Report on New Patented Drugs - Alvesco

Under its transparency initiative, the PMPRB publishes the results of the reviews of new patented drugs by Board Staff, for purposes of applying the Board's *Excessive Price Guidelines* (Guidelines) for all new active substances introduced after January 1, 2002.

Brand Name: Alvesco

Generic Name: (ciclesonide)

DINs: 02285606 (100ug/actuation)

02285614 (200ug/actuation)

Patentee: Altana Pharma Inc.

Indication – as per product monograph:

For the prophylactic management of steroid-responsive bronchial asthma in patients 18 years of age and older.

Date of Issuance of First Patent(s)

Pertaining to the Medicine: October 10, 2006

Notice of Compliance: September 11, 2006

Date of First Sale: September 27, 2006

ATC Class: R03BA

Respiratory System; Drugs for Obstructive Airway Diseases; Other Drugs for Obstructive Airway Diseases, Inhalants; Glucocorticoids.

APPLICATION OF THE GUIDELINES

Summary

The introductory prices of Alvesco were found to be within the Guidelines because the cost of therapy did not exceed the cost of therapy of existing drugs in the therapeutic class comparison and did not exceed the range of prices of the same medicine in the comparator countries listed in the *Patented Medicines Regulations*, 1994 (Regulations) where Alvesco was sold.

Scientific Review

Alvesco is a new active substance and the PMPRB's Human Drug Advisory Panel (HDAP) recommended that Alvesco be classified as a category 3 new medicine (provides moderate, little or no therapeutic over comparable medicines).

The Therapeutic Class Comparison (TCC) test of the Guidelines provides that the price of a category 3 new drug product cannot exceed the prices of other drugs that treat the same disease or condition. Comparators are generally selected from among existing drug products in the same 4th level of the World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) Classification System that are clinically equivalent in addressing the approved indication. See the Board's *Compendium of Guidelines*, *Policies and Procedures* for a more complete description of the Guidelines and the policies on TCCs.

The HDAP recommended Flovent (*fluticasone*), Pulmicort Turbuhaler (*budesonide*), and QVAR (*beclomethasone*) as comparators to Alvesco. These active ingredients share the same 4th level ATC class, are indicated and used for the prophylactic management of corticosteroid-responsive asthma.

The Guidelines provide that the dosage recommended for comparison purposes will normally not be higher than the maximum of the usual recommended dosage. The recommended comparable dosage regimens for Alvesco and the comparable drug products were based on the respective product monographs and supported by clinical literature.

Price Review

Under the Guidelines, the introductory price of a new category 3 drug product will be presumed to be excessive if it exceeds the prices of all of the comparable drug products based on the TCC test, or if it exceeds the prices of the same medicine in the seven countries listed in the Regulations.

The introductory prices of Alvesco 100ug and 200ug/actuation were within the Guidelines as the cost per treatment did not exceed the cost per treatment of the comparator medicines.

Introductory Period (September to December 2006)

Name	Strength	Dosage Regimen	Unit Price	Cost per Treatment (Daily)
Alvesco	100ug	200ug/day	\$0.3450 ⁽¹⁾	\$0.6900
(ciclesonide)				
Flovent Diskus	50ug	300ug/day	\$0.2200 ⁽³⁾	\$1.3200
(fluticasone)				
Flovent Diskus	250ug	250ug/day	\$0.6000 ⁽³⁾	\$0.6000
(fluticasone)				
Flovent HFA	125ug	250ug/day	\$0.3000 ⁽³⁾	\$0.6000
(fluticasone)				
Pulmicort Turbuhaler	200ug	400ug/day	\$0.2955 ⁽³⁾	\$0.5910
(budesonide)				
QVAR	100ug	200ug/day	\$0.2835 ⁽²⁾	\$0.5670
(beclomethasone)				

Introductory Period (September to December 2006)

Name	Strength	Dosage Regimen	Unit Price	Cost per Treatment (Daily)
Alvesco	200ug	400ug/day	\$0.5700 ⁽¹⁾	\$1.1400
(ciclesonide)				
Flovent Diskus	500ug	500ug/day	\$1.2000 ⁽³⁾	\$1.2000
(fluticasone)				
Flovent HFA	250ug	500ug/day	\$0.6000 ⁽³⁾	\$1.2000
(fluticasone)				
Pulmicort Turbuhaler	400ug	800ug/day	\$0.5318 ⁽³⁾	\$1.0635
(budesonide)				
QVAR	100ug	500ug/day	\$0.2835 ⁽²⁾	\$1.4175
(beclomethasone)				

Sources:

- (1) Publicly available price as per the Regulations
- (2) Régie de l'assurance maladie du Québec, Décembre 2006
- (3) Association québécoise des pharmaciens propriétaires 2006

In 2006, Alvesco was being sold in three countries listed in the Regulations, namely Germany, Switzerland and the UK. In compliance with the Guidelines, the prices of Alvesco in Canada did not exceed the range of prices in those countries. They were the lowest of the international prices.

The publication of Summary Reports is part of the PMPRB's commitment to make its price review process more transparent.

Where comparators and dosage regimens are referred to in the Summary Reports, they have been selected by the HDAP for the purpose of carrying out the PMPRB's regulatory mandate, which is to review the prices of patented medicines sold in Canada to ensure that such prices are not excessive.

In its Summary Reports, the PMPRB will also refer to the publicly available prices of comparators provided such prices are not more than 10% above a non-excessive price in which case no price will be made available. As a result, the publication of these prices is for information purposes only and should not be relied upon as being considered within the Guidelines.

The information contained in the PMPRB's Summary Reports should not be relied upon for any purpose other than stated and is not to be interpreted as an endorsement, recommendation or approval of any drug nor is it intended to be relied upon as a substitute for seeking appropriate advice from a qualified health care practitioner.

References - Alvesco

- 1. Barnes NC. Reducing oral steroids with inhaled steroids: is that all that can be achieved? Chest 2006;129:1124-5.
- 2. Bateman E, Karpel J, Casale T, et al. Ciclesonide reduces the need for oral steroid use in adult patients with severe, persistent asthma. Chest 2006;129:1176-87.
- 3. Boulet LP, Drollmann A, Magyar P, et al. Comparative efficacy of once-daily ciclesonide and budesonide in the treatment of persistent asthma. Respir Med 2006;100:785-94.
- 4. Buhl R, Vinkler I, Magyar P, et al. Comparable efficacy of ciclesonide once daily versus fluticasone propionate twice daily in asthma. Pulm Pharmacol Ther 2006;19:404-12.
- 5. Chapman KR, Patel P, D'Urzo AD, et al. Maintenance of asthma control by once-daily inhaled ciclesonide in adults with persistent asthma. Allergy 2005;60:330-7.
- Ciclesonide. New Medicines Profile. UK Medicines Information 05/08, June 2005. Available at http://www.druginfozone.nhs.uk/Record%20Viewing/viewRecord.aspx?id=564690.
- 7. Ciclesonide inhalation aerosol for persistent asthma. J Allergy Clin Immunol 2006;117:1194-6.
- 8. Colice GL. The newly developed inhaled corticosteroid ciclesonide for the treatment of asthma. Expert Opin Pharmacother 2006;7:2107-17.

- Expert Panel Report: guidelines for the diagnosis and management of asthma. Update on selected topics 2002.
 http://www.guideline.gov/summary/summary.aspx?doc_id=3495&nbr=002721&string=ex pert+AND+panel+AND+report+AND+asthma (accessed January 22, 2007)
- Gauvreau GM, Boulet LP, Postma DS, et al. Effect of low-dose ciclesonide on allergeninduced responses in subjects with mild allergic asthma. J Allergy Clin Immunol 2005;116:285-91.
- 11. Hansel TT, Benezet O, Kafé H, et al. A multinational, 12-week, randomized study comparing the efficacy and tolerability of ciclesonide and budesonide in patients with asthma. Clin Ther 2006;28:906-20.
- 12. Kaliner MA. Pharmacologic characteristics and adrenal suppression with newer inhaled corticosteroids: a comparison of ciclesonide and fluticasone propionate. Clin Ther 2006;28:319-31.
- 13. Langdon CG, Adler M, Mehra S, et al. Once-daily ciclesonide 80 or 320 μg for 12 weeks is safe and effective in patients with persistent asthma. Respir Med 2005;99:1275-85.
- 14. Larsen BB, Nielsen LP, Engelstätter R, et al. Effect of ciclesonide in allergen challenge in subjects with bronchial asthma. Allergy 2003;58:207-12.
- 15. Lee DK, Fardon TC, Bates CE, et al. Airway and systemic effects of hydrofluoroalkane formulations of high-dose ciclesonide and fluticasone in moderate persistent asthma. Chest 2005; 127:851-60.
- 16. Lee DK, Haggart K, Currie GP, et al. Effects of hydrofluoroalkane formulations of ciclesonide 400 μg once daily vs fluticasone 250 μg twice daily on methacholine hyper-responsiveness in mild-to-moderate persistent asthma. Br J Clin Pharmacol 2004;58:26-33.
- 17. Lemière C, Bai T, Balter M, et al. Adult Asthma Consensus Guidelines Update 2003. Can Respir J 2004;11(suppl A):9A-18A.
- 18. Li JT, Oppenheimer J, Bernstein IL, et al. Attaining optimal asthma control: a practice parameter. J Allergy Clin Immunol 2005;116:S3-11.
- 19. Lipworth BJ. Designer inhaled corticosteroids. Are they any safer? Chest 2005;128:1081-4.
- 20. Lipworth BJ, Kaliner MA, LaForce CF, et al. Effect of ciclesonide and fluticasone on hypothalamic-pituitary-adrenal axis function in adults with mild-to-moderate persistent asthma. Ann Allergy Asthma Immunol 2005;94:465-72.
- 21. Meltzer EO, Derendorf H. The systemic safety of inhaled corticosteroid therapy: a focus on ciclesonide. Ann Allergy Asthma Immunol 2006;97:149-157.
- 22. Niphadkar P, Jagannath K, Joshi JM, et al. Comparison of the efficacy of ciclesonide 160 µg QD and budesonide 200 µg BID in adults with persistent asthma: a phase III, randomized, double-dummy, open-label study. Clin Ther 2005;27:1752-63.

- 23. Pearlman DS, Berger WE, Kerwin E, et al. Once-daily ciclesonide improves lung function and is well tolerated by patients with mild-to-moderate persistent asthma. J Allergy Clin Immunol 2005;116:1206-12.
- 24. Postma DS, Sevette C, Martinat Y, et al. Treatment of asthma by the inhaled corticosteroid ciclesonide given either in the morning or evening. Eur Respir J 2001;17:1083-8.
- 25. Product Monograph dated September 8, 2006 for Alvesco (ciclesonide inhalation aerosol) Altana Pharma, Oakville, Ontario.
- 26. Reynolds NA, Scott LJ. Ciclesonide. Drugs 2004;64:511-9.
- 27. Scottish Intercollegiate Guidelines Network (SIGN), British Thoracic Society. British guideline on the management of asthma. A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2005.
- 28. Seung SJ, Mittmann N. Urgent care costs of uncontrolled asthma in Canada, 2004. Can Respir J 2005;12:435-6.
- 29. Subbarao P, Duong M, Adelroth E, et al. Effect of ciclesonide dose and duration of therapy on exercise-induced bronchoconstriction in patients with asthma. J Allergy Clin Immunol 2006;117:1008-13.
- 30. Szefler S, Rohatagi S, Williams J, et al. Ciclesonide, a novel inhaled steroid, does not affect hypothalamic-pituitary-adrenal axis function in patients with moderate-to-severe persistent asthma. Chest 2005;128:1104-14.
- 31. van der Molen T, Østrem A, Stallberg B, et al. International primary care respiratory group (IPCRG) guidelines: management of asthma. Prim Care Resp J 2006;15:35-47.
- 32. Wilson AM, Duong M, Pratt B, et al. Anti-inflammatory effects of once daily low dose inhaled ciclesonide in mild to moderate asthmatic patients. Allergy 2006;61:537-42.
- 33. Zietkowski Z, Bodzenta-Lukaszyk A, Tomasiak MM, et al. Effect of ciclesonide and fluticasone on exhaled nitric oxide in patients with mild allergic asthma. Respir Med 2006;100:1651-6.