rescue inhaler use compared to ICS dose escalation.
- The benefit of adding LABA to ICS for preventing severe exacerbations and mortality for asthma patients is not supported or is unclear.
- Combination ICS appears to reduce the risk of exacerbation, improve lung function, and health status in patients with COPD.
- The addition of ICS to LABA does not appear to have meaningful impact on mortality and increases the risk for pneumonia.
- Several systematic reviews have evaluated the association between LABA use and life threatening adverse events and the data is mixed for use of the combination of ICS/LABA. Based on FDA meta-analyses of over 60,000 patients the excess risk for asthma-related death, death or intubation, asthma hospitalization, or a composite safety measure were all significantly

elevated for patients using LABA. When trials were stratified by ICS at randomization, the risk appeared to be less and became non-significant, however due to lower sample sizes in these sub-analyses, the same risk excess cannot be ruled out.

- On February 18, 2010, the FDA issued a safety announcement based on these data and the past advisory group deliberations.[3] The FDA recommends the following to ensure the safe use of LABA for asthma (does not extend to the use of LABA for COPD):
    - The use of LABAs is contraindicated without the use of an asthma controller medication such as an inhaled corticosteroid. Single-ingredient LABAs should only be used in combination with an asthma controller medication; they should not be used alone.
    - LABAs should only be used long-term in patients whose asthma cannot be adequately controlled on asthma controller medications.
    - LABAs should be used for the shortest duration of time required to achieve control of asthma symptoms and discontinued, if possible, once asthma control is achieved. Patients should then be maintained on an asthma controller medication.
    - Pediatric and adolescent patients who require the addition of a LABA to an inhaled corticosteroid should use a combination product containing both an inhaled corticosteroid and a LABA, to ensure compliance with both medications.

Medicaid claims data analyses suggested that utilization patterns are not consistent with practice recommendations. This was consistent with a previous analysis in this population which found less than 10% of patients started on ICS/LABA had a history of ICS monotherapy use.[4] A Retrospective educational letter intervention was implemented in 2006 but was largely without effect on prescribing.

- Depending on the denominator, between 6% and 14% of patients were using ICS prior to starting ICS/LABA. Using a less conservative definition of controller increased the proportion of users to 22% to 50%.
- While asthma appears to represent the predominate condition treated, individuals with COPD may represent a significant proportion (13%) of individuals.
- Individuals with a history of higher severity of disease were more likely to have previous controller use prior to starting ICS/LABA treatment.
- General practitioners represent the largest prescribers of this drug class.

Previous DUR Board Recommendations included:

- Prior authorize new starts of ICS/LABA inhalers. Electronically exempt individuals with any evidence of increased asthma severity of disease such as HEDIS asthma definition, >1 oral steroid claim, specialist prescriber, any previous controller prescription or evidence of COPD. Current users would be grandfathered in.
    - Pros: Prospectively identifies patients for reduced exposure to LABA.
    - Cons: Risks delay of care for moderate-severe asthma patients in crisis. Risks are mitigated by electronically excluding clients with descriptors of more severe disease.
- Prior authorize LABA monotherapy. Electronically exempt individuals with evidence of COPD or evidence of concurrent asthma controller agent.
    - Pros: Prospectively identifies patients at highest risk for reduced exposure to unnecessary LABA.
    - Cons: Limited risk (currently very low utilization) of delay of care for moderate-severe COPD clients.

Methods:

The goals of the current analysis were to quantify any change in prescribing patterns of study groups temporal to the prior authorization policy implemented January 1, 2011. In addition, any change in use of the emergency department (ED) or hospitalizations for asthma or COPD were evaluated.

Patients were identified for inclusion in the analysis if they had a fee-for-service (FFS) drug claim for any drug in Appendix 1 from January 1, 2010 through December 31, 2011. Patients also eligible for Medicare Part D as identified by benefit package codes BMM or BMD were excluded. All FFS drug and medical claims from January 1, 2009 – March 31, 2010 for the identified patients were retained. These patients were further classified into four study groups; inhaled corticosteroid monotherapy (ICS), long-acting beta-agonist monotherapy (LABA), combination ICS/LABA inhaler (ICSLABA) and ICS + LABA if filled within 7 days of each other. The gross trend in utilization was reported as a count of unique patients on the study group drug each month divided by the number of patients enrolled in FFS each month (PMPM). The cost trend was reported using the amount reimbursed to pharmacies PMPM. The estimated pharmacy reimbursed costs avoided each month was the difference between the predicted costs PMPM based upon the trend for the 6 months prior to the policy and the actual costs incurred PMPM, multiplied by the FFS enrollment for the month.

The primary analysis focused on new users of the drugs of interest. Patients were included in the analysis if they had an index fills of a study drug in 2010 and 2011. An index fill is new fill for a drug in any of the study groups and no previous fills for any drug in

the study groups above for the same patient. Patients with valid demographic data between the ages of 5-64 on the index fill date were included. The age restriction was placed because the guidelines are most clear for those ages. Patients must have a minimum of 6 months FFS enrollment in the year prior to the index fill. This could be up to two discrete spans with no more than 31 days between spans.

Patients were identified as patients with an asthma diagnosis if they had any medical claim data with an asthma ICD-9 code during the year prior to the index fill (Appendix 2). Patients were identified as patients with a COPD diagnosis if they had any medical claim data with a COPD ICD-9 code during the years prior to the index fill (Appendix 2). Patients were then put into the following groups and can only be in 1 group:

1) Asthma (no COPD): Asthma flag and no COPD flag
2) Asthma + COPD: Asthma flag and COPD flag
3) COPD (no Asthma): COPD flag and no Asthma flag
4) No Asthma & no COPD: neither flag

Patients were further grouped as follows:
All Users = 1 + 2 + 3 + 4
Any Asthma = 1 + 2
COPD (no Asthma) = 3

Prescriber specialties were determined from the National Provider Identifier information used upon Oregon Medicaid provider enrollment. Hospital discharges were identified with claims where International Classification of Disease, 9th edition (ICD-9) codes had a diagnosis as defined in Appendix 2. The ICD-9 could reside as primary through sixth place on the claim. Discharge dates were used rather than service date for hospital encounters. ED visits and outpatient visits were identified with claims with ICD-9 codes associated with diagnoses in Appendix 2. These were used to establish patient disease severity at baseline using claims up to 1 year prior to the index fill. Hospital and ED visits were also measured for 90 days post index fill to detect differences in drug groups.

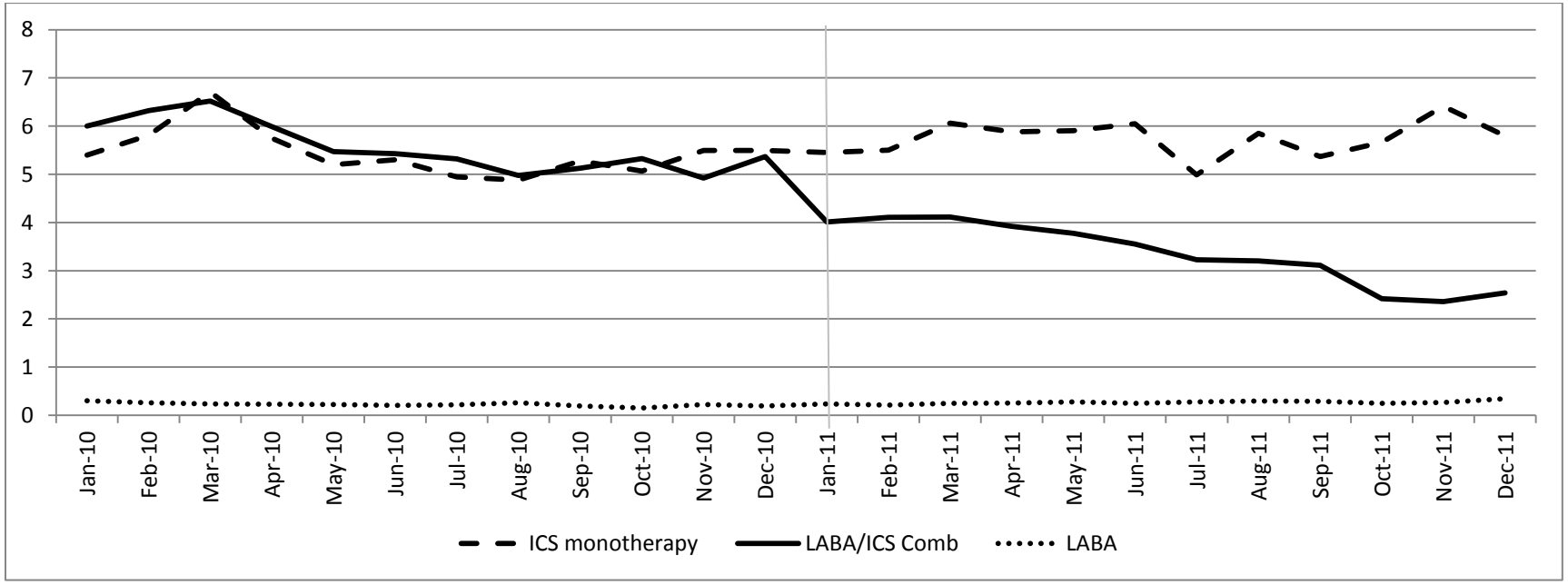
Disease severity was estimated using several measures. The number of ED, hospital encounters and fills for oral corticosteroids were constructed as possible metrics of asthma or COPD exacerbation. The Healthcare Effectiveness Data and Information Set (HEDIS) description of “persistent asthma” was used. A ratio of controller medication fills to total asthma medication fills was used

to identify individuals with ratios <50% for patients who had a minimum of 4 total asthma drug prescriptions in the previous year.[2] A combined disease severity variable was created to provide the greatest sensitivity for any history of possible asthma exacerbation. The asthma severity variable was defined by any of the following: a controller to total asthma drug ratio <50%, or >1 oral steroid prescription in the previous year, or ED visit or hospitalization related for asthma or COPD in the previous year or HEDIS persistent asthma.

Results

The gross number of patients using any ICS/LABA combination product decreased dramatically after the policy was implemented (Figure 1). While the use of ICS does trend upward, the slope is not as dramatic. There continues to be low use of LABA as monotherapy.

Figure 1 - Unique Patient Count Trend (all comers) PMPM x 1000



A summary of the drug group and diagnostic group proportions is represented in Table 1. A dramatic shift (~21%) from the ICS/LABA combination to ICS monotherapy can be observed across all groups. There is also an increase in the use of LABA monotherapy for COPD patients. General practice physicians remain the predominate prescribers of initial therapy, with pulmonologists identified as prescribers less than 7% of the time.

Table 1 – Study Group Proportions and Prescribers

	All users				Any Asthma				COPD (no Asthma)			
	2010		2011		2010		2011		2010		2011	
n=	1,019		658		513		298		72		58	
	count	***%***	***count***	***%***	***count***	***%***	***count***	***%***	***count***	***%***	***count***	***%***
Index Drug Characteristics												
ICS monotherapy	655	64.28%	562	85.41%	332	64.72%	262	87.92%	27	37.50%	36	62.07%
LABA/ICS Comb	354	34.74%	78	11.85%	176	34.31%	30	10.07%	43	59.72%	16	27.59%
LABA + ICS concurrently	4	0.39%	4	0.61%	2	0.39%	1	0.34%	2	2.78%	1	1.72%
LABA	6	0.59%	14	2.13%	3	0.58%	5	1.68%	0	0.00%	5	8.62%
Prescriber Specialty												
Pulmonary	31	3.04%	31	4.71%	22	4.29%	20	6.71%	4	5.56%	2	3.45%
Pediatrics	210	20.61%	139	21.12%	116	22.61%	66	22.15%	0	0.00%	1	1.72%
General Practice	625	61.33%	398	60.49%	304	59.26%	167	56.04%	55	76.39%	48	82.76%
Other	131	12.86%	66	10.03%	59	11.50%	35	11.74%	12	16.67%	6	10.34%

The comparative demographics for the study groups are presented in Table 2. Both the Asthma and COPD populations have more ED visits and oral steroid use than the All User populations which indicates poorer control or more disease severity or both. In addition the COPD population has more hospitalizations than the All User population. In general, there is a significant reduction in all drug use in this category from 2010 to 2011 (~45% overall). There was no asthma or COPD diagnosis on record for 43% of patients in 2010 and 46% of patients in 2011. Asthma is the predominant diagnosis of record (50% in 2010, 46% in 2011) with roughly 6-7% co-morbid with COPD. Patients with COPD and no asthma diagnosis comprise 7% of all users in 2010 and 9% in 2011. Disease severity indicators generally decreased from 2010 to 2011, notably ED and Hospital visits for asthma patients. However, COPD ED and hospital visits increased slightly

Table 2 – Baseline Demographics and Morbidity at Time of Index Fill.

	All users				Any Asthma				COPD (no Asthma)			
	2010		2011		2010		2011		2010		2011	
n=	1,019		658		513		298		72		58	
	mean	***SD***	***mean***	***SD***	***mean***	***SD***	***mean***	***SD***	***mean***	***SD***	***mean***	***SD***
Asthma/ COPD ED visits (mean visits per patient in year prior)	0.18	0.60	0.13	0.55	0.32	0.75	0.19	0.62	0.29	0.86	0.48	1.10
Asthma/ COPD Hospitalizations (mean hospitalization per patient in year prior)	0.03	0.19	0.02	0.13	0.04	0.20	0.02	0.13	0.14	0.45	0.10	0.31
Oral Steroid Rx in year prior	0.38	0.87	0.43	1.07	0.47	0.93	0.53	1.14	0.76	1.24	0.60	1.15
Age	27.00	18.77	28.13	18.67	22.11	16.68	23.18	16.53	53.60	9.22	53.43	8.31
	count	***%***	***count***	***%***	***count***	***%***	***count***	***%***	***count***	***%***	***count***	***%***
Sex (female)	613	60.16%	376	57.14%	294	57.31%	163	54.70%	43	59.72%	35	60.34%
Race (non-white)	212	20.80%	148	22.49%	121	23.59%	78	26.17%	8	11.11%	5	8.62%
Diagnostic Characteristics												
Asthma (no COPD)	479	47.01%	280	42.55%	479	93.37%	280	93.96%	0	0.00%	0	0.00%
Asthma + COPD	34	3.34%	18	2.74%	34	6.63%	18	6.04%	0	0.00%	0	0.00%
COPD (no Asthma)	72	7.07%	58	8.81%	0	0.00%	0	0.00%	72	100.00%	58	100.00%
No Asthma & no COPD	434	42.59%	302	45.90%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Disease Severity Indicators												
Persistent Asthma (HEDIS)	174	17.08%	77	11.70%	160	31.19%	62	20.81%	5	6.94%	5	8.62%
Controller Ratio < 50%	293	28.75%	191	29.03%	166	32.36%	85	28.52%	39	54.17%	31	53.45%
> 1 oral steroid	83	8.15%	51	7.75%	51	9.94%	24	8.05%	15	20.83%	9	15.52%
Patients with Asthma/COPD ED or Hospital Encounter	145	14.23%	59	8.97%	129	25.15%	43	14.43%	16	22.22%	16	27.59%
Any Severity Indicator	380	37.29%	232	35.26%	245	47.76%	115	38.59%	45	62.50%	38	65.52%

Table 3 counts patients in each study group that have any of the severity indicators. More patients using ICS monotherapy had severe disease as indicated by any of the indicators. There was an increase in the rate of ICS patients with severe disease in 2011 and is most dramatic for the COPD patients.

Table 3 - Any Severity Indicator by Index Drug

	All users				Any Asthma				COPD (no Asthma)			
	2010		2011		2010		2011		2010		2011	
n=	1,019		658		513		298		72		58	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
ICS monotherapy	219	21.49%	188	28.57%	147	28.65%	96	32.21%	18	25.00%	24	41.38%
LABA/ICS Comb	154	15.11%	32	4.86%	93	18.13%	15	5.03%	25	34.72%	10	17.24%
LABA + ICS concurrently	4	0.39%	3	0.46%	2	0.39%	1	0.34%	2	2.78%	1	1.72%
LABA	3	0.29%	9	1.37%	3	0.58%	3	1.01%	0	0.00%	3	5.17%

Table 4 presents the number of patients started on monotherapy who were switched to a combination inhaler within 90 days. This indicator was used as a proxy of inadequate control with the monotherapy. There is no appreciable difference before or after the step therapy was implemented.

Table 4 - Presence of ICSLABA Pharmacotherapy in 3 Months Following Initiation

	All users				Any Asthma				COPD (no Asthma)			
	2010		2011		2010		2011		2010		2011	
n=	1,019		658		513		298		72		58	
	count	%	count	%	count	%	count	%	count	%	count	%
ICS monotherapy	21	2.06%	12	1.82%	12	2.34%	6	2.01%	1	1.39%	1	1.72%
LABA + ICS concurrently	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
LABA	1	0.10%	1	0.15%	1	0.19%	1	0.34%	0	0.00%	0	0.00%

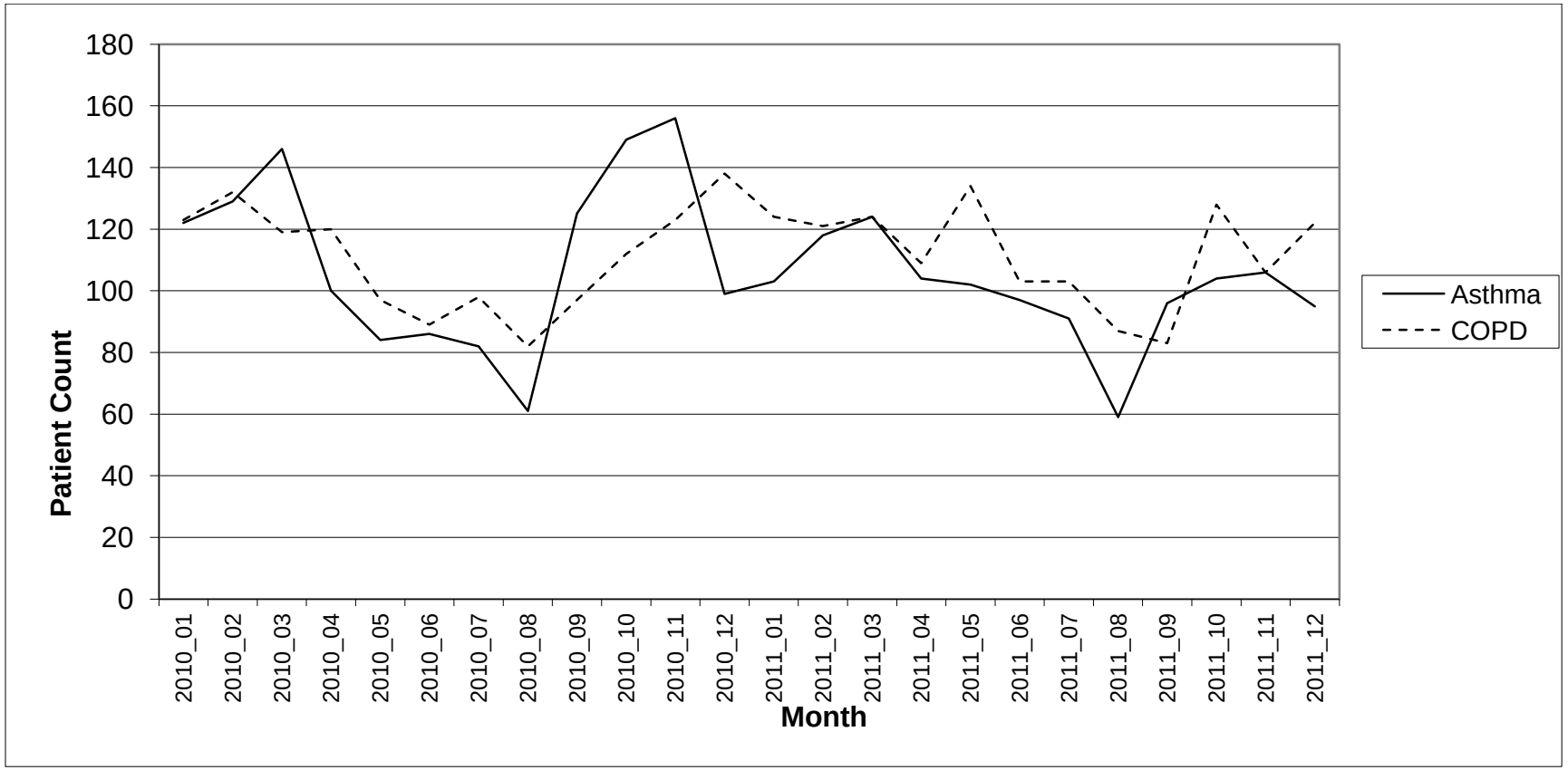
Table 5 represents the patients that were admitted to ED or hospital within 3 months of initiating therapy. The combination inhaler group having a diagnosis of asthma or COPD increased the number of ED or hospital visits in 2011. There was also an increase for those patients with COPD initiated on ICS or LABA monotherapy. All other groups remained similar or decreased.

Table 5 - Asthma/COPD ED/Hospital Admits Within 3 Months Following Therapy Initiation

	All users				**Any Asthma**				**COPD (no Asthma)**			
	2010		**2011**		**2010**		**2011**		**2010**		**2011**	
n=	1,019		658		513		298		72		58	
	mean	*SD*	*mean*	*SD*	*mean*	*SD*	*mean*	*SD*	*mean*	*SD*	*mean*	*SD*
Mean per Patient Asthma-related ED/Hospital Visits in the 3 months after initiating:												
ICS monotherapy	0.02	0.16	0.02	0.14	0.05	0.22	0.02	0.17	0.00	0.00	0.00	0.00
LABA/ICS Comb	0.03	0.18	0.04	0.25	**0.04**	**0.22**	**0.10**	**0.40**	0.00	0.00	0.00	0.00
LABA + ICS concurrently	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LABA	0.17	0.41	0.07	0.27	0.33	0.58	0.20	0.45	0.00	0.00	0.00	0.00
Mean per Patient COPD-related ED/Hospital Visits in the 3 months after initiating:												
ICS monotherapy	0.00	0.06	0.01	0.10	0.01	0.08	0.00	0.00	**0.00**	**0.00**	**0.08**	**0.37**
LABA/ICS Comb	0.01	0.13	0.04	0.19	0.01	0.08	0.00	0.00	**0.02**	**0.15**	**0.19**	**0.40**
LABA + ICS concurrently	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LABA	0.17	0.41	0.07	0.27	0.33	0.58	0.00	0.00	**0.00**	**0.00**	**0.20**	**0.45**

Figure 2 depicts a trend of all patients with a hospital and ED encounter with either an asthma or COPD diagnosis, regardless of drug therapy. It trends slightly downward overall in 2011 though the most prominent feature is a seasonal trend.

Figure 2 – Count of unique patients per month with hospital or ED encounter with asthma or COPD (no asthma) diagnosis on claim.



Discussion

There was a temporal and significant decrease (47%) in the use of ICS/LABA products and an increase (6%) of ICS monotherapy in 2011. There was an overall 45% decrease in use of all drugs in this class. This is concerning since this group of drugs is recommended treatment for both asthma and COPD control. However, most indicators of disease severity decreased in 2011 as well. There were no increases in the use of ED or hospitals within 90 days of index fill of ICS monotherapy for asthma and patients did not switch to the ICS/LABA within 90 days of the index fill. However, there was an increase in ED and hospital admits for ICS/LABA asthma patients, despite fewer indicators of severe disease in this group. ED and hospital admits for COPD patients increased. Overall, no increase in hospital or ED visits with asthma or COPD diagnoses was detected as a result of this policy.

This analysis is limited because it is retrospective and uses administrative data which is known to have the potential for missing data and miscoding. In particular, there is a known potential for loss of follow-up for patients with index fills in the latter part of 2011, where hospital and ED data may not be submitted yet by March 31, 2012. Limiting the follow-up period to 90-days was an attempt to limit this effect, but it may still account from some of the decrease in ED and hospital admits in 2011.

Recommendations:

1) Continue the policy to prior authorize ICS/LABA combinations for step therapy
2) Consider loosening the electronic criteria to require only a diagnosis of COPD OR prior anti-cholinergic inhaler use
3) Implement RetroDUR education lettering on LABA monotherapy in the absence of COPD indicators
4) Further study to evaluate patient outcomes after encountering a PA for ICS/LABA
5) Further study of patients without a diagnosis

References:

1. OHA Medicaid FFS Prior Authorization Approval Criteria. *Oregon Health Authority - OHP Policies,rules and Guidelines*. Available at: http://www.dhs.state.or.us/policy/healthplan/guides/pharmacy/pa-criteria0412.pdf. Accessed April 19, 2012.

2. Oregon Drug Use Reviiew Board. Combination Long-Acting Beta-Agonist Inhaled Corticosteroid: Summary of Clinical Evidence and Drug Utilization Evaluation. *Oregon State University Drug Use Research and Management*. 2010. Available at: http://pharmacy.oregonstate.edu/drug_policy/sites/default/files/pages/dur_board/evaluations/articles/laba_ics_due.pdf. Accessed April 19, 2012.

3. Postmarket Drug Safety Information for Patients and Providers > FDA Drug Safety Communication: New safety requirements for long-acting inhaled asthma medications called Long-Acting Beta-Agonists (LABAs). *United States Food and Drug Administration*. 2010. Available at: http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm200776.htm#_Ref252304498. Accessed April 19, 2012.

4. Oregon Drug Use Review Board. Drug Use Evaluation: LongActing Beta Agonist (LABA). *Oregon State University Drug Use Research and Management*. 2006. Available at: http://pharmacy.oregonstate.edu/drug_policy/sites/default/files/pages/dur_board/evaluations/articles/laba.pdf. Accessed April 19, 2012.

Appendix 1 – Drugs of Interest and Study Group Classification

GSN	Generic Name	Route	Study Group
46698	BECLOMETHASONE DIPROPIONATE	IH	ICS
46699	BECLOMETHASONE DIPROPIONATE	IH	ICS
62240	BUDESONIDE	IH	ICS
46525	BUDESONIDE	IH	ICS
46526	BUDESONIDE	IH	ICS
62241	BUDESONIDE	IH	ICS
18165	BUDESONIDE	IH	ICS
58671	CICLESONIDE	IH	ICS
58672	CICLESONIDE	IH	ICS
213	FLUNISOLIDE	IH	ICS
17184	FLUNISOLIDE/MENTHOL	IH	ICS
21483	FLUTICASONE PROPIONATE	IH	ICS
21251	FLUTICASONE PROPIONATE	IH	ICS
19319	FLUTICASONE PROPIONATE	IH	ICS
19318	FLUTICASONE PROPIONATE	IH	ICS
21253	FLUTICASONE PROPIONATE	IH	ICS
19317	FLUTICASONE PROPIONATE	IH	ICS
51649	MOMETASONE FUROATE	IH	ICS
59326	MOMETASONE FUROATE	IH	ICS
59328	MOMETASONE FUROATE	IH	ICS
64012	MOMETASONE FUROATE	IH	ICS
64010	MOMETASONE FUROATE	IH	ICS
59327	MOMETASONE FUROATE	IH	ICS
212	TRIAMCINOLONE ACETONIDE	IH	ICS
62725	BUDESONIDE/FORMOTEROL FUMARATE	IH	ICSLABA
62726	BUDESONIDE/FORMOTEROL FUMARATE	IH	ICSLABA
43366	FLUTICASONE/SALMETEROL	IH	ICSLABA
43367	FLUTICASONE/SALMETEROL	IH	ICSLABA

43368	FLUTICASONE/SALMETEROL	IH	ICSLABA
61343	FLUTICASONE/SALMETEROL	IH	ICSLABA
61344	FLUTICASONE/SALMETEROL	IH	ICSLABA
61345	FLUTICASONE/SALMETEROL	IH	ICSLABA
66481	MOMETASONE/FORMOTEROL	IH	ICSLABA
66480	MOMETASONE/FORMOTEROL	IH	ICSLABA
61579	ARFORMOTEROL TARTRATE	IH	LABA
25621	FORMOTEROL FUMARATE	IH	LABA
63016	FORMOTEROL FUMARATE	IH	LABA
67600	INDACATEROL MALEATE	IH	LABA
17941	SALMETEROL XINAFOATE	IH	LABA
21604	SALMETEROL XINAFOATE	IH	LABA
31417	SALMETEROL XINAFOATE	IH	LABA

Appendix 2 – Diagnostic Criteria

Asthma	Any encounter with an ICD9 code for asthma in the year prior to index date
HEDIS Asthma	*one of the following* metrics using pharmacy, encounter, and hospitalization data from year prior to index date a. >=3 asthma med dispensing* **OR** b. >=1 hospital discharge with primary diagnosis of asthma **OR** c. >=1 ED visits with primary diagnosis of asthma **OR** d. >=2 outpatient visits for asthma (anywhere)
HEDIS Persistent Asthma	*one of the following* metrics using pharmacy, encounter, and hospitalization data from year prior to index date a.>=4 asthma med dispensing* **OR** b.>=1 hospital discharge with primary diagnosis of asthma **OR** c.>=1 ED visit with primary diagnosis of asthma **OR** d>=4 outpatient visits with asthma (anywhere) AND 2>= asthma dispensing*
COPD	Any ICD9 code for COPD in previous year
COPD (not asthma)	Any ICD9 code for COPD in previous year AND does meet HEDIS asthma criteria
Asthma ICD9 Codes	493 ASTHMA 4930 EXTRINSIC ASTHMA 49300 EXTRINSIC ASTHMA, UNSPECIFIED 49301 EXTRINSIC ASTHMA WITH STATUS ASTHMATICUS 49302 EXTRINSIC ASTHMA, WITH EXACERBATION 4931 INTRINSIC ASTHMA 49310 INTRINSIC ASTHMA, UNSPECIFIED 49311 INTRINSIC ASTHMA WITH STATUS ASTHMATICUS 49312 INTRINSIC ASTHMA, WITH EXACERBATION 4932 CHRONIC OBSTRUCTIVE ASTHMA 49320 CHRONIC OBSTRUCTIVE ASTHMA UNSPECIFIED 49321 CHRONIC OBSTRUCTIVE ASTHMA W/STATUS ASTHMATICUS 49322 CHRONIC OBSTRUCTIVE ASTHMA WITH EXACERBATION 4938 OTHER FORMS OF ASTHMA 49381 EXERCISE INDUCED BRONCHOSPASM 49382 COUGH VARIANT ASTHMA 4939 UNSPECIFIED ASTHMA 49390 ASTHMA, UNSPECIFIED, UNSPECIFIED STATUS 49391 ASTHMA UNSPECIFIED WITH STATUS ASTHMATICUS 49392 ASTHMA UNSPECIFIED WITH EXACERBATION
COPD ICD9 Codes	4912 OBSTRUCTIVE CHRONIC BRONCHITIS 49120 OBSTRUCTIVE CHRONIC BRONCHITIS WITHOUT EXACERBAT 49121 OBSTRUCTIVE CHRONIC BRONCHITIS WITH EXACERBATION 49122 OBST CHRONIC BRONCHITIS W/ACUTE BRONCHITIS 492 EMPHYSEMA 4920 EMPHYSEMATOUS BLEB 4928 OTHER EMPHYSEMA 496 CHRONIC AIRWAY OBSTRUCTION NEC 5064 CHRONIC RESPIRATORY CONDITIONS DUE FUMES&VAPORS 5181 INTERSTITIAL EMPHYSEMA 5182 COMPENSATORY EMPHYSEMA
*HEDIS asthma medication = ICS, theophylline, mast cell stabilizer, leukotriene active agent, LABA, anti-IgE	