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State of Alaska Department of Health and Social Services, Division of Health Care Services
Submission Request Form for Pharmaceutical Manufacturers

E-mail as an attachment to JWMccall@magellanhealth.com , include in subject line Manufacturer Submission

OR Fax this request to: 1-888-656-6822 ATTN: John McCall, R.Ph. (Note: Processing May be Delayed if Information Submitted is Illegible or Incomplete)

Members of the Pharmacy and Therapeutics (P&T) Committee have requested that all clinical information, questions, or comments about the Preferred Drug List (PDL) be sent directly to Magellan Medicaid Administration. Manufacturers and other interested parties have been requested not to contact the members directly. Written comments on the PDL from all interested parties should be submitted to Erin Narus, PharmD, R.Ph. at the State of Alaska.

Note: Manufacturers submitting comments are requested to do so through their Product Manager using this form. This form constitutes a request for ***NEW*** information pertaining to peer-reviewed literature including off-label peer-reviewed studies.

Contact Information

MANUFACTURER NAME: GlaxoSmithKline

DATE: 04 - 03 - 2017

PRODUCT MANAGER'S NAME: Tania Vila, PharmD

TITLE: Medical Information Scientist

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PRODUCT: ANORO, ARNUITY, BREO, INCRUSE, and ELLIPTA

Clinical Rationale Request for Consideration (If additional space is required, use Clinical Rationale Continuation Page).

This information is provided in response to your request for information about Anoro® Ellipta® (umeclidinium and vilanterol inhalation powder) (1), Arnuity® Ellipta® (fluticasone furoate inhalation powder) (2), Breo® Ellipta® (fluticasone furoate and vilanterol inhalation powder) (3), Incruse® Ellipta® (umeclidinium inhalation powder) (4), and the Ellipta® inhaler. A summary of a recently published study (5) with the Ellipta inhaler is provided, followed by a citation list for GlaxoSmithKline (GSK) respiratory products in the Ellipta inhaler with an asthma and/or chronic obstructive pulmonary disease (COPD) indication, as outlined below, and the Ellipta inhaler itself:

- Anoro Ellipta is a combination of umeclidinium, an anticholinergic, and vilanterol, a long-acting beta2-adrenergic agonist (LABA), indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with COPD. Important limitations: Not indicated for relief of acute bronchospasm or for the treatment of asthma.(1)
- Arnuity Ellipta is a corticosteroid indicated for: once-daily maintenance treatment of asthma as prophylactic therapy in patients aged 12 years and older. Important limitation: Not indicated for relief of acute bronchospasm.(2)
- Breo Ellipta is a combination of fluticasone furoate, an inhaled corticosteroid (ICS), and vilanterol, a LABA, indicated for long-term, once-daily, maintenance treatment of airflow obstruction and reducing exacerbations in patients with COPD (100/25 mcg only) and once-daily treatment of asthma in patients aged 18 years and older (100/25 mcg or 200/25 mcg). Important limitation: Not indicated for relief of acute bronchospasm.(3)
- Incruse Ellipta is an anticholinergic indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with COPD.(4)
- Important safety information is found in the attached Prescribing Information for each product.(1-4) The Prescribing Information for Anoro Ellipta and Breo Ellipta contains a boxed warning.(1,3) Please consult the WARNINGS section of the attached Prescribing Information for each product for further details and important safety information.

Magellan HEALTH℠

Clinical Rationale Request for Consideration (If additional space is required, use Clinical Rationale Continuation Page).

Assessment of Handling of the Ellipta

SUMMARY

• Study 200330 and study 200301 were multicenter, single-visit, randomized, open-label, crossover studies that assessed inhaler attributes of the Ellipta compared to other inhalers in subjects with asthma and chronic obstructive pulmonary disease (COPD), respectively. In both studies the primary endpoint was the percentage of subjects who made at least 1 critical error (most likely to result in no or minimal lung drug delivery of medication) after reading the patient information leaflet (PIL).

• In study 200330 fewer subjects made critical errors after reading the PIL with the Ellipta inhaler compared to the Diskus, metered dose inhaler (MDI), and Turbuhaler® but this was only statistically significant in comparison with the Turbuhaler (5% vs 33% [P < 0.001]. The most common critical error for the Ellipta across all sub-studies was the subject exhaling directly into the mouthpiece. Few subjects made errors following instruction from a healthcare professional (HCP).

• In study 200301 significantly fewer subjects made critical errors after reading the PIL with the Ellipta inhaler compared to each of the other inhalers (5% vs 44% [P < 0.001] compared to Diskus, 13% vs 60% [P < 0.001] compared to MDI, 8% vs 44% [P < 0.001] compared to Turbuhaler, 14% vs 48% [P < 0.001] compared to Handihaler®, 13% vs 46% [P < 0.001] compared to Breezhaler®). The most common critical error for the Ellipta across all sub-studies was the subject exhaling into the mouthpiece. Of subjects requiring instruction from a HCP, most were able to use each of the inhalers correctly after 1 instruction.

• No adverse events (AEs) were reported in either study.

• The Turbuhaler device is not available in the U.S. The Breezhaler device (ex-U.S.) is approved as the Neohaler® device in the U.S.

METHODOLOGY

Study 200330 and study 200301 were multicenter, single-visit, randomized, open-label, crossover studies that assessed inhaler attributes of the Ellipta compared to other inhaler devices.(5) Study 200330 was comprised of 3 sub-studies and enrolled subjects 18 years of age and older who were receiving treatment for asthma, and study 200301 was comprised of 5 sub-studies and enrolled subjects 40 years of age and older with COPD who were receiving treatment for COPD. In study 200330 subjects were excluded if they had a current diagnosis of COPD and in study 200301 they were excluded if they had a current diagnosis of asthma only. In both studies subjects who were unable to read were excluded. Subjects were randomly assigned to a sequence of using 2 placebo inhalers for the specific sub-study to which they were allocated.

In study 200330 the sub-studies were:

• Sub-study 1: Ellipta and Diskus;
• Sub-study 2: Ellipta and MDI;
• Sub-study 3: Ellipta and Turbuhaler.

In study 200301 the sub-studies were:

• Sub-study 1: Ellipta and Diskus;
• Sub-study 2: Ellipta and MDI;
• Sub-study 3: Ellipta and Turbuhaler;
• Sub-study 4: Ellipta and HandiHaler;
• Sub-study 5: Ellipta and Breezhaler.

In both studies subjects had not previously used the Ellipta inhaler and the comparator inhaler for the allocated sub-study, and in study 200301 those included in sub-study 4 and sub-study 5 were also naïve to inhaler devices that required a capsule. Subject use of each inhaler was observed after the subject read the PIL and errors made were recorded by a HCP. If any error was made, the HCP demonstrated the correct use of the inhaler to the subject. The subject was then asked to demonstrate the inhaler use again. Any errors were recorded by the HCP. The HCP could demonstrate the use of the inhaler up to three times if necessary. After completing the process with the first inhaler, the same procedures were followed for the second inhaler.

Clinical Rationale Continuation Page (Use only if needed).

In both studies the primary endpoint was the percentage of subjects who made at least 1 critical error (most likely to result in no or minimal lung drug delivery of medication) after reading the PIL and was analyzed using a Cochran-Mantel-Haenszel test. Secondary endpoints included percentage of subjects who made at least 1 overall error after reading the PIL (included critical errors).

RESULTS

Study 200330

There were 70 subjects randomized in sub-study 1, 32 subjects in sub-study 2, and 60 subjects in sub-study 3.5 It was intended that 50 subjects be randomized for sub-study 2 in order to provide a 90% power to detect a difference in the primary endpoint, but complete recruitment was not achieved due to difficulty finding subjects who were naïve to the MDI. The mean age of subjects across the sub-studies was 46.3 years. A total of 58% of subjects were female and 62% of subjects had asthma for 10 years or longer.

After reading the PIL, a lower proportion of subjects had 1 or more critical errors with the Ellipta compared to each other inhaler but only the difference compared to the Turbuhaler was statistically significant (Ellipta vs other inhaler, respectively: 4% vs 13% for Diskus [P = 0.221], 6% vs 25% for metered dose inhaler (MDI) [P = 0.074], 5% vs 33% for Turbuhaler [P < 0.001]). The most common critical error reported for the Ellipta across all sub-studies was the subject exhaling directly into the mouthpiece.

Study 200301

There were 171 subjects randomized in sub-study 1, 80 subjects in sub-study 2, 100 subjects in sub-study 3, 118 subjects in sub study 4, and 98 subjects in sub-study 5. The mean age across the sub-studies was 67.3 years. A total of 60% of subjects were male and 74% of subjects had COPD lasting between 6 months and 10 years.

After reading the PIL, a statistically significantly lower proportion of subjects had 1 or more critical errors with the Ellipta compared to each other inhaler (Ellipta vs other inhaler, respectively: 5% vs 44% [P < 0.001] compared to Diskus, 13% vs 60% [P < 0.001] compared to MDI, 8% vs 44% [P < 0.001] compared to Turbuhaler, 14% vs 48% [P < 0.001] compared to Handihaler, 13% vs 46% [P < 0.001] compared to Breezhaler). The most common critical error for the Ellipta across all sub-studies was the subject exhaling directly into the mouthpiece.

Turbuhaler is a trademark of the AstraZeneca group of companies, HandiHaler is a trademark of Boehringer Ingelheim International GmbH, and Breezhaler is a trademark of Novartis AG. The makers of Turbuhaler, HandiHaler, and Breezhaler are not affiliated with and do not endorse GSK or its products.

This information is provided in response to your unsolicited request. GlaxoSmithKline requests that the recipient of this information only share the contents with the Pharmacy & Therapeutics (P & T) Committee members for the purposes of making evidence-based decisions regarding formulary inclusion. Some information contained in this response may be outside the approved Prescribing Information. It is not intended to offer recommendations for administering this product in a manner inconsistent with its approved labeling. In order for GlaxoSmithKline to monitor the safety of our products, we encourage healthcare professionals to report adverse events or suspected overdoses to the company at 888-825-5249. Please consult the attached Prescribing Information.

REFERENCES:

1. Prescribing Information for Anoro Ellipta.
2. Prescribing Information for Arnuity Ellipta.
3. Prescribing Information for Breo Ellipta.
4. Prescribing Information for Incruse Ellipta.
5. van der Palen J, Thomas M, Chrystyn H, et al. A randomised open-label cross-over study of inhaler errors, preference and time to achieve correct inhaler use in patients with COPD or asthma: comparison of ELLIPTA with other inhaler devices [published correction appears in NPJ Prim Care Respir Med. 2017;27: 17001]. NPJ Prim Care Respir Med. 2016;26:16079. (200301 and 200330). Available at: http://dx.doi.org/10.1038/npjpcrm.2016.79.

Published Citations (If additional space is required, use Published Citations Continuation Page).

A citation list for Anoro Ellipta, Arnuity Elllipta, Breo Ellipta, Incruse Ellipta, and the Ellipta inhaler, is provided. This citation list is representative of peer-reviewed literature, including off label information, published between January 1, 2016 and March 27, 2017 that was not summarized in the April 2016 submission. Review articles, systematic reviews, and meta-analyses were excluded.

Arnuity Ellipta

• Oliver AJ, Covar RA, Goldfrad CH, et al. Randomized trial of once-daily fluticasone furoate in children with inadequately controlled asthma. J Pediatr. 2016;178:246-253.e2. Available at: http://dx.doi.org/10.1016/j.jpeds.2016.08.010.
• Adachi M, Goldfrad C, Jacques L, Nishimura Y. Efficacy and safety comparison: fluticasone furoate and fluticasone propionate, after step down from fluticasone furoate/vilanterol in Japanese patients with well-controlled asthma, as randomized trial [Corrigendum in Respir Med. 2017;126:25]. Respir Med. 2016; 120:78-86. Available at: http://dx.doi.org/10.1016/j.rmed.2016.09.018.

Anoro Ellipta

• Kalberg C, O'Dell D, Galkin D, et al. Dual bronchodilator therapy with umeclidinium/vilanterol versus tiotropium plus indacaterol in chronic obstructive pulmonary disease: a randomized controlled trial. Drugs R .D 2016;16:217-227. Available at: http://dx.doi.org/10.1007/s40268-016-0131-2.
• Kerwin EM, Kalberg CJ, Galkin DV, et al. Umeclidinium/vilanterol as step-up therapy from tiotropium in patients with moderate COPD: a randomized, parallel-group, 12-week study. Int J Chron Obstruct Pulmon Dis. 2017;12:745-755. Available at: https://doi.org/10.2147/COPD.S119032.
• Maleki-Yazdi MR, Singh D, Anzueto A, Tombs L, Fahy WA, Naya I. Assessing short-term deterioration in maintenance-naïve patients with COPD receiving umeclidinium/vilanterol and tiotropium: a pooled analysis of three randomized trials. Adv Ther. 2017;33(12):2188-2199. Available at: http://dx.doi.org/10.1007/s12325-016-0430-6.
• Siler TM, Donald AC, O'Dell D, Church A, Fahy WA. A randomized, parallel-group study to evaluate the efficacy of umeclidinium/vilanterol 62.5/25 µg on health-related quality of life in patients with COPD. Int J Chron Obstruct Pulmon Dis. 2016;11:971-979. Available at: https://doi.org/10.2147/COPD.S102962.
• Singh D, Maleki-Yazdi MR, Tombs L, et al. Prevention of clinically important deteriorations in COPD with umeclidinium/vilanterol. Int J Chron Obstruct Pulmon Dis. 2016;11:1413-1424. Available at: https://doi.org/10.2147/COPD.S101612.
• Wilson M, Patel J, Coleman A, McDade C, Stanford R, Earnshaw S. Cost-effectiveness of umeclidinium/vilanterol for the management of patients with moderate to very severe COPD using an economic model. Int J Chron Obstruct Pulmon Dis. 2017;12:997–1008. Available at: https://doi.org/10.2147/COPD.S124420.

Breo Ellipta - Asthma

• Braithwaite I, Williams M, Power S, et al. Randomised, double-blind, placebo-controlled, cross-over single dose study of the bronchodilator duration of action of combination fluticasone furoate/vilanterol inhaler in adult asthma. Respir Med. 2016;119:115-121. Available at: http://dx.doi.org/10.1016/j.rmed.2016.09.006.
• Busse WW, Andersen L, Frith L, et al. An integrated analysis of fluticasone furoate/vilanterol (FF/VI) versus FF safety data across phase II and III asthma studies. Pulm Ther. 2016;2:91-114. Available at: http://dx.doi.org/10.1007/s41030-016-0015-1.
• Svedsater H, Stynes G, Wex J, et al. Once-daily fluticasone furoate/vilanterol versus twice daily combination therapies in asthma–mixed treatment comparisons of clinical efficacy. Asthma Res Prac. 2016;2:4. Available at: http://dx.doi.org/10.1186/s40733-015-0016-0.

MAGELLAN MEDICAID ADMINISTRATION USE ONLY – DO NOT MARK IN THIS AREA

ACTION TO BE TAKEN:

DATE: | | | – | | | – | | | | |

Public Citations Continuation Page (Use only if needed).

Breo Ellipta - COPD

• Bhatt SP, Dransfield MT, Cockcroft JR, et al. A randomized trial of once-daily fluticasone furoate/vilanterol or vilanterol versus placebo to determine effects on arterial stiffness in COPD. Int J Chron Obstruct Pulmon Dis. 2017;12:351-365. Available at: https://doi.org/10.2147/COPD.S117373.
• Martinez FJ, Vestbo J, Anderson JA, et al. Effect of fluticasone furoate and vilanterol on exacerbations of COPD in patients with moderate airflow obstruction. Am J Respir Crit Care Med. Published online 21 Oct 2016. Available at: http://dx.doi.org/10.1164/rccm.201607-1421OC.
• Siler TM, Nagai A, Scott-Wilson CA, Midwinter DA, Crim C. A randomised, phase III trial of once-daily fluticasone furoate/vilanterol 100/25 µg versus once-daily vilanterol 25 µg to evaluate the contribution on lung function of fluticasone furoate in the combination in patients with COPD. Respir Med. 2017;123:8-17. Available at: http://dx.doi.org/10.1016/j.rmed.2016.12.001.
• Vestbo J, Anderson JA, Brook RD, et al. Fluticasone furoate and vilanterol and survival in chronic obstructive pulmonary disease with heightened cardiovascular risk (SUMMIT): a double-blind randomised controlled trial. Lancet. 2016;387:1817-1826. Available at: http://dx.doi.org/10.1016/S0140-6736(16)30069-1.
• Vestbo J, Leather D, Bakerly ND, et al. Effectiveness of fluticasone furoate-vilanterol for COPD in clinical practice. New Engl J Med. 2016;375:1253-1260. Available at: http://dx.doi.org/10.1056/NEJMoa1608033.

Incruse Ellipta

• Feldman G, Maltais F, Khindri S, et al. A randomized, blinded study to evaluate the efficacy and safety of umeclidinium 62.5 µg compared with tiotropium 18 µg in patients with COPD. Int J Chron Obstruct Pulmon Dis. 2016;11:719-730. Available at: https://doi.org/10.2147/COPD.S102494.
• Rheault T, Khindri S, Vahdati-Bolouri M, et al. A randomised, open-label study of umeclidinium versus glycopyrronium in patients with COPD. ERS Open Res. 2016;2:Article Number 00101-2015. Available at: http://dx.doi.org/10.1183/23120541.00101-2015.
• Siler TM, Kerwin E, Tombs L, et al. Triple therapy of umeclidinium + inhaled corticosteroids/long-acting beta2 agonists for patients with COPD: pooled results of randomized placebo-controlled trials. Pulm Ther. 2016;2:43–58. Available at: http://dx.doi.org/10.1007/s41030-016-0012-4.
• Simeone JC, Luthra R, Kaila S, et al. Initiation of triple therapy maintenance treatment among patients with COPD in the US. Int J Chron Obstruct Pulmon Dis. 2017;12:73-83. Available at: https://doi.org/10.2147/COPD.S122013.
• Sousa AR, Riley JH, Church A, et al. The effect of umeclidinium added to inhaled corticosteroid/long-acting β2-agonist in patients with symptomatic COPD: a randomised, double-blind, parallel-group study. NPJ Prim Care Resp Med. 2016;26:Article number 16031. Available at: http:/dx.doi.org/10.1038/npjpcrm.2016.31.

In addition to the Assessment of Handling of Ellipta data summarized above, the studies below were also identified in the published literature pertaining to the Ellipta inhaler.

Ellipta

• Riley JH, Tabberer M, Richard N, et al. Correct usage, ease of use, and preference of two dry powder inhalers in patients with COPD: analysis of five phase III, randomized trials. Int J Chron Obstruct Pulmon Dis. 2016;11:1873-1880. Available at: https://doi.org/10.2147/COPD.S109121.
• Yun Kirby S, Zhu CQ, Kerwin EM, Stanford RH, Georges G. A preference study of two placebo dry powder inhalers in adults with COPD: ELLIPTA® dry powder inhaler (DPI) versus DISKUS® DPI. COPD. 2016;13:167-175. Available at: http://dx.doi.org/10.3109/15412555.2015.1057274.
• von Schantz S, Katajavuori N, Antikainen O, et al. Evaluation of dry powder inhalers with a focus on ease of use and user preference in inhaler-naïve individuals. Int J Pharmaceutics. 2016;509:50-58. Available at: http://dx.doi.org/10.1016/j.ijpharm.2016.05.023.

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use ANORO® ELLIPTA® safely and effectively. See full prescribing information for ANORO ELLIPTA.

ANORO ELLIPTA (umeclidinium and vilanterol inhalation powder), for oral inhalation
Initial U.S. Approval: 2013

WARNING: ASTHMA-RELATED DEATH
See full prescribing information for complete boxed warning.

- **Long-acting beta$_2$-adrenergic agonists (LABA), such as vilanterol, increase the risk of asthma-related death. A placebo-controlled trial with another LABA (salmeterol) showed an increase in asthma-related deaths. This finding with salmeterol is considered a class effect of all LABA. (5.1)**
- **The safety and efficacy of ANORO ELLIPTA in patients with asthma have not been established. ANORO ELLIPTA is not indicated for the treatment of asthma. (5.1)**

---------- INDICATIONS AND USAGE----------
ANORO ELLIPTA is a combination of umeclidinium, an anticholinergic, and vilanterol, a long-acting beta$_2$-adrenergic agonist (LABA), indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD). (1)

Important limitations: Not indicated for relief of acute bronchospasm or for the treatment of asthma. (1, 5.2)

----------DOSAGE AND ADMINISTRATION----------
- For oral inhalation only. (2)
- Maintenance treatment of COPD: 1 inhalation of ANORO ELLIPTA once daily. (2)

---------- DOSAGE FORMS AND STRENGTHS----------
Inhalation Powder. Inhaler containing 2 foil blister strips of powder formulation for oral inhalation. One strip contains umeclidinium 62.5 mcg per blister and the other contains vilanterol 25 mcg per blister. (3)

---------- CONTRAINDICATIONS ----------
Severe hypersensitivity to milk proteins or any ingredients. (4)

---------- WARNINGS AND PRECAUTIONS----------
- LABA increase the risk of asthma-related death. (5.1)
- Do not initiate in acutely deteriorating COPD or to treat acute symptoms. (5.2)
- Do not use in combination with an additional medicine containing a LABA because of risk of overdose. (5.3)
- If paradoxical bronchospasm occurs, discontinue ANORO ELLIPTA and institute alternative therapy. (5.5)
- Use with caution in patients with cardiovascular disorders because of beta-adrenergic stimulation. (5.7)
- Use with caution in patients with convulsive disorders, thyrotoxicosis, diabetes mellitus, and ketoacidosis. (5.8)
- Worsening of narrow-angle glaucoma may occur. Use with caution in patients with narrow-angle glaucoma and instruct patients to contact a physician immediately if symptoms occur. (5.9)
- Worsening of urinary retention may occur. Use with caution in patients with prostatic hyperplasia or bladder-neck obstruction and instruct patients to contact a physician immediately if symptoms occur. (5.10)
- Be alert to hypokalemia and hyperglycemia. (5.11)

---------- ADVERSE REACTIONS ----------
Most common adverse reactions (incidence greater than or equal to 1% and more common than placebo) are pharyngitis, sinusitis, lower respiratory tract infection, constipation, diarrhea, pain in extremity, muscle spasms, neck pain, and chest pain. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

---------- DRUG INTERACTIONS----------
- Strong cytochrome P450 3A4 inhibitors (e.g., ketoconazole): Use with caution. May cause cardiovascular effects. (7.1)
- Monoamine oxidase inhibitors and tricyclic antidepressants: Use with extreme caution. May potentiate effect of vilanterol on cardiovascular system. (7.2)
- Beta-blockers: Use with caution. May block bronchodilatory effects of beta-agonists and produce severe bronchospasm. (7.3)
- Diuretics: Use with caution. Electrocardiographic changes and/or hypokalemia associated with non–potassium-sparing diuretics may worsen with concomitant beta-agonists. (7.4)
- Anticholinergics: May interact additively with concomitantly used anticholinergic medications. Avoid administration of ANORO ELLIPTA with other anticholinergic-containing drugs. (7.5)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 3/2017

FULL PRESCRIBING INFORMATION: CONTENTS*

***Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

WARNING: ASTHMA-RELATED DEATH

Long-acting beta$_2$-adrenergic agonists (LABA), such as vilanterol, one of the active ingredients in ANORO® ELLIPTA®, increase the risk of asthma-related death. Data from a large placebo-controlled US trial that compared the safety of another LABA (salmeterol) with placebo added to usual asthma therapy showed an increase in asthma-related deaths in subjects receiving salmeterol. This finding with salmeterol is considered a class effect of LABA *[see Warnings and Precautions (5.1)]*.

The safety and efficacy of ANORO ELLIPTA in patients with asthma have not been established. ANORO ELLIPTA is not indicated for the treatment of asthma.

1 INDICATIONS AND USAGE

ANORO ELLIPTA is a combination anticholinergic/long-acting beta$_2$-adrenergic agonist (anticholinergic/LABA) indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

Important Limitations of Use

ANORO ELLIPTA is NOT indicated for the relief of acute bronchospasm or for the treatment of asthma.

2 DOSAGE AND ADMINISTRATION

ANORO ELLIPTA (umeclidinium/vilanterol 62.5 mcg/25 mcg) should be administered as 1 inhalation once daily by the orally inhaled route only.

ANORO ELLIPTA should be used at the same time every day. Do not use ANORO ELLIPTA more than 1 time every 24 hours.

No dosage adjustment is required for geriatric patients, patients with renal impairment, or patients with moderate hepatic impairment *[see Clinical Pharmacology (12.3)]*.

3 DOSAGE FORMS AND STRENGTHS

Inhalation Powder. Disposable light grey and red plastic inhaler containing 2 foil blister strips of powder intended for oral inhalation only. One strip contains umeclidinium (62.5 mcg per blister), and the other strip contains vilanterol (25 mcg per blister).

4 CONTRAINDICATIONS

The use of ANORO ELLIPTA is contraindicated in patients with severe hypersensitivity to milk proteins or who have demonstrated hypersensitivity to umeclidinium, vilanterol, or any of the excipients *[see Warnings and Precautions (5.6), Description (11)]*.

5 WARNINGS AND PRECAUTIONS

5.1 Asthma-Related Death

Data from a large placebo-controlled trial in subjects with asthma showed that LABA may increase the risk of asthma-related death. Data are not available to determine whether the rate of death in patients with COPD is increased by LABA.

A 28-week, placebo-controlled, US trial comparing the safety of another LABA (salmeterol) with placebo, each added to usual asthma therapy, showed an increase in asthma-related deaths in subjects receiving salmeterol (13/13,176 in subjects treated with salmeterol vs. 3/13,179 in subjects treated with placebo; relative risk: 4.37 [95% CI: 1.25, 15.34]). The increased risk of asthma-related death is considered a class effect of LABA, including vilanterol, one of the active ingredients in ANORO ELLIPTA.

No trial adequate to determine whether the rate of asthma-related death is increased in subjects treated with ANORO ELLIPTA has been conducted. The safety and efficacy of ANORO ELLIPTA in patients with asthma have not been established. ANORO ELLIPTA is not indicated for the treatment of asthma.

5.2 Deterioration of Disease and Acute Episodes

ANORO ELLIPTA should not be initiated in patients during rapidly deteriorating or potentially life-threatening episodes of COPD. ANORO ELLIPTA has not been studied in subjects with acutely deteriorating COPD. The initiation of ANORO ELLIPTA in this setting is not appropriate.

ANORO ELLIPTA should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. ANORO ELLIPTA has not been studied in the relief of acute symptoms and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting beta$_2$-agonist.

When beginning treatment with ANORO ELLIPTA, patients who have been taking oral or inhaled, short-acting beta$_2$-agonists on a regular basis (e.g., 4 times a day) should be instructed to discontinue the regular use of these drugs and to use them only for symptomatic relief of acute respiratory symptoms. When prescribing ANORO ELLIPTA, the healthcare provider should also prescribe an inhaled, short-acting beta$_2$-agonist and instruct the patient on how it should be used. Increasing inhaled, short-acting beta$_2$-agonist use is a signal of deteriorating disease for which prompt medical attention is indicated.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If ANORO ELLIPTA no longer controls symptoms of bronchoconstriction; the patient's inhaled, short-acting beta$_2$-agonist becomes less effective; or the patient needs more short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting a re-evaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of ANORO ELLIPTA beyond the recommended dose is not appropriate in this situation.

5.3 Excessive Use of ANORO ELLIPTA and Use with Other Long-acting Beta$_2$-agonists

ANORO ELLIPTA should not be used more often than recommended, at higher doses than recommended, or in conjunction with other medicines containing LABA, as an overdose may result. Clinically significant cardiovascular effects and fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs. Patients using ANORO ELLIPTA should not use another medicine containing a LABA (e.g., salmeterol, formoterol fumarate, arformoterol tartrate, indacaterol) for any reason.

5.4 Drug Interactions with Strong Cytochrome P450 3A4 Inhibitors

Caution should be exercised when considering the coadministration of ANORO ELLIPTA with long-term ketoconazole and other known strong cytochrome P450 3A4 (CYP3A4) inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) because increased cardiovascular adverse effects may occur *[see Drug Interactions (7.1), Clinical Pharmacology (12.3)]*.

5.5 Paradoxical Bronchospasm

As with other inhaled medicines, ANORO ELLIPTA can produce paradoxical bronchospasm, which may be life threatening. If paradoxical bronchospasm occurs following dosing with ANORO ELLIPTA, it should be treated immediately with an inhaled, short-acting bronchodilator; ANORO ELLIPTA should be discontinued immediately; and alternative therapy should be instituted.

5.6 Hypersensitivity Reactions

Hypersensitivity reactions such as anaphylaxis, angioedema, rash, and urticaria may occur after administration of ANORO ELLIPTA. Discontinue ANORO ELLIPTA if such reactions occur. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder products containing lactose; therefore, patients with severe milk protein allergy should not use ANORO ELLIPTA *[see Contraindications (4)]*.

5.7 Cardiovascular Effects

Vilanterol, like other beta$_2$-agonists, can produce a clinically significant cardiovascular effect in some patients as measured by increases in pulse rate, systolic or diastolic blood pressure, or

symptoms *[see Clinical Pharmacology (12.2)]*. If such effects occur, ANORO ELLIPTA may need to be discontinued. In addition, beta-agonists have been reported to produce electrocardiographic changes, such as flattening of the T wave, prolongation of the QTc interval, and ST segment depression, although the clinical significance of these findings is unknown. Fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs.

Therefore, ANORO ELLIPTA should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension.

5.8 Coexisting Conditions

ANORO ELLIPTA, like all medicines containing sympathomimetic amines, should be used with caution in patients with convulsive disorders or thyrotoxicosis and in those who are unusually responsive to sympathomimetic amines. Doses of the related beta$_2$-adrenoceptor agonist albuterol, when administered intravenously, have been reported to aggravate preexisting diabetes mellitus and ketoacidosis.

5.9 Worsening of Narrow-Angle Glaucoma

ANORO ELLIPTA should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately if any of these signs or symptoms develops.

5.10 Worsening of Urinary Retention

ANORO ELLIPTA should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a physician immediately if any of these signs or symptoms develops.

5.11 Hypokalemia and Hyperglycemia

Beta-adrenergic agonist medicines may produce significant hypokalemia in some patients, possibly through intracellular shunting, which has the potential to produce adverse cardiovascular effects. The decrease in serum potassium is usually transient, not requiring supplementation. Beta-agonist medicines may produce transient hyperglycemia in some patients. In 4 clinical trials of 6-month duration evaluating ANORO ELLIPTA in subjects with COPD, there was no evidence of a treatment effect on serum glucose or potassium.

6 ADVERSE REACTIONS

LABA, such as vilanterol, one of the active ingredients in ANORO ELLIPTA, increase the risk of asthma-related death. ANORO ELLIPTA is not indicated for the treatment of asthma. *[See Boxed Warning and Warnings and Precautions (5.1).]*

The following adverse reactions are described in greater detail in other sections:

- Paradoxical bronchospasm *[see Warnings and Precautions (5.5)]*
- Cardiovascular effects *[see Warnings and Precautions (5.7)]*
- Worsening of narrow-angle glaucoma *[see Warnings and Precautions (5.9)]*
- Worsening of urinary retention *[see Warnings and Precautions (5.10)]*

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared with rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The clinical program for ANORO ELLIPTA included 8,138 subjects with COPD in four 6-month lung function trials, one 12-month long-term safety study, and 9 other trials of shorter duration. A total of 1,124 subjects have received at least 1 dose of ANORO ELLIPTA (umeclidinium/vilanterol 62.5 mcg/25 mcg), and 1,330 subjects have received a higher dose of umeclidinium/vilanterol (125 mcg/25 mcg). The safety data described below are based on the four 6-month and the one 12-month trials. Adverse reactions observed in the other trials were similar to those observed in the confirmatory trials.

6-Month Trials

The incidence of adverse reactions associated with ANORO ELLIPTA in Table 1 is based on four 6-month trials: 2 placebo-controlled trials (Trials 1 and 2; n = 1,532 and n = 1,489, respectively) and 2 active-controlled trials (Trials 3 and 4; n = 843 and n = 869, respectively). Of the 4,733 subjects, 68% were male and 84% were white. They had a mean age of 63 years and an average smoking history of 45 pack-years, with 50% identified as current smokers. At screening, the mean postbronchodilator percent predicted forced expiratory volume in 1 second (FEV_1) was 48% (range: 13% to 76%), the mean postbronchodilator FEV_1/forced vital capacity (FVC) ratio was 0.47 (range: 0.13 to 0.78), and the mean percent reversibility was 14% (range: -45% to 109%).

Subjects received 1 dose once daily of the following: ANORO ELLIPTA, umeclidinium/vilanterol 125 mcg/25 mcg, umeclidinium 62.5 mcg, umeclidinium 125 mcg, vilanterol 25 mcg, active control, or placebo.

Table 1. Adverse Reactions with ANORO ELLIPTA with ≥1% Incidence and More Common than Placebo in Subjects with Chronic Obstructive Pulmonary Disease

Adverse Reaction	ANORO ELLIPTA (n = 842) %	Umeclidinium 62.5 mcg (n = 418) %	Vilanterol 25 mcg (n = 1,034) %	Placebo (n = 555) %
Infections and infestations				
Pharyngitis	2	1	2	<1
Sinusitis	1	<1	1	<1
Lower respiratory tract infection	1	<1	<1	<1
Gastrointestinal disorders				
Constipation	1	<1	<1	<1
Diarrhea	2	<1	2	1
Musculoskeletal and connective tissue disorders				
Pain in extremity	2	<1	2	1
Muscle spasms	1	<1	<1	<1
Neck pain	1	<1	<1	<1
General disorders and administration site conditions				
Chest pain	1	<1	<1	<1

Other adverse reactions with ANORO ELLIPTA observed with an incidence less than 1% but more common than placebo included the following: productive cough, dry mouth, dyspepsia, abdominal pain, gastroesophageal reflux disease, vomiting, musculoskeletal chest pain, chest discomfort, asthenia, atrial fibrillation, ventricular extrasystoles, supraventricular extrasystoles, myocardial infarction, pruritus, rash, and conjunctivitis.

12-Month Trial

In a long-term safety trial, 335 subjects were treated for up to 12 months with umeclidinium/vilanterol 125 mcg/25 mcg or placebo. The demographic and baseline characteristics of the long-term safety trial were similar to those of the placebo-controlled efficacy trials described above. Adverse reactions that occurred with a frequency of greater than or equal to 1% in the group receiving umeclidinium/vilanterol 125 mcg/25 mcg that exceeded that in placebo in this trial were: headache, back pain, sinusitis, cough, urinary tract infection, arthralgia, nausea, vertigo, abdominal pain, pleuritic pain, viral respiratory tract infection, toothache, and diabetes mellitus.

6.2 Postmarketing Experience

In addition to adverse reactions reported from clinical trials, the following adverse reactions have been identified during postapproval use of ANORO ELLIPTA. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. These events have been chosen for inclusion due to either their seriousness, frequency of reporting, or causal connection to ANORO ELLIPTA or a combination of these factors.

Cardiac Disorders

Palpitations.

Eye Disorders

Blurred vision, glaucoma, increased intraocular pressure.

Immune System Disorders

Hypersensitivity reactions, including anaphylaxis, angioedema, and urticaria.

Nervous System Disorders

Dysgeusia, tremor.

Psychiatric Disorders

Anxiety.

Renal and Urinary Disorders

Dysuria, urinary retention.

Respiratory, Thoracic, and Mediastinal Disorders

Paradoxical bronchospasm.

7 DRUG INTERACTIONS

7.1 Inhibitors of Cytochrome P450 3A4

Vilanterol, a component of ANORO ELLIPTA, is a substrate of CYP3A4. Concomitant administration of the strong CYP3A4 inhibitor ketoconazole increases the systemic exposure to vilanterol. Caution should be exercised when considering the coadministration of ANORO ELLIPTA with ketoconazole and other known strong CYP3A4 inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) *[see Warnings and Precautions (5.4), Clinical Pharmacology (12.3)]*.

7.2 Monoamine Oxidase Inhibitors and Tricyclic Antidepressants

Vilanterol, like other beta$_2$-agonists, should be administered with extreme caution to patients being treated with monoamine oxidase inhibitors, tricyclic antidepressants, or drugs known to prolong the QTc interval or within 2 weeks of discontinuation of such agents, because the effect of adrenergic agonists on the cardiovascular system may be potentiated by these agents. Drugs that are known to prolong the QTc interval have an increased risk of ventricular arrhythmias.

7.3 Beta-adrenergic Receptor Blocking Agents

Beta-blockers not only block the pulmonary effect of beta-agonists, such as vilanterol, a component of ANORO ELLIPTA, but may also produce severe bronchospasm in patients with COPD. Therefore, patients with COPD should not normally be treated with beta-blockers. However, under certain circumstances, there may be no acceptable alternatives to the use of beta-adrenergic blocking agents for these patients; cardioselective beta-blockers could be considered, although they should be administered with caution.

7.4 Non–Potassium-Sparing Diuretics

The electrocardiographic changes and/or hypokalemia that may result from the administration of non–potassium-sparing diuretics (such as loop or thiazide diuretics) can be acutely worsened by beta-agonists, such as vilanterol, a component of ANORO ELLIPTA, especially when the recommended dose of the beta-agonist is exceeded. Although the clinical significance of these effects is not known, caution is advised in the coadministration of ANORO ELLIPTA with non–potassium-sparing diuretics.

7.5 Anticholinergics

There is potential for an additive interaction with concomitantly used anticholinergic medicines. Therefore, avoid coadministration of ANORO ELLIPTA with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic adverse effects *[see Warnings and Precautions (5.9, 5.10), Adverse Reactions (6)]*.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Teratogenic Effects

Pregnancy Category C. There are no adequate and well-controlled trials of ANORO ELLIPTA or its individual components, umeclidinium and vilanterol, in pregnant women. Because animal reproduction studies are not always predictive of human response, ANORO ELLIPTA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their physicians if they become pregnant while taking ANORO ELLIPTA.

Umeclidinium: There was no evidence of teratogenic effects in rats and rabbits at approximately 50 and 200 times, respectively, the MRHDID (maximum recommended human daily inhaled dose) in adults (on an AUC basis at maternal inhaled doses up to 278 mcg/kg/day in rats and at maternal subcutaneous doses up to 180 mcg/kg/day in rabbits).

Vilanterol: There were no teratogenic effects in rats and rabbits at approximately 13,000 and 70 times, respectively, the MRHDID in adults (on a mcg/m^2 basis at maternal inhaled doses up to 33,700 mcg/kg/day in rats and on an AUC basis at maternal inhaled doses up to 591 mcg/kg/day in rabbits). However, fetal skeletal variations were observed in rabbits at approximately 450 times the MRHDID in adults (on an AUC basis at maternal inhaled or subcutaneous doses of 5,740 or 300 mcg/kg/day, respectively). The skeletal variations included decreased or absent ossification in cervical vertebral centrum and metacarpals.

Nonteratogenic Effects

Umeclidinium: There were no effects on perinatal and postnatal developments in rats at approximately 80 times the MRHDID in adults (on an AUC basis at maternal subcutaneous doses up to 180 mcg/kg/day).

Vilanterol: There were no effects on perinatal and postnatal developments in rats at approximately 3,900 times the MRHDID in adults (on a mcg/m^2 basis at maternal oral doses up to 10,000 mcg/kg/day).

8.2 Labor and Delivery

There are no adequate and well-controlled human trials that have investigated the effects of ANORO ELLIPTA during labor and delivery.

Because beta-agonists may potentially interfere with uterine contractility, ANORO ELLIPTA should be used during labor only if the potential benefit justifies the potential risk.

8.3 Nursing Mothers

ANORO ELLIPTA

It is not known whether ANORO ELLIPTA is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when ANORO ELLIPTA is administered to a nursing woman. Since there are no data from well-controlled human studies on the use of ANORO ELLIPTA by nursing mothers, based on the data for the individual components, a decision should be made whether to discontinue nursing or to discontinue ANORO ELLIPTA, taking into account the importance of ANORO ELLIPTA to the mother.

Umeclidinium

It is not known whether umeclidinium is excreted in human breast milk. However, administration to lactating rats at approximately 25 times the MRHDID in adults resulted in a quantifiable level of umeclidinium in 2 pups, which may indicate transfer of umeclidinium in milk.

Vilanterol

It is not known whether vilanterol is excreted in human breast milk. However, other beta$_2$-agonists have been detected in human milk.

8.4 Pediatric Use

ANORO ELLIPTA is not indicated for use in children. The safety and efficacy in pediatric patients have not been established.

8.5 Geriatric Use

Based on available data, no adjustment of the dosage of ANORO ELLIPTA in geriatric patients is necessary, but greater sensitivity in some older individuals cannot be ruled out.

Clinical trials of ANORO ELLIPTA for COPD included 2,143 subjects aged 65 years and older and 478 subjects aged 75 years and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger subjects.

8.6 Hepatic Impairment

Patients with moderate hepatic impairment (Child-Pugh score of 7-9) showed no relevant increases in C_{max} or AUC, nor did protein binding differ between subjects with moderate hepatic impairment and their healthy controls. Studies in subjects with severe hepatic impairment have not been performed *[see Clinical Pharmacology (12.3)]*.

8.7 Renal Impairment

There were no significant increases in either umeclidinium or vilanterol exposure in subjects with severe renal impairment (CrCl less than 30 mL/min) compared with healthy subjects. No dosage adjustment is required in patients with renal impairment *[see Clinical Pharmacology (12.3)]*.

10 OVERDOSAGE

No case of overdose has been reported with ANORO ELLIPTA.

ANORO ELLIPTA contains both umeclidinium and vilanterol; therefore, the risks associated with overdosage for the individual components described below apply to ANORO ELLIPTA. Treatment of overdosage consists of discontinuation of ANORO ELLIPTA together with institution of appropriate symptomatic and/or supportive therapy. The judicious use of a cardioselective beta-receptor blocker may be considered, bearing in mind that such medicine can produce bronchospasm. Cardiac monitoring is recommended in cases of overdosage.

10.1 Umeclidinium

High doses of umeclidinium may lead to anticholinergic signs and symptoms. However, there were no systemic anticholinergic adverse effects following a once-daily inhaled dose of up to

1,000 mcg umeclidinium (16 times the maximum recommended daily dose) for 14 days in subjects with COPD.

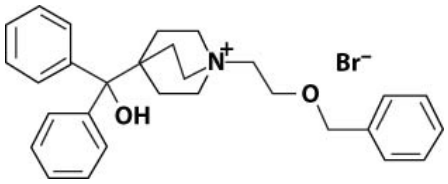
10.2 Vilanterol

The expected signs and symptoms with overdosage of vilanterol are those of excessive beta-adrenergic stimulation and/or occurrence or exaggeration of any of the signs and symptoms of beta-adrenergic stimulation (e.g., angina, hypertension or hypotension, tachycardia with rates up to 200 beats/min, arrhythmias, nervousness, headache, tremor, seizures, muscle cramps, dry mouth, palpitation, nausea, dizziness, fatigue, malaise, insomnia, hyperglycemia, hypokalemia, metabolic acidosis). As with all inhaled sympathomimetic medicines, cardiac arrest and even death may be associated with an overdose of vilanterol.

11 DESCRIPTION

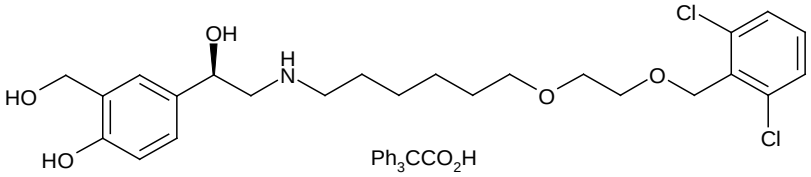
ANORO ELLIPTA is an inhalation powder drug product for delivery of a combination of umeclidinium (an anticholinergic) and vilanterol (a LABA) to patients by oral inhalation.

Umeclidinium bromide has the chemical name 1-[2-(benzyloxy)ethyl]-4-(hydroxydiphenylmethyl)-1-azoniabicyclo[2.2.2]octane bromide and the following chemical structure:



Umeclidinium bromide is a white powder with a molecular weight of 508.5, and the empirical formula is $C_{29}H_{34}NO_2 \bullet Br$ (as a quaternary ammonium bromide compound). It is slightly soluble in water.

Vilanterol trifenatate has the chemical name triphenylacetic acid-4-{(1*R*)-2-[(6-{2-[(2,6-dicholorobenzyl)oxy]ethoxy}hexyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)phenol (1:1) and the following chemical structure:



Vilanterol trifenatate is a white powder with a molecular weight of 774.8, and the empirical formula is $C_{24}H_{33}Cl_2NO_5 \bullet C_{20}H_{16}O_2$. It is practically insoluble in water.

ANORO ELLIPTA is a light grey and red plastic inhaler containing 2 foil blister strips. Each blister on one strip contains a white powder mix of micronized umeclidinium bromide (74.2 mcg equivalent to 62.5 mcg of umeclidinium), magnesium stearate (75 mcg), and lactose

monohydrate (to 12.5 mg), and each blister on the other strip contains a white powder mix of micronized vilanterol trifenatate (40 mcg equivalent to 25 mcg of vilanterol), magnesium stearate (125 mcg), and lactose monohydrate (to 12.5 mg). The lactose monohydrate contains milk proteins. After the inhaler is activated, the powder within both blisters is exposed and ready for dispersion into the airstream created by the patient inhaling through the mouthpiece.

Under standardized in vitro test conditions, ANORO ELLIPTA delivers 55 mcg of umeclidinium and 22 mcg of vilanterol per dose when tested at a flow rate of 60 L/min for 4 seconds.

In adult subjects with obstructive lung disease and severely compromised lung function (COPD with FEV_1/FVC less than 70% and FEV_1 less than 30% predicted or FEV_1 less than 50% predicted plus chronic respiratory failure), mean peak inspiratory flow through the ELLIPTA inhaler was 66.5 L/min (range: 43.5 to 81.0 L/min).

The actual amount of drug delivered to the lung will depend on patient factors, such as inspiratory flow profile.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

ANORO ELLIPTA

ANORO ELLIPTA contains both umeclidinium and vilanterol. The mechanisms of action described below for the individual components apply to ANORO ELLIPTA. These drugs represent 2 different classes of medications (an anticholinergic and a LABA) that have different effects on clinical and physiological indices.

Umeclidinium

Umeclidinium is a long-acting antimuscarinic agent, which is often referred to as an anticholinergic. It has similar affinity to the subtypes of muscarinic receptors M1 to M5. In the airways, it exhibits pharmacological effects through inhibition of M3 receptor at the smooth muscle leading to bronchodilation. The competitive and reversible nature of antagonism was shown with human and animal origin receptors and isolated organ preparations. In preclinical in vitro as well as in vivo studies, prevention of methacholine- and acetylcholine-induced bronchoconstrictive effects was dose-dependent and lasted longer than 24 hours. The clinical relevance of these findings is unknown. The bronchodilation following inhalation of umeclidinium is predominantly a site-specific effect.

Vilanterol

Vilanterol is a LABA. In vitro tests have shown the functional selectivity of vilanterol was similar to salmeterol. The clinical relevance of this in vitro finding is unknown.

Although $beta_2$-receptors are the predominant adrenergic receptors in bronchial smooth muscle and $beta_1$-receptors are the predominant receptors in the heart, there are also $beta_2$-receptors in

the human heart comprising 10% to 50% of the total beta-adrenergic receptors. The precise function of these receptors has not been established, but they raise the possibility that even highly selective $beta_2$-agonists may have cardiac effects.

The pharmacologic effects of $beta_2$-adrenergic agonist drugs, including vilanterol, are at least in part attributable to stimulation of intracellular adenyl cyclase, the enzyme that catalyzes the conversion of adenosine triphosphate (ATP) to cyclic-3',5'-adenosine monophosphate (cyclic AMP). Increased cyclic AMP levels cause relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially from mast cells.

12.2 Pharmacodynamics

Cardiovascular Effects

Healthy Subjects: QTc interval prolongation was studied in a double-blind, multiple-dose, placebo- and positive-controlled crossover trial in 86 healthy subjects. The maximum mean (95% upper confidence bound) difference in QTcF from placebo after baseline correction was 4.6 (7.1) milliseconds and 8.2 (10.7) milliseconds for umeclidinium/vilanterol 125 mcg/25 mcg and umeclidinium/vilanterol 500 mcg/100 mcg (8/4 times the recommended dosage), respectively.

A dose-dependent increase in heart rate was also observed. The maximum mean (95% upper confidence bound) difference in heart rate from placebo after baseline correction was 8.8 (10.5) beats/min and 20.5 (22.3) beats/min seen 10 minutes after dosing for umeclidinium/vilanterol 125 mcg/25 mcg and umeclidinium/vilanterol 500 mcg/100 mcg, respectively.

Chronic Obstructive Pulmonary Disease: The effect of ANORO ELLIPTA on cardiac rhythm in subjects diagnosed with COPD was assessed using 24-hour Holter monitoring in 6- and 12-month trials: 53 subjects received ANORO ELLIPTA, 281 subjects received umeclidinium/vilanterol 125 mcg/25 mcg, and 182 subjects received placebo. No clinically meaningful effects on cardiac rhythm were observed.

12.3 Pharmacokinetics

Linear pharmacokinetics was observed for umeclidinium (62.5 to 500 mcg) and vilanterol (25 to 100 mcg).

Absorption

Umeclidinium: Umeclidinium plasma levels may not predict therapeutic effect. Following inhaled administration of umeclidinium in healthy subjects, C_{max} occurred at 5 to 15 minutes. Umeclidinium is mostly absorbed from the lung after inhaled doses with minimum contribution from oral absorption. Following repeat dosing of inhaled ANORO ELLIPTA, steady state was achieved within 14 days with up to 1.8-fold accumulation.

Vilanterol: Vilanterol plasma levels may not predict therapeutic effect. Following inhaled administration of vilanterol in healthy subjects, C_{max} occurred at 5 to 15 minutes. Vilanterol is mostly absorbed from the lung after inhaled doses with negligible contribution from oral absorption. Following repeat dosing of inhaled ANORO ELLIPTA, steady state was achieved within 14 days with up to 1.7-fold accumulation.

Distribution

Umeclidinium: Following intravenous administration to healthy subjects, the mean volume of distribution was 86 L. In vitro plasma protein binding in human plasma was on average 89%.

Vilanterol: Following intravenous administration to healthy subjects, the mean volume of distribution at steady state was 165 L. In vitro plasma protein binding in human plasma was on average 94%.

Metabolism

Umeclidinium: In vitro data showed that umeclidinium is primarily metabolized by the enzyme cytochrome P450 2D6 (CYP2D6) and is a substrate for the P-glycoprotein (P-gp) transporter. The primary metabolic routes for umeclidinium are oxidative (hydroxylation, O-dealkylation) followed by conjugation (e.g., glucuronidation), resulting in a range of metabolites with either reduced pharmacological activity or for which the pharmacological activity has not been established. Systemic exposure to the metabolites is low.

Vilanterol: In vitro data showed that vilanterol is metabolized principally by CYP3A4 and is a substrate for the P-gp transporter. Vilanterol is metabolized to a range of metabolites with significantly reduced β_1- and β_2-agonist activity.

Elimination

Umeclidinium: Following intravenous dosing with radiolabeled umeclidinium, mass balance showed 58% of the radiolabel in the feces and 22% in the urine. The excretion of the drug-related material in the feces following intravenous dosing indicated elimination in the bile. Following oral dosing to healthy male subjects, radiolabel recovered in feces was 92% of the total dose and that in urine was less than 1% of the total dose, suggesting negligible oral absorption. The effective half-life after once-daily dosing is 11 hours.

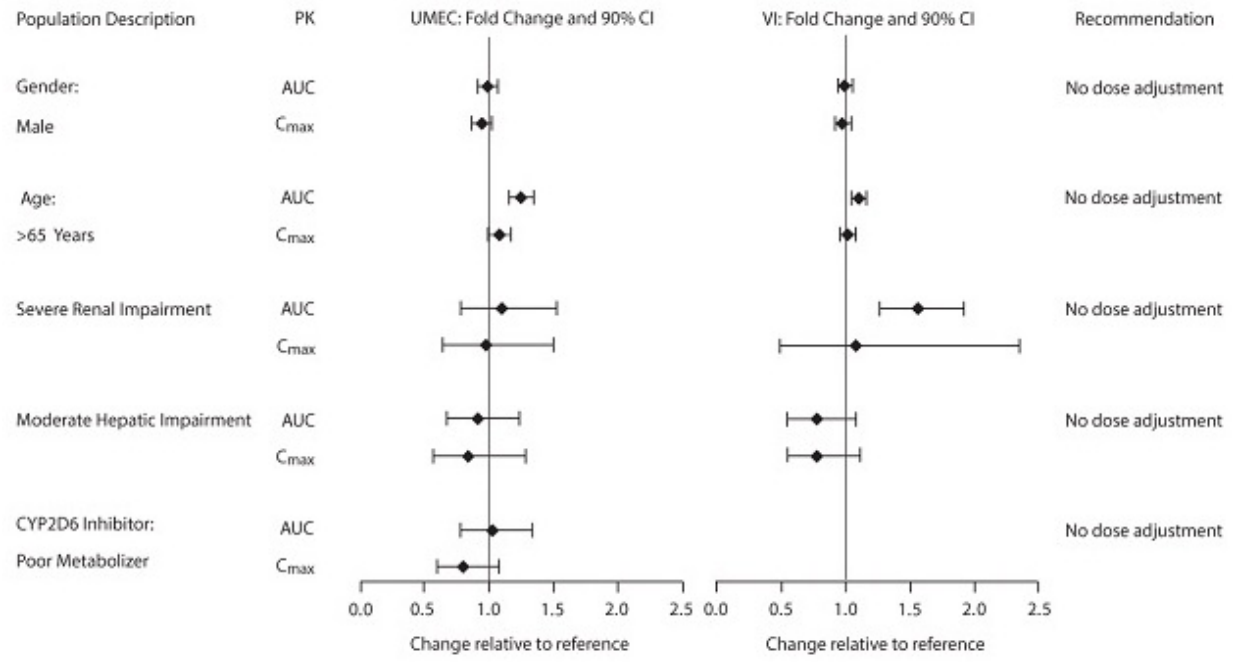
Vilanterol: Following oral administration of radiolabeled vilanterol, mass balance showed 70% of the radiolabel in the urine and 30% in the feces. The effective half-life for vilanterol, as determined from inhalation administration of multiple doses, is 11 hours.

Special Populations

The effects of renal and hepatic impairment and other intrinsic factors on the pharmacokinetics of umeclidinium and vilanterol are shown in Figure 1. Population pharmacokinetic analysis showed no evidence of a clinically significant effect of age (40 to 93 years) (Figure 1), gender (69% male) (Figure 1), inhaled corticosteroid use (48%), or weight (34 to 161 kg) on systemic

exposure of either umeclidinium or vilanterol. In addition, there was no evidence of a clinically significant effect of race.

Figure 1. Impact of Intrinsic Factors on the Pharmacokinetics (PK) of Umeclidinium (UMEC) and Vilanterol (VI)



Hepatic Impairment: The impact of hepatic impairment on the pharmacokinetics of ANORO ELLIPTA has been evaluated in subjects with moderate hepatic impairment (Child-Pugh score of 7-9). There was no evidence of an increase in systemic exposure to either umeclidinium or vilanterol (C_{max} and AUC) (Figure 1). There was no evidence of altered protein binding in subjects with moderate hepatic impairment compared with healthy subjects. ANORO ELLIPTA has not been evaluated in subjects with severe hepatic impairment.

Renal Impairment: The pharmacokinetics of ANORO ELLIPTA has been evaluated in subjects with severe renal impairment (creatinine clearance less than 30 mL/min). Umeclidinium systemic exposure was not increased and vilanterol systemic exposure ($AUC_{(0-24)}$) was 56% higher in subjects with severe renal impairment compared with healthy subjects (Figure 1). There was no evidence of altered protein binding in subjects with severe renal impairment compared with healthy subjects.

Drug Interactions

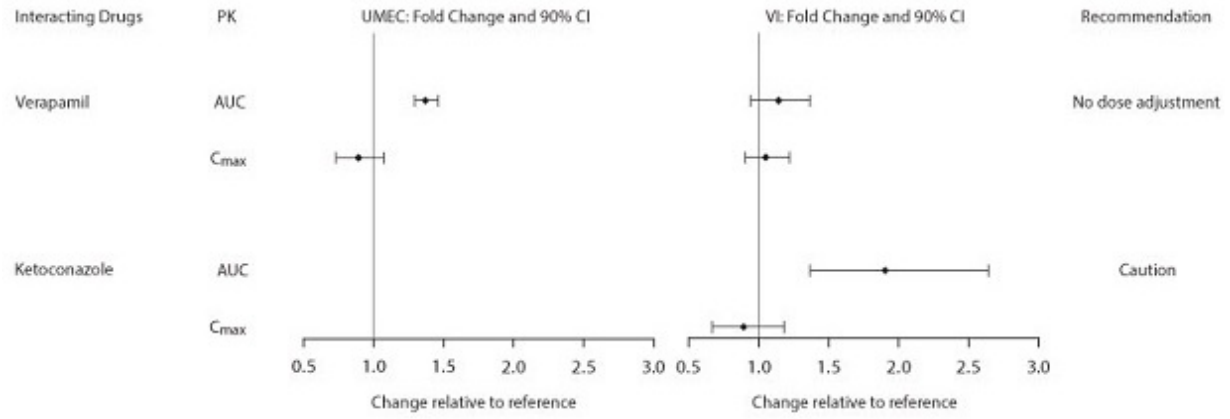
When umeclidinium and vilanterol were administered in combination by the inhaled route, the pharmacokinetic parameters for each component were similar to those observed when each active substance was administered separately.

Inhibitors of Cytochrome P450 3A4: Vilanterol is a substrate of CYP3A4. A double-blind, repeat-dose, 2-way crossover drug interaction trial was conducted in healthy subjects to investigate the pharmacokinetic and pharmacodynamic effects of vilanterol 25 mcg as an inhalation powder with ketoconazole 400 mg. The plasma concentrations of vilanterol were higher after single and repeated doses when coadministered with ketoconazole than with placebo (Figure 2). The increase in vilanterol exposure was not associated with an increase in beta-agonist–related systemic effects on heart rate or blood potassium.

Inhibitors of P-glycoprotein Transporter: Umeclidinium and vilanterol are both substrates of P-gp. The effect of the moderate P-gp transporter inhibitor verapamil (240 mg once daily) on the steady-state pharmacokinetics of umeclidinium and vilanterol was assessed in healthy subjects. No effect on umeclidinium or vilanterol C_{max} was observed; however, an approximately 1.4-fold increase in umeclidinium AUC was observed with no effect on vilanterol AUC (Figure 2).

Inhibitors of Cytochrome P450 2D6: In vitro metabolism of umeclidinium is mediated primarily by CYP2D6. However, no clinically meaningful difference in systemic exposure to umeclidinium (500 mcg) (8 times the approved dose) was observed following repeat daily inhaled dosing in CYP2D6 normal (ultrarapid, extensive, and intermediate metabolizers) and poor metabolizer subjects (Figure 1).

Figure 2. Impact of Extrinsic Factors on the Pharmacokinetics (PK) of Umeclidinium (UMEC) and Vilanterol (VI)



13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

ANORO ELLIPTA

No studies of carcinogenicity, mutagenicity, or impairment of fertility were conducted with ANORO ELLIPTA; however, studies are available for the individual components, umeclidinium and vilanterol, as described below.

Umeclidinium

Umeclidinium produced no treatment-related increases in the incidence of tumors in 2-year inhalation studies in rats and mice at inhaled doses up to 137 and 295/200 mcg/kg/day (male/female), respectively (approximately 20 and 25/20 times the MRHDID in adults on an AUC basis, respectively).

Umeclidinium tested negative in the following genotoxicity assays: the in vitro Ames assay, in vitro mouse lymphoma assay, and in vivo rat bone marrow micronucleus assay.

No evidence of impairment of fertility was observed in male and female rats at subcutaneous doses up to 180 mcg/kg/day and inhaled doses up to 294 mcg/kg/day, respectively (approximately 100 and 50 times, respectively, the MRHDID in adults on an AUC basis).

Vilanterol

In a 2-year carcinogenicity study in mice, vilanterol caused a statistically significant increase in ovarian tubulostromal adenomas in females at an inhalation dose of 29,500 mcg/kg/day (approximately 7,800 times the MRHDID in adults on an AUC basis). No increase in tumors was seen at an inhalation dose of 615 mcg/kg/day (approximately 210 times the MRHDID in adults on an AUC basis).

In a 2-year carcinogenicity study in rats, vilanterol caused statistically significant increases in mesovarian leiomyomas in females and shortening of the latency of pituitary tumors at inhalation doses greater than or equal to 84.4 mcg/kg/day (greater than or equal to approximately 20 times the MRHDID in adults on an AUC basis). No tumors were seen at an inhalation dose of 10.5 mcg/kg/day (approximately 1 time the MRHDID in adults on an AUC basis).

These tumor findings in rodents are similar to those reported previously for other beta-adrenergic agonist drugs. The relevance of these findings to human use is unknown.

Vilanterol tested negative in the following genotoxicity assays: the in vitro Ames assay, in vivo rat bone marrow micronucleus assay, in vivo rat unscheduled DNA synthesis (UDS) assay, and in vitro Syrian hamster embryo (SHE) cell assay. Vilanterol tested equivocal in the in vitro mouse lymphoma assay.

No evidence of impairment of fertility was observed in reproductive studies conducted in male and female rats at inhaled vilanterol doses up to 31,500 and 37,100 mcg/kg/day, respectively (approximately 12,000 and 14,500 times, respectively, the MRHDID in adults on a mcg/m^2 basis).

14 CLINICAL STUDIES

The safety and efficacy of ANORO ELLIPTA were evaluated in a clinical development program that included 6 dose-ranging trials, 4 lung function trials of 6 months' duration (2 placebo-controlled and 2 active-controlled), two 12-week crossover trials, and a 12-month long-term safety trial. The efficacy of ANORO ELLIPTA is based primarily on the dose-ranging

trials in 1,908 subjects with COPD or asthma and the 2 placebo-controlled confirmatory trials with additional support from the 2 active-controlled and 2 crossover trials in 5,388 subjects with COPD.

14.1 Dose-Ranging Trials

Dose selection for ANORO ELLIPTA in COPD was based on dose-ranging trials for the individual components, vilanterol and umeclidinium. Based on the findings from these studies, once-daily doses of umeclidinium/vilanterol 62.5 mcg/25 mcg and umeclidinium/vilanterol 125 mcg/25 mcg were evaluated in the confirmatory COPD trials. **ANORO ELLIPTA is not indicated for asthma.**

Umeclidinium

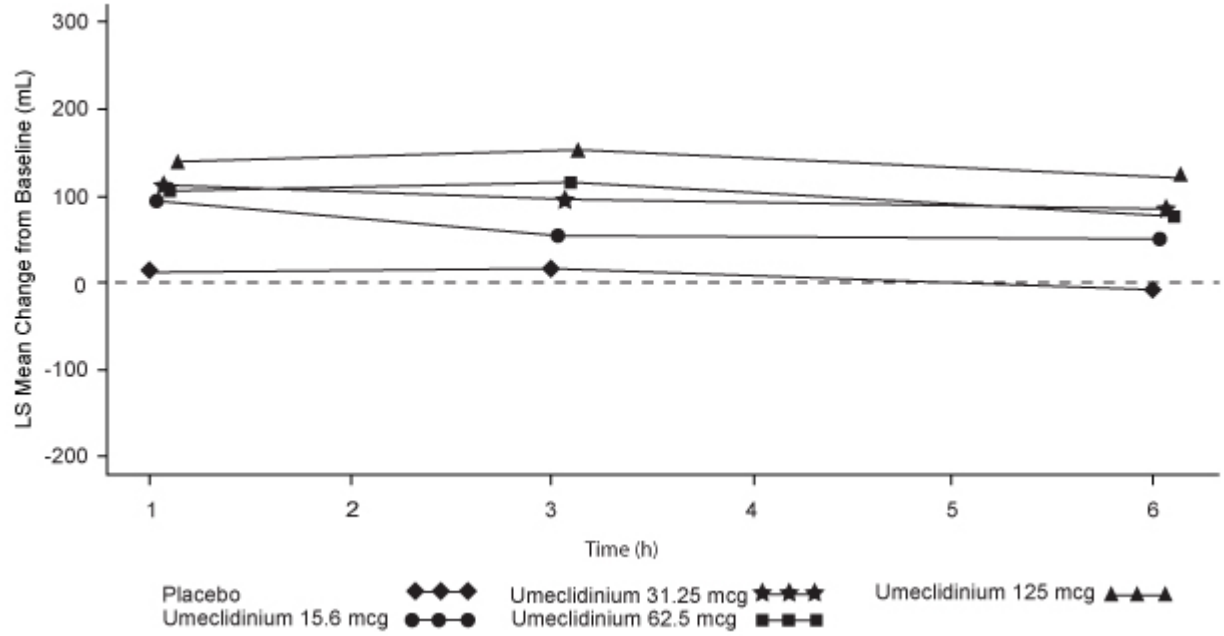
Dose selection for umeclidinium in COPD was supported by a 7-day, randomized, double-blind, placebo-controlled, crossover trial evaluating 4 doses of umeclidinium (15.6 to 125 mcg) or placebo dosed once daily in the morning in 163 subjects with COPD. A dose ordering was observed, with the 62.5- and 125-mcg doses demonstrating larger improvements in FEV_1 over 24 hours compared with the lower doses of 15.6 and 31.25 mcg (Figure 3).

The differences in trough FEV_1 from baseline after 7 days for placebo and the 15.6-, 31.25-, 62.5-, and 125-mcg doses were -74 mL (95% CI: -118, -31), 38 mL (95% CI: -6, 83), 27 mL (95% CI: -18, 72), 49 mL (95% CI: 6, 93), and 109 mL (95% CI: 65, 152), respectively. Two additional dose-ranging trials in subjects with COPD demonstrated minimal additional benefit at doses above 125 mcg. The dose-ranging results supported the evaluation of 2 doses of umeclidinium, 62.5 and 125 mcg, in the confirmatory COPD trials to further assess dose response.

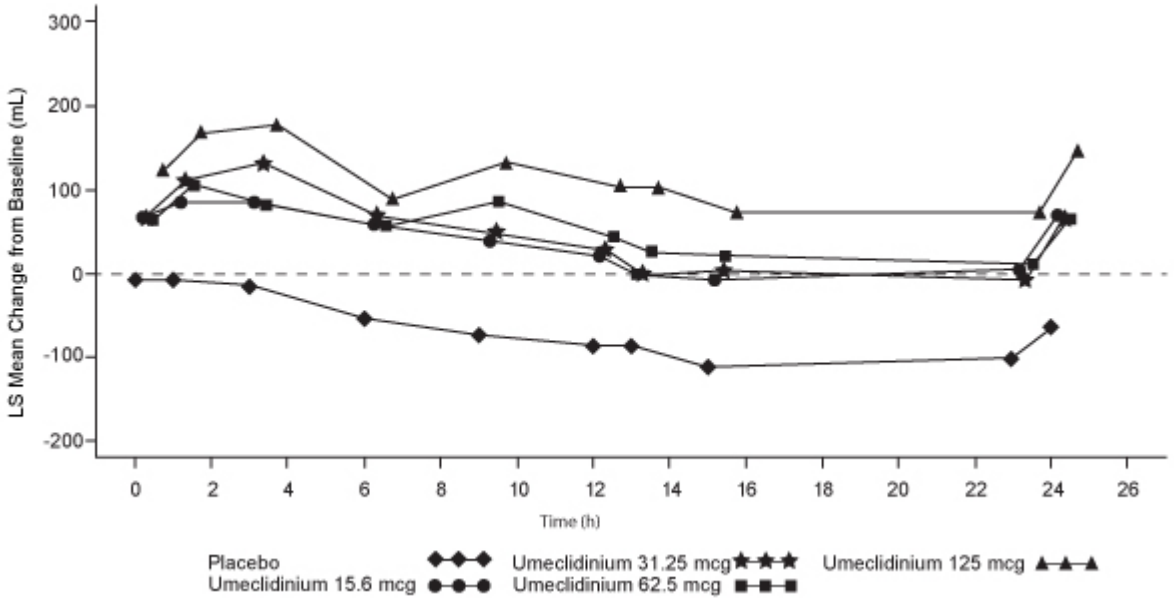
Evaluations of dosing interval by comparing once- and twice-daily dosing supported selection of a once-daily dosing interval for further evaluation in the confirmatory COPD trials.

Figure 3. Least Squares (LS) Mean Change from Baseline in Postdose Serial FEV_1 (mL) on Days 1 and 7

Day 1



Day 7



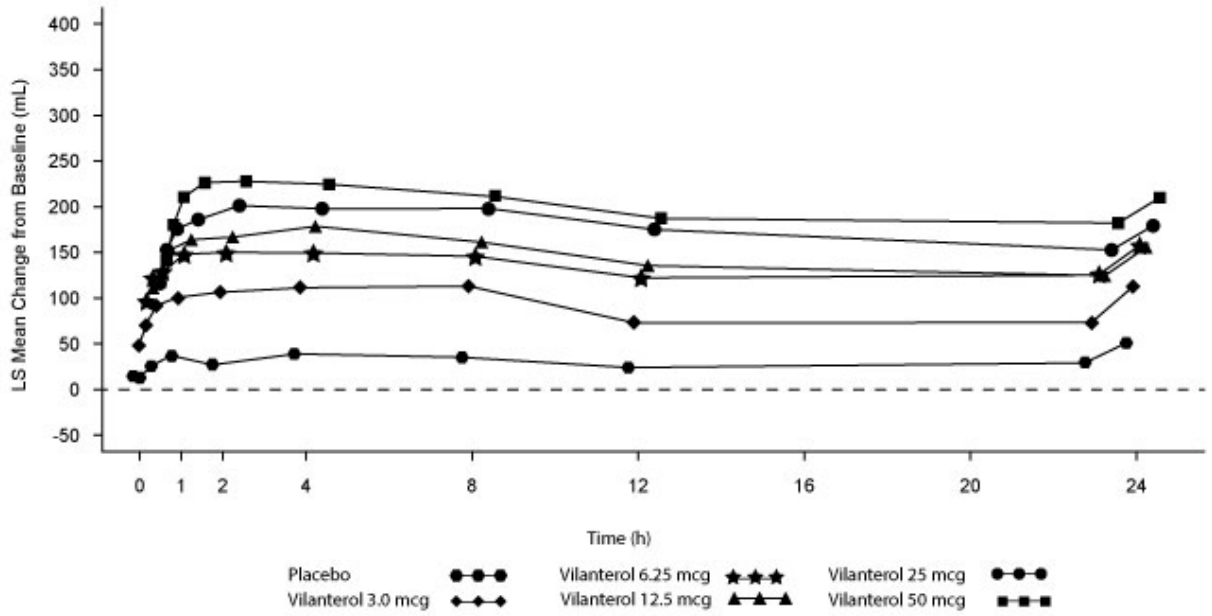
Vilanterol

Dose selection for vilanterol in COPD was supported by a 28-day, randomized, double-blind, placebo-controlled, parallel-group trial evaluating 5 doses of vilanterol (3 to 50 mcg) or placebo

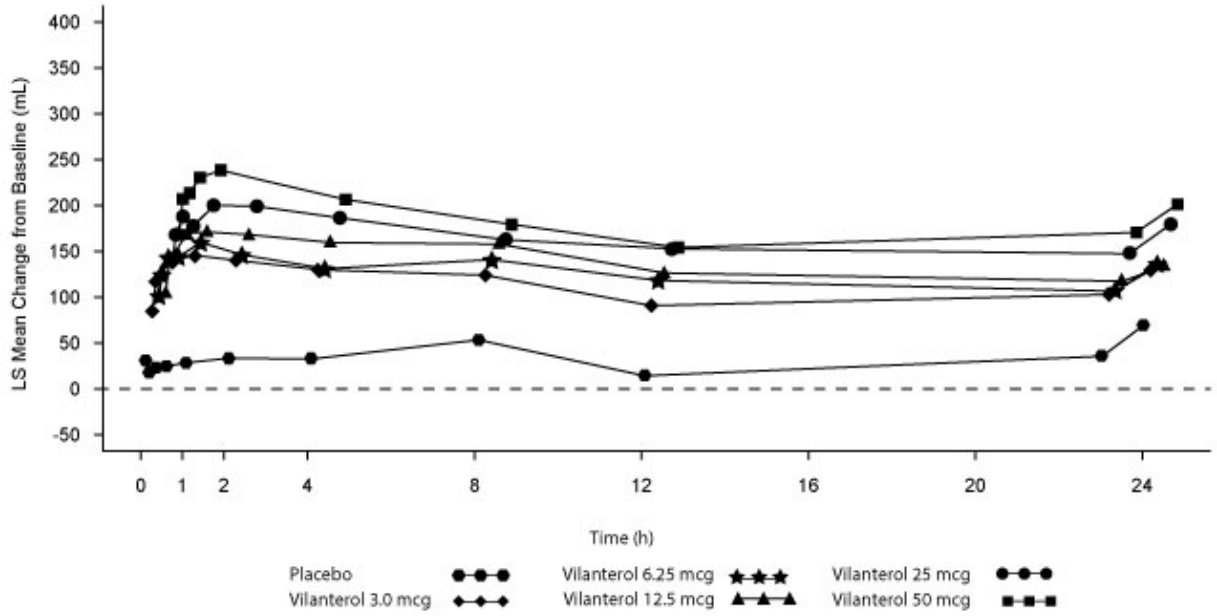
dosed in the morning in 602 subjects with COPD. Results demonstrated dose-related increases from baseline in FEV_1 at Day 1 and Day 28 (Figure 4).

Figure 4. Least Squares (LS) Mean Change from Baseline in Postdose Serial FEV_1 (0-24 h) (mL) on Days 1 and 28

Day 1



Day 28



The differences in trough FEV_1 after Day 28 from baseline for placebo and the 3-, 6.25-, 12.5-, 25-, and 50-mcg doses were 29 mL (95% CI: -8, 66), 120 mL (95% CI: 83, 158), 127 mL (95%

CI: 90, 164), 138 mL (95% CI: 101, 176), 166 mL (95% CI: 129, 203), and 194 mL (95% CI: 156, 231), respectively. These results supported the evaluation of vilanterol 25 mcg in the confirmatory trials for COPD.

Dose-ranging trials in subjects with asthma evaluated doses from 3 to 50 mcg and 12.5 mcg once-daily versus 6.25 mcg twice-daily dosing frequency. The results supported the selection of the vilanterol 25 mcg once-daily dose for further evaluation in the confirmatory trials for COPD.

14.2 Confirmatory Trials

The clinical development program for ANORO ELLIPTA included two 6-month, randomized, double-blind, placebo-controlled, parallel-group trials; two 6-month active-controlled trials; and two 12-week crossover trials in subjects with COPD designed to evaluate the efficacy of ANORO ELLIPTA on lung function. The 6-month trials treated 4,733 subjects that had a clinical diagnosis of COPD, were 40 years of age or older, had a history of smoking greater than or equal to 10 pack-years, had a postalbuterol FEV_1 less than or equal to 70% of predicted normal values, had a ratio of FEV_1/FVC of less than 0.7, and had a Modified Medical Research Council (mMRC) score greater than or equal to 2. Of the 4,713 subjects included in the efficacy analysis, 68% were male and 84% were white. They had a mean age of 63 years and an average smoking history of 45 pack-years, with 50% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 13% to 76%), the mean postbronchodilator FEV_1/FVC ratio was 0.47 (range: 0.13 to 0.78), and the mean percent reversibility was 14% (range: -36% to 109%).

Trial 1 evaluated ANORO ELLIPTA (umeclidinium/vilanterol 62.5 mcg/25 mcg), umeclidinium 62.5 mcg, vilanterol 25 mcg, and placebo. The primary endpoint was change from baseline in trough (predose) FEV_1 at Day 169 (defined as the mean of the FEV_1 values obtained at 23 and 24 hours after the previous dose on Day 168) compared with placebo, umeclidinium 62.5 mcg, and vilanterol 25 mcg. The comparison of ANORO ELLIPTA with umeclidinium 62.5 mcg and vilanterol 25 mcg was assessed to evaluate the contribution of the individual comparators to ANORO ELLIPTA. ANORO ELLIPTA demonstrated a larger increase in mean change from baseline in trough (predose) FEV_1 relative to placebo, umeclidinium 62.5 mcg, and vilanterol 25 mcg (Table 2).

Table 2. Least Squares Mean Change from Baseline in Trough FEV_1 (mL) at Day 169 in the Intent-to-Treat Population (Trial 1)

		Trough FEV_1 (mL) at Day 169		
		Difference from		
Treatment	**n**	**Placebo (95% CI) n = 280**	**Umeclidinium 62.5 mcg[a] (95% CI) n = 418**	**Vilanterol 25 mcg[a] (95% CI) n = 421**
ANORO ELLIPTA	413	167 (128, 207)	52 (17, 87)	95 (60, 130)

n = Number in intent-to-treat population.

[a] The umeclidinium and vilanterol comparators used the same inhaler and excipients as ANORO ELLIPTA.

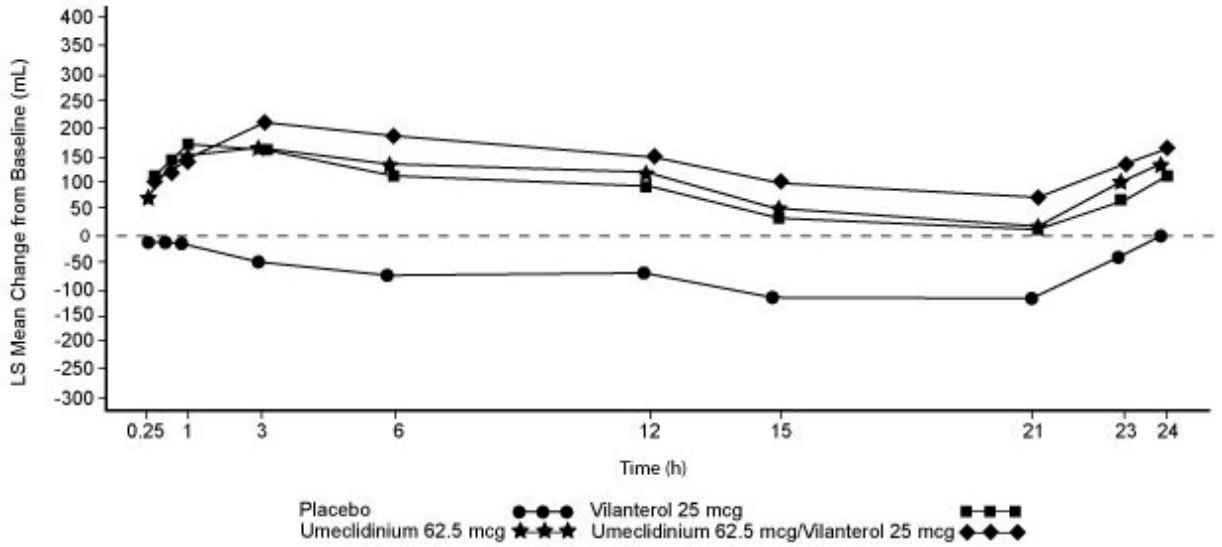
Trial 2 had a similar study design as Trial 1 but evaluated umeclidinium/vilanterol 125 mcg/25 mcg, umeclidinium 125 mcg, vilanterol 25 mcg, and placebo. Results for umeclidinium/vilanterol 125 mcg/25 mcg in Trial 2 were similar to those observed for ANORO ELLIPTA in Trial 1.

Results from the 2 active-controlled trials and the two 12-week trials provided additional support for the efficacy of ANORO ELLIPTA in terms of change from baseline in trough FEV_1 compared with the single-ingredient comparators and placebo.

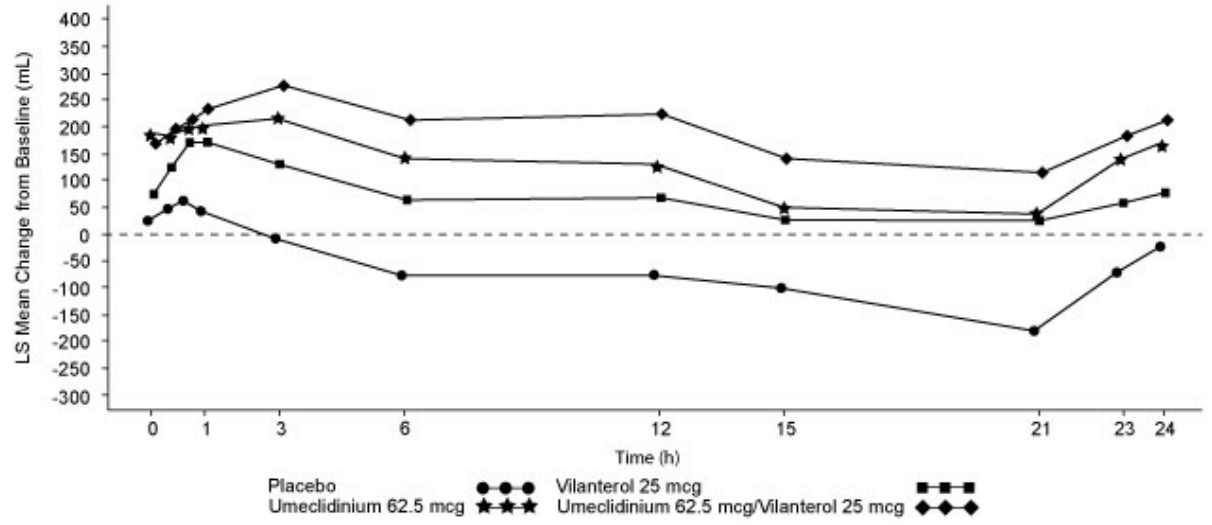
Serial spirometric evaluations throughout the 24-hour dosing interval were performed in a subset of subjects (n = 197) at Days 1, 84, and 168 in Trial 1. Results from Trial 1 at Day 1 and Day 168 are shown in Figure 5.

Figure 5. Least Squares (LS) Mean Change from Baseline in FEV_1 (mL) over Time (0-24 h) on Days 1 and 168 (Trial 1 Subset Population)

Day 1



Day 168



The peak FEV_1 was defined as the maximum FEV_1 recorded within 6 hours after the dose of trial medicine on Days 1, 28, 84, and 168 (measurements recorded at 15 and 30 minutes and 1, 3, and 6 hours). The mean peak FEV_1 improvement from baseline for ANORO ELLIPTA compared with placebo at Day 1 and at Day 168 was 167 and 224 mL, respectively. The median time to onset on Day 1, defined as a 100-mL increase from baseline in FEV_1, was 27 minutes in subjects receiving ANORO ELLIPTA.

16 HOW SUPPLIED/STORAGE AND HANDLING

ANORO ELLIPTA is supplied as a disposable light grey and red plastic inhaler containing 2 foil strips, each with 30 blisters (or 7 blisters for the institutional pack). One strip contains umeclidinium (62.5 mcg per blister), and the other strip contains vilanterol (25 mcg per blister). A blister from each strip is used to create 1 dose. The inhaler is packaged in a moisture-protective foil tray with a desiccant and a peelable lid in the following packs:

NDC 0173-0869-10 30 inhalations (60 blisters)

NDC 0173-0869-06 7 inhalations (14 blisters), institutional pack

Store at room temperature between 68°F and 77°F (20°C and 25°C); excursions permitted from 59°F to 86°F (15°C to 30°C) [See USP Controlled Room Temperature]. Store in a dry place away from direct heat or sunlight. Keep out of reach of children.

ANORO ELLIPTA should be stored inside the unopened moisture-protective foil tray and only removed from the tray immediately before initial use. Discard ANORO ELLIPTA 6 weeks after opening the foil tray or when the counter reads "0" (after all blisters have been used), whichever comes first. The inhaler is not reusable. Do not attempt to take the inhaler apart.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Medication Guide and Instructions for Use).

Asthma-Related Death

Inform patients that LABA, such as vilanterol, one of the active ingredients in ANORO ELLIPTA, increase the risk of asthma-related death. ANORO ELLIPTA is not indicated for the treatment of asthma.

Not for Acute Symptoms

Inform patients that ANORO ELLIPTA is not meant to relieve acute symptoms of COPD and extra doses should not be used for that purpose. Advise patients to treat acute symptoms with an inhaled, short-acting beta$_2$-agonist such as albuterol. Provide patients with such medicine and instruct them in how it should be used.

Instruct patients to seek medical attention immediately if they experience any of the following:

- Decreasing effectiveness of inhaled, short-acting beta$_2$-agonists
- Need for more inhalations than usual of inhaled, short-acting beta$_2$-agonists
- Significant decrease in lung function as outlined by the physician

Tell patients they should not stop therapy with ANORO ELLIPTA without physician/provider guidance since symptoms may recur after discontinuation.

Do Not Use Additional Long-acting Beta$_2$-agonists

Instruct patients not to use other medicines containing a LABA. Patients should not use more than the recommended once-daily dose of ANORO ELLIPTA.

Instruct patients who have been taking inhaled, short-acting beta$_2$-agonists on a regular basis to discontinue the regular use of these products and use them only for the symptomatic relief of acute symptoms.

Paradoxical Bronchospasm

As with other inhaled medicines, ANORO ELLIPTA can cause paradoxical bronchospasm. If paradoxical bronchospasm occurs, instruct patients to discontinue ANORO ELLIPTA and contact their healthcare provider right away.

Risks Associated with Beta-agonist Therapy

Inform patients of adverse effects associated with beta$_2$-agonists, such as palpitations, chest pain, rapid heart rate, tremor, or nervousness.

Worsening of Narrow-Angle Glaucoma

Instruct patients to be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately if any of these signs or symptoms develops.

Worsening of Urinary Retention

Instruct patients to be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination). Instruct patients to consult a physician immediately if any of these signs or symptoms develops.

GlaxoSmithKline
Research Triangle Park, NC 27709

ANR:4PI

MEDICATION GUIDE

ANORO® ELLIPTA® [*a-nor′oh e-LIP-ta*]

(umeclidinium and vilanterol inhalation powder)

What is the most important information I should know about ANORO ELLIPTA?

ANORO ELLIPTA is only approved for use in chronic obstructive pulmonary disease (COPD). ANORO ELLIPTA is NOT approved for use in asthma.

ANORO ELLIPTA can cause serious side effects, including:

- **People with asthma who take long-acting beta$_2$-adrenergic agonist (LABA) medicines, such as vilanterol (one of the medicines in ANORO ELLIPTA), have an increased risk of death from asthma problems.**
- **It is not known if LABA medicines such as vilanterol increase the risk of death in people with COPD.**
- **Call your healthcare provider if breathing problems worsen over time while using ANORO ELLIPTA.** You may need different treatment.
- **Get emergency medical care if:**
  - your breathing problems worsen quickly.
  - you use your rescue inhaler, but it does not relieve your breathing problems.

What is ANORO ELLIPTA?

- ANORO ELLIPTA combines an anticholinergic, umeclidinium, and a LABA medicine, vilanterol.
- Anticholinergic and LABA medicines help the muscles around the airways in your lungs stay relaxed to prevent symptoms such as wheezing, cough, chest tightness, and shortness of breath. These symptoms can happen when the muscles around the airways tighten. This makes it hard to breathe.
- ANORO ELLIPTA is a prescription medicine used to treat COPD. COPD is a chronic lung disease that includes chronic bronchitis, emphysema, or both. ANORO ELLIPTA is used long term as 1 inhalation, 1 time each day, to improve symptoms of COPD for better breathing.
- **ANORO ELLIPTA is not for use to treat sudden symptoms of COPD.** Always have a rescue inhaler (an inhaled, short-acting bronchodilator) with you to treat sudden symptoms. If you do not have a rescue inhaler, contact your healthcare provider to have one prescribed for you.
- **ANORO ELLIPTA is not for the treatment of asthma. It is not known if ANORO ELLIPTA is safe and effective in people with asthma.**
- ANORO ELLIPTA should not be used in children. It is not known if ANORO ELLIPTA is safe and effective in children.

Do not use ANORO ELLIPTA if you:

- have a severe allergy to milk proteins. Ask your healthcare provider if you are not sure.
- are allergic to umeclidinium, vilanterol, or any of the ingredients in ANORO ELLIPTA. See “What are the ingredients in ANORO ELLIPTA?” below for a complete list of ingredients.

Before using ANORO ELLIPTA, tell your healthcare provider about all of your medical conditions, including if you:

- have heart problems.
- have high blood pressure.
- have seizures.
- have thyroid problems.
- have diabetes.

- have liver problems.
- have eye problems such as glaucoma. ANORO ELLIPTA may make your glaucoma worse.
- have prostate or bladder problems, or problems passing urine. ANORO ELLIPTA may make these problems worse.
- are allergic to any of the ingredients in ANORO ELLIPTA, any other medicines, or food products. See "What are the ingredients in ANORO ELLIPTA?" below for a complete list of ingredients.
- are pregnant or planning to become pregnant. It is not known if ANORO ELLIPTA may harm your unborn baby.
- are breastfeeding. It is not known if the medicines in ANORO ELLIPTA pass into your milk and if they can harm your baby.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. ANORO ELLIPTA and certain other medicines may interact with each other. This may cause serious side effects.

Especially tell your healthcare provider if you take:

- anticholinergics (including tiotropium, ipratropium, aclidinium)
- atropine
- antifungal or anti-HIV medicines

Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist when you get a new medicine.

How should I use ANORO ELLIPTA?

Read the step-by-step instructions for using ANORO ELLIPTA at the end of this Medication Guide.

- **Do not** use ANORO ELLIPTA unless your healthcare provider has taught you how to use the inhaler and you understand how to use it correctly.
- Use ANORO ELLIPTA exactly as your healthcare provider tells you to use it. **Do not** use ANORO ELLIPTA more often than prescribed.
- Use 1 inhalation of ANORO ELLIPTA 1 time each day. Use ANORO ELLIPTA at the same time each day.
- If you miss a dose of ANORO ELLIPTA, take it as soon as you remember. Do not take more than 1 inhalation per day. Take your next dose at your usual time. Do not take 2 doses at 1 time.
- If you take too much ANORO ELLIPTA, call your healthcare provider or go to the nearest hospital emergency room right away if you have any unusual symptoms, such as worsening shortness of breath, chest pain, increased heart rate, or shakiness.
- **Do not use other medicines that contain a LABA or an anticholinergic for any reason.** Ask your healthcare provider or pharmacist if any of your other medicines are LABA or anticholinergic medicines.
- Do not stop using ANORO ELLIPTA unless told to do so by your healthcare provider because your symptoms might get worse. Your healthcare provider will change your medicines as needed.
- **ANORO ELLIPTA does not relieve sudden breathing problems.** Always have a rescue inhaler with you to treat sudden symptoms. If you do not have a rescue inhaler, call your healthcare provider to have one prescribed for you.
- Call your healthcare provider or get medical care right away if:
  - your breathing problems get worse.
  - you need to use your rescue inhaler more often than usual.
  - your rescue inhaler does not work as well to relieve your symptoms.

What are the possible side effects of ANORO ELLIPTA?

ANORO ELLIPTA can cause serious side effects, including:

- **See "What is the most important information I should know about ANORO ELLIPTA?"**
- **sudden breathing problems immediately after inhaling your medicine.** If you have sudden breathing problems immediately after inhaling your medicine, stop using ANORO ELLIPTA and call your healthcare provider right away.
- **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction:
  - rash
  - hives
  - swelling of your face, mouth, and tongue
  - breathing problems
- **effects on heart**
  - increased blood pressure
  - a fast or irregular heartbeat, awareness of heartbeat
  - chest pain
- **effects on nervous system**
  - tremor
  - nervousness
- **new or worsened eye problems including acute narrow-angle glaucoma.** Acute narrow-angle glaucoma can cause permanent loss of vision if not treated. Symptoms of acute narrow-angle glaucoma may include:
  - eye pain or discomfort
  - nausea or vomiting
  - blurred vision
  - seeing halos or bright colors around lights
  - red eyes

  If you have these symptoms, call your healthcare provider right away before taking another dose.
- **urinary retention.** People who take ANORO ELLIPTA may develop new or worse urinary retention. Symptoms of urinary retention may include:
  - difficulty urinating
  - painful urination
  - urinating frequently
  - urination in a weak stream or drips

  If you have these symptoms of urinary retention, stop taking ANORO ELLIPTA and call your healthcare provider right away before taking another dose.
- **changes in laboratory blood levels**, including high levels of blood sugar (hyperglycemia) and low levels of potassium (hypokalemia)

Common side effects of ANORO ELLIPTA include:

- sore throat
- sinus infection
- lower respiratory infection
- common cold symptoms
- constipation
- diarrhea
- pain in your arms or legs
- muscle spasms
- neck pain
- chest pain

Tell your healthcare provider about any side effect that bothers you or that does not go away.

These are not all the side effects with ANORO ELLIPTA.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store ANORO ELLIPTA?

- Store ANORO ELLIPTA at room temperature between 68°F and 77°F (20°C and 25°C). Keep in a dry place away

from heat and sunlight.

- Store ANORO ELLIPTA in the unopened foil tray and only open when ready for use.
- Safely throw away ANORO ELLIPTA in the trash 6 weeks after you open the foil tray or when the counter reads “0”, whichever comes first. Write the date you open the tray on the label on the inhaler.
- **Keep ANORO ELLIPTA and all medicines out of the reach of children.**

General information about the safe and effective use of ANORO ELLIPTA.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use ANORO ELLIPTA for a condition for which it was not prescribed. Do not give ANORO ELLIPTA to other people, even if they have the same symptoms that you have. It may harm them. You can ask your pharmacist or healthcare provider for information about ANORO ELLIPTA that is written for health professionals.

What are the ingredients in ANORO ELLIPTA?

Active ingredient: umeclidinium, vilanterol

Inactive ingredients: lactose monohydrate (contains milk proteins), magnesium stearate

For more information about ANORO ELLIPTA, call 1-888-825-5249 or visit our website at www.ANORO.com.

ANORO and ELLIPTA are registered trademarks of the GSK group of companies.
ANORO ELLIPTA was developed in collaboration with INNOVIVA.

GlaxoSmithKline
Research Triangle Park, NC 27709

ANR:4MG

This Medication Guide has been approved by the U.S. Food and Drug Administration Revised: March 2017

INSTRUCTIONS FOR USE

ANORO® ELLIPTA® [*a-norʹoh e-LIP-ta*]

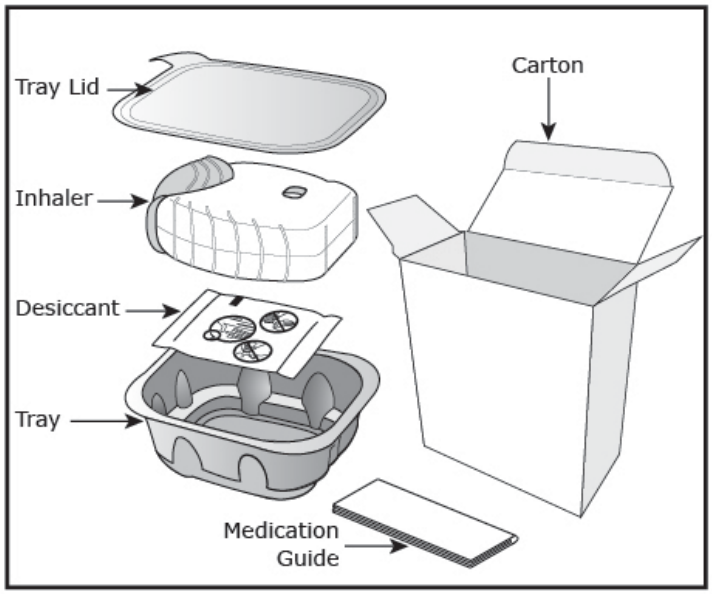
(umeclidinium and vilanterol inhalation powder)

For Oral Inhalation Only.

Read this before you start:

- **If you open and close the cover without inhaling the medicine, you will lose the dose.**
- **The lost dose will be securely held inside the inhaler, but it will no longer be available to be inhaled.**
- **It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.**

Your ANORO ELLIPTA inhaler



How to use your inhaler

- ANORO ELLIPTA comes in a foil tray.
- Peel back the lid to open the tray. See Figure A.
- The tray contains a desiccant to reduce moisture. Do not eat or inhale. Throw it away in the household trash out of reach of children and pets. See Figure B.

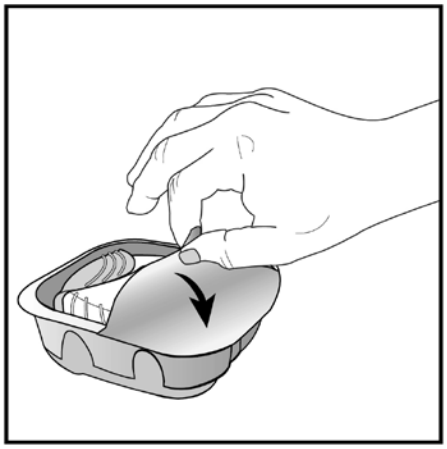


Figure A

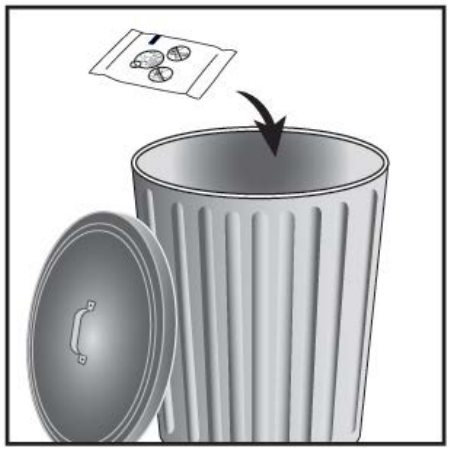


Figure B

Important Notes:

- Your inhaler contains 30 doses (7 doses if you have a sample or institutional pack).
- Each time you fully open the cover of the inhaler (you will hear a clicking sound), a dose is ready to be inhaled. This is shown by a decrease in the number on the counter.
- If you open and close the cover without inhaling the medicine, you will lose the dose. The lost dose will be held in the inhaler, but it will no longer be available to be inhaled. It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.
- **Do not** open the cover of the inhaler until you are ready to use it. To avoid wasting doses after the inhaler is ready, **do not** close the cover until after you have inhaled the medicine.
- Write the “Tray opened” and “Discard” dates on the inhaler label. The “Discard” date is 6 weeks from the date you open the tray.

Check the counter. See Figure C.

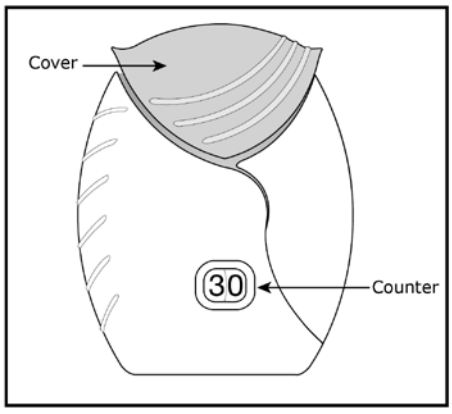


Figure C

- Before the inhaler is used for the first time, the counter should show the number 30 (7 if you have a sample or institutional pack). This is the number of doses in the inhaler.
- Each time you open the cover, you prepare 1 dose of medicine.
- The counter counts down by 1 each time you open the cover.

Prepare your dose:

Wait to open the cover until you are ready to take your dose.

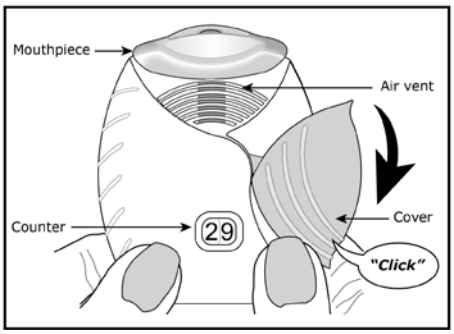


Figure D

Step 1. Open the cover of the inhaler. See Figure D.

- Slide the cover down to expose the mouthpiece. You should hear a “click.” The counter will count down by 1 number. You do not need to shake this kind of inhaler. **Your inhaler is now ready to use.**
- If the counter does not count down as you hear the click, the inhaler will not deliver the medicine. Call your healthcare provider or pharmacist if this happens.

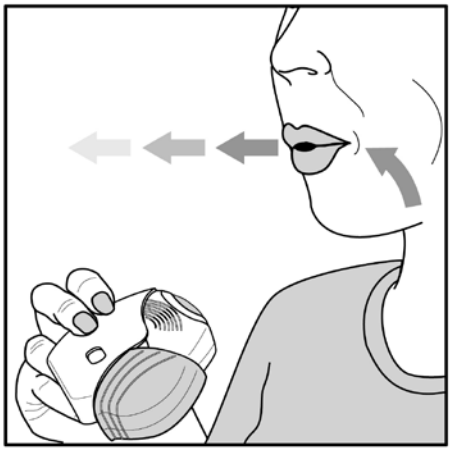


Figure E

Step 2. Breathe out. See Figure E.

- While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not breathe out into the mouthpiece.

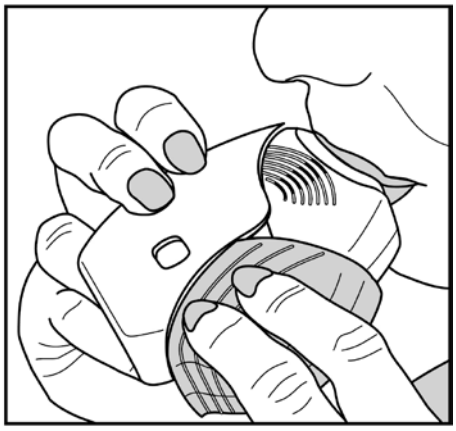


Figure F

Step 3. Inhale your medicine. See Figure F.

- Put the mouthpiece between your lips, and close your lips firmly around it. Your lips should fit over the curved shape of the mouthpiece.
- Take 1 long, steady, deep breath in through your mouth. **Do not** breathe in through your nose.

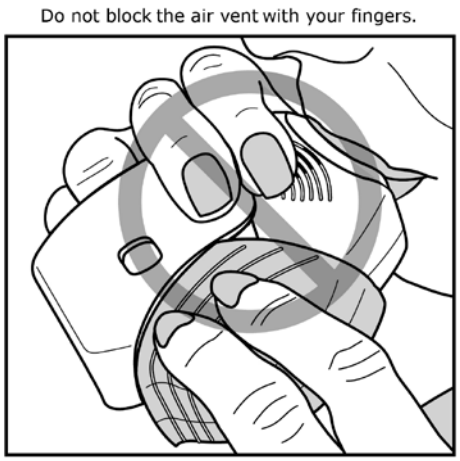


Figure G

- Do not block the air vent with your fingers. **See Figure G.**

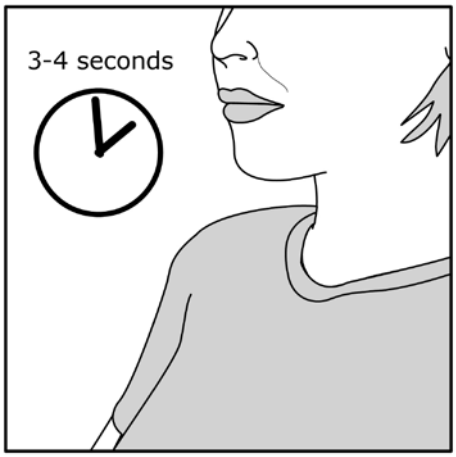


Figure H

- **Remove the inhaler from your mouth and hold your breath for about 3 to 4 seconds** (or as long as comfortable for you). **See Figure H.**

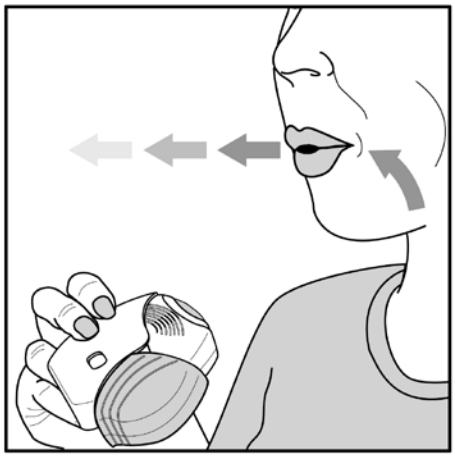


Figure I

Step 4. Breathe out slowly and gently. See Figure I.

- You may not taste or feel the medicine, even when you are using the inhaler correctly.
- **Do not** take another dose from the inhaler even if you do not feel or taste the medicine.

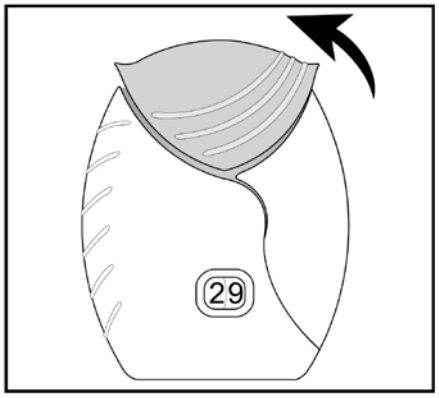


Figure J

Step 5. Close the inhaler. See Figure J.

- You can clean the mouthpiece if needed, using a dry tissue, before you close the cover. Routine cleaning is not required.
- Slide the cover up and over the mouthpiece as far as it will go.

Important Note: When should you get a refill?

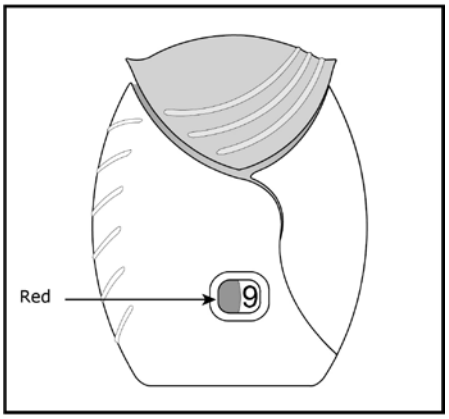


Figure K

- **When you have less than 10 doses remaining** in your inhaler, the left half of the counter shows red as a reminder to get a refill. **See Figure K.**
- After you have inhaled the last dose, the counter will show “0” and will be empty.
- Throw the empty inhaler away in your household trash out of reach of children and pets.

If you have questions about ANORO ELLIPTA or how to use your inhaler, call GlaxoSmithKline (GSK) at 1-888-825-5249 or visit www.ANORO.com.

ANORO and ELLIPTA are registered trademarks of the GSK group of companies.

ANORO ELLIPTA was developed in collaboration with INNOVIVA.

GlaxoSmithKline

Research Triangle Park, NC 27709

ANR:2IFU

This Instructions for Use has been approved by the U.S. Food and Drug Administration Revised: March 2017

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use ARNUITY ELLIPTA safely and effectively. See full prescribing information for ARNUITY ELLIPTA.

ARNUITY ELLIPTA (fluticasone furoate inhalation powder) 100 mcg
ARNUITY ELLIPTA (fluticasone furoate inhalation powder) 200 mcg
FOR ORAL INHALATION
Initial U.S. Approval: 2014

----------INDICATIONS AND USAGE----------

ARNUITY ELLIPTA is a corticosteroid indicated for:

- once-daily maintenance treatment of asthma as prophylactic therapy in patients aged 12 years and older. (1.1)

Important limitation:

- Not indicated for relief of acute bronchospasm. (1.1, 5.2)

---------- DOSAGE AND ADMINISTRATION ----------

For oral inhalation only. (2.1)

- Starting dosage is based on prior asthma therapy and disease severity. (2.2)
- Treatment of asthma in patients aged 12 years and older: 1 inhalation of ARNUITY ELLIPTA 100 mcg or ARNUITY ELLIPTA 200 mcg once daily. (2.2)

---------- DOSAGE FORMS AND STRENGTHS ----------

Inhalation powder containing 100 or 200 mcg of fluticasone furoate per actuation. (3)

----------CONTRAINDICATIONS----------

- Primary treatment of status asthmaticus or acute episodes of asthma requiring intensive measures. (4.1)
- Severe hypersensitivity to milk proteins or any ingredients of ARNUITY ELLIPTA. (4.2)

---------- WARNINGS AND PRECAUTIONS----------

- Localized infections: *Candida albicans* infection of the mouth and throat may occur. Monitor patients periodically. Advise the patient to rinse his/her mouth with water without swallowing after inhalation. (5.1)
- Deterioration of asthma and acute episodes: Do not use for relief of acute symptoms. Patients require immediate re-evaluation during rapidly deteriorating asthma. (5.2)
- Immunosuppression: Potential worsening of existing tuberculosis, fungal, bacterial, viral, parasitic infections or ocular herpes simplex. Use with caution in patients with these infections. More serious or even fatal course of chickenpox or measles can occur in susceptible patients. (5.3)
- Transferring patients from systemic corticosteroids: Risk of impaired adrenal function when transferring from systemic corticosteroids. Wean patients slowly from systemic corticosteroids if transferring to ARNUITY ELLIPTA. (5.4)
- Hypercorticism and adrenal suppression: May occur with very high dosages or at the regular dosage in susceptible individuals. If such changes occur, discontinue ARNUITY ELLIPTA slowly. (5.5)
- Paradoxical bronchospasm: Discontinue ARNUITY ELLIPTA and institute alternative therapy if paradoxical bronchospasm occurs. (5.7)
- Decreases in bone mineral density: Monitor patients with major risk factors for decreased bone mineral content. (5.9)
- Monitor growth of adolescent patients. (5.10)
- Close monitoring for glaucoma and cataracts is warranted. (5.11)

---------- ADVERSE REACTIONS ----------

Most common adverse reactions (reported in greater than or equal to 5% of subjects) are:

- upper respiratory tract infection, nasopharyngitis, headache, and bronchitis. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

----------DRUG INTERACTIONS----------

Strong cytochrome P450 3A4 inhibitors (e.g., ketoconazole): Use with caution. May cause systemic corticosteroid effects. (7.1)

---------- USE IN SPECIFIC POPULATIONS ----------

Hepatic impairment: Fluticasone furoate exposure may increase in patients with moderate or severe impairment. Monitor for systemic corticosteroid effects. (8.6, 12.3)

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 11/2014

FULL PRESCRIBING INFORMATION: CONTENTS*

*Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

1.1 Treatment of Asthma

ARNUITY™ ELLIPTA® is indicated for the once-daily maintenance treatment of asthma as prophylactic therapy in patients aged 12 years and older.

Important Limitation of Use: ARNUITY ELLIPTA is NOT indicated for the relief of acute bronchospasm.

2 DOSAGE AND ADMINISTRATION

2.1 General

ARNUITY ELLIPTA should be administered only by the orally inhaled route *[see Instructions for Use in the Patient Information leaflet]*. Advise the patient to rinse his/her mouth with water without swallowing after each dose.

2.2 Dosing

ARNUITY ELLIPTA should be administered as 1 inhalation once daily by the orally inhaled route. ARNUITY ELLIPTA should be used at the same time every day. Do not use ARNUITY ELLIPTA more than 1 time every 24 hours.

The starting dosage for ARNUITY ELLIPTA is based upon patients' asthma severity. The usual recommended starting dose for patients not on an inhaled corticosteroid is 100 mcg. For other patients, the starting dose should be based on previous asthma drug therapy and disease severity. For patients who do not respond to ARNUITY ELLIPTA 100 mcg after 2 weeks of therapy, replacement with ARNUITY ELLIPTA 200 mcg may provide additional asthma control.

If a dosage regimen of ARNUITY ELLIPTA fails to provide adequate control of asthma, the therapeutic regimen should be re-evaluated and additional therapeutic options, e.g., replacing the current strength of ARNUITY ELLIPTA with a higher strength, initiating an inhaled corticosteroid and long-acting $beta_2$-agonist (LABA) combination product, or initiating oral corticosteroids, should be considered.

The highest recommended daily dose is 200 mcg. If symptoms arise between doses, an inhaled short-acting $beta_2$-agonist should be used for immediate relief.

The maximum benefit may not be achieved for up to 2 weeks or longer after starting treatment. Individual patients may experience a variable time to onset and degree of symptom relief.

After asthma stability has been achieved, it is desirable to titrate to the lowest effective dosage to help reduce the possibility of side effects.

3 DOSAGE FORMS AND STRENGTHS

Inhalation Powder. Disposable light grey and orange plastic inhaler containing a foil blister strip of powder intended for oral inhalation only. Each blister contains fluticasone furoate 100 or 200 mcg.

4 CONTRAINDICATIONS

4.1 Status Asthmaticus

ARNUITY ELLIPTA is contraindicated in the primary treatment of status asthmaticus or other acute episodes of asthma where intensive measures are required *[see Warnings and Precautions (5.2)]*.

4.2 Hypersensitivity

ARNUITY ELLIPTA is contraindicated in patients with known severe hypersensitivity to milk proteins or who have demonstrated hypersensitivity to fluticasone furoate or any of the excipients *[see Warnings and Precautions (5.8), Description (11)]*.

5 WARNINGS AND PRECAUTIONS

5.1 Local Effects of Inhaled Corticosteroids

In clinical trials, the development of localized infections of the mouth and pharynx with *Candida albicans* has occurred in subjects treated with ARNUITY ELLIPTA. When such an infection develops, it should be treated with appropriate local or systemic (i.e., oral) antifungal therapy while treatment with ARNUITY ELLIPTA continues, but at times therapy with ARNUITY ELLIPTA may need to be interrupted. Advise the patient to rinse his/her mouth with water without swallowing following inhalation to help reduce the risk of oropharyngeal candidiasis.

5.2 Acute Asthma Episodes

ARNUITY ELLIPTA is not indicated for the relief of acute symptoms, i.e., as rescue therapy for treatment of acute episodes of bronchospasm. An inhaled, short-acting $beta_2$-agonist, not ARNUITY ELLIPTA, should be used to relieve acute symptoms such as shortness of breath. When prescribing ARNUITY ELLIPTA, the physician must provide the patient with an inhaled, short-acting $beta_2$-agonist (e.g., albuterol) for treatment of acute symptoms, despite regular once-daily use of ARNUITY ELLIPTA. Instruct patients to contact their physicians immediately if episodes of asthma not responsive to bronchodilators occur during the course of treatment with ARNUITY ELLIPTA. During such episodes, patients may require therapy with oral corticosteroids.

5.3 Immunosuppression

Persons using drugs that suppress the immune system are more susceptible to infections than healthy individuals.

Chickenpox and measles, for example, can have a more serious or even fatal course in susceptible children or adults using corticosteroids. In such patients who have not had these diseases or who have not been properly immunized, particular care should be taken to avoid exposure. How the dose, route, and duration of corticosteroid administration affect the risk of

developing a disseminated infection is not known. The contribution of the underlying disease and/or prior corticosteroid treatment to the risk is also not known. If a patient is exposed to chickenpox, prophylaxis with varicella zoster immune globulin (VZIG) or pooled intravenous immunoglobulin (IVIG) may be indicated. If a patient is exposed to measles, prophylaxis with pooled intramuscular immunoglobulin (IG) may be indicated. (See the respective package inserts for complete VZIG and IG prescribing information.) If chickenpox develops, treatment with antiviral agents may be considered.

Inhaled corticosteroids should be used with caution, if at all, in patients with active or quiescent tuberculosis infections of the respiratory tract; untreated systemic fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex.

5.4 Transferring Patients from Systemic Corticosteroid Therapy

Particular care is needed for patients who are transferred from systemically active corticosteroids to inhaled corticosteroids because deaths due to adrenal insufficiency have occurred in patients with asthma during and after transfer from systemic corticosteroids to less systemically available inhaled corticosteroids. After withdrawal from systemic corticosteroids, a number of months are required for recovery of hypothalamic-pituitary-adrenal (HPA) function.

Patients who have been previously maintained on 20 mg or more of prednisone (or its equivalent) may be most susceptible, particularly when their systemic corticosteroids have been almost completely withdrawn. During this period of HPA suppression, patients may exhibit signs and symptoms of adrenal insufficiency when exposed to trauma, surgery, or infection (particularly gastroenteritis) or other conditions associated with severe electrolyte loss. Although ARNUITY ELLIPTA may improve control of asthma symptoms during these episodes, in recommended doses it supplies less than normal physiological amounts of corticosteroid systemically and does NOT provide the mineralocorticoid activity that is necessary for coping with these emergencies.

During periods of stress or a severe asthma attack, patients who have been withdrawn from systemic corticosteroids should be instructed to resume oral corticosteroids (in large doses) immediately and to contact their physicians for further instruction. These patients should also be instructed to carry a medical identification warning card indicating that they may need supplementary systemic corticosteroids during periods of stress or a severe asthma attack.

Patients requiring systemic corticosteroids should be weaned slowly from systemic corticosteroid use after transferring to ARNUITY ELLIPTA. Lung function (forced expiratory volume in 1 second [FEV_1] or morning peak expiratory flow [AM PEF]), beta-agonist use, and asthma symptoms should be carefully monitored during withdrawal of systemic corticosteroids. In addition to monitoring asthma signs and symptoms, patients should be observed for signs and symptoms of adrenal insufficiency, such as fatigue, lassitude, weakness, nausea and vomiting, and hypotension.

Transfer of patients from systemic corticosteroid therapy to ARNUITY ELLIPTA may unmask allergic conditions previously suppressed by the systemic corticosteroid therapy (e.g., rhinitis, conjunctivitis, eczema, arthritis, eosinophilic conditions).

During withdrawal from oral corticosteroids, some patients may experience symptoms of systemically active corticosteroid withdrawal (e.g., joint and/or muscular pain, lassitude, depression), despite maintenance or even improvement of respiratory function.

5.5 Hypercorticism and Adrenal Suppression

ARNUITY ELLIPTA will often help control asthma symptoms with less suppression of HPA function than therapeutically equivalent oral doses of prednisone. Since ARNUITY ELLIPTA is absorbed into the circulation and can be systemically active at higher doses, the beneficial effects of ARNUITY ELLIPTA in minimizing HPA dysfunction may be expected only when recommended dosages are not exceeded and individual patients are titrated to the lowest effective dose.

Because of the possibility of significant systemic absorption of inhaled corticosteroids, patients treated with ARNUITY ELLIPTA should be observed carefully for any evidence of systemic corticosteroid effects. Particular care should be taken in observing patients postoperatively or during periods of stress for evidence of inadequate adrenal response.

It is possible that systemic corticosteroid effects such as hypercorticism and adrenal suppression (including adrenal crisis) may appear in a small number of patients, particularly when fluticasone furoate is administered at higher than recommended doses over prolonged periods of time. If such effects occur, the dosage of ARNUITY ELLIPTA should be reduced slowly, consistent with accepted procedures for reducing systemic corticosteroids and for management of asthma symptoms.

5.6 Drug Interactions with Strong Cytochrome P450 3A4 Inhibitors

Caution should be exercised when considering the coadministration of ARNUITY ELLIPTA with long-term ketoconazole and other known strong CYP3A4 inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) because increased systemic corticosteroid adverse effects may occur *[see Drug Interactions (7.1), Clinical Pharmacology (12.3)]*.

5.7 Paradoxical Bronchospasm and Upper Airway Symptoms

As with other inhaled medicines, bronchospasm may occur with an immediate increase in wheezing after dosing. If bronchospasm occurs following dosing with ARNUITY ELLIPTA, it should be treated immediately with an inhaled, short-acting bronchodilator; ARNUITY ELLIPTA should be discontinued immediately; and alternative therapy should be instituted.

5.8 Hypersensitivity Reactions, Including Anaphylaxis

Hypersensitivity reactions such as urticaria, flushing, allergic dermatitis, and bronchospasm may occur after administration of ARNUITY ELLIPTA. Discontinue ARNUITY ELLIPTA if such reactions occur. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder products containing lactose; therefore, patients with severe milk protein allergy should not use ARNUITY ELLIPTA *[see Contraindications (4.2)]*.

5.9 Reduction in Bone Mineral Density

Decreases in bone mineral density (BMD) have been observed with long-term administration of products containing inhaled corticosteroids. The clinical significance of small changes in BMD with regard to long-term outcomes, such as fracture, is unknown. Patients with major risk factors for decreased bone mineral content, such as prolonged immobilization, family history of osteoporosis, or chronic use of drugs that can reduce bone mass (e.g., anticonvulsants, oral corticosteroids), should be monitored and treated with established standards of care.

5.10 Effect on Growth

Orally inhaled corticosteroids, including ARNUITY ELLIPTA, may cause a reduction in growth velocity when administered to children and adolescents. Monitor the growth of children and adolescents receiving ARNUITY ELLIPTA routinely (e.g., via stadiometry). To minimize the systemic effects of orally inhaled corticosteroids, including ARNUITY ELLIPTA, titrate each patient's dose to the lowest dosage that effectively controls his/her symptoms *[see Use in Specific Populations (8.4)]*.

5.11 Glaucoma and Cataracts

Glaucoma, increased intraocular pressure, and cataracts have been reported in patients following the long-term administration of inhaled corticosteroids. Therefore, close monitoring is warranted in patients with a change in vision or with a history of increased intraocular pressure, glaucoma, and/or cataracts.

6 ADVERSE REACTIONS

Systemic and local corticosteroid use may result in the following:

- *Candida albicans* infection *[see Warnings and Precautions (5.1)]*
- Immunosuppression *[see Warnings and Precautions (5.3)]*
- Hypercorticism and adrenal suppression *[see Warnings and Precautions (5.5)]*
- Reduction in BMD *[see Warnings and Precautions (5.9)]*
- Growth effects in pediatrics *[see Warnings and Precautions (5.10)]*
- Glaucoma and cataracts *[see Warnings and Precautions (5.11)]*

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared with rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The safety of ARNUITY ELLIPTA was evaluated in 10 double-blind, parallel-group, controlled trials (7 with placebo) of 8 to 76 weeks' duration, which enrolled 6,219 subjects with asthma. Doses of fluticasone furoate studied ranged from 25 to 800 mcg.

ARNUITY ELLIPTA 100 mcg was studied in 1,663 subjects, and ARNUITY ELLIPTA 200 mcg was studied in 608 subjects. Subject ages ranged from 12 to 84 years, 65% were female, and 75% were Caucasian.

In these trials, the proportion of subjects who discontinued study treatment early due to adverse reactions was 2% for subjects treated with both ARNUITY ELLIPTA 100 mcg and ARNUITY ELLIPTA 200 mcg and less than or equal to 1% for placebo-treated subjects. Serious

adverse events, whether considered drug-related or not by the investigators, that occurred in more than 1 subject and in a greater percentage of subjects treated with ARNUITY ELLIPTA than placebo included hypertension, abscess, breast cancer, traumatic limb amputation, subarachnoid hemorrhage, and intervertebral disc protrusion; all events occurred at rates less than or equal to 1%.

The incidence of adverse reactions associated with ARNUITY ELLIPTA 100 mcg is shown in Table 1 and is based on one 24-week trial (Trial 1) in adolescent and adult subjects with asthma.

Table 1. Adverse Reactions with ARNUITY ELLIPTA 100 mcg with Greater than or Equal to 3% Incidence and More Common than Placebo (Trial 1, Intent-to-Treat Population)

Adverse Reaction	ARNUITY ELLIPTA 100 mcg n = 114 %	Placebo n = 115 %
Nasopharyngitis	8	5
Bronchitis	7	6
Upper respiratory tract infection	6	5
Headache	6	4
Pharyngitis	4	3
Sinusitis	4	<1
Toothache	3	<1
Gastroenteritis viral	3	0
Oral candidiasis	3	0
Oropharyngeal candidiasis	3	0
Oropharyngeal pain	3	0

The incidence of adverse reactions associated with ARNUITY ELLIPTA 200 mcg is shown in Table 2 and is based on one 24-week trial (Trial 3) in adolescent and adult subjects with asthma. This trial did not have a placebo arm.

Table 2. Adverse Reactions with ARNUITY ELLIPTA 200 mcg with Greater than or Equal to 3% Incidence (Trial 3, Safety Population)

Adverse Reaction	ARNUITY ELLIPTA 200 mcg n = 119 %	ARNUITY ELLIPTA 100 mcg n = 119 %
Nasopharyngitis	13	12
Headache	13	10
Bronchitis	7	12
Influenza	7	4
Upper respiratory tract infection	6	2
Sinusitis	4	7
Oropharyngeal pain	4	3
Pharyngitis	3	6
Back pain	3	3
Dysphonia	3	2
Oral candidiasis	3	<1
Procedural pain	3	<1
Rhinitis	3	<1
Throat irritation	3	<1
Abdominal pain	3	0
Cough	3	0

Adverse reactions observed in the other trials were consistent with those described in Tables 1 and 2.

Long-Term Safety: Long-term safety data are based on 2 trials in adolescent and adult subjects with asthma. In one 52-week trial, subjects received fluticasone furoate 100 mcg (n = 201) or fluticasone furoate 200 mcg (n = 202) in combination with a LABA. Subjects had a mean age of 39 years (adolescents made up 16% of the population), 63% were female, and 67% were Caucasian. In addition to the events shown in Table 1 and Table 2, adverse events occurring in greater than or equal to 3% of the subjects treated with fluticasone furoate 100 mcg or fluticasone furoate 200 mcg, in combination with a LABA, included pyrexia, extrasystoles, upper abdominal pain, respiratory tract infection, diarrhea, and allergic rhinitis.

In a second 24- to 76-week trial, subjects received fluticasone furoate 100 mcg (n = 1,010). Subjects participating in this trial had a history of one or more asthma exacerbations that required treatment with oral/systemic corticosteroids or emergency department visit or in-patient hospitalization for the treatment of asthma within the previous 12 months. Subjects had a mean age of 42 years (adolescents made up 14% of the population), 67% were female, and 73% were Caucasian. In addition to the events shown in Table 1 and Table 2, adverse events occurring in

greater than or equal to 3% of subjects treated with fluticasone furoate 100 mcg for up to 76 weeks included allergic rhinitis, nasal congestion, and arthralgia.

7 DRUG INTERACTIONS

7.1 Inhibitors of Cytochrome P450 3A4

Fluticasone furoate is a substrate of CYP3A4. Concomitant administration of the strong CYP3A4 inhibitor ketoconazole increases the systemic exposure to fluticasone furoate. Caution should be exercised when considering the coadministration of ARNUITY ELLIPTA with long-term ketoconazole and other known strong CYP3A4 inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) *[see Warnings and Precautions (5.6), Clinical Pharmacology (12.3)]*.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Teratogenic Effects: Pregnancy Category C. There are no adequate and well-controlled trials with ARNUITY ELLIPTA in pregnant women. Corticosteroids have been shown to be teratogenic in laboratory animals when administered systemically at relatively low dosage levels. Because animal reproduction studies are not always predictive of human response, ARNUITY ELLIPTA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their physicians if they become pregnant while taking ARNUITY ELLIPTA.

There were no teratogenic effects in rats and rabbits at approximately 4 times and equal to, respectively, the maximum recommended human daily inhalation dose (MRHDID) in adults (on a mcg/m^2 basis at maternal inhaled doses up to 91 and 8 mcg/kg/day in rats and rabbits, respectively). There were no effects on perinatal and postnatal development in rats at approximately equal to the MRHDID in adults (on a mcg/m^2 basis at maternal doses up to 27 mcg/kg/day).

Nonteratogenic Effects: Hypoadrenalism may occur in infants born of mothers receiving corticosteroids during pregnancy. Such infants should be carefully monitored.

8.2 Labor and Delivery

There are no adequate and well-controlled human trials that have investigated the effects of ARNUITY ELLIPTA during labor and delivery.

8.3 Nursing Mothers

It is not known whether fluticasone furoate is excreted in human breast milk. However, other corticosteroids have been detected in human milk. Since there are no data from controlled trials on the use of ARNUITY ELLIPTA by nursing mothers, caution should be exercised when it is administered to a nursing woman.

8.4 Pediatric Use

The safety and efficacy in pediatric patients younger than 12 years have not been established.

Effects on Growth: Orally inhaled corticosteroids may cause a reduction in growth velocity when administered to children and adolescents. A reduction of growth velocity in children and adolescents may occur as a result of poorly controlled asthma or from use of corticosteroids, including inhaled corticosteroids. The effects of long-term treatment of children and adolescents with inhaled corticosteroids, including fluticasone furoate, on final adult height are not known.

Controlled clinical trials have shown that inhaled corticosteroids may cause a reduction in growth in children. In these trials, the mean reduction in growth velocity was approximately 1 cm/year (range: 0.3 to 1.8 cm/year) and appears to be related to dose and duration of exposure. This effect has been observed in the absence of laboratory evidence of HPA axis suppression, suggesting that growth velocity is a more sensitive indicator of systemic corticosteroid exposure in children than some commonly used tests of HPA axis function. The long-term effects of this reduction in growth velocity associated with orally inhaled corticosteroids, including the impact on final adult height, are unknown. The potential for "catch-up" growth following discontinuation of treatment with orally inhaled corticosteroids has not been adequately studied. The growth of children and adolescents receiving orally inhaled corticosteroids, including ARNUITY ELLIPTA, should be monitored routinely (e.g., via stadiometry). The potential growth effects of prolonged treatment should be weighed against the clinical benefits obtained and the risks associated with alternative therapies. To minimize the systemic effects of orally inhaled corticosteroids, including ARNUITY ELLIPTA, each patient should be titrated to the lowest dose that effectively controls his/her symptoms.

A randomized, double-blind, parallel-group, multicenter, 1-year, placebo-controlled trial evaluated the effect of once-daily treatment with 110 mcg of fluticasone furoate in the nasal spray formulation on growth velocity assessed by stadiometry. The systemic exposure of fluticasone furoate in this trial is lower than that of ARNUITY ELLIPTA. The subjects were 474 prepubescent children (girls aged 5 to 7.5 years and boys aged 5 to 8.5 years). Mean growth velocity over the 52-week treatment period was lower in the subjects receiving fluticasone furoate nasal spray (5.19 cm/year) compared with placebo (5.46 cm/year). The mean reduction in growth velocity was 0.27 cm/year (95% CI: 0.06, 0.48) *[see Warnings and Precautions (5.10)]*.

8.5 Geriatric Use

For the 4 confirmatory trials, 71 subjects were aged 65 and older (56 of which were treated with ARNUITY ELLIPTA) and 5 were aged 75 and older (1 of which was treated with ARNUITY ELLIPTA) *[see Clinical Studies (14.2)]*. Based on available data, no adjustment of the dosage of ARNUITY ELLIPTA in geriatric patients is necessary, but greater sensitivity in some older individuals cannot be ruled out. Clinical trials of ARNUITY ELLIPTA did not include sufficient numbers of subjects aged 65 and older to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of

concomitant disease or other drug therapy.

8.6 Hepatic Impairment

Fluticasone furoate systemic exposure increased by up to 3-fold in subjects with hepatic impairment compared with healthy subjects. Use ARNUITY ELLIPTA with caution in patients with moderate or severe hepatic impairment. Monitor patients for corticosteroid-related side effects *[see Clinical Pharmacology (12.3)]*.

8.7 Renal Impairment

There were no significant increases in fluticasone furoate exposure in subjects with severe renal impairment (CrCl less than 30 mL/min) compared with healthy subjects. No dosage adjustment is required in patients with renal impairment *[see Clinical Pharmacology (12.3)]*.

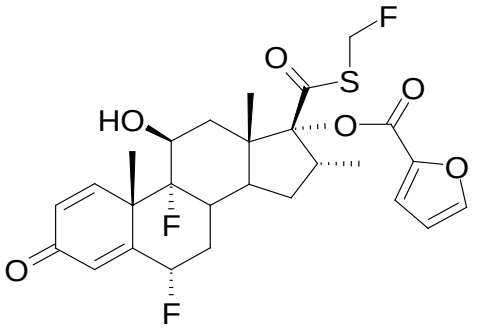
10 OVERDOSAGE

No human overdosage data have been reported for ARNUITY ELLIPTA. The potential for acute toxic corticosteroid effects following overdosage with ARNUITY ELLIPTA is low. Because of low systemic bioavailability (13.9%) and an absence of acute drug-related systemic findings in clinical trials, overdosage of fluticasone furoate is unlikely to require any treatment other than observation. If used at excessive doses for prolonged periods, systemic effects such as hypercorticism may occur *[see Warnings and Precautions (5.5)]*.

Single- and repeat-dose trials of fluticasone furoate at doses of 50 to 4,000 mcg have been studied in human subjects. Decreases in mean serum cortisol were observed at dosages of 500 mcg or higher given once daily for 14 days.

11 DESCRIPTION

The active component of ARNUITY ELLIPTA is fluticasone furoate, a synthetic trifluorinated corticosteroid having the chemical name (6α,11β,16α,17α)-6,9-difluoro-17-{[(fluoro-methyl)thio]carbonyl}-11-hydroxy-16-methyl-3-oxoandrosta-1,4-dien-17-yl 2-furancarboxylate and the following chemical structure:



Fluticasone furoate is a white powder with a molecular weight of 538.6, and the empirical formula is $C_{27}H_{29}F_3O_6S$. It is practically insoluble in water.

ARNUITY ELLIPTA is a light grey and orange plastic inhaler containing a foil blister strip. Each blister on the strip contains a white powder mix of micronized fluticasone furoate (100 or 200 mcg) and lactose monohydrate (12.4 or 12.3 mg) for a total powder mix of 12.5 mg per blister. The lactose monohydrate contains milk proteins. After the inhaler is activated, the

powder within the blister is exposed and ready for dispersion into the airstream created by the patient inhaling through the mouthpiece.

Under standardized in vitro test conditions, ARNUITY ELLIPTA 100 mcg and ARNUITY ELLIPTA 200 mcg deliver 90 and 182 mcg, respectively, of fluticasone furoate per blister when tested at a flow rate of 60 L/min for 4 seconds.

In adult subjects with asthma and a mean FEV_1 of 2.55 L/sec (range: 1.63 to 3.97 L/sec), mean peak inspiratory flow through the ELLIPTA inhaler was 103.2 L/min (range: 71.2 to 133.1 L/min).

The actual amount of drug delivered to the lung will depend on patient factors, such as inspiratory flow profile.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Fluticasone furoate is a synthetic trifluorinated corticosteroid with anti-inflammatory activity. Fluticasone furoate has been shown in vitro to exhibit a binding affinity for the human glucocorticoid receptor that is approximately 29.9 times that of dexamethasone and 1.7 times that of fluticasone propionate. The clinical relevance of these findings is unknown.

The precise mechanism of corticosteroid action on asthma is not known. Inflammation is an important component in the pathogenesis of asthma. Corticosteroids have been shown to have a wide range of actions on multiple cell types (e.g., mast cells, eosinophils, neutrophils, macrophages, lymphocytes) and mediators (e.g., histamine, eicosanoids, leukotrienes, cytokines) involved in inflammation. These anti-inflammatory actions of corticosteroids contribute to their efficacy in asthma.

Though effective for the treatment of asthma, corticosteroids may not affect symptoms immediately. Individual patients will experience a variable time to onset and degree of symptom relief. Maximum benefit may not be achieved for 1 to 2 weeks or longer after starting treatment. When corticosteroids are discontinued, asthma stability may persist for several days or longer.

Trials in subjects with asthma have shown a favorable ratio between topical anti-inflammatory activity and systemic corticosteroid effects with recommended doses of orally inhaled fluticasone furoate. This is explained by a combination of a relatively high local anti-inflammatory effect, negligible oral systemic bioavailability (approximately 1.3%), and the minimal pharmacological activity of the metabolites detected in man.

12.2 Pharmacodynamics

The pharmacodynamics of fluticasone furoate were characterized in trials of fluticasone furoate given as a single component and also in trials of fluticasone furoate given in combination with vilanterol.

HPA Axis Effects: *Healthy Subjects:* Inhaled fluticasone furoate at repeat doses up to 400 mcg was not associated with statistically significant decreases in serum or urinary cortisol in healthy subjects. Decreases in serum and urine cortisol levels were observed at fluticasone furoate exposures several-fold higher than exposures observed at the therapeutic dose.

Subjects with Asthma: A randomized, double-blind, parallel-group trial in 185 subjects with asthma showed no difference between once-daily treatment with fluticasone furoate/vilanterol 100 mcg/25 mcg or fluticasone furoate/vilanterol 200 mcg/25 mcg compared with placebo on serum cortisol weighted mean (0 to 24 hours), serum cortisol $AUC_{(0-24)}$, and 24-hour urinary cortisol after 6 weeks of treatment, whereas prednisolone 10 mg given once daily for 7 days resulted in significant cortisol suppression.

Cardiac Effects: A QT/QTc trial did not demonstrate an effect of fluticasone furoate administration on the QTc interval. The effect of a single dose of 4,000 mcg of orally inhaled fluticasone furoate on the QTc interval was evaluated over 24 hours in 40 healthy male and female subjects in a placebo- and positive-controlled (a single dose of 400 mg oral moxifloxacin) cross-over trial. The QTcF maximal mean change from baseline following fluticasone furoate was similar to that observed with placebo with a treatment difference of 0.788 msec (90% CI: -1.802, 3.378). In contrast, moxifloxacin given as a 400-mg tablet resulted in prolongation of the QTcF maximal mean change from baseline compared with placebo with a treatment difference of 9.929 msec (90% CI: 7.339, 12.520).

12.3 Pharmacokinetics

The pharmacokinetics of fluticasone furoate were characterized in trials of fluticasone furoate given as a single component and also in trials of fluticasone furoate given in combination with vilanterol. Linear pharmacokinetics were observed for fluticasone furoate (200 to 800 mcg). On repeated once-daily inhalation administration, steady state of fluticasone furoate plasma concentration was achieved after 6 days, and the accumulation was up to 2.6-fold as compared with single dose.

Absorption: Fluticasone furoate plasma levels may not predict therapeutic effect. Peak plasma concentrations are reached within 0.5 to 1 hour. Absolute bioavailability of fluticasone furoate when administrated by inhalation was 13.9%, primarily due to absorption of the inhaled portion of the dose delivered to the lung. Oral bioavailability from the swallowed portion of the dose is low (approximately 1.3%) due to extensive first-pass metabolism. Systemic exposure (AUC) in subjects with asthma was 26% lower than observed in healthy subjects.

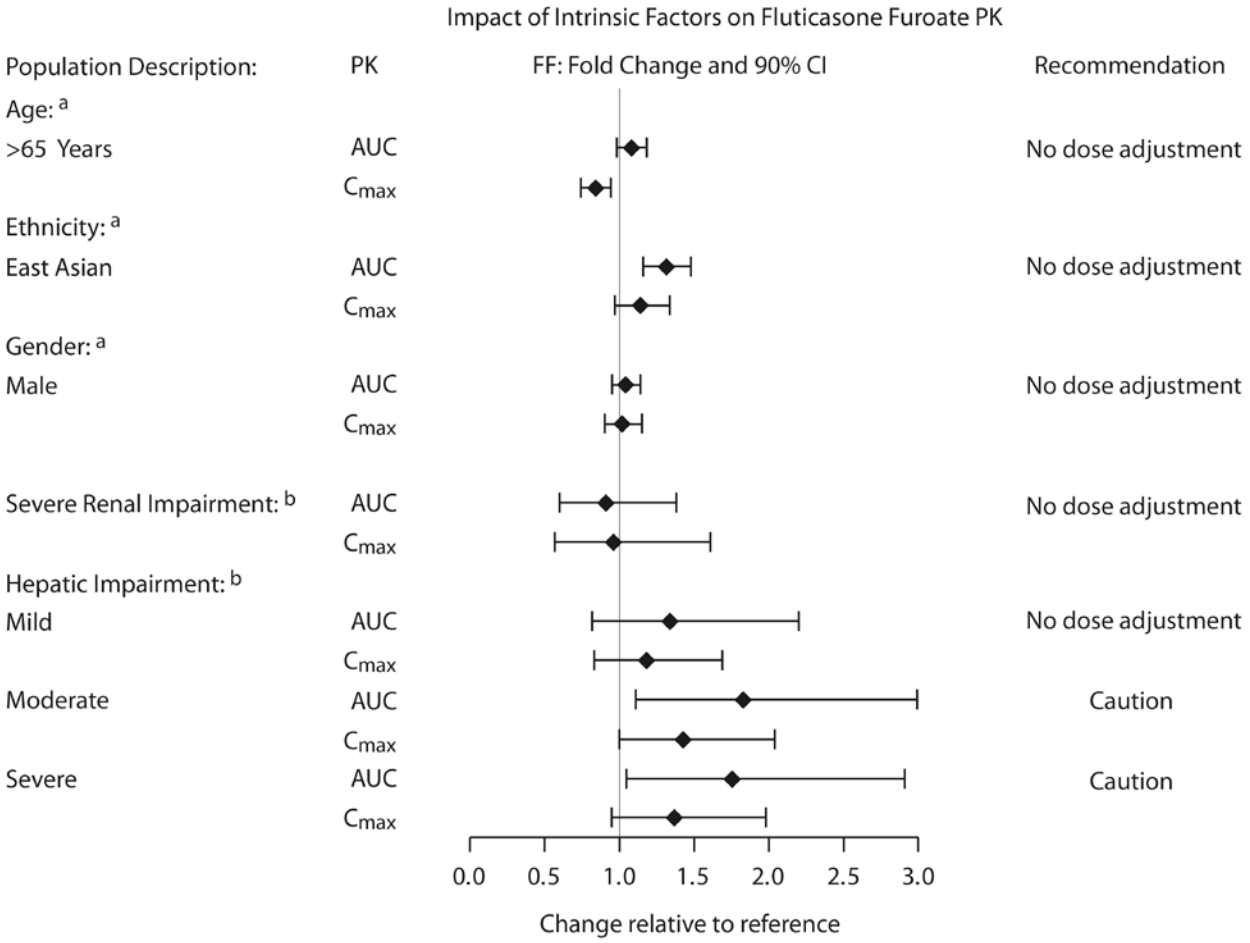
Distribution: Following intravenous administration to healthy subjects, the mean volume of distribution at steady state was 661 L. Binding of fluticasone furoate to human plasma proteins was high (99.6%).

Metabolism: Fluticasone furoate is cleared from systemic circulation principally by hepatic metabolism via CYP3A4 to metabolites with significantly reduced corticosteroid activity. There was no in vivo evidence for cleavage of the furoate moiety resulting in the formation of fluticasone.

Elimination: Fluticasone furoate and its metabolites are eliminated primarily in the feces, accounting for approximately 101% and 90% of the orally and intravenously administered doses, respectively. Urinary excretion accounted for approximately 1% and 2% of the orally and intravenously administered doses, respectively. Following repeat-dose inhaled administration, the plasma elimination phase half-life averaged 24 hours.

Special Populations: The effect of renal and hepatic impairment and other intrinsic factors on the pharmacokinetics of fluticasone furoate is shown in Figure 1.

Figure 1. Impact of Intrinsic Factors on the Pharmacokinetics (PK) of Fluticasone Furoate (FF)



[a] Age, gender, and ethnicity comparison for ARNUITY ELLIPTA in subjects with asthma.

[b] Renal groups (fluticasone furoate/vilanterol 200 mcg/25 mcg) and hepatic groups (fluticasone furoate/vilanterol 200 mcg/25 mcg or fluticasone furoate/vilanterol 100 mcg/12.5 mcg) compared with healthy control group.

Race: Systemic exposure ($AUC_{(0-24)}$) to inhaled fluticasone furoate 200 mcg was 27% to 49% higher in healthy subjects of Japanese, Korean, and Chinese heritage compared with Caucasian subjects. Similar differences were observed for subjects with asthma (Figure 1). There is no evidence that this higher exposure to fluticasone furoate results in clinically relevant effects on urinary cortisol excretion or on efficacy in these racial groups.

Hepatic Impairment: Following repeat dosing of fluticasone furoate/vilanterol 200 mcg/25 mcg (100 mcg/12.5 mcg in the severe impairment group) for 7 days, fluticasone

furoate systemic exposure (AUC) increased 34%, 83%, and 75% in subjects with mild, moderate, and severe hepatic impairment, respectively, compared with healthy subjects (see Figure 1).

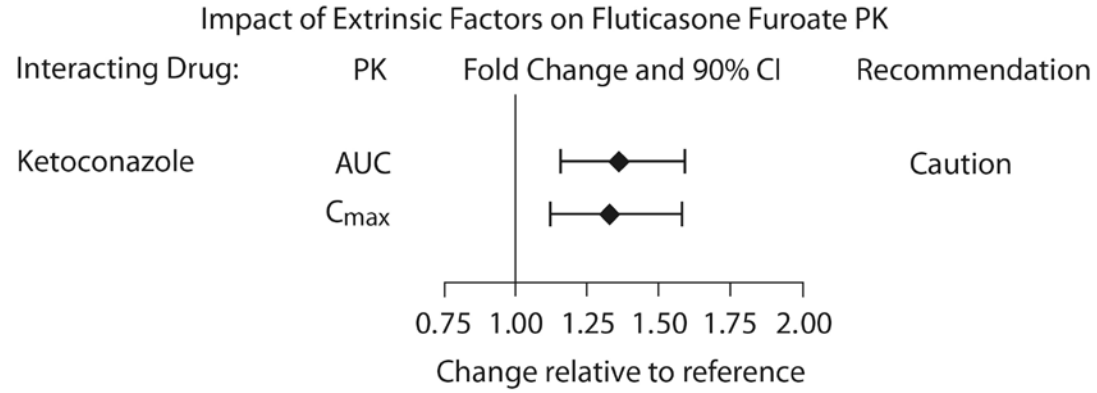
In subjects with moderate hepatic impairment receiving fluticasone furoate/vilanterol 200 mcg/25 mcg, mean serum cortisol (0 to 24 hours) was reduced by 34% (90% CI: 11%, 51%) compared with healthy subjects. In subjects with severe hepatic impairment receiving fluticasone furoate/vilanterol 100 mcg/12.5 mcg, mean serum cortisol (0 to 24 hours) was increased by 14% (90% CI: -16%, 55%) compared with healthy subjects. Patients with moderate to severe hepatic disease should be closely monitored.

Renal Impairment: Fluticasone furoate systemic exposure was not increased in subjects with severe renal impairment compared with healthy subjects (see Figure 1). There was no evidence of greater corticosteroid class-related systemic effects (assessed by serum cortisol) in subjects with severe renal impairment compared with healthy subjects.

Drug Interactions: The potential for fluticasone furoate to inhibit or induce metabolic enzymes and transporter systems is negligible at low inhalation doses.

Inhibitors of Cytochrome P450 3A4: The exposure (AUC) of fluticasone furoate was 36% higher after single and repeated doses when coadministered with ketoconazole 400 mg compared with placebo (see Figure 2). The increase in fluticasone furoate exposure was associated with a 27% reduction in weighted mean serum cortisol (0 to 24 hours).

Figure 2. Impact of Coadministered Ketoconazole[a] on the Pharmacokinetics (PK) of Fluticasone Furoate



[a] Compared with placebo group.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Fluticasone furoate produced no treatment-related increases in the incidence of tumors in 2-year inhalation studies in rats and mice at inhaled doses up to 9 and 19 mcg/kg/day, respectively (less than the MRHDID in adults on a mcg/m^2 basis).

Fluticasone furoate did not induce gene mutation in bacteria or chromosomal damage in a mammalian cell mutation test in mouse lymphoma L5178Y cells in vitro. There was also no evidence of genotoxicity in the in vivo micronucleus test in rats.

No evidence of impairment of fertility was observed in male and female rats at inhaled fluticasone furoate doses up to 29 and 91 mcg/kg/day, respectively (approximately equal to and 4 times, respectively, the MRHDID in adults on a mcg/m^2 basis).

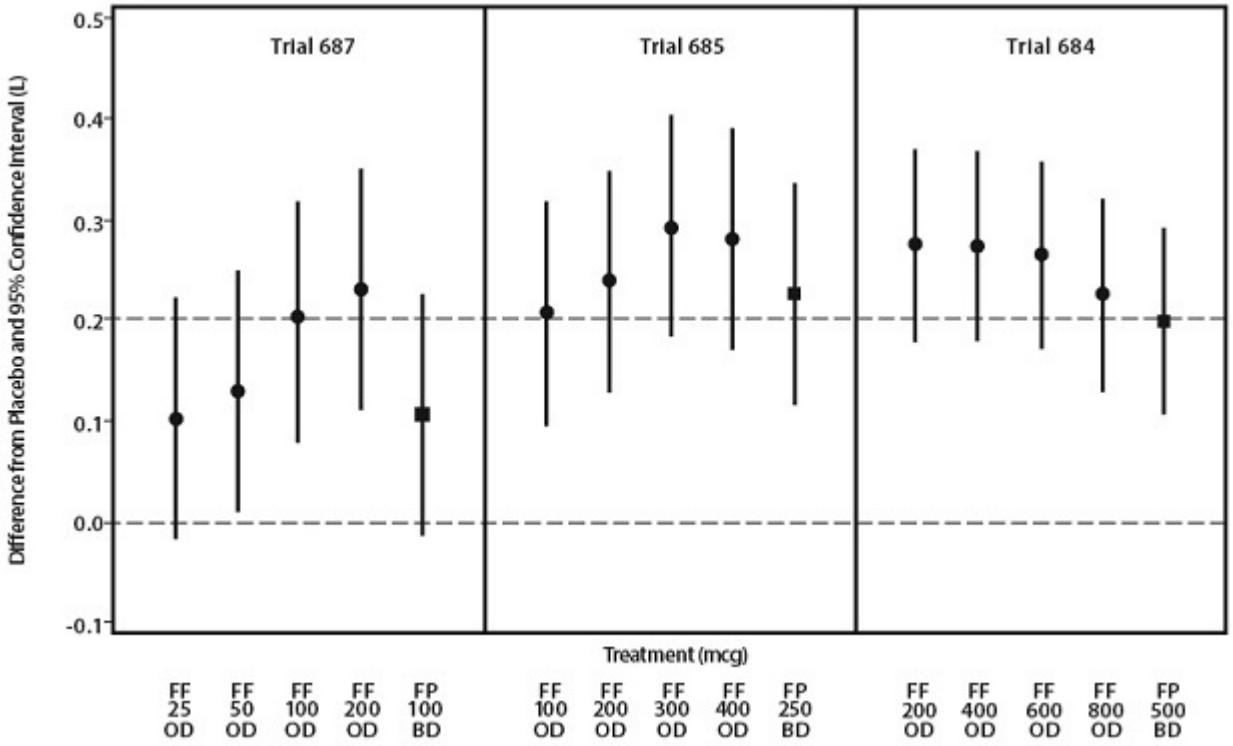
14 CLINICAL STUDIES

The safety and efficacy of ARNUITY ELLIPTA were evaluated in 3,611 subjects with asthma. The development program included 4 confirmatory trials of 3 and 6 months' duration and 3 dose-ranging trials of 8 weeks' duration. The efficacy of ARNUITY ELLIPTA is based primarily on the dose-ranging trials and the confirmatory trials described below.

14.1 Dose-Ranging Trials

Eight doses of fluticasone furoate ranging from 25 to 800 mcg once daily were evaluated in 3 randomized, double-blind, placebo-controlled, 8-week trials in subjects with asthma. Across the 3 trials, subjects were uncontrolled at baseline on treatments of short-acting $beta_2$-agonist and/or non-corticosteroid controller medications (Trial 687), low-dose inhaled corticosteroid (Trial 685), or medium doses of inhaled corticosteroid (Trial 684). The trials in Figure 3 were dose-ranging trials of ARNUITY ELLIPTA not designed to provide comparative effectiveness data and should not be interpreted as evidence of superiority/inferiority to fluticasone propionate. A dose-related increase in trough FEV_1 at Week 8 was seen for doses from 25 to 200 mcg with no consistent additional benefit for doses above 200 mcg as seen in Figure 3. To evaluate dosing frequency, a separate trial compared fluticasone furoate 200 mcg once daily, fluticasone furoate 100 mcg twice daily, fluticasone propionate 100 mcg twice daily, and fluticasone propionate 200 mcg once daily. The results supported the selection of the once-daily dosing frequency.

Figure 3. Dose-Ranging Trials



FF = Fluticasone furoate.
FP = Fluticasone propionate.
OD = Once daily.
BD = Twice daily.

14.2 Confirmatory Trials

The clinical development program for ARNUITY ELLIPTA included 4 confirmatory trials in adolescent and adult subjects aged 12 years and older with asthma. The trials were designed to evaluate the safety and efficacy of ARNUITY ELLIPTA given once daily in the evening on lung function in subjects who were not controlled on their current treatments of inhaled corticosteroids, or combination therapy consisting of an inhaled corticosteroid plus a LABA. Study treatments were delivered as inhalation powders. The primary endpoint in all trials was change from baseline in evening trough FEV_1 measured approximately 24 hours after the final dose of study medication. Trough FEV_1 (assessed at approximately 24 hours after the previous dose) was also assessed at clinic visits throughout the trials. Trials 2 and 4 had a co-primary endpoint of change from baseline in weighted mean serial FEV_1 measured after the final dose of study medication at 5, 15, and 30 minutes and 1, 2, 3, 4, 5, 12, 16, 20, 23, and 24 hours post-dose.

Clinical Trials with ARNUITY ELLIPTA 100 mcg: Trial 1 was a 24-week trial that evaluated the efficacy of ARNUITY ELLIPTA 100 mcg compared with placebo on lung function in subjects with asthma. Inhaled fluticasone propionate 250 mcg twice daily was

included as an active control. Of the 343 subjects, 59% were female and 79% were Caucasian. The mean age was 41 years. The trial included a 4-week run-in period during which the subjects were symptomatic while taking their usual low- to mid-dose inhaled corticosteroid therapy (i.e., fluticasone propionate 100 to 500 mcg daily or equivalent). Mean baseline percent predicted FEV_1 was approximately 73% overall and was similar across the 3 treatment groups. Thirty-five percent of subjects on placebo and 19% of subjects on ARNUITY ELLIPTA 100 mcg failed to complete the 24-week trial.

The change in trough FEV_1 from baseline to Week 24, or the last available on-treatment visit prior to Week 24, was assessed to evaluate the efficacy of ARNUITY ELLIPTA 100 mcg. The mean change from baseline in trough FEV_1 was greater among subjects receiving ARNUITY ELLIPTA 100 mcg than among those receiving placebo (mean treatment difference from placebo 146 mL; 95% CI: 36, 257) as shown in Table 3.

Table 3. Change from Baseline in Trough FEV_1 (mL) at Week 24 – Trial 1

Trough FEV_1 (Week 24)	**Placebo (n = 113)**	**ARNUITY ELLIPTA 100 mcg (n = 111)**	**Fluticasone Propionate 250 mcg Twice Daily (n = 107)**
Least squares mean	2,372	2,519	2,517
Least squares mean change (SE)	15 (39.4)	161 (39.8)	159 (40.6)
Column vs. placebo			
Difference	—	146	145
95% CI	—	36, 257	33, 257
P value	—	0.009	0.011

Trial 2 was a 12-week trial that evaluated the efficacy of ARNUITY ELLIPTA 100 mcg on lung function in subjects with asthma compared with placebo. The combination of fluticasone furoate 100 mcg and vilanterol 25 mcg was also included as a treatment arm. Of the 609 subjects, 58% were female and 84% were Caucasian. The mean age was 40 years. The trial included a 4-week run-in period during which the subjects were symptomatic while taking their usual low- to mid-dose inhaled corticosteroid (fluticasone propionate 200 to 500 mcg/day or equivalent). If LABA were used prior to screening, their use was discontinued during the run-in. Mean baseline percent predicted FEV_1 was approximately 70% in both treatment groups. Twenty-six percent of subjects on placebo and 10% of subjects on ARNUITY ELLIPTA 100 mcg failed to complete the 12-week trial.

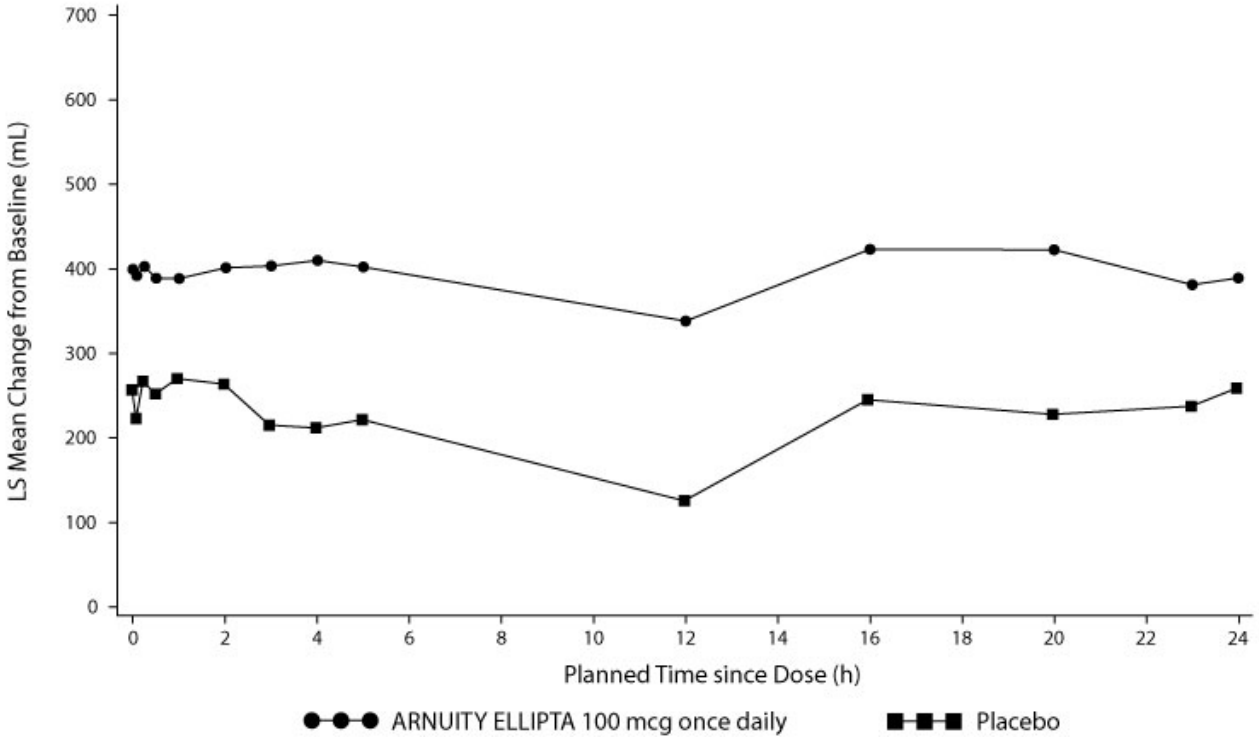
The co-primary efficacy endpoints in Trial 2 were change from baseline in trough FEV_1 at Week 12 and weighted mean FEV_1 (0-24 hours) at the end of the 12-week treatment period. Trough FEV_1 was assessed at clinic visits throughout the trial. Weighted mean FEV_1 (0-24 hours) was recorded at baseline and after the final study dose with serial measurements taken at

frequent intervals (at 5, 15, and 30 minutes and 1, 2, 3, 4, 5, 12, 16, 20, 23, and 24 hours post-dose) in a subset of subjects (n = 201).

ARNUITY ELLIPTA 100 mcg once daily had greater mean changes from baseline in trough FEV_1 than placebo throughout the trial. At Week 12 or the last available on-treatment visit prior to Week 12, the mean change from baseline in trough FEV_1 was greater among subjects receiving ARNUITY ELLIPTA 100 mcg once daily than among those receiving placebo (mean treatment difference 136 mL; 95% CI: 51, 222).

Lung function improvements were sustained over the 24-hour period following the final dose of ARNUITY ELLIPTA 100 mcg (see Figure 4). Compared with placebo, at Week 12 the change from baseline in weighted mean FEV_1 was significantly greater for ARNUITY ELLIPTA 100 mcg (mean treatment difference 186 mL; 95% CI: 62, 310).

Figure 4. Mean Change from Baseline in Individual Serial FEV_1 (mL) Assessments after 12 Weeks of Treatment – Trial 2



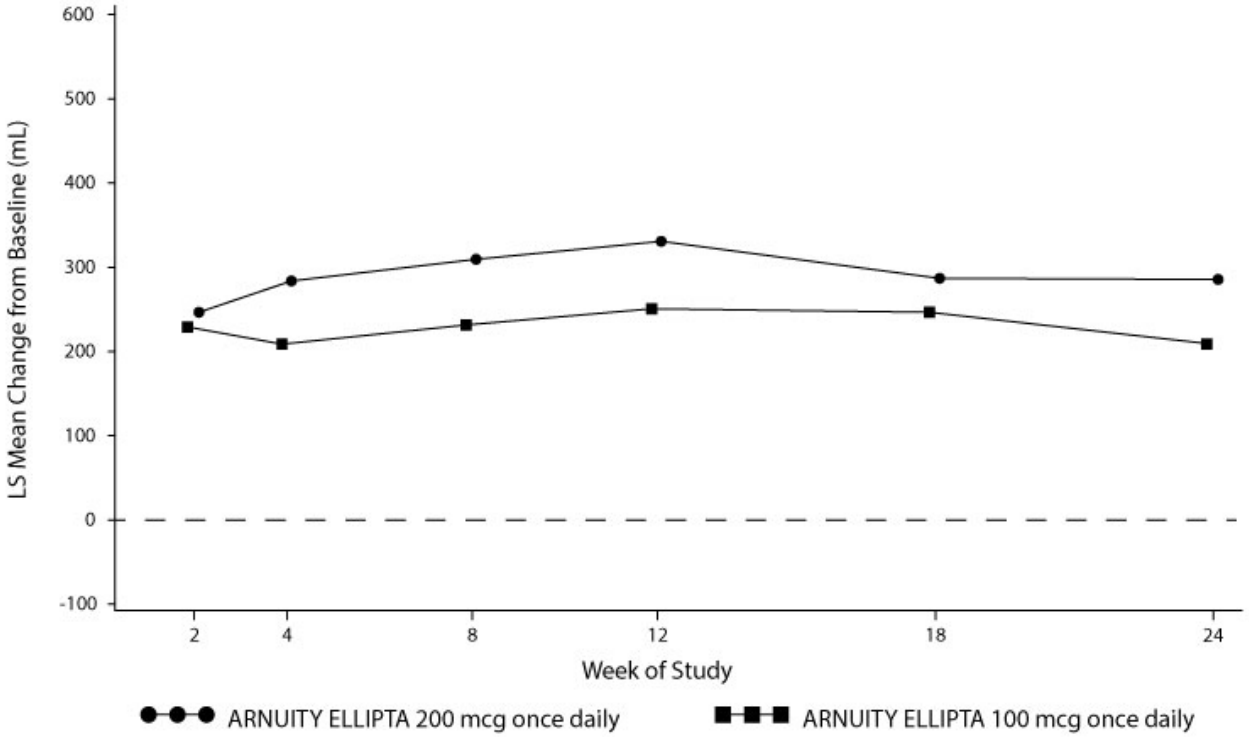
Subjects in both Trials 1 and 2 receiving ARNUITY ELLIPTA 100 mcg once daily had a greater improvement from baseline in percentage of 24-hour periods without need of $beta_2$-agonist rescue medication use than subjects receiving placebo.

Clinical Trial with ARNUITY ELLIPTA 200 mcg: Trial 3 was a 24-week trial that evaluated the relative efficacy of ARNUITY ELLIPTA 100 mcg and ARNUITY ELLIPTA 200 mcg on lung function in subjects with asthma. Of the 219 subjects, 68% were female and 87% were Caucasian. The mean age was 46 years. The trial included a 4-week run-in period during

which the subjects were symptomatic while taking their usual mid- to high-dose inhaled corticosteroid therapy (i.e., fluticasone propionate greater than 250 to 1,000 mcg/day or equivalent). If LABA were used prior to screening, their use was discontinued during the run-in. Mean baseline percent predicted FEV_1 was approximately 68% overall and similar in the 2 treatment groups. Sixteen percent of subjects on ARNUITY ELLIPTA 100 mcg and 13% of subjects on ARNUITY ELLIPTA 200 mcg failed to complete the 24-week trial.

The primary efficacy endpoint was mean change from baseline in trough FEV_1 at Week 24. There were trends toward greater mean changes from baseline in the group receiving ARNUITY ELLIPTA 200 mcg than the group receiving ARNUITY ELLIPTA 100 mcg throughout the trial (see Figure 5). At Week 24 or the last available on-treatment visit prior to Week 24, the mean change from baseline in trough FEV_1 was 208 mL for ARNUITY ELLIPTA 100 mcg, as compared to 284 mL for ARNUITY ELLIPTA 200 mcg (difference of 77 mL; 95% CI: -39, 192) as seen in Figure 5.

Figure 5. Mean Change from Baseline in Trough FEV_1 (mL) over Time – Trial 3



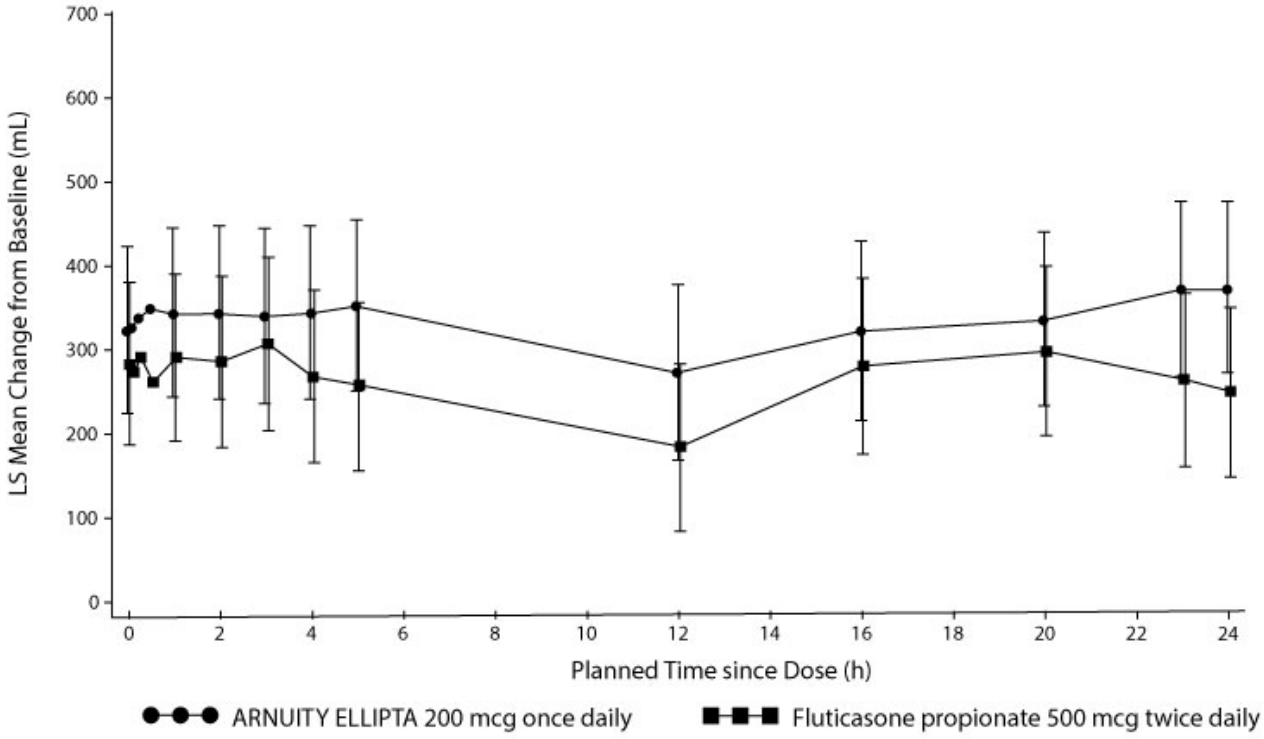
Trial 4 was a 24-week trial that evaluated the efficacy of ARNUITY ELLIPTA 200 mcg once daily and fluticasone propionate 500 mcg twice daily on lung function in subjects with asthma. The combination of fluticasone furoate 200 mcg and vilanterol 25 mcg was also included as a treatment arm (data not shown). Of the 586 subjects, 59% were female and 84% were Caucasian. The mean age was 46 years. The trial included a 4-week run-in period during which the subjects were symptomatic while taking their usual mid- to high-dose inhaled

corticosteroid (fluticasone propionate 500 to 1,000 mcg/day or equivalent). If LABA were used prior to screening, their use was discontinued during the run-in. Mean baseline percent predicted FEV_1 was approximately 67% in both treatment groups.

Both ARNUITY ELLIPTA 200 mcg once daily and fluticasone propionate 500 mcg twice daily produced improvement from baseline in lung function. At Week 24 the mean change from baseline in trough FEV_1 was 201 mL for ARNUITY ELLIPTA 200 mcg once daily and 183 mL for fluticasone propionate 500 mcg twice daily (treatment difference of 18 mL, 95% CI: -66, 102).

Lung function improvements were sustained over the 24-hour period following the final dose of ARNUITY ELLIPTA 200 mcg (see Figure 6). At Week 24, the change from baseline in weighted mean FEV_1 was 328 mL for ARNUITY ELLIPTA 200 mcg once daily and 258 mL for fluticasone propionate 500 twice daily (difference of 70 mL; 95% CI: -67, 208).

Figure 6. Mean Change from Baseline in Individual Serial FEV_1 (mL) Assessments after 24 Weeks of Treatment – Trial 4



16 HOW SUPPLIED/STORAGE AND HANDLING

ARNUITY ELLIPTA 100 mcg is supplied as a disposable light grey and orange plastic inhaler containing a foil strip with 30 blisters (NDC 0173-0874-10) or 14 blisters (institutional pack) (NDC 0173-0874-14).

ARNUITY ELLIPTA 200 mcg is supplied as a disposable light grey and orange plastic inhaler containing a foil strip with 30 blisters (NDC 0173-0876-10) or 14 blisters (institutional pack) (NDC 0173-0876-14).

The inhaler is packaged in a moisture-protective foil tray with a desiccant and a peelable lid.

Store at room temperature between 68°F and 77°F (20°C and 25°C); excursions permitted from 59°F to 86°F (15°C to 30°C) [See USP Controlled Room Temperature]. Store in a dry place away from direct heat or sunlight. Keep out of reach of children.

ARNUITY ELLIPTA should be stored inside the unopened moisture-protective foil tray and only removed from the tray immediately before initial use. Discard ARNUITY ELLIPTA 6 weeks after opening the foil tray or when the counter reads "0" (after all blisters have been used), whichever comes first. The inhaler is not reusable. Do not attempt to take the inhaler apart.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information and Instructions for Use).

Not for Acute Symptoms: Inform patients that ARNUITY ELLIPTA is not meant to relieve acute asthma symptoms and extra doses should not be used for that purpose. ARNUITY ELLIPTA is not a bronchodilator and should not be used to treat status asthmaticus or to relieve acute asthma symptoms. Advise patients to treat acute symptoms with an inhaled, short-acting beta$_2$-agonist such as albuterol. Provide patients with such medication and instruct them in how it should be used.

Instruct patients to seek medical attention immediately if they experience any of the following:

- Symptoms get worse
- Significant decrease in lung function as outlined by the physician
- Need for more inhalations than usual of inhaled, short-acting beta$_2$-agonists

Advise patients not to increase the dose or frequency of ARNUITY ELLIPTA. The daily dosage of ARNUITY ELLIPTA should not exceed 1 inhalation. If they miss a dose, instruct patients to take their next dose at the same time they normally do.

Tell patients they should not stop or reduce therapy with ARNUITY ELLIPTA without physician/provider guidance since symptoms may recur after discontinuation.

Local Effects: Inform patients that localized infections with *Candida albicans* occurred in the mouth and pharynx in some patients. If oropharyngeal candidiasis develops, treat it with appropriate local or systemic (i.e., oral) antifungal therapy while still continuing therapy with ARNUITY ELLIPTA, but at times therapy with ARNUITY ELLIPTA may need to be temporarily interrupted under close medical supervision. Advise patients to rinse the mouth with water without swallowing after inhalation to help reduce the risk of thrush.

Immunosuppression: Warn patients who are on immunosuppressant doses of corticosteroids to avoid exposure to chickenpox or measles and, if exposed, to consult their

physicians without delay. Inform patients of potential worsening of existing tuberculosis, fungal, bacterial, viral, or parasitic infections or ocular herpes simplex.

Hypercorticism and Adrenal Suppression: Advise patients that ARNUITY ELLIPTA may cause systemic corticosteroid effects of hypercorticism and adrenal suppression. Additionally, instruct that deaths due to adrenal insufficiency have occurred during and after transfer from systemic corticosteroids. Patients should taper slowly from systemic corticosteroids if transferring to ARNUITY ELLIPTA.

Reduction in Bone Mineral Density: Advise patients who are at an increased risk for decreased BMD that the use of corticosteroids may pose an additional risk.

Reduced Growth Velocity: Inform patients that orally inhaled corticosteroids, including ARNUITY ELLIPTA, may cause a reduction in growth velocity when administered to pediatric patients. Physicians should closely follow the growth of children and adolescents taking corticosteroids by any route.

Ocular Effects: Advise patients that long-term use of inhaled corticosteroids may increase the risk of some eye problems (cataracts or glaucoma); consider regular eye examinations.

Hypersensitivity Reactions Including Anaphylaxis: Advise patients that hypersensitivity reactions (e.g., urticaria, flushing, allergic dermatitis, bronchospasm), including anaphylaxis, may occur after administration of ARNUITY ELLIPTA. Instruct patients to discontinue ARNUITY ELLIPTA if such reactions occur. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder medications containing lactose; therefore, patients with severe milk protein allergy should not use ARNUITY ELLIPTA.

Use Daily for Best Effect: Advise patients to use ARNUITY ELLIPTA at regular intervals, since its effectiveness depends on regular use. Maximum benefit may not be achieved for 1 week or longer after starting treatment. If symptoms do not improve after 2 weeks of therapy or if the condition worsens, instruct patients to contact their physicians.

GlaxoSmithKline
Research Triangle Park, NC 27709

ARN:4PI

Patient Information

ARNUITY™ ELLIPTA® *[ar-NEW-i-tee ee-LIP-ta]* (fluticasone furoate inhalation powder) 100 mcg

ARNUITY™ ELLIPTA® (fluticasone furoate inhalation powder) 200 mcg

Read the Patient Information that comes with ARNUITY ELLIPTA before you start using it and each time you get a refill. There may be new information. This Patient Information does not take the place of talking to your healthcare provider about your medical condition or treatment.

What is ARNUITY ELLIPTA?

ARNUITY ELLIPTA is an inhaled corticosteroid (ICS) medicine used for the control and prevention of asthma in adults and children aged 12 years and older.

- ARNUITY ELLIPTA helps to prevent and control symptoms of asthma.
- **ARNUITY ELLIPTA is not for use to treat sudden symptoms of an asthma attack, wheezing, cough, shortness of breath, and chest pain or tightness.** Always have a rescue inhaler (an inhaled, short-acting bronchodilator) with you to treat sudden symptoms. If you do not have a rescue inhaler, contact your healthcare provider to have one prescribed for you.
- It is not known if ARNUITY ELLIPTA is safe and effective in children younger than 12 years.

Who should not use ARNUITY ELLIPTA?

Do not use ARNUITY ELLIPTA:

- to treat sudden symptoms of asthma. **ARNUITY ELLIPTA is not a rescue inhaler and should not be used to give you fast relief from your asthma attack.** Always use a rescue inhaler, such as albuterol, during a sudden asthma attack.
- if you have a severe allergy to milk proteins. Ask your healthcare provider if you are not sure.
- are allergic to fluticasone furoate or any of the ingredients in ARNUITY ELLIPTA. See “What are the ingredients in ARNUITY ELLIPTA?” below for a complete list of ingredients.

What should I tell my healthcare provider before using ARNUITY ELLIPTA?

Tell your healthcare provider about all of your health conditions, including if you:

- have liver problems.
- have weak bones (osteoporosis).
- have an immune system problem.
- have eye problems such as glaucoma or cataracts.
- are allergic to any of the ingredients in ARNUITY ELLIPTA, any other medicines, or food products. See “What are the ingredients in ARNUITY ELLIPTA?” below for a complete list of ingredients.
- have any type of viral, bacterial, or fungal infection.
- are exposed to chickenpox or measles.
- have any other medical conditions.
- are pregnant or planning to become pregnant. It is not known if ARNUITY ELLIPTA may harm your unborn baby.
- are breastfeeding. It is not known if the medicine in ARNUITY ELLIPTA passes into your milk and if it can harm your baby.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. ARNUITY ELLIPTA and certain other medicines may interact with each other. This may cause serious side effects. Especially, tell your healthcare provider if you take antifungal, anti-HIV, or any other corticosteroid medicines. Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist when you get a new medicine.

How should I use ARNUITY ELLIPTA?

Read the step-by-step instructions for using ARNUITY ELLIPTA at the end of this Patient Information.

- **Do not** use ARNUITY ELLIPTA unless your healthcare provider has taught you how to use the inhaler and you understand how to use it correctly.
- ARNUITY ELLIPTA comes in 2 different strengths. Your healthcare provider prescribed the strength that is best for you.
- Use ARNUITY ELLIPTA exactly as your healthcare provider tells you to use it. **Do not** use ARNUITY ELLIPTA more often than prescribed.
- Adolescents may need help to use ARNUITY ELLIPTA.

- Use 1 inhalation of ARNUITY ELLIPTA 1 time each day. Use ARNUITY ELLIPTA at the same time each day.
- If you miss a dose of ARNUITY ELLIPTA, take it as soon as you remember. Do not take more than 1 inhalation each day. Take your next dose at your usual time. Do not take 2 doses at one time.
- Do not stop using ARNUITY ELLIPTA unless told to do so by your healthcare provider because your symptoms might get worse. Your healthcare provider will change your medicines as needed.
- **ARNUITY ELLIPTA does not relieve sudden symptoms.** Always have a rescue inhaler with you to treat sudden symptoms. If you do not have a rescue inhaler, call your healthcare provider to have one prescribed for you.
- Call your healthcare provider or get medical care right away if:
  - your breathing problems get worse
  - you need to use your rescue inhaler more often than usual
  - your rescue inhaler does not work as well to relieve your symptoms
  - you need to use 4 or more inhalations of your rescue inhaler in 24 hours for 2 or more days in a row
  - you use 1 whole canister of your rescue inhaler in 8 weeks
  - your peak flow meter results decrease. Your healthcare provider will tell you the numbers that are right for you.

What are the possible side effects with ARNUITY ELLIPTA?

ARNUITY ELLIPTA can cause serious side effects, including:

- **fungal infection in your mouth or throat (thrush).** Rinse your mouth with water without swallowing after using ARNUITY ELLIPTA to help reduce your chance of getting thrush
- **weakened immune system and increased chance of getting infections (immunosuppression)**
- **reduced adrenal function (adrenal insufficiency).** Adrenal insufficiency is a condition where the adrenal glands do not make enough steroid hormones. This can happen when you stop taking oral corticosteroid medicines (such as prednisone) and start taking a medicine containing an inhaled corticosteroid (such as ARNUITY ELLIPTA). When your body is under stress from fever, trauma (such as a car accident), infection, surgery, or worse asthma symptoms, adrenal insufficiency can get worse and may cause death.

  Symptoms of adrenal insufficiency include:
  - feeling tired

- lack of energy
- weakness
- nausea and vomiting
- low blood pressure

- **sudden breathing problems immediately after inhaling your medicine**
- **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction:
  - rash
  - hives
  - swelling of your face, mouth, and tongue
  - breathing problems
- **bone thinning or weakness (osteoporosis)**
- **slow growth in adolescents.** An adolescent's growth should be checked often.
- **eye problems including glaucoma and cataracts.** You should have regular eye exams while using ARNUITY ELLIPTA.

Common side effects of ARNUITY ELLIPTA include:

- runny nose and sore throat
- headache
- breathing problems (bronchitis)
- flu

Tell your healthcare provider about any side effect that bothers you or that does not go away.

These are not all the side effects with ARNUITY ELLIPTA. Ask your healthcare provider or pharmacist for more information.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How do I store ARNUITY ELLIPTA?

- Store ARNUITY ELLIPTA at room temperature between 68°F and 77°F (20°C and 25°C). Keep in a dry place away from heat and sunlight.
- Store ARNUITY ELLIPTA in the unopened foil tray and only open when ready for use.
- Safely throw away ARNUITY ELLIPTA in the trash 6 weeks after you open the foil tray or when the counter reads "0", whichever comes first. Write the date you open the tray on the label on the inhaler.

- **Keep ARNUITY ELLIPTA and all medicines out of the reach of children.**

General information about ARNUITY ELLIPTA

Medicines are sometimes prescribed for purposes not mentioned in a Patient Information leaflet. Do not use ARNUITY ELLIPTA for a condition for which it was not prescribed. Do not give your ARNUITY ELLIPTA to other people, even if they have the same condition that you have. It may harm them.

This Patient Information leaflet summarizes the most important information about ARNUITY ELLIPTA. If you would like more information, talk with your healthcare provider or pharmacist. You can ask your healthcare provider or pharmacist for information about ARNUITY ELLIPTA that was written for healthcare professionals.

For more information about ARNUITY ELLIPTA, call 1-888-825-5249 or visit our website at www.ARNUITY.com.

What are the ingredients in ARNUITY ELLIPTA?

Active ingredients: fluticasone furoate
Inactive ingredients: lactose monohydrate (contains milk proteins)

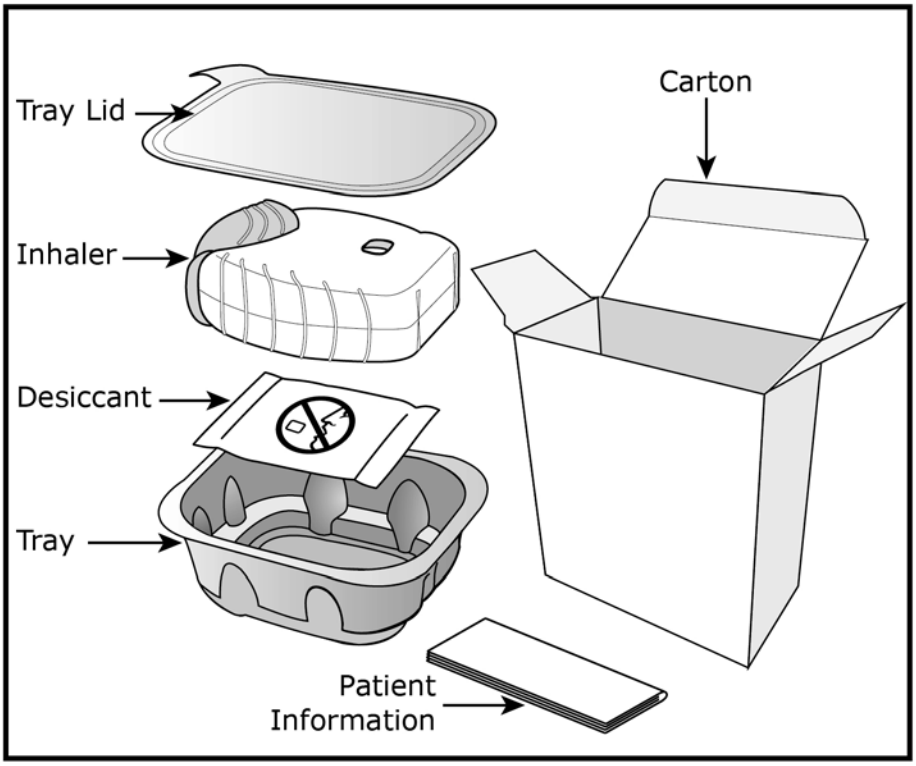
Instructions for Use

For Oral Inhalation Only.

Read this before you start:

- **If you open and close the cover without inhaling the medicine, you will lose the dose.**
- **The lost dose will be securely held inside the inhaler, but it will no longer be available to be inhaled.**
- **It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.**

Your ARNUITY ELLIPTA inhaler



How to use your inhaler

- ARNUITY ELLIPTA comes in a foil tray.
- Peel back the lid to open the tray. See Figure A.
- The tray contains a desiccant to reduce moisture. Do not eat or inhale. Throw it away in the household trash out of reach of children and pets. See Figure B.

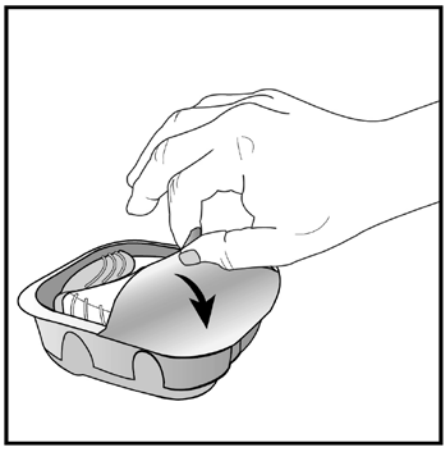


Figure A

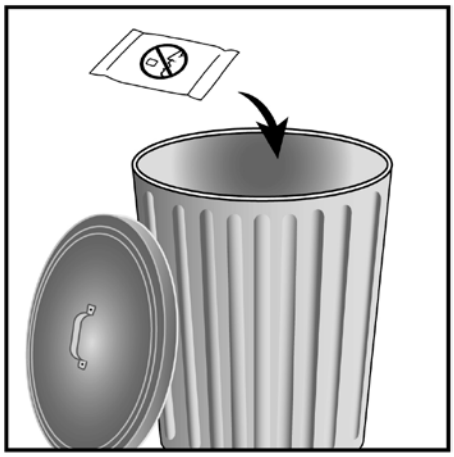


Figure B

Important Notes:

- Your inhaler contains 30 doses (14 doses if you have a sample or institutional pack).
- Each time you fully open the cover of the inhaler (you will hear a clicking sound), a dose is ready to be inhaled. This is shown by a decrease in the number on the counter.
- If you open and close the cover without inhaling the medicine, you will lose the dose. The lost dose will be held in the inhaler, but it will no longer be available to be inhaled. It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.
- **Do not** open the cover of the inhaler until you are ready to use it. To avoid wasting doses after the inhaler is ready, **do not** close the cover until after you have inhaled the medicine.
- Write the “Tray opened” and “Discard” dates on the inhaler label. The “Discard” date is 6 weeks from the date you open the tray.

Check the counter. See Figure C.

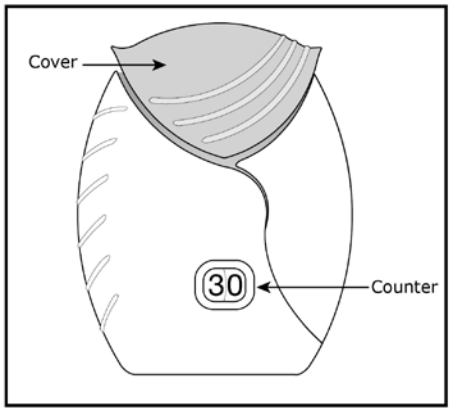


Figure C

- Before the inhaler is used for the first time, the counter should show the number 30 (14 if you have a sample or institutional pack). This is the number of doses in the inhaler.
- Each time you open the cover, you prepare 1 dose of medicine.
- The counter counts down by 1 each time you open the cover.

Prepare your dose:

Wait to open the cover until you are ready to take your dose.

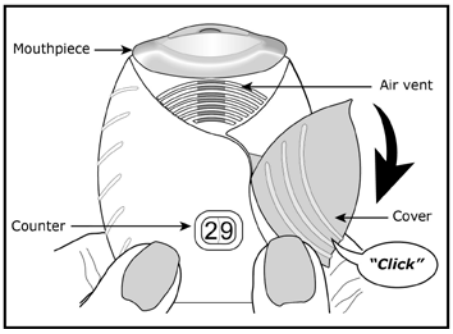


Figure D

Step 1. Open the cover of the inhaler. See Figure D.

- Slide the cover down to expose the mouthpiece. You should hear a “click.” The counter will count down by 1 number. You do not need to shake this kind of inhaler. **Your inhaler is now ready to use.**
- If the counter does not count down as you hear the click, the inhaler will not deliver the medicine. Call your healthcare provider or pharmacist if this happens.

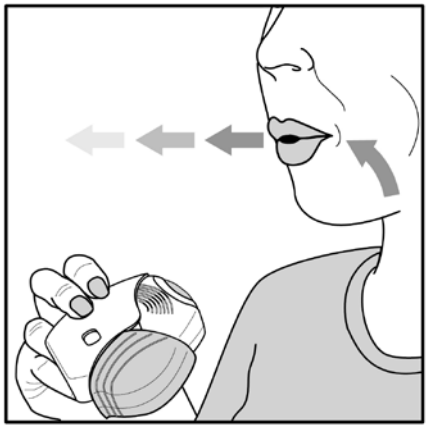


Figure E

Step 2. Breathe out. See Figure E.

- While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not breathe out into the mouthpiece.

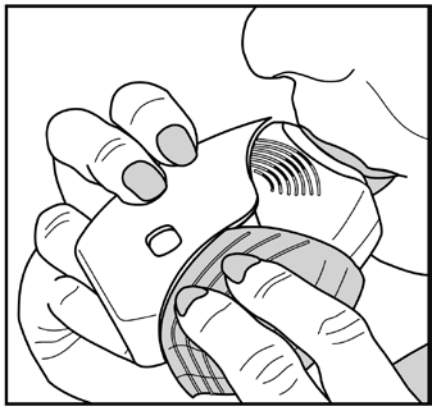


Figure F

Step 3. Inhale your medicine. See Figure F.

- Put the mouthpiece between your lips, and close your lips firmly around it. Your lips should fit over the curved shape of the mouthpiece.
- Take 1 long, steady, deep breath in through your mouth. **Do not** breathe in through your nose.

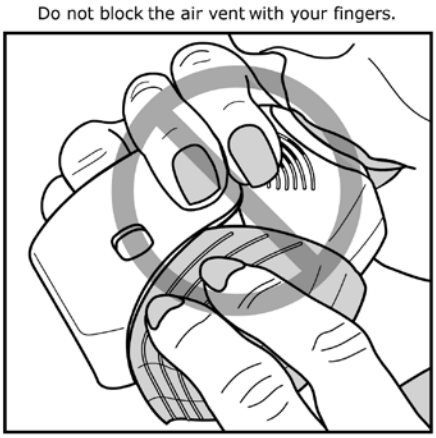


Figure G

- Do not block the air vent with your fingers. **See Figure G.**

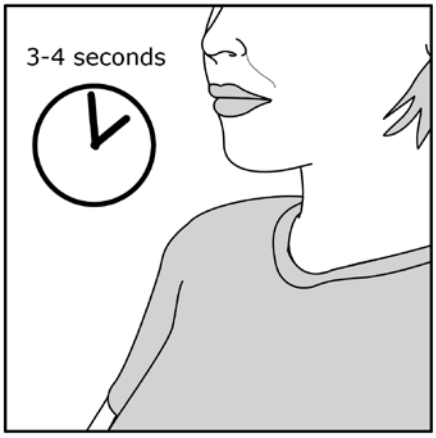


Figure H

- **Remove the inhaler from your mouth and hold your breath for about 3 to 4 seconds** (or as long as comfortable for you). **See Figure H.**

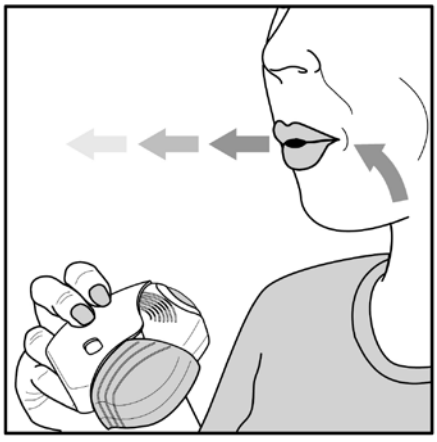


Figure I

Step 4. Breathe out slowly and gently. See Figure I.

- You may not taste or feel the medicine, even when you are using the inhaler correctly.
- **Do not** take another dose from the inhaler even if you do not feel or taste the medicine.

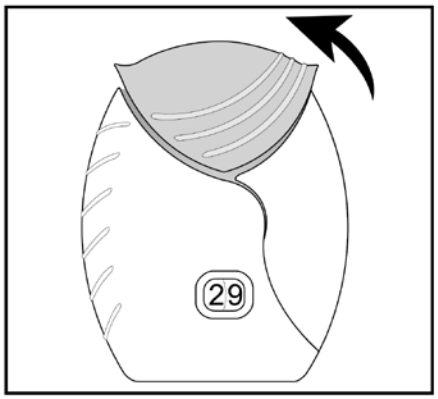


Figure J

Step 5. Close the inhaler. See Figure J.

- You can clean the mouthpiece if needed, using a dry tissue, before you close the cover. Routine cleaning is not required.
- Slide the cover up and over the mouthpiece as far as it will go.

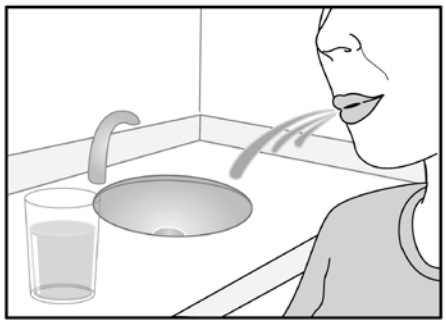


Figure K

Step 6. Rinse your mouth. See Figure K.

- Rinse your mouth with water after you have used the inhaler and spit the water out. **Do not** swallow the water.

Important Note: When should you get a refill?

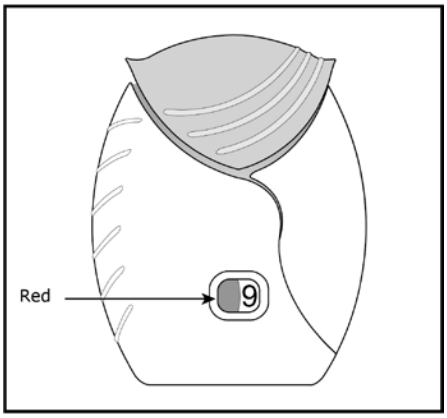


Figure L

- **When you have less than 10 doses remaining** in your inhaler, the left half of the counter shows red as a reminder to get a refill. **See Figure L.**
- After you have inhaled the last dose, the counter will show “0” and will be empty.
- Throw the empty inhaler away in your household trash out of reach of children and pets.

If you have questions about ARNUITY ELLIPTA or how to use your inhaler, call GlaxoSmithKline (GSK) at 1-888-825-5249 or visit www.ARNUITY.com.

This Patient Information and Instructions for Use have been approved by the U.S. Food and Drug Administration.

ARNUITY is a trademark and ELLIPTA is a registered trademark of the GSK group of companies.

GlaxoSmithKline
Research Triangle Park, NC 27709

August 2014
ARN:1PIL

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use BREO® ELLIPTA® safely and effectively. See full prescribing information for BREO ELLIPTA.

BREO ELLIPTA 100/25 (fluticasone furoate 100 mcg and vilanterol 25 mcg inhalation powder), for oral inhalation
BREO ELLIPTA 200/25 (fluticasone furoate 200 mcg and vilanterol 25 mcg inhalation powder), for oral inhalation
Initial U.S. Approval: 2013

WARNING: ASTHMA-RELATED DEATH
See full prescribing information for complete boxed warning.

- **Long-acting beta$_2$-adrenergic agonists (LABA), such as vilanterol, increase the risk of asthma-related death. A placebo-controlled trial with another LABA (salmeterol) showed an increase in asthma-related deaths. This finding with salmeterol is considered a class effect of all LABA. Currently available data are inadequate to determine whether concurrent use of inhaled corticosteroids (ICS) or other long-term asthma control drugs mitigates the increased risk of asthma-related death from LABA. Available data from controlled clinical trials suggest that LABA increase the risk of asthma-related hospitalization in pediatric and adolescent patients. (5.1)**
- **When treating patients with asthma, only prescribe BREO ELLIPTA for patients not adequately controlled on a long-term asthma control medication, such as an ICS, or whose disease severity clearly warrants initiation of treatment with both an ICS and a LABA. Once asthma control is achieved and maintained, assess the patient at regular intervals and step down therapy (e.g., discontinue BREO ELLIPTA) if possible without loss of asthma control and maintain the patient on a long-term asthma control medication, such as an ICS. Do not use BREO ELLIPTA for patients whose asthma is adequately controlled on low- or medium-dose ICS. (1.2, 5.1)**

---------- INDICATIONS AND USAGE----------
BREO ELLIPTA is a combination of fluticasone furoate, an inhaled corticosteroid (ICS), and vilanterol, a long-acting beta$_2$-adrenergic agonist (LABA), indicated for:

- Long-term, once-daily, maintenance treatment of airflow obstruction and reducing exacerbations in patients with chronic obstructive pulmonary disease (COPD). (1.1)
- Once-daily treatment of asthma in patients aged 18 years and older. (1.2)

Important limitation: Not indicated for relief of acute bronchospasm. (1.1, 1.2, 5.2)

----------DOSAGE AND ADMINISTRATION----------

- For oral inhalation only. (2)
- Maintenance treatment of COPD: 1 inhalation of BREO ELLIPTA 100/25 once daily. (2.1)
- Asthma: 1 inhalation of BREO ELLIPTA 100/25 or BREO ELLIPTA 200/25 once daily. (2.2)

---------- DOSAGE FORMS AND STRENGTHS----------
Inhalation Powder. Inhaler containing 2 foil blister strips of powder formulation for oral inhalation. One strip contains fluticasone furoate 100 or 200 mcg per blister and the other contains vilanterol 25 mcg per blister. (3)

---------- CONTRAINDICATIONS ----------

- Primary treatment of status asthmaticus or acute episodes of COPD or asthma requiring intensive measures. (4)
- Severe hypersensitivity to milk proteins or any ingredients. (4)

---------- WARNINGS AND PRECAUTIONS----------

- LABA increase the risk of asthma-related death and asthma-related hospitalizations. Prescribe only for recommended patient populations. (5.1)
- Do not initiate in acutely deteriorating COPD or asthma. Do not use to treat acute symptoms. (5.2)
- Do not use in combination with an additional medicine containing a LABA because of risk of overdose. (5.3)
- *Candida albicans* infection of the mouth and pharynx may occur. Monitor patients periodically. Advise the patient to rinse his/her mouth with water without swallowing after inhalation to help reduce the risk. (5.4)
- Increased risk of pneumonia in patients with COPD. Monitor patients for signs and symptoms of pneumonia. (5.5)
- Potential worsening of infections (e.g., existing tuberculosis; fungal, bacterial, viral, or parasitic infections; ocular herpes simplex). Use with caution in patients with these infections. More serious or even fatal course of chickenpox or measles can occur in susceptible patients. (5.6)
- Risk of impaired adrenal function when transferring from systemic corticosteroids. Taper patients slowly from systemic corticosteroids if transferring to BREO ELLIPTA. (5.7)
- Hypercorticism and adrenal suppression may occur with very high dosages or at the regular dosage in susceptible individuals. If such changes occur, discontinue BREO ELLIPTA slowly. (5.8)
- If paradoxical bronchospasm occurs, discontinue BREO ELLIPTA and institute alternative therapy. (5.10)
- Use with caution in patients with cardiovascular disorders because of beta-adrenergic stimulation. (5.12)
- Assess for decrease in bone mineral density initially and periodically thereafter. (5.13)
- Close monitoring for glaucoma and cataracts is warranted. (5.14)
- Use with caution in patients with convulsive disorders, thyrotoxicosis, diabetes mellitus, and ketoacidosis. (5.15)
- Be alert to hypokalemia and hyperglycemia. (5.16)

---------- ADVERSE REACTIONS ----------

- COPD: Most common adverse reactions (incidence greater than or equal to 3%) are nasopharyngitis, upper respiratory tract infection, headache, and oral candidiasis. (6.1)
- Asthma: Most common adverse reactions (incidence greater than or equal to 2%) are nasopharyngitis, oral candidiasis, headache, influenza, upper respiratory tract infection, bronchitis, sinusitis, oropharyngeal pain, dysphonia, and cough. (6.2)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

---------- DRUG INTERACTIONS----------

- Strong cytochrome P450 3A4 inhibitors (e.g., ketoconazole): Use with caution. May cause systemic corticosteroid and cardiovascular effects. (7.1)
- Monoamine oxidase inhibitors and tricyclic antidepressants: Use with extreme caution. May potentiate effect of vilanterol on vascular system. (7.2)
- Beta-blockers: Use with caution. May block bronchodilatory effects of beta-agonists and produce severe bronchospasm. (7.3)
- Diuretics: Use with caution. Electrocardiographic changes and/or hypokalemia associated with non–potassium-sparing diuretics may worsen with concomitant beta-agonists. (7.4)

---------- USE IN SPECIFIC POPULATIONS ----------
Hepatic impairment: Fluticasone furoate exposure may increase in patients with moderate or severe impairment. Monitor for systemic corticosteroid effects. (8.6, 12.3)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 7/2016

FULL PRESCRIBING INFORMATION: CONTENTS*

*****Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

WARNING: ASTHMA-RELATED DEATH

Long-acting $beta_2$-adrenergic agonists (LABA), such as vilanterol, one of the active ingredients in BREO ELLIPTA, increase the risk of asthma-related death. Data from a large placebo-controlled US trial that compared the safety of another LABA (salmeterol) with placebo added to usual asthma therapy showed an increase in asthma-related deaths in subjects receiving salmeterol. This finding with salmeterol is considered a class effect of LABA. Currently available data are inadequate to determine whether concurrent use of inhaled corticosteroids (ICS) or other long-term asthma control drugs mitigates the increased risk of asthma-related death from LABA. Available data from controlled clinical trials suggest that LABA increase the risk of asthma-related hospitalization in pediatric and adolescent patients.

Therefore, when treating patients with asthma, physicians should only prescribe BREO ELLIPTA for patients not adequately controlled on a long-term asthma control medication, such as an inhaled corticosteroid, or whose disease severity clearly warrants initiation of treatment with both an inhaled corticosteroid and a LABA. Once asthma control is achieved and maintained, assess the patient at regular intervals and step down therapy (e.g., discontinue BREO ELLIPTA) if possible without loss of asthma control and maintain the patient on a long-term asthma control medication, such as an inhaled corticosteroid. Do not use BREO ELLIPTA for patients whose asthma is adequately controlled on low- or medium-dose inhaled corticosteroids *[see Warnings and Precautions (5.1)]*.

1 INDICATIONS AND USAGE

1.1 Maintenance Treatment of Chronic Obstructive Pulmonary Disease

BREO® ELLIPTA® 100/25 is a combination inhaled corticosteroid/long-acting beta$_2$-adrenergic agonist (ICS/LABA) indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema. BREO ELLIPTA 100/25 is also indicated to reduce exacerbations of COPD in patients with a history of exacerbations. BREO ELLIPTA 100/25 once daily is the only strength indicated for the treatment of COPD.

Important Limitation of Use

BREO ELLIPTA is NOT indicated for the relief of acute bronchospasm

1.2 Treatment of Asthma

BREO ELLIPTA is a combination ICS/LABA indicated for the once-daily treatment of asthma in patients aged 18 years and older.

LABA, such as vilanterol, one of the active ingredients in BREO ELLIPTA, increase the risk of asthma-related death. Available data from controlled clinical trials suggest that LABA increase the risk of asthma-related hospitalization in pediatric and adolescent patients *[see Warnings and Precautions (5.1), Adverse Reactions (6.2), Use in Specific Populations (8.4)]*. Therefore, when treating patients with asthma, physicians should only prescribe BREO ELLIPTA for patients not adequately controlled on a long-term asthma control medication, such as an inhaled corticosteroid, or whose disease severity clearly warrants initiation of treatment with both an inhaled corticosteroid and a LABA. Once asthma control is achieved and maintained, assess the patient at regular intervals and step down therapy (e.g., discontinue BREO ELLIPTA) if possible without loss of asthma control and maintain the patient on a long-term asthma control medication, such as an inhaled corticosteroid. Do not use BREO ELLIPTA for patients whose asthma is adequately controlled on low- or medium-dose inhaled corticosteroids.

Important Limitation of Use

BREO ELLIPTA is NOT indicated for the relief of acute bronchospasm.

2 DOSAGE AND ADMINISTRATION

BREO ELLIPTA should be administered once daily every day by the orally inhaled route only.

BREO ELLIPTA should be taken at the same time every day. Do not use BREO ELLIPTA more than 1 time every 24 hours.

After inhalation, the patient should rinse his/her mouth with water without swallowing to help reduce the risk of oropharyngeal candidiasis.

More frequent administration or a greater number of inhalations (more than 1 inhalation daily) of the prescribed strength of BREO ELLIPTA is not recommended as some patients are more likely to experience adverse effects with higher doses. Patients using BREO ELLIPTA should not use additional LABA for any reason. *[See Warnings and Precautions (5.3, 5.5, 5.8, 5.12).]*

2.1 Chronic Obstructive Pulmonary Disease

BREO ELLIPTA 100/25 should be administered as 1 inhalation once daily. The maximum recommended dosage is 1 inhalation of BREO ELLIPTA 100/25 once daily, the only strength indicated for the treatment of COPD.

If shortness of breath occurs in the period between doses, an inhaled, short-acting $beta_2$-agonist (rescue medicine, e.g., albuterol) should be taken for immediate relief.

2.2 Asthma

If asthma symptoms arise in the period between doses, an inhaled, short-acting $beta_2$-agonist (rescue medicine, e.g., albuterol) should be taken for immediate relief.

The recommended starting dosage is BREO ELLIPTA 100/25 or BREO ELLIPTA 200/25 administered as 1 inhalation once daily. The maximum recommended dosage is 1 inhalation of BREO ELLIPTA 200/25 once daily.

The starting dosage is based on patients' asthma severity. For patients previously treated with low- to mid-dose corticosteroid–containing treatment, BREO ELLIPTA 100/25 should be considered. For patients previously treated with mid- to high-dose corticosteroid-containing treatment, BREO ELLIPTA 200/25 should be considered.

The median time to onset, defined as a 100-mL increase from baseline in mean forced expiratory volume in 1 second (FEV_1), was approximately 15 minutes after beginning treatment. Individual patients will experience a variable time to onset and degree of symptom relief.

For patients who do not respond adequately to BREO ELLIPTA 100/25, increasing the dose to BREO ELLIPTA 200/25 may provide additional improvement in asthma control.

If a previously effective dosage regimen of BREO ELLIPTA fails to provide adequate improvement in asthma control, the therapeutic regimen should be reevaluated and additional therapeutic options (e.g., replacing the current strength of BREO ELLIPTA with a higher strength, adding additional inhaled corticosteroid, initiating oral corticosteroids) should be considered.

3 DOSAGE FORMS AND STRENGTHS

Inhalation powder: Disposable light grey and pale blue plastic inhaler containing 2 foil blister strips of powder intended for oral inhalation only. One strip contains fluticasone furoate (100 or 200 mcg per blister), and the other strip contains vilanterol (25 mcg per blister).

4 CONTRAINDICATIONS

The use of BREO ELLIPTA is contraindicated in the following conditions:

- Primary treatment of status asthmaticus or other acute episodes of COPD or asthma where intensive measures are required *[see Warnings and Precautions (5.2)]*.
- Severe hypersensitivity to milk proteins or demonstrated hypersensitivity to fluticasone furoate, vilanterol, or any of the excipients *[see Warnings and Precautions (5.11), Description (11)]*.

5 WARNINGS AND PRECAUTIONS

5.1 Asthma-Related Death

LABA, such as vilanterol, one of the active ingredients in BREO ELLIPTA, increase the risk of asthma-related death. Currently available data are inadequate to determine whether concurrent use of inhaled corticosteroids or other long-term asthma control drugs mitigates the increased risk of asthma-related death from LABA. Available data from controlled clinical trials suggest that LABA increase the risk of asthma-related hospitalization in pediatric and adolescent patients. Therefore, when treating patients with asthma, physicians should only prescribe BREO ELLIPTA for patients not adequately controlled on a long-term asthma control medication, such as an inhaled corticosteroid, or whose disease severity clearly warrants initiation of treatment with both an inhaled corticosteroid and a LABA. Once asthma control is achieved and maintained, assess the patient at regular intervals and step down therapy (e.g., discontinue BREO ELLIPTA) if possible without loss of asthma control and maintain the patient on a long-term asthma control medication, such as an inhaled corticosteroid. Do not use BREO ELLIPTA for patients whose asthma is adequately controlled on low- or medium-dose inhaled corticosteroids.

A 28-week, placebo-controlled, US trial that compared the safety of another LABA (salmeterol) with placebo, each added to usual asthma therapy, showed an increase in asthma-related deaths in subjects receiving salmeterol (13/13,176 in subjects treated with salmeterol vs. 3/13,179 in subjects treated with placebo; relative risk: 4.37 [95% CI: 1.25, 15.34]). The increased risk of asthma-related death is considered a class effect of LABA, including vilanterol, one of the active ingredients in BREO ELLIPTA. No trial adequate to determine whether the rate of asthma-related death is increased in subjects treated with BREO ELLIPTA has been conducted.

Data are not available to determine whether the rate of death in patients with COPD is increased by LABA.

5.2 Deterioration of Disease and Acute Episodes

BREO ELLIPTA should not be initiated in patients during rapidly deteriorating or potentially life-threatening episodes of COPD or asthma. BREO ELLIPTA has not been studied in subjects

with acutely deteriorating COPD or asthma. The initiation of BREO ELLIPTA in this setting is not appropriate.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If BREO ELLIPTA 100/25 no longer controls symptoms of bronchoconstriction; the patient's inhaled, short-acting, beta$_2$-agonist becomes less effective; or the patient needs more short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting a reevaluation of the patient and the COPD treatment regimen should be undertaken at once. For COPD, increasing the daily dose of BREO ELLIPTA 100/25 is not appropriate in this situation.

Increasing use of inhaled, short-acting beta$_2$-agonists is a marker of deteriorating asthma. In this situation, the patient requires immediate reevaluation with reassessment of the treatment regimen, giving special consideration to the possible need for replacing the current strength of BREO ELLIPTA with a higher strength, adding additional inhaled corticosteroid, or initiating systemic corticosteroids. Patients should not use more than 1 inhalation once daily of BREO ELLIPTA.

BREO ELLIPTA should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. BREO ELLIPTA has not been studied in the relief of acute symptoms and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting beta$_2$-agonist.

When beginning treatment with BREO ELLIPTA, patients who have been taking oral or inhaled, short-acting beta$_2$-agonists on a regular basis (e.g., 4 times a day) should be instructed to discontinue the regular use of these drugs and to use them only for symptomatic relief of acute respiratory symptoms. When prescribing BREO ELLIPTA, the healthcare provider should also prescribe an inhaled, short-acting beta$_2$-agonist and instruct the patient on how it should be used.

5.3 Excessive Use of BREO ELLIPTA and Use with Other Long-acting Beta$_2$-agonists

BREO ELLIPTA should not be used more often than recommended, at higher doses than recommended, or in conjunction with other medicines containing LABA, as an overdose may result. Clinically significant cardiovascular effects and fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs. Patients using BREO ELLIPTA should not use another medicine containing a LABA (e.g., salmeterol, formoterol fumarate, arformoterol tartrate, indacaterol) for any reason.

5.4 Local Effects of Inhaled Corticosteroids

In clinical trials, the development of localized infections of the mouth and pharynx with *Candida albicans* has occurred in subjects treated with BREO ELLIPTA. When such an infection develops, it should be treated with appropriate local or systemic (i.e., oral) antifungal therapy while treatment with BREO ELLIPTA continues, but at times therapy with BREO ELLIPTA may need to be interrupted. Advise the patient to rinse his/her mouth with water without swallowing following inhalation to help reduce the risk of oropharyngeal candidiasis.

5.5 Pneumonia

An increase in the incidence of pneumonia has been observed in subjects with COPD receiving BREO ELLIPTA 100/25 in clinical trials. There was also an increased incidence of pneumonias resulting in hospitalization. In some incidences these pneumonia events were fatal. Physicians should remain vigilant for the possible development of pneumonia in patients with COPD as the clinical features of such infections overlap with the symptoms of COPD exacerbations.

In replicate 12-month trials in 3,255 subjects with COPD who had experienced a COPD exacerbation in the previous year, there was a higher incidence of pneumonia reported in subjects receiving fluticasone furoate/vilanterol 50 mcg/25 mcg: 6% (48 of 820 subjects); BREO ELLIPTA 100/25: 6% (51 of 806 subjects); or BREO ELLIPTA 200/25: 7% (55 of 811 subjects) than in subjects receiving vilanterol 25 mcg: 3% (27 of 818 subjects). There was no fatal pneumonia in subjects receiving vilanterol or fluticasone furoate/vilanterol 50 mcg/25 mcg. There was fatal pneumonia in 1 subject receiving BREO ELLIPTA 100/25 and in 7 subjects receiving BREO ELLIPTA 200/25 (less than 1% for each treatment group).

5.6 Immunosuppression

Persons who are using drugs that suppress the immune system are more susceptible to infections than healthy individuals. Chickenpox and measles, for example, can have a more serious or even fatal course in susceptible children or adults using corticosteroids. In such children or adults who have not had these diseases or been properly immunized, particular care should be taken to avoid exposure. How the dose, route, and duration of corticosteroid administration affect the risk of developing a disseminated infection is not known. The contribution of the underlying disease and/or prior corticosteroid treatment to the risk is also not known. If a patient is exposed to chickenpox, prophylaxis with varicella zoster immune globulin (VZIG) may be indicated. If a patient is exposed to measles, prophylaxis with pooled intramuscular immunoglobulin (IG) may be indicated. (See the respective package inserts for complete VZIG and IG prescribing information.) If chickenpox develops, treatment with antiviral agents may be considered.

Inhaled corticosteroids should be used with caution, if at all, in patients with active or quiescent tuberculosis infections of the respiratory tract; systemic fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex.

5.7 Transferring Patients from Systemic Corticosteroid Therapy

Particular care is needed for patients who have been transferred from systemically active corticosteroids to inhaled corticosteroids because deaths due to adrenal insufficiency have occurred in patients with asthma during and after transfer from systemic corticosteroids to less systemically available inhaled corticosteroids. After withdrawal from systemic corticosteroids, a number of months are required for recovery of hypothalamic-pituitary-adrenal (HPA) function.

Patients who have been previously maintained on 20 mg or more of prednisone (or its equivalent) may be most susceptible, particularly when their systemic corticosteroids have been

almost completely withdrawn. During this period of HPA suppression, patients may exhibit signs and symptoms of adrenal insufficiency when exposed to trauma, surgery, or infection (particularly gastroenteritis) or other conditions associated with severe electrolyte loss. Although BREO ELLIPTA may control COPD or asthma symptoms during these episodes, in recommended doses it supplies less than normal physiological amounts of glucocorticoid systemically and does NOT provide the mineralocorticoid activity that is necessary for coping with these emergencies.

During periods of stress, a severe COPD exacerbation, or a severe asthma attack, patients who have been withdrawn from systemic corticosteroids should be instructed to resume oral corticosteroids (in large doses) immediately and to contact their physicians for further instruction. These patients should also be instructed to carry a warning card indicating that they may need supplementary systemic corticosteroids during periods of stress, a severe COPD exacerbation, or a severe asthma attack.

Patients requiring oral corticosteroids should be weaned slowly from systemic corticosteroid use after transferring to BREO ELLIPTA. Prednisone reduction can be accomplished by reducing the daily prednisone dose by 2.5 mg on a weekly basis during therapy with BREO ELLIPTA. Lung function (FEV_1 or peak expiratory flow), beta-agonist use, and COPD or asthma symptoms should be carefully monitored during withdrawal of oral corticosteroids. In addition, patients should be observed for signs and symptoms of adrenal insufficiency, such as fatigue, lassitude, weakness, nausea and vomiting, and hypotension.

Transfer of patients from systemic corticosteroid therapy to BREO ELLIPTA may unmask allergic conditions previously suppressed by the systemic corticosteroid therapy (e.g., rhinitis, conjunctivitis, eczema, arthritis, eosinophilic conditions).

During withdrawal from oral corticosteroids, some patients may experience symptoms of systemically active corticosteroid withdrawal (e.g., joint and/or muscular pain, lassitude, depression) despite maintenance or even improvement of respiratory function.

5.8 Hypercorticism and Adrenal Suppression

Inhaled fluticasone furoate is absorbed into the circulation and can be systemically active. Effects of fluticasone furoate on the HPA axis are not observed with the therapeutic doses of BREO ELLIPTA. However, exceeding the recommended dosage or coadministration with a strong cytochrome P450 3A4 (CYP3A4) inhibitor may result in HPA dysfunction *[see Warnings and Precautions (5.9), Drug Interactions (7.1)]*.

Because of the possibility of significant systemic absorption of inhaled corticosteroids in sensitive patients, patients treated with BREO ELLIPTA should be observed carefully for any evidence of systemic corticosteroid effects. Particular care should be taken in observing patients postoperatively or during periods of stress for evidence of inadequate adrenal response.

It is possible that systemic corticosteroid effects such as hypercorticism and adrenal suppression (including adrenal crisis) may appear in a small number of patients who are sensitive to these effects. If such effects occur, BREO ELLIPTA should be reduced slowly, consistent with accepted procedures for reducing systemic corticosteroids, and other treatments for management of COPD or asthma symptoms should be considered.

5.9 Drug Interactions with Strong Cytochrome P450 3A4 Inhibitors

Caution should be exercised when considering the coadministration of BREO ELLIPTA with long-term ketoconazole and other known strong CYP3A4 inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) because increased systemic corticosteroid and increased cardiovascular adverse effects may occur *[see Drug Interactions (7.1), Clinical Pharmacology (12.3)]*.

5.10 Paradoxical Bronchospasm

As with other inhaled medicines, BREO ELLIPTA can produce paradoxical bronchospasm, which may be life threatening. If paradoxical bronchospasm occurs following dosing with BREO ELLIPTA, it should be treated immediately with an inhaled, short-acting bronchodilator; BREO ELLIPTA should be discontinued immediately; and alternative therapy should be instituted.

5.11 Hypersensitivity Reactions, Including Anaphylaxis

Hypersensitivity reactions such as anaphylaxis, angioedema, rash, and urticaria may occur after administration of BREO ELLIPTA. Discontinue BREO ELLIPTA if such reactions occur. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder medications containing lactose; therefore, patients with severe milk protein allergy should not use BREO ELLIPTA *[see Contraindications (4)]*.

5.12 Cardiovascular Effects

Vilanterol, like other beta$_2$-agonists, can produce a clinically significant cardiovascular effect in some patients as measured by increases in pulse rate, systolic or diastolic blood pressure, and also cardiac arrhythmias, such as supraventricular tachycardia and extrasystoles. If such effects occur, BREO ELLIPTA may need to be discontinued. In addition, beta-agonists have been reported to produce electrocardiographic changes, such as flattening of the T wave, prolongation of the QTc interval, and ST segment depression, although the clinical significance of these findings is unknown. Fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs.

In healthy subjects, large doses of inhaled fluticasone furoate/vilanterol (4 times the recommended dose of vilanterol, representing a 12- or 10-fold higher systemic exposure than seen in subjects with COPD or asthma, respectively) have been associated with clinically significant prolongation of the QTc interval, which has the potential for producing ventricular arrhythmias. Therefore, BREO ELLIPTA, like other sympathomimetic amines, should be used

with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension.

5.13 Reduction in Bone Mineral Density

Decreases in bone mineral density (BMD) have been observed with long-term administration of products containing inhaled corticosteroids. The clinical significance of small changes in BMD with regard to long-term consequences such as fracture is unknown. Patients with major risk factors for decreased bone mineral content, such as prolonged immobilization, family history of osteoporosis, postmenopausal status, tobacco use, advanced age, poor nutrition, or chronic use of drugs that can reduce bone mass (e.g., anticonvulsants, oral corticosteroids) should be monitored and treated with established standards of care. Since patients with COPD often have multiple risk factors for reduced BMD, assessment of BMD is recommended prior to initiating BREO ELLIPTA and periodically thereafter. If significant reductions in BMD are seen and BREO ELLIPTA is still considered medically important for that patient's COPD therapy, use of medicine to treat or prevent osteoporosis should be strongly considered.

5.14 Glaucoma and Cataracts

Glaucoma, increased intraocular pressure, and cataracts have been reported in patients with COPD or asthma following the long-term administration of inhaled corticosteroids. Therefore, close monitoring is warranted in patients with a change in vision or with a history of increased intraocular pressure, glaucoma, and/or cataracts.

5.15 Coexisting Conditions

BREO ELLIPTA, like all medicines containing sympathomimetic amines, should be used with caution in patients with convulsive disorders or thyrotoxicosis and in those who are unusually responsive to sympathomimetic amines. Doses of the related $beta_2$-adrenoceptor agonist albuterol, when administered intravenously, have been reported to aggravate preexisting diabetes mellitus and ketoacidosis.

5.16 Hypokalemia and Hyperglycemia

Beta-adrenergic agonist medicines may produce significant hypokalemia in some patients, possibly through intracellular shunting, which has the potential to produce adverse cardiovascular effects. The decrease in serum potassium is usually transient, not requiring supplementation. Beta-agonist medications may produce transient hyperglycemia in some patients. In clinical trials evaluating BREO ELLIPTA in subjects with COPD or asthma, there was no evidence of a treatment effect on serum glucose or potassium.

5.17 Effect on Growth

Orally inhaled corticosteroids may cause a reduction in growth velocity when administered to children and adolescents. *[See Use in Specific Populations (8.4).]*

6 ADVERSE REACTIONS

LABA, such as vilanterol, one of the active ingredients in BREO ELLIPTA, increase the risk of asthma-related death. Currently available data are inadequate to determine whether concurrent use of inhaled corticosteroids or other long-term asthma control drugs mitigates the increased risk of asthma-related death from LABA. Available data from controlled clinical trials suggest that LABA increase the risk of asthma-related hospitalization in pediatric and adolescent patients. Data from a large placebo-controlled US trial that compared the safety of another LABA (salmeterol) or placebo added to usual asthma therapy showed an increase in asthma-related deaths in subjects receiving salmeterol. *[See Warnings and Precautions (5.1).]*

Systemic and local corticosteroid use may result in the following:

- *Candida albicans* infection *[see Warnings and Precautions (5.4)]*
- Increased risk of pneumonia in COPD *[see Warnings and Precautions (5.5)]*
- Immunosuppression *[see Warnings and Precautions (5.6)]*
- Hypercorticism and adrenal suppression *[see Warnings and Precautions (5.8)]*
- Reduction in bone mineral density *[see Warnings and Precautions (5.13)]*

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared with rates in the clinical trials of another drug and may not reflect the rates observed in practice.

6.1 Clinical Trials Experience in Chronic Obstructive Pulmonary Disease

The clinical program for BREO ELLIPTA included 7,700 subjects with COPD in two 6-month lung function trials, two 12-month exacerbation trials, and 6 other trials of shorter duration. A total of 2,034 subjects with COPD received at least 1 dose of BREO ELLIPTA 100/25, and 1,087 subjects received a higher strength of fluticasone furoate/vilanterol. The safety data described below are based on the confirmatory 6- and 12-month trials. Adverse reactions observed in the other trials were similar to those observed in the confirmatory trials.

6-Month Trials

The incidence of adverse reactions associated with BREO ELLIPTA 100/25 in Table 1 is based on 2 placebo-controlled, 6-month clinical trials (Trials 1 and 2; n = 1,224 and n = 1,030, respectively). Of the 2,254 subjects, 70% were male and 84% were white. They had a mean age of 62 years and an average smoking history of 44 pack years, with 54% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 14% to 87%), the mean postbronchodilator FEV_1/forced vital capacity (FVC) ratio was 47% (range: 17% to 88%), and the mean percent reversibility was 14% (range: -41% to 152%).

Subjects received 1 inhalation once daily of the following: BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, fluticasone furoate/vilanterol 50 mcg/25 mcg, fluticasone furoate 100 mcg, fluticasone furoate 200 mcg, vilanterol 25 mcg, or placebo.

Table 1. Adverse Reactions with BREO ELLIPTA 100/25 with ≥3% Incidence and More Common than Placebo in Subjects with Chronic Obstructive Pulmonary Disease

Adverse Reaction	BREO ELLIPTA 100/25 (n = 410) %	Vilanterol 25 mcg (n = 408) %	Fluticasone Furoate 100 mcg (n = 410) %	Placebo (n = 412) %
Infections and infestations				
Nasopharyngitis	9	10	8	8
Upper respiratory tract infection	7	5	4	3
Oropharyngeal candidiasis[a]	5	2	3	2
Nervous system disorders				
Headache	7	9	7	5

[a] Includes oral candidiasis, oropharyngeal candidiasis, candidiasis, and fungal oropharyngitis.

12-Month Trials

Long-term safety data is based on two 12-month trials (Trials 3 and 4; n = 1,633 and n = 1,622, respectively). Trials 3 and 4 included 3,255 subjects, of which 57% were male and 85% were white. They had a mean age of 64 years and an average smoking history of 46 pack years, with 44% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 45% (range: 12% to 91%), and the mean postbronchodilator FEV_1/FVC ratio was 46% (range: 17% to 81%), indicating that the subject population had moderate to very severely impaired airflow obstruction. Subjects received 1 inhalation once daily of the following: BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, fluticasone furoate/vilanterol 50 mcg/25 mcg, or vilanterol 25 mcg. In addition to the reactions shown in Table 1, adverse reactions occurring in greater than or equal to 3% of the subjects treated with BREO ELLIPTA 100/25 (n = 806) for 12 months included back pain, pneumonia *[see Warnings and Precautions (5.5)]*, bronchitis, sinusitis, cough, oropharyngeal pain, arthralgia, influenza, pharyngitis, and pyrexia.

6.2 Clinical Trials Experience in Asthma

BREO ELLIPTA for the treatment of asthma was studied in 18 double-blind, parallel-group, controlled trials (11 with placebo) of 4 to 76 weeks' duration, which enrolled 9,969 subjects with asthma. BREO ELLIPTA 100/25 was studied in 2,369 subjects and BREO ELLIPTA 200/25 was studied in 956 subjects. While subjects aged 12 to 17 years were included in these trials, BREO ELLIPTA is not approved for use in this age group *[see Use in Specific Populations*

(8.4)]. The safety data described below are based on two 12-week efficacy trials, one 24-week efficacy trial, and two long-term trials.

12-Week Trials

Trial 1 was a 12-week trial that evaluated the efficacy of BREO ELLIPTA 100/25 in adolescent and adult subjects with asthma compared with fluticasone furoate 100 mcg and placebo. Of the 609 subjects, 58% were female and 84% were white; the mean age was 40 years. The incidence of adverse reactions associated with BREO ELLIPTA 100/25 is shown in Table 2.

Table 2. Adverse Reactions with BREO ELLIPTA 100/25 with ≥2% Incidence and More Common than Placebo in Subjects with Asthma (Trial 1)

Adverse Reaction	BREO ELLIPTA 100/25 (n = 201) %	Fluticasone Furoate 100 mcg (n = 205) %	Placebo (n = 203) %
Infections and infestations			
Nasopharyngitis	10	7	7
Oral candidiasis[a]	2	2	0
Nervous system disorders			
Headache	5	4	4
Respiratory, thoracic, and mediastinal disorders			
Oropharyngeal pain	2	2	1
Dysphonia	2	1	0

[a] Includes oral candidiasis and oropharyngeal candidiasis.

Trial 2 was a 12-week trial that evaluated the efficacy of BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, and fluticasone furoate 100 mcg in adolescent and adult subjects with asthma. This trial did not have a placebo arm. Of the 1,039 subjects, 60% were female and 88% were white; the mean age was 46 years. The incidence of adverse reactions associated with BREO ELLIPTA 100/25 and BREO ELLIPTA 200/25 is shown in Table 3.

Table 3. Adverse Reactions with BREO ELLIPTA 100/25 and BREO ELLIPTA 200/25 with ≥2% Incidence in Subjects with Asthma (Trial 2)

Adverse Reaction	BREO ELLIPTA 200/25 (n = 346) %	BREO ELLIPTA 100/25 (n = 346) %	Fluticasone Furoate 100 mcg (n = 347) %
Nervous system disorders			
Headache	8	8	9
Infections and infestations			
Nasopharyngitis	7	6	7
Influenza	3	3	1
Upper respiratory tract infection	2	2	3
Sinusitis	2	1	<1
Bronchitis	2	<1	2
Respiratory, thoracic and mediastinal disorders			
Oropharyngeal pain	2	2	1
Cough	1	2	1

24-Week Trial

Trial 3 was a 24-week trial that evaluated the efficacy of BREO ELLIPTA 200/25 once daily, fluticasone furoate 200 mcg once daily, and fluticasone propionate 500 mcg twice daily in adolescent and adult subjects with asthma. Of the 586 subjects, 59% were female and 84% were white; the mean age was 46 years. This trial did not have a placebo arm. In addition to the reactions shown in Tables 2 and 3, adverse reactions occurring in greater than or equal to 2% of subjects treated with BREO ELLIPTA 200/25 included viral respiratory tract infection, pharyngitis, pyrexia, and arthralgia.

12-Month Trial

Long-term safety data is based on a 12-month trial that evaluated the safety of BREO ELLIPTA 100/25 once daily (n = 201), BREO ELLIPTA 200/25 once daily (n = 202), and fluticasone propionate 500 mcg twice daily (n = 100) in adolescent and adult subjects with asthma (Trial 4). Overall, 63% were female and 67% were white. The mean age was 39 years; adolescents (aged 12 to 17 years) made up 16% of the population. In addition to the reactions shown in Tables 2 and 3, adverse reactions occurring in greater than or equal to 2% of the subjects treated with BREO ELLIPTA 100/25 or BREO ELLIPTA 200/25 for 12 months included pyrexia, back pain, extrasystoles, upper abdominal pain, respiratory tract infection, allergic rhinitis, pharyngitis, rhinitis, arthralgia, supraventricular extrasystoles, ventricular extrasystoles, acute sinusitis, and pneumonia.

Exacerbation Trial

In a 24- to 76-week trial, subjects received BREO ELLIPTA 100/25 (n = 1,009) or fluticasone furoate 100 mcg (n = 1,010) (Trial 5). Subjects participating in this trial had a history of one or more asthma exacerbations that required treatment with oral/systemic corticosteroids or emergency department visit or in-patient hospitalization for the treatment of asthma in the year prior to trial entry. Overall, 67% were female and 73% were white; the mean age was 42 years (adolescents aged 12 to 17 years made up 14% of the population). While subjects aged 12 to 17 years were included in this trial, BREO ELLIPTA is not approved for use in this age group *[see Use in Specific Populations (8.4)]*. Asthma-related hospitalizations occurred in 10 subjects (1%) treated with BREO ELLIPTA 100/25 compared with 7 subjects (0.7%) treated with fluticasone furoate 100 mcg. Among subjects aged 12 to 17 years, asthma-related hospitalizations occurred in 4 subjects (2.6%) treated with BREO ELLIPTA 100/25 (n = 151) compared with 0 subjects treated with fluticasone furoate 100 mcg (n = 130). There were no asthma-related deaths or asthma-related intubations observed in this trial.

6.3 Postmarketing Experience

In addition to adverse reactions reported from clinical trials, the following adverse reactions have been identified during postapproval use of BREO ELLIPTA. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. These events have been chosen for inclusion due to either their seriousness, frequency of reporting, or causal connection to BREO ELLIPTA or a combination of these factors.

Cardiac Disorders

Palpitations, tachycardia.

Immune System Disorders

Hypersensitivity reactions, including anaphylaxis, angioedema, rash, and urticaria.

Musculoskeletal and Connective Tissue Disorders

Muscle spasms.

Nervous System Disorders

Tremor.

Psychiatric Disorders

Nervousness.

Respiratory, Thoracic, and Mediastinal Disorders

Paradoxical bronchospasm.

7 DRUG INTERACTIONS

7.1 Inhibitors of Cytochrome P450 3A4

Fluticasone furoate and vilanterol, the individual components of BREO ELLIPTA, are both substrates of CYP3A4. Concomitant administration of the strong CYP3A4 inhibitor ketoconazole increases the systemic exposure to fluticasone furoate and vilanterol. Caution should be exercised when considering the coadministration of BREO ELLIPTA with long-term ketoconazole and other known strong CYP3A4 inhibitors (e.g., ritonavir, clarithromycin, conivaptan, indinavir, itraconazole, lopinavir, nefazodone, nelfinavir, saquinavir, telithromycin, troleandomycin, voriconazole) *[see Warnings and Precautions (5.9), Clinical Pharmacology (12.3)]*.

7.2 Monoamine Oxidase Inhibitors and Tricyclic Antidepressants

Vilanterol, like other beta$_2$-agonists, should be administered with extreme caution to patients being treated with monoamine oxidase inhibitors, tricyclic antidepressants, or drugs known to prolong the QTc interval or within 2 weeks of discontinuation of such agents, because the effect of adrenergic agonists on the cardiovascular system may be potentiated by these agents. Drugs that are known to prolong the QTc interval have an increased risk of ventricular arrhythmias.

7.3 Beta-adrenergic Receptor Blocking Agents

Beta-blockers not only block the pulmonary effect of beta-agonists, such as vilanterol, a component of BREO ELLIPTA, but may also produce severe bronchospasm in patients with COPD or asthma. Therefore, patients with COPD or asthma should not normally be treated with beta-blockers. However, under certain circumstances, there may be no acceptable alternatives to the use of beta-adrenergic blocking agents for these patients; cardioselective beta-blockers could be considered, although they should be administered with caution.

7.4 Non–Potassium-Sparing Diuretics

The electrocardiographic changes and/or hypokalemia that may result from the administration of non–potassium-sparing diuretics (such as loop or thiazide diuretics) can be acutely worsened by beta-agonists, especially when the recommended dose of the beta-agonist is exceeded. Although the clinical significance of these effects is not known, caution is advised in the coadministration of beta-agonists with non–potassium-sparing diuretics.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Teratogenic Effects

Pregnancy Category C. There are no adequate and well-controlled trials with BREO ELLIPTA in pregnant women. Corticosteroids and beta$_2$-agonists have been shown to be teratogenic in laboratory animals when administered systemically at relatively low dosage levels. Because

animal reproduction studies are not always predictive of human response, BREO ELLIPTA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their physicians if they become pregnant while taking BREO ELLIPTA.

Fluticasone Furoate and Vilanterol: There was no evidence of teratogenic interactions between fluticasone furoate and vilanterol in rats at approximately 5 and 40 times, respectively, the maximum recommended human daily inhalation dose (MRHDID) in adults (on a mcg/m^2 basis at maternal inhaled doses of fluticasone furoate and vilanterol, alone or in combination, up to approximately 95 mcg/kg/day).

Fluticasone Furoate: There were no teratogenic effects in rats and rabbits at approximately 4 and 1 times, respectively, the MRHDID in adults (on a mcg/m^2 basis at maternal inhaled doses up to 91 and 8 mcg/kg/day in rats and rabbits, respectively). There were no effects on perinatal and postnatal development in rats at approximately 1 time the MRHDID in adults (on a mcg/m^2 basis at maternal doses up to 27 mcg/kg/day).

Vilanterol: There were no teratogenic effects in rats and rabbits at approximately 13,000 and 160 times, respectively, the MRHDID in adults (on a mcg/m^2 basis at maternal inhaled doses up to 33,700 mcg/kg/day in rats and on an AUC basis at maternal inhaled doses up to 591 mcg/kg/day in rabbits). However, fetal skeletal variations were observed in rabbits at approximately 1,000 times the MRHDID in adults (on an AUC basis at maternal inhaled or subcutaneous doses of 5,740 or 300 mcg/kg/day, respectively). The skeletal variations included decreased or absent ossification in cervical vertebral centrum and metacarpals. There were no effects on perinatal and postnatal development in rats at approximately 3,900 times the MRHDID in adults (on a mcg/m^2 basis at maternal oral doses up to 10,000 mcg/kg/day).

Nonteratogenic Effects

Hypoadrenalism may occur in infants born of mothers receiving corticosteroids during pregnancy. Such infants should be carefully monitored.

8.2 Labor and Delivery

There are no adequate and well-controlled human trials that have investigated the effects of BREO ELLIPTA during labor and delivery.

Because beta-agonists may potentially interfere with uterine contractility, BREO ELLIPTA should be used during labor only if the potential benefit justifies the potential risk.

8.3 Nursing Mothers

It is not known whether fluticasone furoate or vilanterol are excreted in human breast milk. However, other corticosteroids and $beta_2$-agonists have been detected in human milk. Since there are no data from controlled trials on the use of BREO ELLIPTA by nursing mothers, caution should be exercised when it is administered to a nursing woman.

8.4 Pediatric Use

BREO ELLIPTA is not indicated for use in children and adolescents. The safety and efficacy in pediatric patients (aged 17 years and younger) have not been established.

In a 24- to 76-week exacerbation trial, subjects received BREO ELLIPTA 100/25 (n = 1,009) or fluticasone furoate 100 mcg (n = 1,010). Subjects had a mean age of 42 years and a history of one or more asthma exacerbations that required treatment with oral/systemic corticosteroids or emergency department visit or in-patient hospitalization for the treatment of asthma in the year prior to study entry. *[See Clinical Studies (14.2).]* Adolescents aged 12 to 17 years made up 14% of the study population (n = 281), with a mean exposure of 352 days for subjects in this age group treated with BREO ELLIPTA 100/25 (n = 151) and 355 days for subjects in this age group treated with fluticasone furoate 100 mcg (n = 130). In this age group, 10% of subjects treated with BREO ELLIPTA 100/25 reported an asthma exacerbation compared with 7% for subjects treated with fluticasone furoate 100 mcg. Among the adolescents, asthma-related hospitalizations occurred in 4 subjects (2.6%) treated with BREO ELLIPTA 100/25 compared with 0 subjects treated with fluticasone furoate 100 mcg. There were no asthma-related deaths or asthma-related intubations observed in the adolescent age group.

Effects on Growth

Orally inhaled corticosteroids may cause a reduction in growth velocity when administered to children and adolescents. A reduction of growth velocity in children and adolescents may occur as a result of poorly controlled asthma or from use of corticosteroids, including inhaled corticosteroids. The effects of long-term treatment of children and adolescents with inhaled corticosteroids, including fluticasone furoate, on final adult height are not known.

Controlled clinical trials have shown that inhaled corticosteroids may cause a reduction in growth in children. In these trials, the mean reduction in growth velocity was approximately 1 cm/year (range: 0.3 to 1.8 cm/year) and appears to be related to dose and duration of exposure. This effect has been observed in the absence of laboratory evidence of HPA axis suppression, suggesting that growth velocity is a more sensitive indicator of systemic corticosteroid exposure in children than some commonly used tests of HPA axis function. The long-term effects of this reduction in growth velocity associated with orally inhaled corticosteroids, including the impact on final adult height, are unknown. The potential for “catch-up” growth following discontinuation of treatment with orally inhaled corticosteroids has not been adequately studied. The growth of children and adolescents receiving orally inhaled corticosteroids, including BREO ELLIPTA, should be monitored routinely (e.g., via stadiometry). The potential growth effects of prolonged treatment should be weighed against the clinical benefits obtained and the risks associated with alternative therapies. To minimize the systemic effects of orally inhaled corticosteroids, including BREO ELLIPTA, each patient should be titrated to the lowest dose that effectively controls his/her symptoms.

A randomized, double-blind, parallel-group, multicenter, 1-year, placebo-controlled trial evaluated the effect of once-daily treatment with 110 mcg of fluticasone furoate in the nasal spray formulation on growth velocity assessed by stadiometry. The subjects were 474 prepubescent children (girls aged 5 to 7.5 years and boys aged 5 to 8.5 years). Mean growth velocity over the 52-week treatment period was lower in the subjects receiving fluticasone furoate nasal spray (5.19 cm/year) compared with placebo (5.46 cm/year). The mean reduction in growth velocity was 0.27 cm/year (95% CI: 0.06 to 0.48) *[see Warnings and Precautions (5.17)]*.

8.5 Geriatric Use

Based on available data, no adjustment of the dosage of BREO ELLIPTA in geriatric patients is necessary, but greater sensitivity in some older individuals cannot be ruled out.

Clinical trials of BREO ELLIPTA for COPD included 2,508 subjects aged 65 and older and 564 subjects aged 75 and older. Clinical trials of BREO ELLIPTA for asthma included 854 subjects aged 65 years and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger subjects.

8.6 Hepatic Impairment

Fluticasone furoate systemic exposure increased by up to 3-fold in subjects with hepatic impairment compared with healthy subjects. Hepatic impairment had no effect on vilanterol systemic exposure. Use BREO ELLIPTA with caution in patients with moderate or severe hepatic impairment. Monitor patients for corticosteroid-related side effects *[see Clinical Pharmacology (12.3)]*.

8.7 Renal Impairment

There were no significant increases in either fluticasone furoate or vilanterol exposure in subjects with severe renal impairment (CrCl less than 30 mL/min) compared with healthy subjects. No dosage adjustment is required in patients with renal impairment *[see Clinical Pharmacology (12.3)]*.

10 OVERDOSAGE

No human overdosage data has been reported for BREO ELLIPTA.

BREO ELLIPTA contains both fluticasone furoate and vilanterol; therefore, the risks associated with overdosage for the individual components described below apply to BREO ELLIPTA. Treatment of overdosage consists of discontinuation of BREO ELLIPTA together with institution of appropriate symptomatic and/or supportive therapy. The judicious use of a cardioselective beta-receptor blocker may be considered, bearing in mind that such medicine can produce bronchospasm. Cardiac monitoring is recommended in cases of overdosage.

10.1 Fluticasone Furoate

Because of low systemic bioavailability (15.2%) and an absence of acute drug-related systemic findings in clinical trials, overdosage of fluticasone furoate is unlikely to require any treatment other than observation. If used at excessive doses for prolonged periods, systemic effects such as hypercorticism may occur *[see Warnings and Precautions (5.8)]*.

Single- and repeat-dose trials of fluticasone furoate at doses of 50 to 4,000 mcg have been studied in human subjects. Decreases in mean serum cortisol were observed at dosages of 500 mcg or higher given once daily for 14 days.

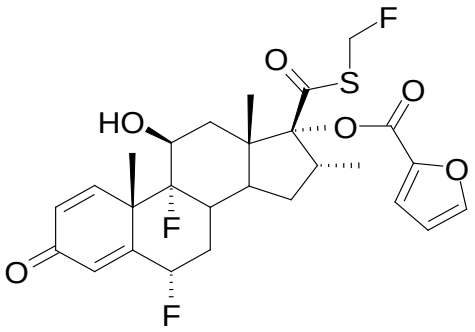
10.2 Vilanterol

The expected signs and symptoms with overdosage of vilanterol are those of excessive beta-adrenergic stimulation and/or occurrence or exaggeration of any of the signs and symptoms of beta-adrenergic stimulation (e.g., seizures, angina, hypertension or hypotension, tachycardia with rates up to 200 beats/min, arrhythmias, nervousness, headache, tremor, muscle cramps, dry mouth, palpitation, nausea, dizziness, fatigue, malaise, insomnia, hyperglycemia, hypokalemia, metabolic acidosis). As with all inhaled sympathomimetic medicines, cardiac arrest and even death may be associated with an overdose of vilanterol.

11 DESCRIPTION

BREO ELLIPTA 100/25 and BREO ELLIPTA 200/25 are inhalation powders for oral inhalation that contain a combination of fluticasone furoate (an ICS) and vilanterol (a LABA).

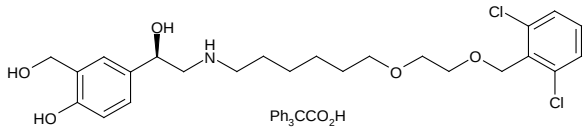
One active component of BREO ELLIPTA is fluticasone furoate, a synthetic trifluorinated corticosteroid having the chemical name (6α,11β,16α,17α)-6,9-difluoro-17-{[(fluoro-methyl)thio]carbonyl}-11-hydroxy-16-methyl-3-oxoandrosta-1,4-dien-17-yl 2-furancarboxylate and the following chemical structure:



Fluticasone furoate is a white powder with a molecular weight of 538.6, and the empirical formula is $C_{27}H_{29}F_3O_6S$. It is practically insoluble in water.

The other active component of BREO ELLIPTA is vilanterol trifenatate, a LABA with the chemical name triphenylacetic acid-4-{(1*R*)-2-[(6-{2-[2,6-dicholorobenzyl)oxy]ethoxy}

hexyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)phenol (1:1) and the following chemical structure:



Vilanterol trifenatate is a white powder with a molecular weight of 774.8, and the empirical formula is $C_{24}H_{33}Cl_2NO_5 \bullet C_{20}H_{16}O_2$. It is practically insoluble in water.

BREO ELLIPTA is a light grey and pale blue plastic inhaler containing 2 foil blister strips. Each blister on one strip contains a white powder mix of micronized fluticasone furoate (100 or 200 mcg) and lactose monohydrate (12.4 mg), and each blister on the other strip contains a white powder mix of micronized vilanterol trifenatate (40 mcg equivalent to 25 mcg of vilanterol), magnesium stearate (125 mcg), and lactose monohydrate (12.34 mg). The lactose monohydrate contains milk proteins. After the inhaler is activated, the powder within both blisters is exposed and ready for dispersion into the airstream created by the patient inhaling through the mouthpiece.

Under standardized in vitro test conditions, BREO ELLIPTA delivers 92 and 184 mcg of fluticasone furoate and 22 mcg of vilanterol per blister when tested at a flow rate of 60 L/min for 4 seconds.

In adult subjects with obstructive lung disease and severely compromised lung function (COPD with FEV_1/FVC less than 70% and FEV_1 less than 30% predicted or FEV_1 less than 50% predicted plus chronic respiratory failure), mean peak inspiratory flow through the ELLIPTA inhaler was 66.5 L/min (range: 43.5 to 81.0 L/min).

In adult subjects with severe asthma, mean peak inspiratory flow through the ELLIPTA inhaler was 96.6 L/min (range: 72.4 to 124.6 L/min).

The actual amount of drug delivered to the lung will depend on patient factors, such as inspiratory flow profile.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

BREO ELLIPTA

Since BREO ELLIPTA contains both fluticasone furoate and vilanterol, the mechanisms of action described below for the individual components apply to BREO ELLIPTA. These drugs represent 2 different classes of medications (a synthetic corticosteroid and a LABA) that have different effects on clinical and physiological indices.

Fluticasone Furoate

Fluticasone furoate is a synthetic trifluorinated corticosteroid with anti-inflammatory activity. Fluticasone furoate has been shown in vitro to exhibit a binding affinity for the human glucocorticoid receptor that is approximately 29.9 times that of dexamethasone and 1.7 times that of fluticasone propionate. The clinical relevance of these findings is unknown.

The precise mechanism through which fluticasone furoate affects COPD and asthma symptoms is not known. Inflammation is an important component in the pathogenesis of COPD and asthma. Corticosteroids have been shown to have a wide range of actions on multiple cell types (e.g., mast cells, eosinophils, neutrophils, macrophages, lymphocytes) and mediators (e.g., histamine, eicosanoids, leukotrienes, cytokines) involved in inflammation. Specific effects of fluticasone furoate demonstrated in in vitro and in vivo models included activation of the glucocorticoid response element, inhibition of pro-inflammatory transcription factors such as NFkB, and inhibition of antigen-induced lung eosinophilia in sensitized rats. These anti-inflammatory actions of corticosteroids may contribute to their efficacy.

Vilanterol

Vilanterol is a LABA. In vitro tests have shown the functional selectivity of vilanterol was similar to salmeterol. The clinical relevance of this in vitro finding is unknown.

Although $beta_2$-receptors are the predominant adrenergic receptors in bronchial smooth muscle and $beta_1$-receptors are the predominant receptors in the heart, there are also $beta_2$-receptors in the human heart comprising 10% to 50% of the total beta-adrenergic receptors. The precise function of these receptors has not been established, but they raise the possibility that even highly selective $beta_2$-agonists may have cardiac effects.

The pharmacologic effects of $beta_2$-adrenoceptor agonist drugs, including vilanterol, are at least in part attributable to stimulation of intracellular adenyl cyclase, the enzyme that catalyzes the conversion of adenosine triphosphate (ATP) to cyclic-3',5'-adenosine monophosphate (cyclic AMP). Increased cyclic AMP levels cause relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially from mast cells.

12.2 Pharmacodynamics

Cardiovascular Effects

Healthy Subjects: QTc interval prolongation was studied in a double-blind, multiple-dose, placebo- and positive-controlled crossover study in 85 healthy volunteers. The maximum mean (95% upper confidence bound) difference in QTcF from placebo after baseline-correction was 4.9 (7.5) milliseconds and 9.6 (12.2) milliseconds seen 30 minutes after dosing for fluticasone furoate/vilanterol 200 mcg/25 mcg and fluticasone furoate/vilanterol 800 mcg/100 mcg, respectively.

A dose-dependent increase in heart rate was also observed. The maximum mean (95% upper confidence bound) difference in heart rate from placebo after baseline-correction was 7.8 (9.4) beats/min and 17.1 (18.7) beats/min seen 10 minutes after dosing for fluticasone furoate/vilanterol 200 mcg/25 mcg and fluticasone furoate/vilanterol 800 mcg/100 mcg, respectively.

HPA Axis Effects

Healthy Subjects: Inhaled fluticasone furoate at repeat doses up to 400 mcg was not associated with statistically significant decreases in serum or urinary cortisol in healthy subjects. Decreases in serum and urine cortisol levels were observed at fluticasone furoate exposures several-fold higher than exposures observed at the therapeutic dose.

Subjects with Chronic Obstructive Pulmonary Disease: In a trial with subjects with COPD, treatment with fluticasone furoate (50, 100, or 200 mcg)/vilanterol 25 mcg, vilanterol 25 mcg, and fluticasone furoate (100 or 200 mcg) for 6 months did not affect 24-hour urinary cortisol excretion. A separate trial with subjects with COPD demonstrated no effects on serum cortisol after 28 days of treatment with fluticasone furoate (50, 100, or 200 mcg)/vilanterol 25 mcg.

Subjects with Asthma: A randomized, double-blind, parallel-group trial in 185 subjects with asthma showed no difference between once-daily treatment with fluticasone furoate/vilanterol 100 mcg/25 mcg or fluticasone furoate/vilanterol 200 mcg/25 mcg compared with placebo on serum cortisol weighted mean (0 to 24 hours), serum cortisol $AUC_{(0-24)}$, and 24-hour urinary cortisol after 6 weeks of treatment, whereas prednisolone 10 mg given once daily for 7 days resulted in significant cortisol suppression.

12.3 Pharmacokinetics

Linear pharmacokinetics was observed for fluticasone furoate (200 to 800 mcg) and vilanterol (25 to 100 mcg). On repeated once-daily inhalation administration, steady state of fluticasone furoate and vilanterol plasma concentrations was achieved after 6 days, and the accumulation was up to 2.6-fold for fluticasone furoate and 2.4-fold for vilanterol as compared with single dose.

Absorption

Fluticasone Furoate: Fluticasone furoate plasma levels may not predict therapeutic effect. Peak plasma concentrations are reached within 0.5 to 1 hour. Absolute bioavailability of fluticasone furoate when administrated by inhalation was 15.2%, primarily due to absorption of the inhaled portion of the dose delivered to the lung. Oral bioavailability from the swallowed portion of the dose is low (approximately 1.3%) due to extensive first-pass metabolism. Systemic exposure (AUC) in subjects with COPD or asthma was 46% or 7% lower, respectively, than observed in healthy subjects.

Vilanterol: Vilanterol plasma levels may not predict therapeutic effect. Peak plasma concentrations are reached within 10 minutes following inhalation. Absolute bioavailability of

vilanterol when administrated by inhalation was 27.3%, primarily due to absorption of the inhaled portion of the dose delivered to the lung. Oral bioavailability from the swallowed portion of the dose of vilanterol is low (less than 2%) due to extensive first-pass metabolism. Systemic exposure (AUC) in subjects with COPD was 24% higher than observed in healthy subjects. Systemic exposure (AUC) in subjects with asthma was 21% lower than observed in healthy subjects.

Distribution

Fluticasone Furoate: Following intravenous administration to healthy subjects, the mean volume of distribution at steady state was 661 L. Binding of fluticasone furoate to human plasma proteins was high (99.6%).

Vilanterol: Following intravenous administration to healthy subjects, the mean volume of distribution at steady state was 165 L. Binding of vilanterol to human plasma proteins was 93.9%.

Metabolism

Fluticasone Furoate: Fluticasone furoate is cleared from systemic circulation principally by hepatic metabolism via CYP3A4 to metabolites with significantly reduced corticosteroid activity. There was no in vivo evidence for cleavage of the furoate moiety resulting in the formation of fluticasone.

Vilanterol: Vilanterol is mainly metabolized, principally via CYP3A4, to a range of metabolites with significantly reduced β_1- and β_2-agonist activity.

Elimination

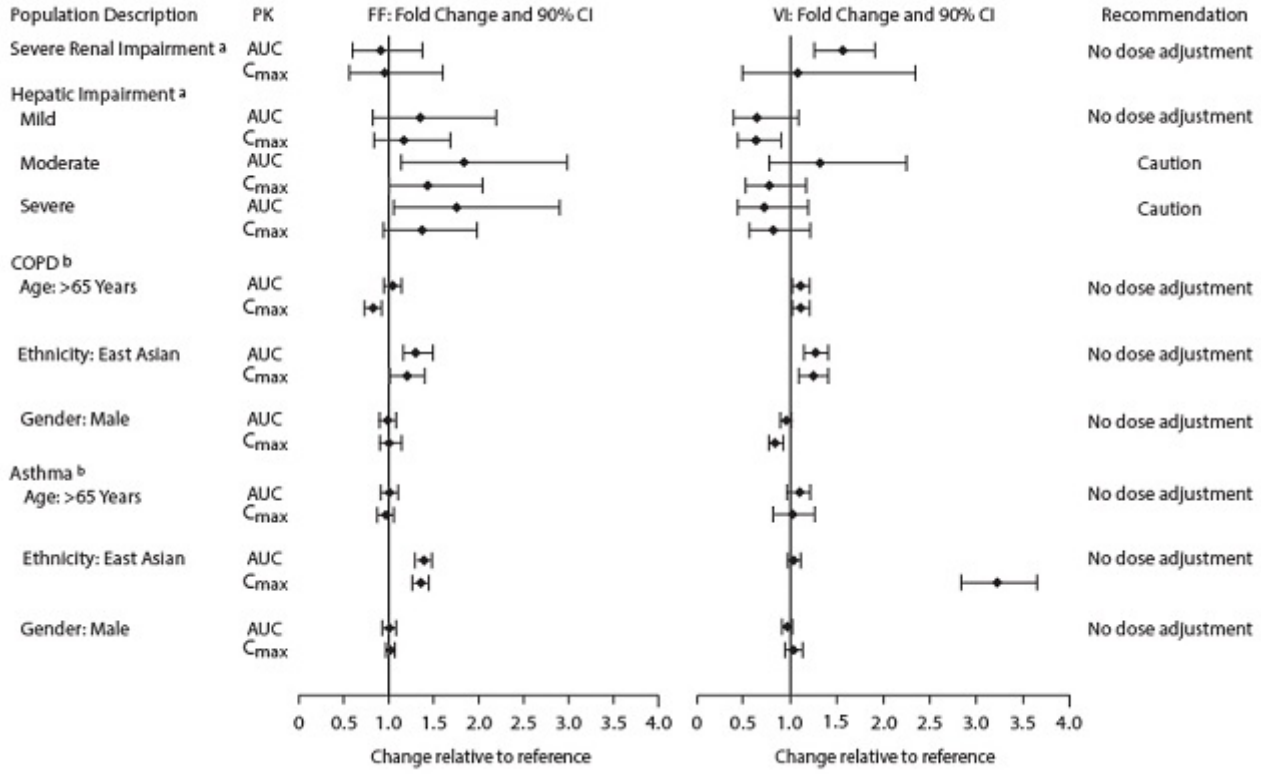
Fluticasone Furoate: Fluticasone furoate and its metabolites are eliminated primarily in the feces, accounting for approximately 101% and 90% of the orally and intravenously administered doses, respectively. Urinary excretion accounted for approximately 1% and 2% of the orally and intravenously administered doses, respectively. Following repeat-dose inhaled administration, the plasma elimination phase half-life averaged 24 hours.

Vilanterol: Following oral administration, vilanterol was eliminated mainly by metabolism followed by excretion of metabolites in urine and feces (approximately 70% and 30% of the recovered radioactive dose, respectively). The plasma elimination half-life of vilanterol, as determined from inhalation administration of multiple doses of vilanterol 25 mcg, is 21.3 hours in subjects with COPD and 16.0 hours in subjects with asthma.

Special Populations

The effect of renal and hepatic impairment and other intrinsic factors on the pharmacokinetics of fluticasone furoate and vilanterol is shown in Figure 1.

Figure 1. Impact of Intrinsic Factors on the Pharmacokinetics (PK) of Fluticasone Furoate (FF) and Vilanterol (VI) Following Administration as Fluticasone Furoate/Vilanterol Combination



[a] Severe renal impairment (CrCl less than 30 mL/min) compared with healthy subjects; mild (Child-Pugh A), moderate (Child-Pugh B), and severe (Child-Pugh C) hepatic impairment compared with healthy subjects.

[b] For COPD and asthma, the following comparisons were made: age compared with less than or equal to 65 years, gender compared with female, and ethnicity compared with white.

Race: Systemic exposure [$AUC_{(0-24)}$] to inhaled fluticasone furoate 200 mcg was 27% to 49% higher in healthy subjects of Japanese, Korean, and Chinese heritage compared with white subjects. Similar differences were observed for subjects with COPD or asthma (Figure 1). However, there is no evidence that this higher exposure to fluticasone furoate results in clinically relevant effects on urinary cortisol excretion or on efficacy in these racial groups.

There was no effect of race on the pharmacokinetics of vilanterol in subjects with COPD. In subjects with asthma, vilanterol C_{max} is estimated to be higher (3-fold) and $AUC_{(0-24)}$ comparable for those subjects from an Asian heritage compared with subjects from a non-Asian heritage. However, the higher C_{max} values are similar to those seen in healthy subjects.

Hepatic Impairment: Fluticasone Furoate: Following repeat dosing of fluticasone furoate/vilanterol 200 mcg/25 mcg (100 mcg/12.5 mcg in the severe impairment group) for

7 days, there was an increase of 34%, 83%, and 75% in fluticasone furoate systemic exposure (AUC) in subjects with mild, moderate, and severe hepatic impairment, respectively, compared with healthy subjects (Figure 1).

In subjects with moderate hepatic impairment receiving fluticasone furoate/vilanterol 200 mcg/25 mcg, mean serum cortisol (0 to 24 hours) was reduced by 34% (90% CI: 11%, 51%) compared with healthy subjects. In subjects with severe hepatic impairment receiving fluticasone furoate/vilanterol 100 mcg/12.5 mcg, mean serum cortisol (0 to 24 hours) was increased by 14% (90% CI: -16%, 55%) compared with healthy subjects. Patients with moderate to severe hepatic disease should be closely monitored.

Vilanterol: Hepatic impairment had no effect on vilanterol systemic exposure [C_{max} and $AUC_{(0-24)}$ on Day 7] following repeat-dose administration of fluticasone furoate/vilanterol 200 mcg/25 mcg (100 mcg/12.5 mcg in the severe impairment group) for 7 days (Figure 1).

There were no additional clinically relevant effects of the fluticasone furoate/vilanterol combinations on heart rate or serum potassium in subjects with mild or moderate hepatic impairment (vilanterol 25 mcg combination) or with severe hepatic impairment (vilanterol 12.5 mcg combination) compared with healthy subjects.

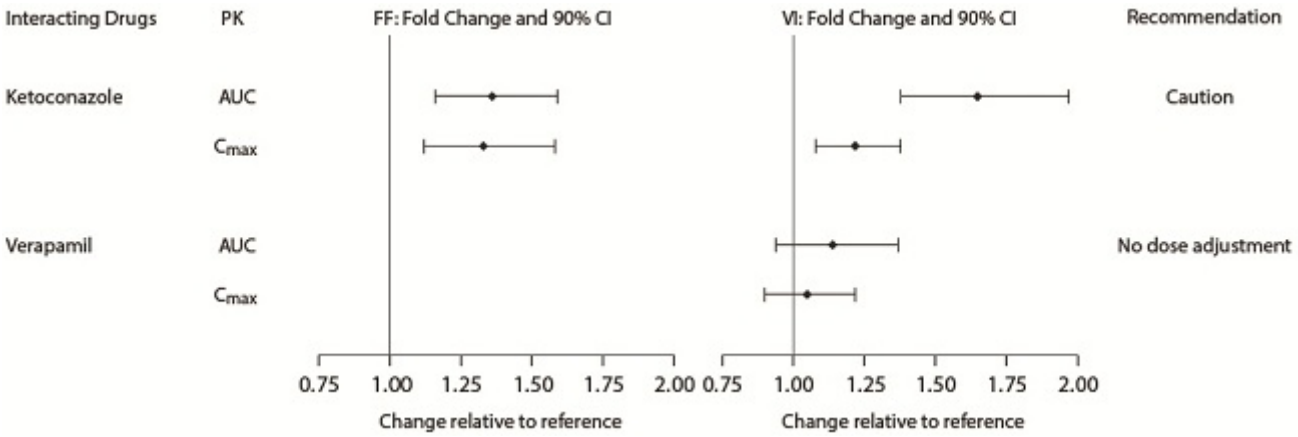
Renal Impairment: Fluticasone furoate systemic exposure was not increased and vilanterol systemic exposure [$AUC_{(0-24)}$] was 56% higher in subjects with severe renal impairment compared with healthy subjects (Figure 1). There was no evidence of greater corticosteroid or beta-agonist class-related systemic effects (assessed by serum cortisol, heart rate, and serum potassium) in subjects with severe renal impairment compared with healthy subjects.

Drug Interactions

There were no clinically relevant differences in the pharmacokinetics or pharmacodynamics of either fluticasone furoate or vilanterol when administered in combination compared with administration alone. The potential for fluticasone furoate and vilanterol to inhibit or induce metabolic enzymes and transporter systems is negligible at low inhalation doses.

Inhibitors of Cytochrome P450 3A4: The exposure (AUC) of fluticasone furoate and vilanterol were 36% and 65% higher, respectively, when coadministered with ketoconazole 400 mg compared with placebo (Figure 2). The increase in fluticasone furoate exposure was associated with a 27% reduction in weighted mean serum cortisol (0 to 24 hours). The increase in vilanterol exposure was not associated with an increase in beta-agonist–related systemic effects on heart rate or blood potassium.

Figure 2. Impact of Coadministered Drugs[a] on the Pharmacokinetics (PK) of Fluticasone Furoate (FF) and Vilanterol (VI) Following Administration as Fluticasone Furoate/Vilanterol Combination or Vilanterol Coadministered with a Long-acting Muscarinic Antagonist



[a] Compared with placebo group.

Inhibitors of P-glycoprotein: Fluticasone furoate and vilanterol are both substrates of P-glycoprotein (P-gp). Coadministration of repeat-dose (240 mg once daily) verapamil (a potent P-gp inhibitor and moderate CYP3A4 inhibitor) did not affect the vilanterol C_{max} or AUC in healthy subjects (Figure 2). Drug interaction trials with a specific P-gp inhibitor and fluticasone furoate have not been conducted.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

BREO ELLIPTA

No studies of carcinogenicity, mutagenicity, or impairment of fertility were conducted with BREO ELLIPTA; however, studies are available for the individual components, fluticasone furoate and vilanterol, as described below.

Fluticasone Furoate

Fluticasone furoate produced no treatment-related increases in the incidence of tumors in 2-year inhalation studies in rats and mice at inhaled doses up to 9 and 19 mcg/kg/day, respectively (approximately 0.5 times the MRHDID in adults on a mcg/m^2 basis).

Fluticasone furoate did not induce gene mutation in bacteria or chromosomal damage in a mammalian cell mutation test in mouse lymphoma L5178Y cells in vitro. There was also no evidence of genotoxicity in the in vivo micronucleus test in rats.

No evidence of impairment of fertility was observed in male and female rats at inhaled fluticasone furoate doses up to 29 and 91 mcg/kg/day, respectively (approximately 1 and 4 times, respectively, the MRHDID in adults on a mcg/m^2 basis).

Vilanterol

In a 2-year carcinogenicity study in mice, vilanterol caused a statistically significant increase in ovarian tubulostromal adenomas in females at an inhalation dose of 29,500 mcg/kg/day (approximately 8,750 times the MRHDID in adults on an AUC basis). No increase in tumors was seen at an inhalation dose of 615 mcg/kg/day (approximately 530 times the MRHDID in adults on an AUC basis).

In a 2-year carcinogenicity study in rats, vilanterol caused statistically significant increases in mesovarian leiomyomas in females and shortening of the latency of pituitary tumors at inhalation doses greater than or equal to 84.4 mcg/kg/day (greater than or equal to approximately 45 times the MRHDID in adults on an AUC basis). No tumors were seen at an inhalation dose of 10.5 mcg/kg/day (approximately 2 times the MRHDID in adults on an AUC basis).

These tumor findings in rodents are similar to those reported previously for other beta-adrenergic agonist drugs. The relevance of these findings to human use is unknown.

Vilanterol tested negative in the following genotoxicity assays: the in vitro Ames assay, in vivo rat bone marrow micronucleus assay, in vivo rat unscheduled DNA synthesis (UDS) assay, and in vitro Syrian hamster embryo (SHE) cell assay. Vilanterol tested equivocal in the in vitro mouse lymphoma assay.

No evidence of impairment of fertility was observed in reproductive studies conducted in male and female rats at inhaled vilanterol doses up to 31,500 and 37,100 mcg/kg/day, respectively (approximately 12,000 and 14,000 times, respectively, the MRHDID in adults on a mcg/m^2 basis).

14 CLINICAL STUDIES

14.1 Chronic Obstructive Pulmonary Disease

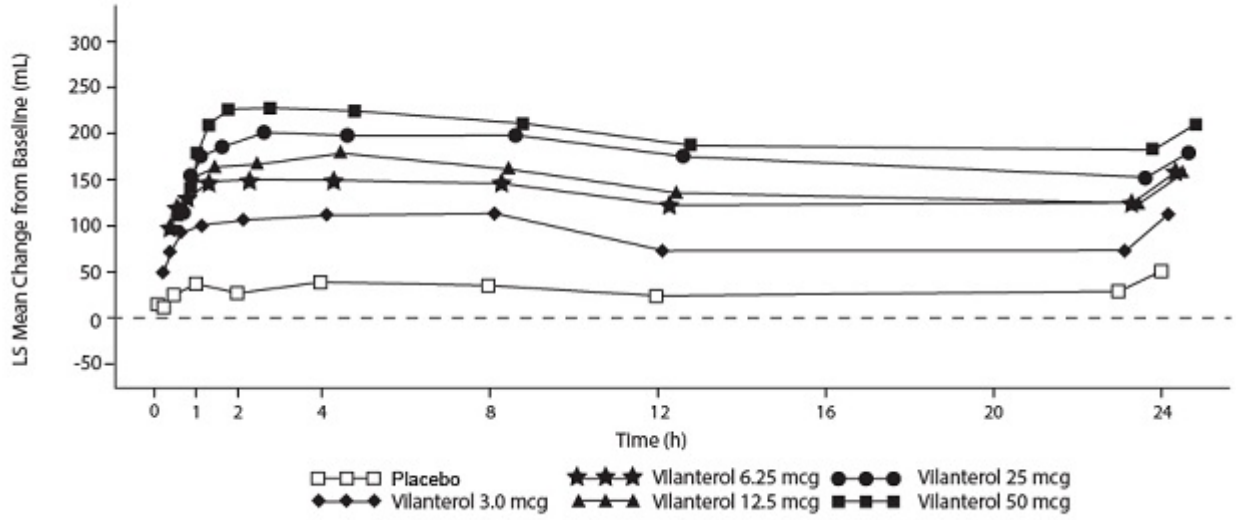
The safety and efficacy of BREO ELLIPTA were evaluated in 7,700 subjects with COPD. The development program included 4 confirmatory trials of 6 and 12 months' duration, three 12-week active comparator trials with fluticasone propionate/salmeterol 250 mcg/50 mcg, and dose-ranging trials of shorter duration. The efficacy of BREO ELLIPTA is based primarily on the dose-ranging trials and the 4 confirmatory trials described below.

Dose Selection for Vilanterol

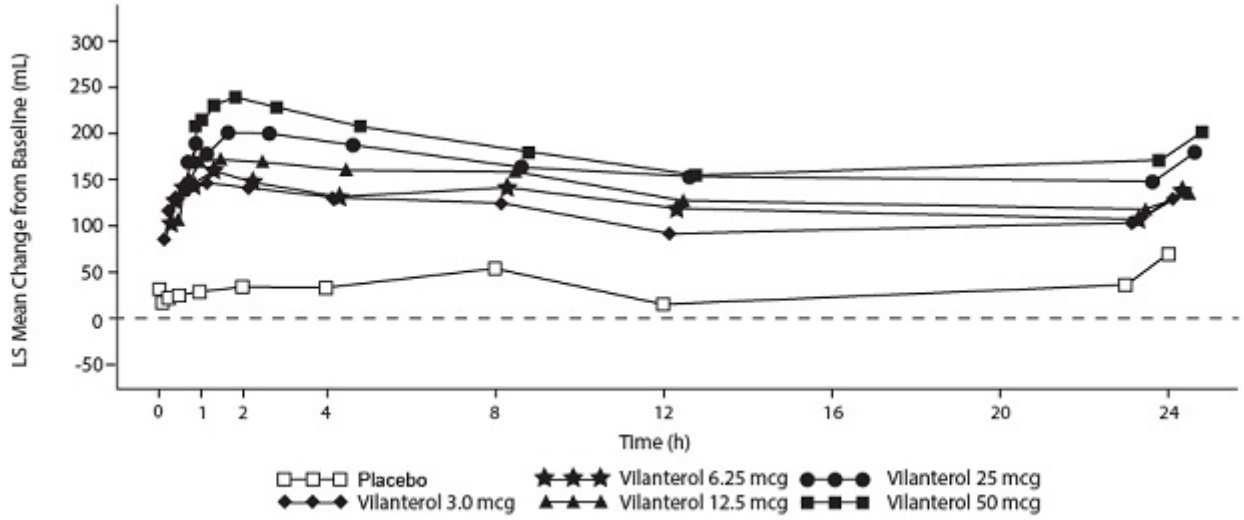
Dose selection for vilanterol in COPD was supported by a 28-day, randomized, double-blind, placebo-controlled, parallel-group trial evaluating 5 doses of vilanterol (3 to 50 mcg) or placebo dosed in the morning in 602 subjects with COPD. Results demonstrated dose-related increases from baseline in FEV_1 at Day 1 and Day 28 (Figure 3).

Figure 3. Least Squares (LS) Mean Change from Baseline in Postdose Serial FEV_1 (0-24 h) (mL) on Days 1 and 28

Day 1



Day 28



The differences in trough FEV_1 on Day 28 from placebo for the 3-, 6.25-, 12.5-, 25-, and 50-mcg doses were 92 mL (95% CI: 39, 144), 98 mL (95% CI: 46, 150), 110 mL (95% CI: 57, 162), 137 mL (95% CI: 85, 190), and 165 mL (95% CI: 112, 217), respectively. These results supported the evaluation of vilanterol 25 mcg once daily in the confirmatory trials for COPD.

Dose Selection for Fluticasone Furoate

Dose selection of fluticasone furoate for Phase III trials in subjects with COPD was based on dose-ranging trials conducted in subjects with asthma; these trials are described in detail below *[see Clinical Studies (14.2)]*.

Confirmatory Trials

The 4 confirmatory trials evaluated the efficacy of BREO ELLIPTA on lung function (Trials 1 and 2) and exacerbations (Trials 3 and 4).

Lung Function: Trials 1 and 2 were 24-week, randomized, double-blind, placebo-controlled trials designed to evaluate the efficacy of BREO ELLIPTA on lung function in subjects with COPD. In Trial 1, subjects were randomized to BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, fluticasone furoate 100 mcg, fluticasone furoate 200 mcg, vilanterol 25 mcg, and placebo. In Trial 2, subjects were randomized to BREO ELLIPTA 100/25, fluticasone furoate/vilanterol 50 mcg/25 mcg, fluticasone furoate 100 mcg, vilanterol 25 mcg, and placebo. All treatments were administered as 1 inhalation once daily.

Of the 2,254 patients, 70% were male and 84% were white. They had a mean age of 62 years and an average smoking history of 44 pack years, with 54% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 14% to 87%), mean postbronchodilator FEV_1/FVC ratio was 47% (range: 17% to 88%), and the mean percent reversibility was 14% (range: -41% to 152%).

The co-primary efficacy variables in both trials were weighted mean FEV_1 (0 to 4 hours) postdose on Day 168 and change from baseline in trough FEV_1 on Day 169 (the mean of the FEV_1 values obtained 23 and 24 hours after the final dose on Day 168). The weighted mean comparison of the fluticasone furoate/vilanterol combination with fluticasone furoate was assessed to evaluate the contribution of vilanterol to BREO ELLIPTA. The trough FEV_1 comparison of the fluticasone furoate/vilanterol combination with vilanterol was assessed to evaluate the contribution of fluticasone furoate to BREO ELLIPTA.

BREO ELLIPTA 100/25 demonstrated a larger increase in the weighted mean FEV_1 (0 to 4 hours) relative to placebo and fluticasone furoate 100 mcg at Day 168 (Table 4).

Table 4. Least Squares Mean Change from Baseline in Weighted Mean FEV_1 (0-4 h) and Trough FEV_1 at 6 Months

Treatment	n	Weighted Mean FEV_1 (0-4 h)[a] (mL)			Trough FEV_1[b] (mL)	
		Difference from			Difference from	
		Placebo (95% CI)	Fluticasone Furoate 100 mcg (95% CI)	Fluticasone Furoate 200 mcg (95% CI)	Placebo (95% CI)	Vilanterol 25 mcg (95% CI)
Trial 1						
BREO ELLIPTA 100/25	204	214 (161, 266)	168 (116, 220)	—	144 (91, 197)	45 (-8, 97)
BREO ELLIPTA 200/25	205	209 (157, 261)	—	168 (117, 219)	131 (80, 183)	32 (-19, 83)
Trial 2						
BREO ELLIPTA 100/25	206	173 (123, 224)	120 (70, 170)	—	115 (60, 169)	48 (-6, 102)

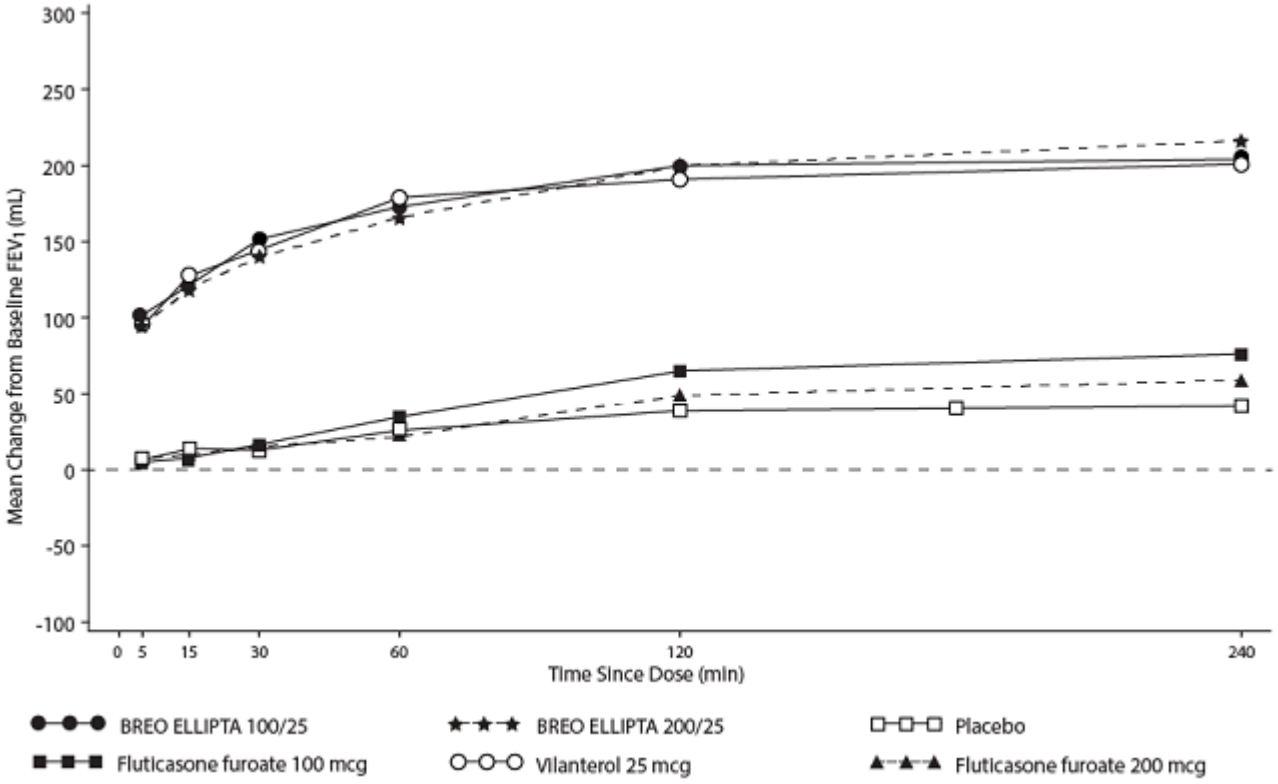
[a] At Day 168.

[b] At Day 169.

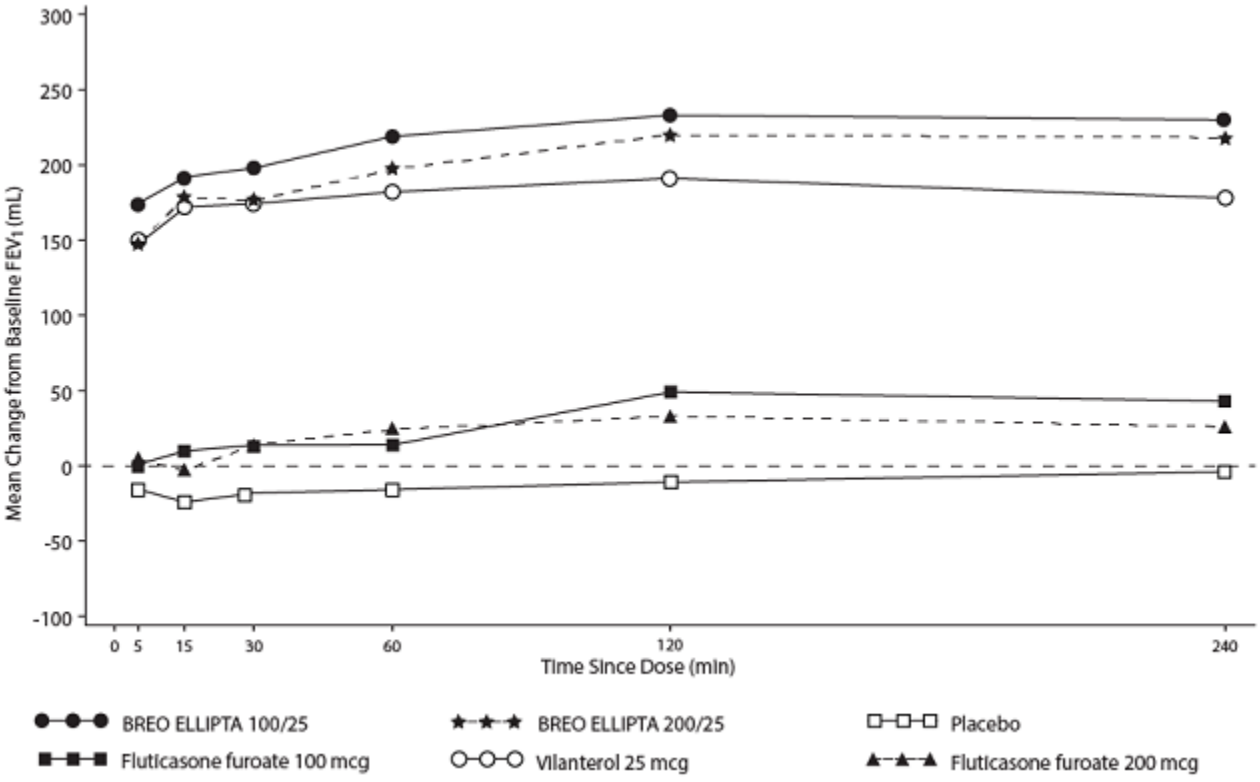
Serial spirometric evaluations were performed predose and up to 4 hours after dosing. Results from Trial 1 at Day 1 and Day 168 are shown in Figure 4. Similar results were seen in Trial 2 (not shown).

Figure 4. Raw Mean Change from Baseline in Postdose Serial FEV_1 (0-4 h) (mL) on Days 1 and 168

Day 1



Day 168



The second co-primary variable was change from baseline in trough FEV_1 following the final treatment day. At Day 169, both Trials 1 and 2 demonstrated significant increases in trough FEV_1 for all strengths of the fluticasone furoate/vilanterol combination compared with placebo (Table 4). The comparison of BREO ELLIPTA 100/25 with vilanterol did not achieve statistical significance (Table 4).

Trials 1 and 2 evaluated FEV_1 as a secondary endpoint. Peak FEV_1 was defined as the maximum postdose FEV_1 recorded within 4 hours after the first dose of trial medicine on Day 1 (measurements recorded at 5, 15, and 30 minutes and 1, 2, and 4 hours). In both trials, differences in mean change from baseline in peak FEV_1 were observed for the groups receiving BREO ELLIPTA 100/25 compared with placebo (152 and 139 mL, respectively). The median time to onset, defined as a 100-mL increase from baseline in FEV_1, was 16 minutes in subjects receiving BREO ELLIPTA 100/25.

Exacerbations: Trials 3 and 4 were randomized, double-blind, 52-week trials designed to evaluate the effect of BREO ELLIPTA on the rate of moderate and severe COPD exacerbations. All subjects were treated with fluticasone propionate/salmeterol 250 mcg/50 mcg twice daily during a 4-week run-in period prior to being randomly assigned to 1 of the following treatment groups: BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, fluticasone furoate/vilanterol 50 mcg/25 mcg, or vilanterol 25 mcg.

The primary efficacy variable in both trials was the annual rate of moderate/severe exacerbations. The comparison of the fluticasone furoate/vilanterol combination with vilanterol was assessed to evaluate the contribution of fluticasone furoate to BREO ELLIPTA. In these 2 trials, exacerbations were defined as worsening of 2 or more major symptoms (dyspnea, sputum volume, and sputum purulence) or worsening of any 1 major symptom together with any 1 of the following minor symptoms: sore throat, colds (nasal discharge and/or nasal congestion), fever without other cause, and increased cough or wheeze for at least 2 consecutive days. COPD exacerbations were considered to be of moderate severity if treatment with systemic corticosteroids and/or antibiotics was required and were considered to be severe if hospitalization was required.

Trials 3 and 4 included 3,255 subjects, of which 57% were male and 85% were white. They had a mean age of 64 years and an average smoking history of 46 pack years, with 44% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 45% (range: 12% to 91%), and mean postbronchodilator FEV_1/FVC ratio was 46% (range: 17% to 81%), indicating that the subject population had moderate to very severely impaired airflow obstruction. The mean percent reversibility was 15% (range: -65% to 313%).

Subjects treated with BREO ELLIPTA 100/25 had a lower annual rate of moderate/severe COPD exacerbations compared with vilanterol in both trials (Table 5).

Table 5. Moderate and Severe Chronic Obstructive Pulmonary Disease Exacerbations

Treatment	n	Mean Annual Rate (exacerbations/year)	Ratio vs. Vilanterol	95% CI
Trial 3				
BREO ELLIPTA 100/25	403	0.90	0.79	0.64, 0.97
BREO ELLIPTA 200/25	409	0.79	0.69	0.56, 0.85
Fluticasone furoate/vilanterol 50 mcg/25 mcg	412	0.92	0.81	0.66, 0.99
Vilanterol 25 mcg	409	1.14	—	—
Trial 4				
BREO ELLIPTA 100/25	403	0.70	0.66	0.54, 0.81
BREO ELLIPTA 200/25	402	0.90	0.85	0.70, 1.04
Fluticasone furoate/vilanterol 50 mcg/25 mcg	408	0.92	0.87	0.72, 1.06
Vilanterol 25 mcg	409	1.05	—	—

Comparator Trials

Three 12-week, randomized, double-blind, double-dummy trials were conducted with BREO ELLIPTA 100/25 once daily versus fluticasone propionate/salmeterol 250 mcg/50 mcg twice daily to evaluate the efficacy of serial lung function of BREO ELLIPTA in subjects with COPD.

The primary endpoint of each study was change from baseline in weighted mean FEV_1 (0 to 24 hours) on Day 84. Of the 519 patients in Trial 5, 64% were male and 97% were white; mean age was 61 years; average smoking history was 40 pack years, with 55% identified as current smokers. At screening in the treatment group using BREO ELLIPTA 100/25, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 19% to 70%), the mean (SD) FEV_1/FVC ratio was 0.51 (0.11), and the mean percent reversibility was 11% (range: -12% to 83%). At screening in the treatment group using fluticasone propionate/salmeterol 250 mcg/50 mcg, the mean postbronchodilator percent predicted FEV_1 was 47% (range: 14% to 71%), the mean (SD) FEV_1/FVC ratio was 0.49 (0.10), and the mean percent reversibility was 11% (range: -13% to 50%).

Of the 511 patients in Trial 6, 68% were male and 94% were white; mean age was 62 years; average smoking history was 35 pack years, with 52% identified as current smokers. At screening in the treatment group using BREO ELLIPTA 100/25, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 18% to 70%), the mean (SD) FEV_1/FVC ratio was 0.51 (0.10), and the mean percent reversibility was 12% (range: -56% to 77%). At screening in the treatment group using fluticasone propionate/salmeterol 250 mcg/50 mcg, the mean postbronchodilator percent predicted FEV_1 was 49% (range: 15% to 70%), the mean (SD) FEV_1/FVC ratio was 0.50 (0.10), and the mean percent reversibility was 12% (range: -66% to 72%).

Of the 828 patients in Trial 7, 72% were male and 98% were white; mean age was 61 years; average smoking history was 38 pack years, with 60% identified as current smokers. At screening in the treatment group using BREO ELLIPTA 100/25, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 18% to 70%), the mean (SD) FEV_1/FVC ratio was 0.52 (0.10), and the mean percent reversibility was 12% (range: -26% to 84%). At screening in the treatment group using fluticasone propionate/salmeterol 250 mcg/50 mcg, the mean postbronchodilator percent predicted FEV_1 was 48% (range: 16% to 70%), the mean (SD) FEV_1/FVC ratio was 0.51 (0.10), and the mean percent reversibility was 12% (range: -15% to 67%).

In Trial 5, the mean (SE) change from baseline in weighted mean FEV_1 (0 to 24 hours) with BREO ELLIPTA 100/25 was 174 (15) mL compared with 94 (16) mL with fluticasone propionate/salmeterol 250 mcg/50 mcg (treatment difference 80 mL; 95% CI: 37, 124; $P<0.001$). In Trials 6 and 7, the mean (SE) change from baseline in weighted mean FEV_1 (0 to 24 hours) with BREO ELLIPTA 100/25 was 142 (18) mL and 168 (12) mL, respectively, compared with 114 (18) mL and 142 (12) mL, respectively, for fluticasone propionate/salmeterol 250 mcg/50 mcg (Trial 6 treatment difference 29 mL; 95% CI: -22, 80; $P = 0.267$; Trial 7 treatment difference 25 mL; 95% CI: -8, 59; $P = 0.137$).

14.2 Asthma

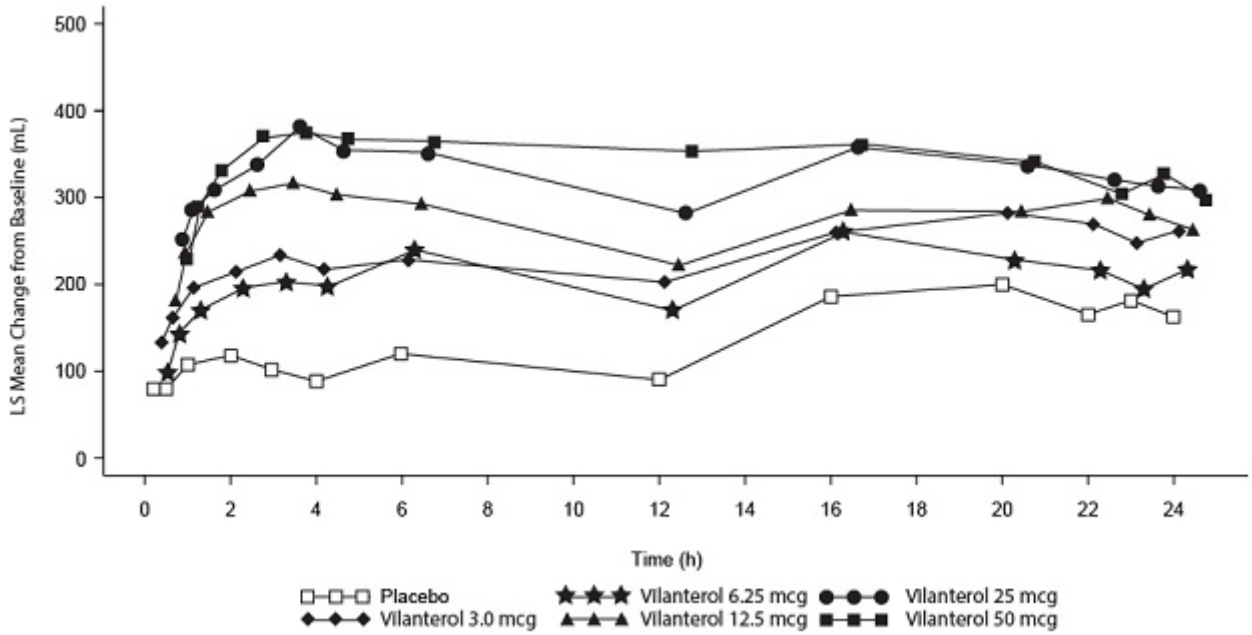
The safety and efficacy of BREO ELLIPTA were evaluated in 9,969 subjects with asthma. The development program included 4 confirmatory trials (2 of 12 weeks' duration, 1 of 24 weeks' duration, 1 exacerbation trial of 24 to 76 weeks' duration), one 24-week active comparator trial with fluticasone propionate/salmeterol 250 mcg/50 mcg, and dose-ranging trials of shorter duration. The efficacy of BREO ELLIPTA is based primarily on the dose-ranging trials and the 4 confirmatory trials described below.

Dose Selection for Vilanterol

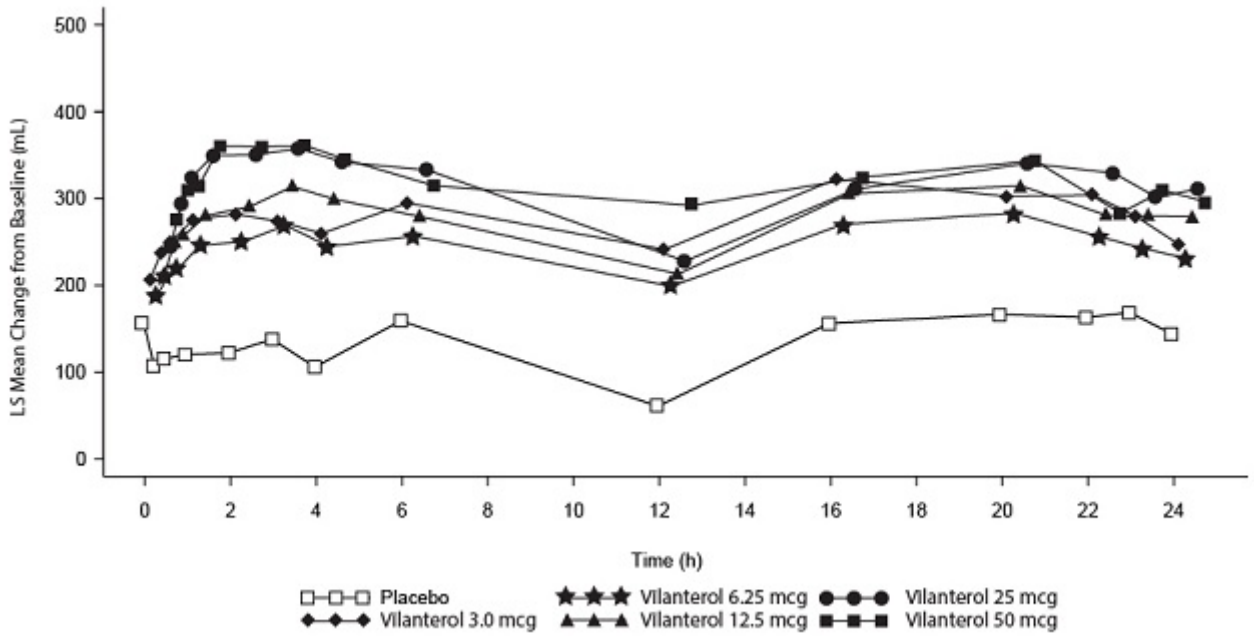
Dose selection for vilanterol in asthma was supported by a 28-day, randomized, double-blind, placebo-controlled, parallel-group trial evaluating 5 doses of vilanterol (3 to 50 mcg) or placebo dosed in the evening in 607 subjects with asthma. Results demonstrated dose-related increases from baseline in FEV_1 at Day 1 and Day 28 (Figure 5).

Figure 5. Least Squares (LS) Mean Change from Baseline in Postdose Serial FEV_1 (0-24 h) (mL) on Days 1 and 28

Day 1



Day 28

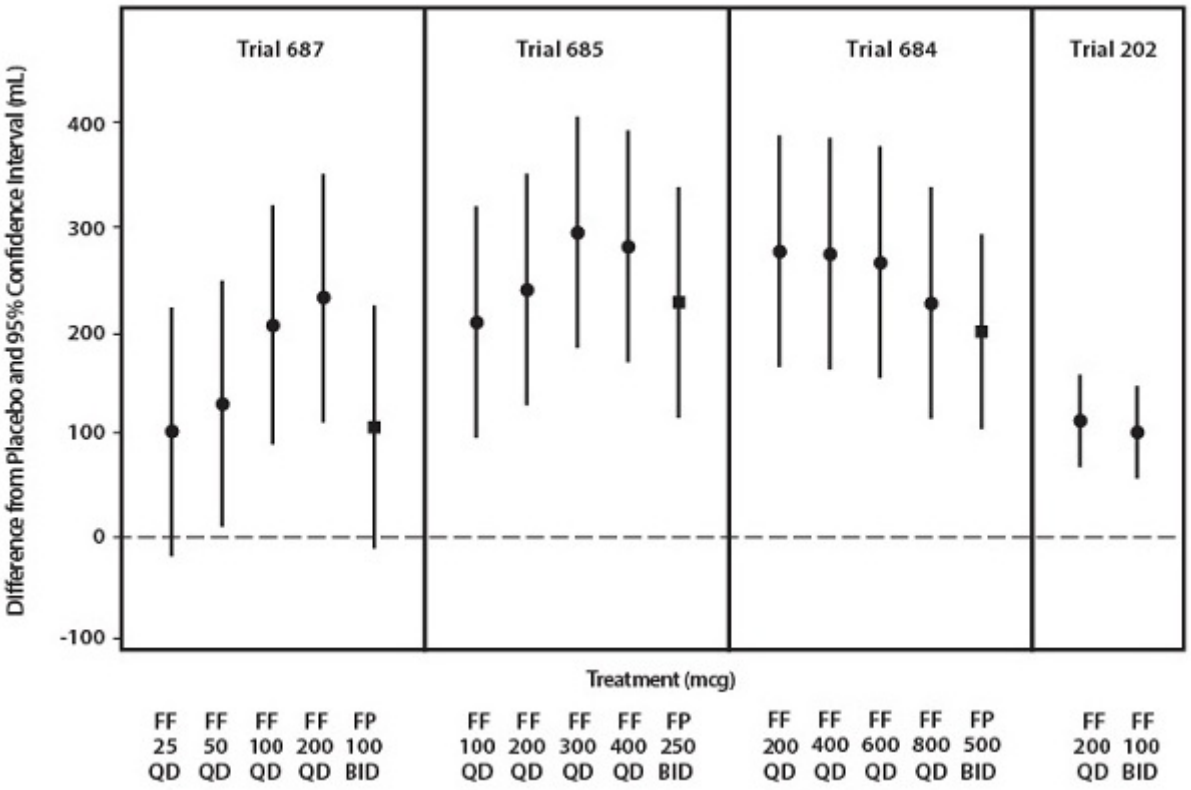


The differences in trough FEV_1 on Day 28 from placebo for the 3-, 6.25-, 12.5-, 25-, and 50-mcg doses were 64 mL (95% CI: -36, 164), 69 mL (95% CI: -29, 168), 130 mL (95% CI: 30, 230), 121 mL (95% CI: 23, 220), and 162 mL (95% CI: 62, 261), respectively. These results and results of the secondary endpoints supported the evaluation of vilanterol 25 mcg once daily in the confirmatory trials for asthma.

Dose Selection for Fluticasone Furoate

Eight doses of fluticasone furoate ranging from 25 to 800 mcg once daily were evaluated in 3 randomized, double-blind, placebo-controlled, 8-week trials in subjects with asthma. A dose-related increase in trough FEV_1 at Week 8 was seen for doses from 25 to 200 mcg with no consistent additional benefit for doses above 200 mcg. To evaluate dosing frequency, a separate trial compared fluticasone furoate 200 mcg once daily and fluticasone furoate 100 mcg twice daily. The results supported the selection of the once-daily dosing frequency (Figure 6).

Figure 6. Fluticasone Furoate Dose-Ranging and Dose-Frequency Trials



FF = fluticasone furoate, FP = fluticasone propionate, QD = once daily, BID = twice daily.

Confirmatory Trials

The efficacy of BREO ELLIPTA was evaluated in 4 randomized, double-blind, parallel-group clinical trials in adolescent and adult subjects with asthma. Three trials were designed to evaluate the safety and efficacy of BREO ELLIPTA given once daily in subjects who were not controlled on their current treatments of inhaled corticosteroid or combination therapy consisting of an inhaled corticosteroid plus a LABA (Trials 1, 2, and 3). A 24- to 76-week exacerbation trial was designed to demonstrate that treatment with BREO ELLIPTA 100/25 significantly decreased the risk of asthma exacerbations as measured by time to first asthma exacerbation when compared with fluticasone furoate 100 mcg (Trial 5). This trial enrolled subjects who had one or more asthma exacerbations in the year prior to trial entry. The demographics of these 4 trials and the comparator trial (Trial 6) are provided in Table 6. While subjects aged 12 to 17 years were included in these trials, BREO ELLIPTA is not approved for use in this age group *[see Indications (1.2), Adverse Reactions (6.2), Use in Specific Populations (8.4)]*.

Table 6. Demography of Asthma Trials 1, 2, 3, 5, and 6

Parameter	Trial 1 n = 609	Trial 2 n = 1,039	Trial 3 n = 586	Trial 5 n = 2,019	Trial 6 n = 806
Mean age (years) (range)	40 (12, 84)	46 (12, 82)	46 (12, 76)	42 (12, 82)	43 (12, 80)
Female (%)	58	60	59	67	61
White (%)	84	88	84	73	59
Duration of asthma (years)	12	18	16	16	21
Never smoked[a] (%)	N/A	84	N/A	86	81
Predose FEV_1 (L) at baseline	2.32	1.97	2.15	2.20	2.03
Mean percent predicted FEV_1 at baseline (%)	70	62	67	72	68
% Reversibility	29	30	29	24	28
Absolute reversibility (mL)	614	563	571	500	512

N/A = Data not collected.

[a] Trials did not include current smokers; past smokers had less than 10 packs per year history.

Trials 1, 2, and 3 were 12- or 24-week trials that evaluated the efficacy of BREO ELLIPTA on lung function in subjects with asthma. In Trial 1, subjects were randomized to BREO ELLIPTA 100/25, fluticasone furoate 100 mcg, or placebo. In Trial 2, subjects were randomized to BREO ELLIPTA 100/25, BREO ELLIPTA 200/25, or fluticasone furoate 100 mcg. In Trial 3, subjects were randomized to BREO ELLIPTA 200/25, fluticasone furoate 200 mcg, or fluticasone propionate 500 mcg. All inhalations were administered once daily, with the exception of fluticasone propionate, which was administered twice daily. Subjects receiving an inhaled corticosteroid or an inhaled corticosteroid plus a LABA (doses of inhaled corticosteroid varied by trial and asthma severity) entered a 4-week run-in period during which LABA treatment was stopped. Subjects reporting symptoms and/or rescue $beta_2$-agonist medication use during the run-in period were continued in the trial.

In Trials 1 and 3, change from baseline in weighted mean FEV_1 (0 to 24 hours) and change from baseline in trough FEV_1 at approximately 24 hours after the last dose at study endpoint (12 and 24 weeks, respectively) were co-primary efficacy endpoints. In Trial 2, change from baseline in weighted mean FEV_1 (0 to 24 hours) at Week 12 was the primary efficacy endpoint; change from baseline in trough FEV_1 at approximately 24 hours after the last dose at Week 12 was a secondary endpoint. (See Table 7.) Weighted mean FEV_1 (0 to 24 hours) was derived from serial measurements taken within 30 minutes prior to dosing and postdose assessments at 5, 15, and

30 minutes and 1, 2, 3, 4, 5, 12, 16, 20, 23, and 24 hours after the final dose. Other secondary endpoints included change from baseline in percentage of rescue-free 24-hour periods and percentage of symptom-free 24-hour periods over the treatment period.

Table 7. Change from Baseline in Weighted Mean FEV_1 (0-24 h) (mL) and Trough FEV_1 (mL) at Study Endpoint (Trials 1, 2, and 3)

Study (Duration) Background Treatment / Treatment	n	Weighted Mean FEV_1 (0-24 h) (mL) Difference from Placebo (95% CI)	Difference from Fluticasone Furoate 100 mcg (95% CI)	Difference from Fluticasone Furoate 200 mcg (95% CI)
Trial 1 (12 Weeks) Low- to mid-dose ICS or low-dose ICS + LABA				
BREO ELLIPTA 100/25	108	302 (178, 426)	116 (-5, 236)	—
Trial 2 (12 Weeks) Mid- to high-dose ICS or mid-dose ICS + LABA				
BREO ELLIPTA 100/25	312	—	108 (45, 171)	—
Trial 3 (24 Weeks) High-dose ICS or mid-dose ICS + LABA				
BREO ELLIPTA 200/25	89	—	—	136 (1, 270)
Study (Duration) Background Treatment / Treatment	**n**	**Trough FEV_1 (mL) Difference from Placebo (95% CI)**	**Difference from Fluticasone Furoate 100 mcg (95% CI)**	**Difference from Fluticasone Furoate 200 mcg (95% CI)**
Trial 1 (12 Weeks) Low- to mid-dose ICS or low-dose ICS + LABA				
BREO ELLIPTA 100/25	200	172 (87, 258)	36 (-48, 120)	—
Trial 2 (12 Weeks) Mid- to high-dose ICS or mid-dose ICS + LABA				
BREO ELLIPTA 100/25	334	—	77 (16, 138)	—
Trial 3 (24 Weeks) High-dose ICS or mid-dose ICS + LABA				
BREO ELLIPTA 200/25	187	—	—	193 (108, 277)

ICS = inhaled corticosteroid, LABA = long-acting $beta_2$-adrenergic agonist.

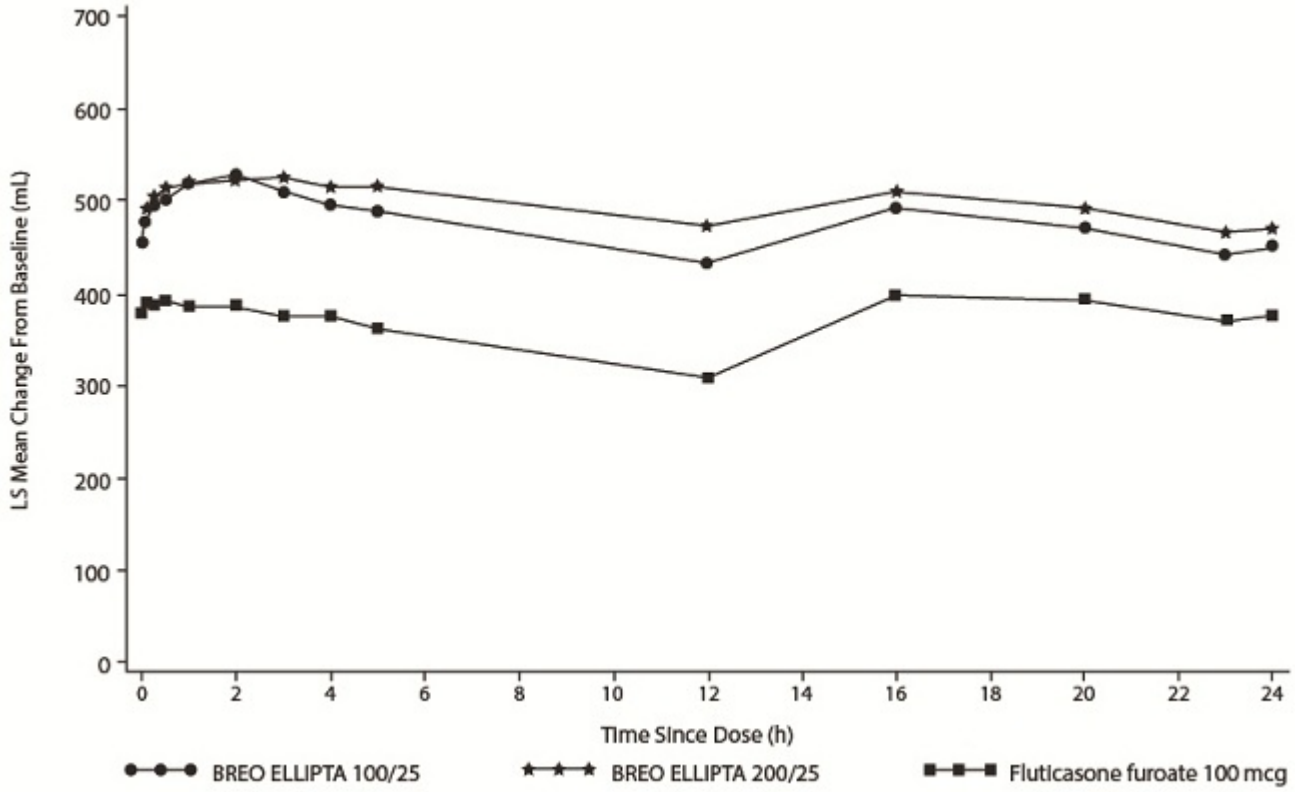
In Trial 1, weighted mean FEV_1 (0 to 24 hours) was assessed in a subset of subjects (n = 309). At Week 12, change from baseline in weighted mean FEV_1 (0 to 24 hours) was significantly greater for BREO ELLIPTA 100/25 compared with placebo (302 mL; 95% CI: 178, 426; *P*<0.001) (Table 7); change from baseline in weighted mean FEV_1 (0 to 24 hours) for BREO ELLIPTA 100/25 was numerically greater than fluticasone furoate 100 mcg, but not statistically significant (116 mL; 95% CI: -5, 236). At Week 12, change from baseline in trough FEV_1 was significantly greater for BREO ELLIPTA 100/25 compared with placebo (172 mL; 95% CI: 87, 258; *P*<0.001) (Table 7); change from baseline in trough FEV_1 for BREO ELLIPTA 100/25 was numerically greater than fluticasone furoate 100 mcg, but not statistically significant (36 mL; 95% CI: -48, 120).

In Trial 2, the change from baseline in weighted mean FEV_1 (0 to 24 hours) was significantly greater for BREO ELLIPTA 100/25 compared with fluticasone furoate 100 mcg (108 mL; 95% CI: 45, 171; *P*<0.001) at Week 12 (Table 7). In a descriptive analysis, the change from baseline in weighted mean FEV_1 (0 to 24 hours) for BREO ELLIPTA 200/25 was numerically greater than BREO ELLIPTA 100/25 (24 mL; 95% CI: -37, 86) at Week 12. The change from baseline in trough FEV_1 was significantly greater for BREO ELLIPTA 100/25 compared with fluticasone furoate 100 mcg (77 mL, 95% CI: 16, 138; *P* = 0.014) at Week 12 (Table 7). In a descriptive analysis, the change from baseline in trough FEV_1 for BREO ELLIPTA 200/25 was numerically greater than BREO ELLIPTA 100/25 (16 mL; 95% CI: -46, 77) at Week 12.

In Trial 3, the change from baseline in weighted mean FEV_1 (0 to 24 hours) was significantly greater for BREO ELLIPTA 200/25 compared with fluticasone furoate 200 mcg (136 mL; 95% CI: 1, 270; *P* = 0.048) at Week 24 (Table 7). The change from baseline in trough FEV_1 was significantly greater for BREO ELLIPTA 200/25 compared with fluticasone furoate 200 mcg (193 mL, 95% CI: 108, 277; *P*<0.001) at Week 24.

Lung function improvements were demonstrated through weighted mean FEV_1 (0 to 24 hours) over the 24-hour period following the final dose of BREO ELLIPTA in Trials 2 and 3. Serial FEV_1 measurements were taken within 30 minutes prior to dosing and postdose assessments at 5, 15, and 30 minutes and 1, 2, 3, 4, 5, 12, 16, 20, 23, and 24 hours in Trials 1, 2, and 3. A representative figure is shown from Trial 2 in Figure 7.

Figure 7. Least Squares (LS) Mean Change from Baseline in Individual Serial FEV_1 (mL) Assessments over 24 Hours after 12 Weeks of Treatment (Trial 2)



Subjects receiving BREO ELLIPTA 100/25 (Trial 2) or BREO ELLIPTA 200/25 (Trial 3) had significantly greater improvements from baseline in percentage of 24-hour periods without need of $beta_2$-agonist rescue medication use and percentage of 24-hour periods without asthma symptoms compared with subjects receiving fluticasone furoate 100 mcg or fluticasone furoate 200 mcg, respectively. In a descriptive analysis (Trial 2), subjects receiving BREO ELLIPTA 200/25 had numerical improvements from baseline in percentage of 24-hour periods without need of $beta_2$-agonist rescue medication use and percentage of 24-hour periods without asthma symptoms compared with subjects receiving BREO ELLIPTA 100/25.

Trial 5 was a 24- to 76-week event-driven exacerbation trial that evaluated whether BREO ELLIPTA 100/25 significantly decreased the risk of asthma exacerbations as measured by time to first asthma exacerbation when compared with fluticasone furoate 100 mcg in subjects with asthma. Subjects receiving low- to high-dose inhaled corticosteroid (fluticasone propionate 100 mcg to 500 mcg twice daily or equivalent) or low- to mid-dose inhaled corticosteroid plus a LABA (fluticasone propionate/salmeterol 100 mcg/50 mcg to 250 mcg/50 mcg twice daily or equivalent) and a history of 1 or more asthma exacerbations that required treatment with oral/systemic corticosteroid or emergency department visit or in-patient hospitalization for the treatment of asthma in the year prior to trial entry, entered a 2-week run-in period during which

LABA treatment was stopped. Subjects reporting symptoms and/or rescue beta$_2$-agonist medication use during the run-in period were continued in the trial.

The primary endpoint was time to first asthma exacerbation. Asthma exacerbation was defined as deterioration of asthma requiring the use of systemic corticosteroid for at least 3 days or an in-patient hospitalization or emergency department visit due to asthma that required systemic corticosteroid. Rate of asthma exacerbation was a secondary endpoint. The hazard ratio from the Cox Model for the analysis of time to first asthma exacerbation for BREO ELLIPTA 100/25 compared with fluticasone furoate 100 mcg was 0.795 (95% CI: 0.642, 0.985). This represents a 20% reduction in the risk of experiencing an asthma exacerbation for subjects treated with BREO ELLIPTA 100/25 compared with fluticasone furoate 100 mcg (P = 0.036). Mean yearly rates of asthma exacerbations of 0.14 and 0.19 in subjects treated with BREO ELLIPTA 100/25 compared with fluticasone furoate 100 mcg, respectively, were observed (25% reduction in rate; 95% CI: 5%, 40%).

Comparator Trial

Trial 6 was a 24-week trial that compared the efficacy of BREO ELLIPTA 100/25 once daily with fluticasone propionate/salmeterol 250 mcg/50 mcg twice daily (N = 806). Subjects receiving mid-dose inhaled corticosteroid (fluticasone propionate 250 mcg twice daily or equivalent) entered a 4-week run-in period during which all subjects received fluticasone propionate 250 mcg twice daily. The primary endpoint was change from baseline in weighted mean FEV_1 (0 to 24 hours) at Week 24.

The mean change (SE) from baseline in weighted mean FEV_1 (0 to 24 hours) for BREO ELLIPTA 100/25 was 341 (18.4) mL compared with 377 (18.5) mL for fluticasone propionate/salmeterol 250 mcg/50 mcg (treatment difference -37 mL; 95% CI: -88, 15; P = 0.162).

16 HOW SUPPLIED/STORAGE AND HANDLING

BREO ELLIPTA is supplied as a disposable light grey and pale blue plastic inhaler containing 2 foil strips, each with 30 blisters (or 14 blisters for the institutional pack). One strip contains fluticasone furoate (100 or 200 mcg per blister), and the other strip contains vilanterol (25 mcg per blister). A blister from each strip is used to create 1 dose. The inhaler is packaged within a moisture-protective foil tray with a desiccant and a peelable lid in the following packs:

NDC 0173-0859-10	BREO ELLIPTA 100/25	30 inhalations (60 blisters)
NDC 0173-0859-14	BREO ELLIPTA 100/25	14 inhalations (28 blisters), institutional pack
NDC 0173-0882-10	BREO ELLIPTA 200/25	30 inhalations (60 blisters)
NDC 0173-0882-14	BREO ELLIPTA 200/25	14 inhalations (28 blisters), institutional pack

Store at room temperature between 68°F and 77°F (20°C and 25°C); excursions permitted from 59°F to 86°F (15°C to 30°C) [See USP Controlled Room Temperature]. Store in a dry place away from direct heat or sunlight. Keep out of reach of children.

BREO ELLIPTA should be stored inside the unopened moisture-protective foil tray and only removed from the tray immediately before initial use. Discard BREO ELLIPTA 6 weeks after opening the foil tray or when the counter reads "0" (after all blisters have been used), whichever comes first. The inhaler is not reusable. Do not attempt to take the inhaler apart.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Medication Guide and Instructions for Use).

Asthma-Related Death

Inform patients with asthma that LABA, such as vilanterol, one of the active ingredients in BREO ELLIPTA, increase the risk of asthma-related death and may increase the risk of asthma-related hospitalization in pediatric and adolescent patients. **Also inform them that currently available data are inadequate to determine whether concurrent use of inhaled corticosteroids or other long-term asthma control drugs mitigates the increased risk of asthma-related death from LABA.**

Not for Acute Symptoms

Inform patients that BREO ELLIPTA is not meant to relieve acute symptoms of COPD or asthma and extra doses should not be used for that purpose. Advise patients to treat acute symptoms with an inhaled, short-acting beta$_2$-agonist such as albuterol. Provide patients with such medication and instruct them in how it should be used.

Instruct patients to seek medical attention immediately if they experience any of the following:

- Decreasing effectiveness of inhaled, short-acting beta$_2$-agonists
- Need for more inhalations than usual of inhaled, short-acting beta$_2$-agonists
- Significant decrease in lung function as outlined by the physician

Tell patients they should not stop therapy with BREO ELLIPTA without physician/provider guidance since symptoms may recur after discontinuation.

Do Not Use Additional Long-acting Beta$_2$-agonists

Instruct patients not to use other LABA for COPD and asthma.

Local Effects

Inform patients that localized infections with *Candida albicans* occurred in the mouth and pharynx in some patients. If oropharyngeal candidiasis develops, it should be treated with appropriate local or systemic (i.e., oral) antifungal therapy while still continuing therapy with

BREO ELLIPTA, but at times therapy with BREO ELLIPTA may need to be temporarily interrupted under close medical supervision. Advise patients to rinse the mouth with water without swallowing after inhalation to help reduce the risk of thrush.

Pneumonia

Patients with COPD have a higher risk of pneumonia; instruct them to contact their healthcare providers if they develop symptoms of pneumonia.

Immunosuppression

Warn patients who are on immunosuppressant doses of corticosteroids to avoid exposure to chickenpox or measles and, if exposed, to consult their physicians without delay. Inform patients of potential worsening of existing tuberculosis; fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex.

Hypercorticism and Adrenal Suppression

Advise patients that BREO ELLIPTA may cause systemic corticosteroid effects of hypercorticism and adrenal suppression. Additionally, inform patients that deaths due to adrenal insufficiency have occurred during and after transfer from systemic corticosteroids. Patients should taper slowly from systemic corticosteroids if transferring to BREO ELLIPTA.

Reduction in Bone Mineral Density

Advise patients who are at an increased risk for decreased BMD that the use of corticosteroids may pose an additional risk.

Ocular Effects

Inform patients that long-term use of inhaled corticosteroids may increase the risk of some eye problems (cataracts or glaucoma); consider regular eye examinations.

Risks Associated with Beta-agonist Therapy

Inform patients of adverse effects associated with $beta_2$-agonists, such as palpitations, chest pain, rapid heart rate, tremor, or nervousness.

Hypersensitivity Reactions, Including Anaphylaxis

Advise patients that hypersensitivity reactions (e.g., anaphylaxis, angioedema, rash, urticaria) may occur after administration of BREO ELLIPTA. Instruct patients to discontinue BREO ELLIPTA if such reactions occur. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder medications containing lactose; therefore, patients with severe milk protein allergy should not use BREO ELLIPTA.

GlaxoSmithKline
Research Triangle Park, NC 27709

BRE:7PI

MEDICATION GUIDE

BREO® ELLIPTA® (*BREE-oh ee-LIP-ta)* 100/25
(fluticasone furoate 100 mcg and vilanterol 25 mcg inhalation powder)

BREO® ELLIPTA® 200/25
(fluticasone furoate 200 mcg and vilanterol 25 mcg inhalation powder)

What is the most important information I should know about BREO ELLIPTA?

BREO ELLIPTA can cause serious side effects, including:

- **People with asthma who take long-acting beta$_2$-adrenergic agonist (LABA) medicines, such as vilanterol (one of the medicines in BREO ELLIPTA), have an increased risk of death from asthma problems.** It is not known whether fluticasone furoate, the other medicine in BREO ELLIPTA, reduces the risk of death from asthma problems seen with LABA medicines.
- **It is not known if LABA medicines, such as vilanterol, increase the risk of death in people with COPD.**
- **Call your healthcare provider if breathing problems worsen over time while using BREO ELLIPTA.** You may need different treatment.
- **Get emergency medical care if:**
  - your breathing problems worsen quickly
  - you use your rescue inhaler, but it does not relieve your breathing problems.
- For people with asthma, BREO ELLIPTA should be used only if your healthcare provider decides that your asthma is not well controlled with a long-term asthma control medicine, such as an inhaled corticosteroid. When your asthma is well controlled, your healthcare provider may tell you to stop taking BREO ELLIPTA. Your healthcare provider will decide if you can stop BREO ELLIPTA without loss of asthma control. Your healthcare provider may prescribe a different asthma control medicine for you, such as an inhaled corticosteroid.

- Children and adolescents who take LABA medicines may have an increased risk of being hospitalized for asthma problems.

What is BREO ELLIPTA?

- BREO ELLIPTA combines an inhaled corticosteroid (ICS) medicine, fluticasone furoate, and a LABA medicine, vilanterol.
- ICS medicines such as fluticasone furoate help to decrease inflammation in the lungs. Inflammation in the lungs can lead to breathing problems.
- LABA medicines such as vilanterol help the muscles around the airways in your lungs stay relaxed to prevent symptoms, such as wheezing, cough, chest tightness, and shortness of breath. These symptoms can happen when the muscles around the airways tighten. This makes it hard to breathe.
- BREO ELLIPTA should not be used in children and adolescents. It is not known if BREO ELLIPTA is safe and effective in children and adolescents younger than 18 years of age.
- BREO ELLIPTA is used for COPD and asthma as follows:

  COPD:

  BREO ELLIPTA 100/25 is a prescription medicine used to treat COPD. COPD is a chronic lung disease that includes chronic bronchitis, emphysema, or both. BREO ELLIPTA 100/25 is used long term as 1 inhalation 1 time each day to improve symptoms of COPD for better breathing and to reduce the number of flare-ups (the worsening of your COPD symptoms for several days).

  BREO ELLIPTA is not used to relieve sudden breathing problems and will not replace a rescue inhaler.

  Asthma:

  BREO ELLIPTA is a prescription medicine used as 1 inhalation 1 time each day to prevent and control symptoms of asthma for better breathing and to prevent symptoms such as wheezing.

  BREO ELLIPTA contains vilanterol. LABA medicines such as vilanterol increase the risk of death from asthma problems.

  BREO ELLIPTA is not for people with asthma who are well controlled with an asthma control medicine, such as a low to medium dose of an inhaled corticosteroid medicine.

  BREO ELLIPTA is not used to relieve sudden breathing problems and will not replace a rescue inhaler.

Who should not use BREO ELLIPTA?

Do not use BREO ELLIPTA if you:

- have a severe allergy to milk proteins. Ask your healthcare provider if you are not sure.

- are allergic to fluticasone furoate, vilanterol, or any of the ingredients in BREO ELLIPTA. See “What are the ingredients in BREO ELLIPTA?” below for a complete list of ingredients.

What should I tell my healthcare provider before using BREO ELLIPTA?

Tell your healthcare provider about all of your health conditions, including if you:

- have heart problems.
- have high blood pressure.
- have seizures.
- have thyroid problems.
- have diabetes.
- have liver problems.
- have weak bones (osteoporosis).
- have an immune system problem.
- have eye problems such as glaucoma or cataracts.
- are allergic to any of the ingredients in BREO ELLIPTA, any other medicines, or food products. See “What are the ingredients in BREO ELLIPTA?” below for a complete list of ingredients.
- have any type of viral, bacterial, or fungal infection.
- are exposed to chickenpox or measles.
- have any other medical conditions.
- are pregnant or planning to become pregnant. It is not known if BREO ELLIPTA may harm your unborn baby.
- are breastfeeding. It is not known if the medicines in BREO ELLIPTA pass into your milk and if they can harm your baby.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. BREO ELLIPTA and certain other medicines may interact with each other. This may cause serious side effects. Especially tell your healthcare provider if you take antifungal or anti-HIV medicines.

Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist when you get a new medicine.

How should I use BREO ELLIPTA?

Read the step-by-step instructions for using BREO ELLIPTA at the end of this Medication Guide.

- **Do not** use BREO ELLIPTA unless your healthcare provider has taught you how to use the inhaler and you understand how to use it correctly.
- BREO ELLIPTA comes in 2 different strengths. Your healthcare provider prescribed the strength that is best for you.
- Use BREO ELLIPTA exactly as your healthcare provider tells you to use it. **Do not** use BREO ELLIPTA more often than prescribed.
- Use 1 inhalation of BREO ELLIPTA 1 time each day. Use BREO ELLIPTA at the same time each day.
- If you miss a dose of BREO ELLIPTA, take it as soon as you remember. Do not take more than 1 inhalation per day. Take your next dose at your usual time. Do not take 2 doses at 1 time.
- If you take too much BREO ELLIPTA, call your healthcare provider or go to the nearest hospital emergency room right away if you have any unusual symptoms, such as worsening shortness of breath, chest pain, increased heart rate, or shakiness.
- **Do not use other medicines that contain a LABA for any reason.** Ask your healthcare provider or pharmacist if any of your other medicines are LABA medicines.
- Do not stop using BREO ELLIPTA unless told to do so by your healthcare provider because your symptoms might get worse. Your healthcare provider will change your medicines as needed.
- **BREO ELLIPTA does not relieve sudden breathing problems.** Always have a rescue inhaler with you to treat sudden symptoms. If you do not have a rescue inhaler, call your healthcare provider to have one prescribed for you.
- Call your healthcare provider or get medical care right away if:
  - your breathing problems get worse.
  - you need to use your rescue inhaler more often than usual.
  - your rescue inhaler does not work as well to relieve your symptoms.
  - you need to use 4 or more inhalations of your rescue inhaler in 24 hours for 2 or more days in a row.
  - you use 1 whole canister of your rescue inhaler in 8 weeks.
  - your peak flow meter results decrease. Your healthcare provider will tell you the numbers that are right for you.
  - you have asthma and your symptoms do not improve after using BREO ELLIPTA regularly for 1 week.

What are the possible side effects with BREO ELLIPTA?

BREO ELLIPTA can cause serious side effects, including:

- **See “What is the most important information I should know about BREO ELLIPTA?”**

- **fungal infection in your mouth or throat (thrush).** Rinse your mouth with water without swallowing after using BREO ELLIPTA to help reduce your chance of getting thrush.
- **pneumonia.** People with COPD have a higher chance of getting pneumonia. BREO ELLIPTA may increase the chance of getting pneumonia. Call your healthcare provider if you notice any of the following symptoms:
  - increase in mucus (sputum) production
  - change in mucus color
  - fever
  - chills
  - increased cough
  - increased breathing problems
- **weakened immune system and increased chance of getting infections (immunosuppression)**
- **reduced adrenal function (adrenal insufficiency).** Adrenal insufficiency is a condition where the adrenal glands do not make enough steroid hormones. This can happen when you stop taking oral corticosteroid medicines (such as prednisone) and start taking a medicine containing an inhaled corticosteroid (such as BREO ELLIPTA). During this transition period, when your body is under stress from fever, trauma (such as a car accident), infection, surgery, or worse COPD symptoms, adrenal insufficiency can get worse and may cause death.

  Symptoms of adrenal insufficiency include:
  - feeling tired
  - lack of energy
  - weakness
  - nausea and vomiting
  - low blood pressure
- **sudden breathing problems immediately after inhaling your medicine.** If you have sudden breathing problems immediately after inhaling your medicine, stop taking BREO ELLIPTA and call your healthcare provider right away.
- **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction:
  - rash
  - hives
  - swelling of your face, mouth, and tongue
  - breathing problems
- **effects on heart**
  - increased blood pressure
  - a fast or irregular heartbeat, awareness of heartbeat
  - chest pain

- **effects on nervous system**
  - tremor
  - nervousness
- **bone thinning or weakness (osteoporosis)**
- **eye problems including glaucoma and cataracts.** You should have regular eye exams while using BREO ELLIPTA.
- **changes in laboratory blood values (sugar, potassium)**
- **slowed growth in children**

Common side effects of BREO ELLIPTA include:

COPD:
- runny nose and sore throat
- upper respiratory tract infection
- headache
- thrush in your mouth or throat. Rinse your mouth with water without swallowing after use to help prevent this.

Asthma:
- runny nose and sore throat
- thrush in your mouth or throat. Rinse your mouth with water without swallowing after use to help prevent this.
- headache
- flu
- respiratory tract infection
- bronchitis
- inflammation of the sinuses
- mouth and throat pain
- hoarseness and voice changes
- cough

Tell your healthcare provider about any side effect that bothers you or that does not go away.

These are not all the side effects with BREO ELLIPTA. Ask your healthcare provider or pharmacist for more information.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How do I store BREO ELLIPTA?

- Store BREO ELLIPTA at room temperature between 68°F and 77°F (20°C and 25°C). Keep in a dry place away from heat and sunlight.

- Store BREO ELLIPTA in the unopened foil tray and only open when ready for use.
- Safely throw away BREO ELLIPTA in the trash 6 weeks after you open the foil tray or when the counter reads “0”, whichever comes first. Write the date you open the tray on the label on the inhaler.
- **Keep BREO ELLIPTA and all medicines out of the reach of children.**

General information about the safe and effective use of BREO ELLIPTA.

Medicines are sometimes prescribed for purposes not mentioned in a Medication Guide. Do not use BREO ELLIPTA for a condition for which it was not prescribed. Do not give your BREO ELLIPTA to other people, even if they have the same condition that you have. It may harm them.

This Medication Guide summarizes the most important information about BREO ELLIPTA. If you would like more information, talk with your healthcare provider or pharmacist. You can ask your healthcare provider or pharmacist for information about BREO ELLIPTA that was written for healthcare professionals.

For more information about BREO ELLIPTA, call 1-888-825-5249 or visit our website at www.myBREO.com.

What are the ingredients in BREO ELLIPTA?

Active ingredients: fluticasone furoate, vilanterol
Inactive ingredients: lactose monohydrate (contains milk proteins), magnesium stearate

This Medication Guide has been approved by the U.S. Food and Drug Administration.

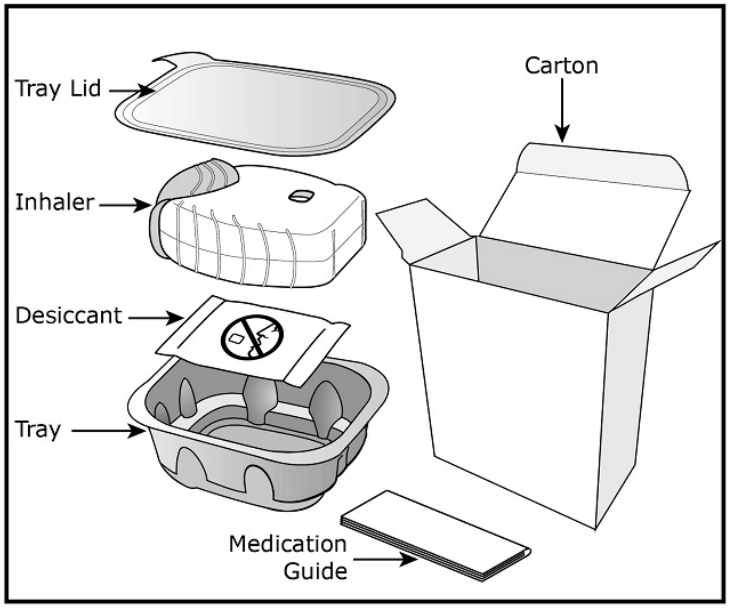
Instructions for Use

For Oral Inhalation Only.

Read this before you start:

- **If you open and close the cover without inhaling the medicine, you will lose the dose.**
- **The lost dose will be securely held inside the inhaler, but it will no longer be available to be inhaled.**
- **It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.**

Your BREO ELLIPTA inhaler



How to use your inhaler

- BREO ELLIPTA comes in a foil tray.
- Peel back the lid to open the tray. See Figure A.
- The tray contains a desiccant to reduce moisture. Do not eat or inhale. Throw it away in the household trash out of reach of children and pets. See Figure B.

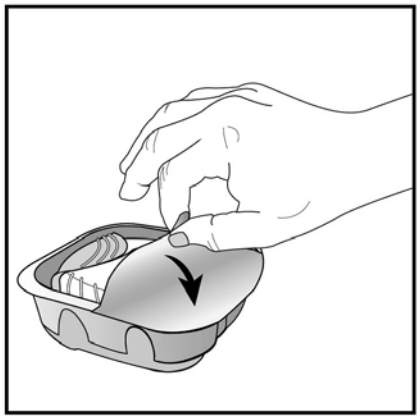


Figure A

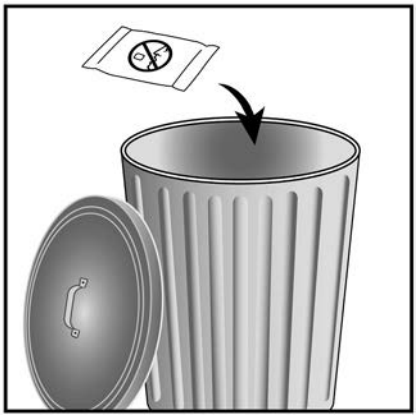


Figure B

Important Notes:

- Your inhaler contains 30 doses (14 doses if you have a sample or institutional pack).
- Each time you fully open the cover of the inhaler (you will hear a clicking sound), a dose is ready to be inhaled. This is shown by a decrease in the number on the counter.

- If you open and close the cover without inhaling the medicine, you will lose the dose. The lost dose will be held in the inhaler, but it will no longer be available to be inhaled. It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.
- **Do not** open the cover of the inhaler until you are ready to use it. To avoid wasting doses after the inhaler is ready, **do not** close the cover until after you have inhaled the medicine.
- Write the “Tray opened” and “Discard” dates on the inhaler label. The “Discard” date is 6 weeks from the date you open the tray.

Check the counter. See Figure C.

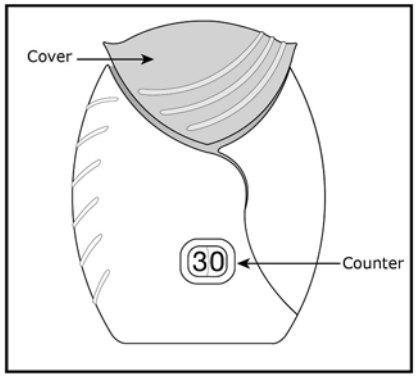


Figure C

- Before the inhaler is used for the first time, the counter should show the number 30 (14 if you have a sample or institutional pack). This is the number of doses in the inhaler.
- Each time you open the cover, you prepare 1 dose of medicine.
- The counter counts down by 1 each time you open the cover.

Prepare your dose:

Wait to open the cover until you are ready to take your dose.

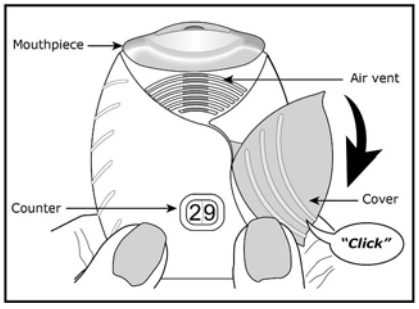


Figure D

Step 1. Open the cover of the inhaler. See Figure D.

- Slide the cover down to expose the mouthpiece. You should hear a “click.” The counter will count down by 1 number. You do not need to shake this kind of inhaler. **Your inhaler is now ready to use.**
- If the counter does not count down as you hear the click, the inhaler will not deliver the medicine. Call your healthcare provider or pharmacist if this happens.

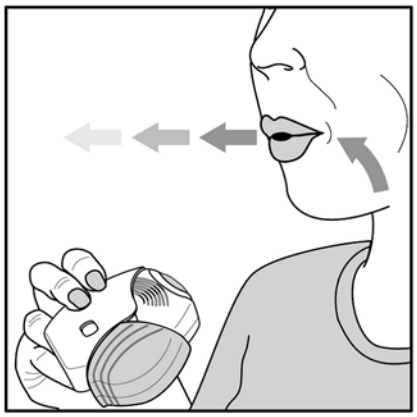


Figure E

Step 2. Breathe out. See Figure E.

- While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not breathe out into the mouthpiece.

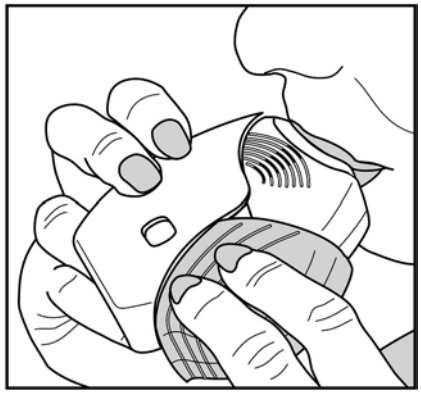


Figure F

Step 3. Inhale your medicine. See Figure F.

- Put the mouthpiece between your lips, and close your lips firmly around it. Your lips should fit over the curved shape of the mouthpiece.
- Take one long, steady, deep breath in through your mouth. **Do not** breathe in through your nose.

Figure G

- Do not block the air vent with your fingers. **See Figure G.**

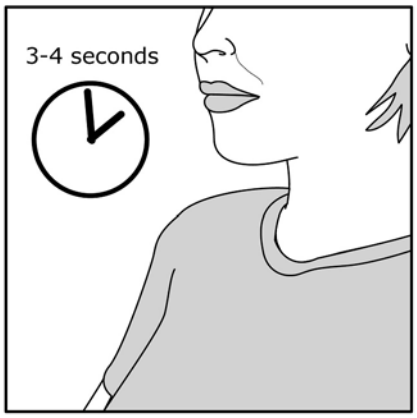


Figure H

- **Remove the inhaler from your mouth and hold your breath for about 3 to 4 seconds** (or as long as comfortable for you). **See Figure H.**

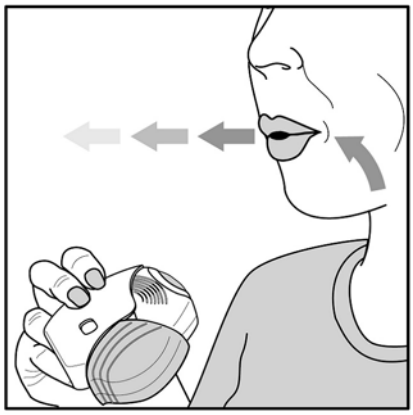


Figure I

Step 4. Breathe out slowly and gently. See Figure I.

- You may not taste or feel the medicine, even when you are using the inhaler correctly.
- **Do not** take another dose from the inhaler even if you do not feel or taste the medicine.

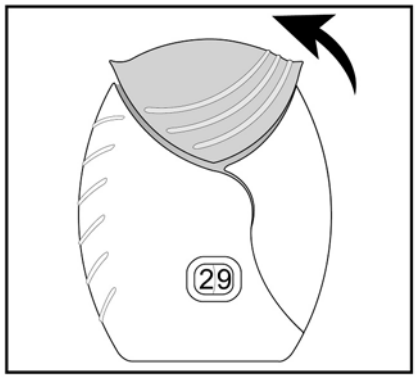


Figure J

Step 5. Close the inhaler. See Figure J.

- You can clean the mouthpiece if needed, using a dry tissue, before you close the cover. Routine cleaning is not required.
- Slide the cover up and over the mouthpiece as far as it will go.

Figure K

Step 6. Rinse your mouth. See Figure K.

- Rinse your mouth with water after you have used the inhaler and spit the water out. **Do not** swallow the water.

Important Note: When should you get a refill?

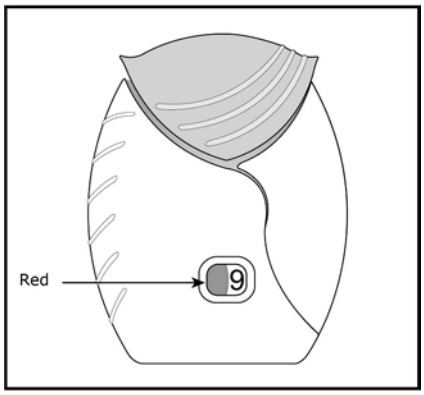


Figure L

- **When you have less than 10 doses remaining** in your inhaler, the left half of the counter shows red as a reminder to get a refill. **See Figure L.**
- After you have inhaled the last dose, the counter will show “0” and will be empty.
- Throw the empty inhaler away in your household trash out of reach of children and pets.

If you have questions about BREO ELLIPTA or how to use your inhaler, call GlaxoSmithKline (GSK) at 1-888-825-5249 or visit www.myBREO.com.

This Instructions for Use has been approved by the U.S. Food and Drug Administration.

BREO and ELLIPTA are registered trademarks of the GSK group of companies.

BREO ELLIPTA was developed in collaboration with Theravance.

GlaxoSmithKline
Research Triangle Park, NC 27709

April 2015
BRE:3MG

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use INCRUSE® ELLIPTA® safely and effectively. See full prescribing information for INCRUSE ELLIPTA.

INCRUSE ELLIPTA (umeclidinium inhalation powder), for oral inhalation
Initial U.S. Approval: 2013

---------- INDICATIONS AND USAGE----------
INCRUSE ELLIPTA is an anticholinergic indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD). (1)

----------DOSAGE AND ADMINISTRATION----------
- For oral inhalation only. (2)
- Maintenance treatment of COPD: 1 inhalation of INCRUSE ELLIPTA once daily. (2)

---------- DOSAGE FORMS AND STRENGTHS----------
Inhalation Powder. Inhaler containing a foil blister strip of powder formulation for oral inhalation. Each blister contains 62.5 mcg of umeclidinium. (3)

---------- CONTRAINDICATIONS ----------
- Severe hypersensitivity to milk proteins. (4)
- Hypersensitivity to any ingredient. (4)

---------- WARNINGS AND PRECAUTIONS----------
- Do not initiate in acutely deteriorating COPD or to treat acute symptoms. (5.1)
- If paradoxical bronchospasm occurs, discontinue INCRUSE ELLIPTA and institute alternative therapy. (5.2)
- Worsening of narrow-angle glaucoma may occur. Use with caution in patients with narrow-angle glaucoma and instruct patients to contact a healthcare provider immediately if symptoms occur. (5.4)
- Worsening of urinary retention may occur. Use with caution in patients with prostatic hyperplasia or bladder-neck obstruction and instruct patients to contact a healthcare provider immediately if symptoms occur. (5.5)

---------- ADVERSE REACTIONS ----------
Most common adverse reactions (incidence greater than or equal to 2% and more common than placebo) include nasopharyngitis, upper respiratory tract infection, cough, arthralgia. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

---------- DRUG INTERACTIONS----------
Anticholinergics: May interact additively with concomitantly used anticholinergic medications. Avoid administration of INCRUSE ELLIPTA with other anticholinergic-containing drugs. (7.1)

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 2/2016

FULL PRESCRIBING INFORMATION: CONTENTS*

***Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

INCRUSE® ELLIPTA® is indicated for the long-term, once-daily, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

2 DOSAGE AND ADMINISTRATION

INCRUSE ELLIPTA (umeclidinium 62.5 mcg) should be administered as 1 inhalation once daily by the orally inhaled route only.

INCRUSE ELLIPTA should be used at the same time every day. Do not use INCRUSE ELLIPTA more than 1 time every 24 hours.

No dosage adjustment is required for geriatric patients, patients with renal impairment, or patients with moderate hepatic impairment *[see Clinical Pharmacology (12.3)]*.

3 DOSAGE FORMS AND STRENGTHS

Inhalation Powder. Disposable light grey and light green plastic inhaler containing a foil blister strip of powder intended for oral inhalation only. Each blister contains umeclidinium 62.5 mcg.

4 CONTRAINDICATIONS

The use of INCRUSE ELLIPTA is contraindicated in the following conditions:

- Severe hypersensitivity to milk proteins *[see Warnings and Precautions (5.3)]*
- Hypersensitivity to umeclidinium or any of the excipients *[see Warnings and Precautions (5.3), Description (11)]*

5 WARNINGS AND PRECAUTIONS

5.1 Deterioration of Disease and Acute Episodes

INCRUSE ELLIPTA should not be initiated in patients during rapidly deteriorating or potentially life-threatening episodes of COPD. INCRUSE ELLIPTA has not been studied in subjects with acutely deteriorating COPD. The initiation of INCRUSE ELLIPTA in this setting is not appropriate.

INCRUSE ELLIPTA should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. INCRUSE ELLIPTA has not been studied in the relief of acute symptoms and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting $beta_2$-agonist.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If INCRUSE ELLIPTA no longer controls symptoms of bronchoconstriction; the patient's inhaled, short-acting beta$_2$-agonist becomes less effective; or the patient needs more short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting a reevaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of INCRUSE ELLIPTA beyond the recommended dose is not appropriate in this situation.

5.2 Paradoxical Bronchospasm

As with other inhaled medicines, INCRUSE ELLIPTA can produce paradoxical bronchospasm, which may be life threatening. If paradoxical bronchospasm occurs following dosing with INCRUSE ELLIPTA, it should be treated immediately with an inhaled, short-acting bronchodilator; INCRUSE ELLIPTA should be discontinued immediately; and alternative therapy should be instituted.

5.3 Hypersensitivity Reactions

Hypersensitivity reactions may occur after administration of INCRUSE ELLIPTA. There have been reports of anaphylactic reactions in patients with severe milk protein allergy after inhalation of other powder products containing lactose; therefore, patients with severe milk protein allergy should not use INCRUSE ELLIPTA *[see Contraindications (4)]*.

5.4 Worsening of Narrow-Angle Glaucoma

INCRUSE ELLIPTA should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a healthcare provider immediately if any of these signs or symptoms develops.

5.5 Worsening of Urinary Retention

INCRUSE ELLIPTA should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a healthcare provider immediately if any of these signs or symptoms develops.

6 ADVERSE REACTIONS

The following adverse reactions are described in greater detail in other sections:

- Paradoxical bronchospasm *[see Warnings and Precautions (5.2)]*
- Worsening of narrow-angle glaucoma *[see Warnings and Precautions (5.4)]*
- Worsening of urinary retention *[see Warnings and Precautions (5.5)]*

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared with rates in the clinical trials of another drug and may not reflect the rates observed in practice.

In the 8 clinical trials conducted to support initial approval of INCRUSE ELLIPTA, a total of 1,663 subjects with COPD (mean age: 62.7 years; 89% white; 65% male across all treatments, including placebo) received at least 1 inhalation dose of umeclidinium at doses of 62.5 or 125 mcg. In the 4 randomized, double-blind, placebo- or active-controlled, efficacy clinical trials, 1,185 subjects received umeclidinium for up to 24 weeks, of which 487 subjects received the recommended dose of umeclidinium 62.5 mcg. In a 12-month, randomized, double-blind, placebo-controlled, long-term safety trial, 227 subjects received umeclidinium 125 mcg for up to 52 weeks *[see Clinical Studies (14)]*.

The incidence of adverse reactions associated with INCRUSE ELLIPTA in Table 1 is based upon 2 placebo-controlled efficacy trials: one 12-week trial and one 24-week trial.

Table 1. Adverse Reactions with INCRUSE ELLIPTA with ≥1% Incidence and More Common than Placebo in Subjects with Chronic Obstructive Pulmonary Disease

Adverse Reaction	INCRUSE ELLIPTA (n = 487) %	Placebo (n = 348) %
Infections and infestations		
Nasopharyngitis	8%	7%
Upper respiratory tract infection	5%	4%
Pharyngitis	1%	<1%
Viral upper respiratory tract infection	1%	<1%
Respiratory, thoracic, and mediastinal disorders		
Cough	3%	2%
Musculoskeletal and connective tissue disorders		
Arthralgia	2%	1%
Myalgia	1%	<1%
Gastrointestinal disorders		
Abdominal pain upper	1%	<1%
Toothache	1%	<1%
Injury, poisoning, and procedural complications		
Contusion	1%	<1%
Cardiac disorders		
Tachycardia	1%	<1%

Other adverse reactions with INCRUSE ELLIPTA observed with an incidence less than 1% but more common than placebo included atrial fibrillation.

In a long-term safety trial, 336 subjects (n = 227 umeclidinium 125 mcg, n = 109 placebo) were treated for up to 52 weeks with umeclidinium 125 mcg or placebo. The demographic and baseline characteristics of the long-term safety trial were similar to those of the efficacy trials described above. Adverse reactions that occurred with a frequency greater than or equal to 1% in subjects receiving umeclidinium 125 mcg that exceeded that in placebo in this trial were: nasopharyngitis, upper respiratory tract infection, urinary tract infection, pharyngitis, pneumonia, lower respiratory tract infection, rhinitis, supraventricular tachycardia, supraventricular extrasystoles, sinus tachycardia, idioventricular rhythm, headache, dizziness, sinus headache, cough, back pain, arthralgia, pain in extremity, neck pain, myalgia, nausea, dyspepsia, diarrhea, rash, depression, and vertigo.

The safety and efficacy of INCRUSE ELLIPTA in combination with an inhaled corticosteroid/long-acting beta$_2$-adrenergic agonist (ICS/LABA) were also evaluated in four 12-week clinical trials. A total of 1,637 subjects with COPD across four 12-week, randomized, double-blind clinical trials received at least 1 dose of INCRUSE ELLIPTA (62.5 mcg) or placebo administered once daily in addition to background ICS/LABA (mean age: 64 years, 88% white, 65% male across all treatments). Two trials (Trials 1 and 2) evaluated INCRUSE ELLIPTA in combination with fluticasone furoate/vilanterol (FF/VI) 100 mcg/25 mcg administered once daily, and 2 trials (Trials 3 and 4) evaluated INCRUSE ELLIPTA administered once daily in combination with fluticasone propionate/salmeterol (FP/SAL) 250 mcg/50 mcg administered twice daily *[see Clinical Studies (14.2)]*. Adverse reactions that occured with INCRUSE ELLIPTA in combination with an ICS/LABA were similar to those reported with INCRUSE ELLIPTA as monotherapy. In addition to the umeclidinium monotherapy adverse reactions reported above, adverse reactions occurring with INCRUSE ELLIPTA in combination with an ICS/LABA, at an incidence of greater than or equal to 1% and exceeding ICS/LABA alone, were oropharyngeal pain and dysgeusia.

7 DRUG INTERACTIONS

7.1 Anticholinergics

There is potential for an additive interaction with concomitantly used anticholinergic medicines. Therefore, avoid coadministration of INCRUSE ELLIPTA with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic adverse effects *[see Warnings and Precautions (5.4, 5.5), Adverse Reactions (6)]*.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Teratogenic Effects

Pregnancy Category C. There are no adequate and well-controlled trials with INCRUSE ELLIPTA in pregnant women. Because animal reproduction studies are not always predictive of human response, INCRUSE ELLIPTA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their healthcare providers if they become pregnant while taking INCRUSE ELLIPTA.

There were no teratogenic effects in rats and rabbits at approximately 50 and 200 times, respectively, the maximum recommended human daily inhaled dose (MRHDID) in adults (on an AUC basis at maternal inhaled doses up to 278 mcg/kg/day in rats and maternal subcutaneous doses up to 180 mcg/kg/day in rabbits).

Nonteratogenic Effects

There were no effects on perinatal and postnatal developments in rats at approximately 80 times the MRHDID in adults (on an AUC basis at maternal subcutaneous doses up to 180 mcg/kg/day).

8.2 Labor and Delivery

There are no adequate and well-controlled human trials that have investigated the effects of INCRUSE ELLIPTA during labor and delivery. INCRUSE ELLIPTA should be used during labor only if the potential benefit justifies the potential risk.

8.3 Nursing Mothers

It is not known whether umeclidinium is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when INCRUSE ELLIPTA is administered to a nursing woman. Since there are no data from well-controlled human studies on the use of INCRUSE ELLIPTA by nursing mothers, a decision should be made whether to discontinue nursing or to discontinue INCRUSE ELLIPTA, taking into account the importance of INCRUSE ELLIPTA to the mother.

Subcutaneous administration of umeclidinium to lactating rats at approximately 25 times the MRHDID in adults resulted in a quantifiable level of umeclidinium in 2 pups, which may indicate transfer of umeclidinium in milk.

8.4 Pediatric Use

INCRUSE ELLIPTA is not indicated for use in children. The safety and efficacy in pediatric patients have not been established.

8.5 Geriatric Use

Based on available data, no adjustment of the dosage of INCRUSE ELLIPTA in geriatric patients is necessary, but greater sensitivity in some older individuals cannot be ruled out.

Clinical trials of INCRUSE ELLIPTA included 810 subjects aged 65 years and older, and, of those, 183 subjects were aged 75 years and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger subjects.

8.6 Hepatic Impairment

Patients with moderate hepatic impairment (Child-Pugh score of 7-9) showed no relevant increases in C_{max} or AUC, nor did protein binding differ between subjects with moderate hepatic impairment and their healthy controls. Studies in subjects with severe hepatic impairment have not been performed *[see Clinical Pharmacology (12.3)]*.

8.7 Renal Impairment

Patients with severe renal impairment (creatinine clearance less than 30 mL/min) showed no relevant increases in C_{max} or AUC, nor did protein binding differ between subjects with severe renal impairment and their healthy controls. No dosage adjustment is required in patients with renal impairment *[see Clinical Pharmacology (12.3)]*.

10 OVERDOSAGE

No case of overdose has been reported with INCRUSE ELLIPTA.

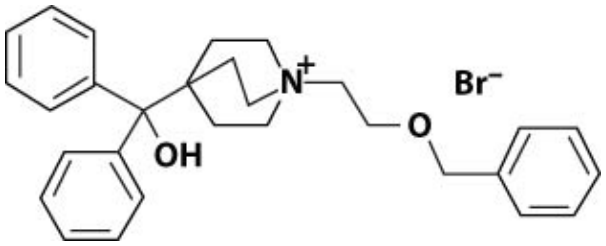
High doses of umeclidinium may lead to anticholinergic signs and symptoms. However, there were no systemic anticholinergic adverse effects following a once-daily inhaled dose of up to 1,000 mcg umeclidinium (16 times the maximum recommended daily dose) for 14 days in subjects with COPD.

Treatment of overdosage consists of discontinuation of INCRUSE ELLIPTA together with institution of appropriate symptomatic and/or supportive therapy.

11 DESCRIPTION

INCRUSE ELLIPTA contains the active ingredient umeclidinium, an anticholinergic.

Umeclidinium bromide has the chemical name 1-[2-(benzyloxy)ethyl]-4-(hydroxydiphenylmethyl)-1-azoniabicyclo[2.2.2]octane bromide and the following chemical structure:



Umeclidinium bromide is a white powder with a molecular weight of 508.5, and the empirical formula is $C_{29}H_{34}NO_2$•Br (as a quaternary ammonium bromide compound). It is slightly soluble in water.

INCRUSE ELLIPTA is a light grey and light green plastic inhaler containing a foil blister strip. Each blister on the strip contains a white powder mix of micronized umeclidinium bromide (74.2 mcg equivalent to 62.5 mcg of umeclidinium), magnesium stearate (75 mcg), and lactose monohydrate (to 12.5 mg). The lactose monohydrate contains milk proteins. After the inhaler is activated, the powder within the blister is exposed and ready for dispersion into the airstream created by the patient inhaling through the mouthpiece.

Under standardized *in vitro* test conditions, INCRUSE ELLIPTA delivers 55 mcg of umeclidinium per blister when tested at a flow rate of 60 L/min for 4 seconds.

In adult subjects with obstructive lung disease and severely compromised lung function (COPD with forced expiratory volume in 1 second/forced vital capacity [FEV_1/FVC] less than 70% and FEV_1 less than 30% predicted or FEV_1 less than 50% predicted plus chronic respiratory failure), mean peak inspiratory flow through the ELLIPTA inhaler was 67.5 L/min (range: 41.6 to 83.3 L/min).

The actual amount of drug delivered to the lung will depend on patient factors, such as inspiratory flow profile.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Umeclidinium is a long-acting antimuscarinic agent, which is often referred to as an anticholinergic. It has similar affinity to the subtypes of muscarinic receptors M1 to M5. In the airways, it exhibits pharmacological effects through inhibition of M3 receptor at the smooth muscle leading to bronchodilation. The competitive and reversible nature of antagonism was shown with human and animal origin receptors and isolated organ preparations. In preclinical *in vitro* as well as *in vivo* studies, prevention of methacholine- and acetylcholine-induced bronchoconstrictive effects was dose-dependent and lasted longer than 24 hours. The clinical relevance of these findings is unknown. The bronchodilation following inhalation of umeclidinium is predominantly a site-specific effect.

12.2 Pharmacodynamics

Cardiac Electrophysiology

QTc interval prolongation was studied in a double-blind, multiple dose, placebo- and positive-controlled, crossover trial in 86 healthy subjects. Following repeat doses of umeclidinium 500 mcg once daily (8 times the recommended dosage) for 10 days, umeclidinium does not prolong QTc to any clinically relevant extent.

12.3 Pharmacokinetics

Linear pharmacokinetics were observed for umeclidinium (62.5 to 500 mcg).

Absorption

Umeclidinium plasma levels may not predict therapeutic effect. Following inhaled administration of umeclidinium in healthy subjects, C_{max} occurred at 5 to 15 minutes. Umeclidinium is mostly absorbed from the lung after inhaled doses with minimum contribution from oral absorption. Following repeat dosing of inhaled INCRUSE ELLIPTA, steady state was achieved within 14 days with 1.8-fold accumulation.

Distribution

Following intravenous administration to healthy subjects, the mean volume of distribution was 86 L. *In vitro* plasma protein binding in human plasma was on average 89%.

Metabolism

In vitro data showed that umeclidinium is primarily metabolized by the enzyme cytochrome P450 2D6 (CYP2D6) and is a substrate for the P-glycoprotein (P-gp) transporter. The primary metabolic routes for umeclidinium are oxidative (hydroxylation, O-dealkylation) followed by conjugation (e.g., glucuronidation), resulting in a range of metabolites with either reduced pharmacological activity or for which the pharmacological activity has not been established. Systemic exposure to the metabolites is low.

Elimination

Following intravenous dosing with radiolabeled umeclidinium, mass balance showed 58% of the radiolabel in the feces and 22% in the urine. The excretion of the drug-related material in the feces following intravenous dosing indicated elimination in the bile. Following oral dosing to healthy male subjects, radiolabel recovered in feces was 92% of the total dose and that in urine was less than 1% of the total dose, suggesting negligible oral absorption. The effective half-life after once-daily dosing is 11 hours.

Special Populations

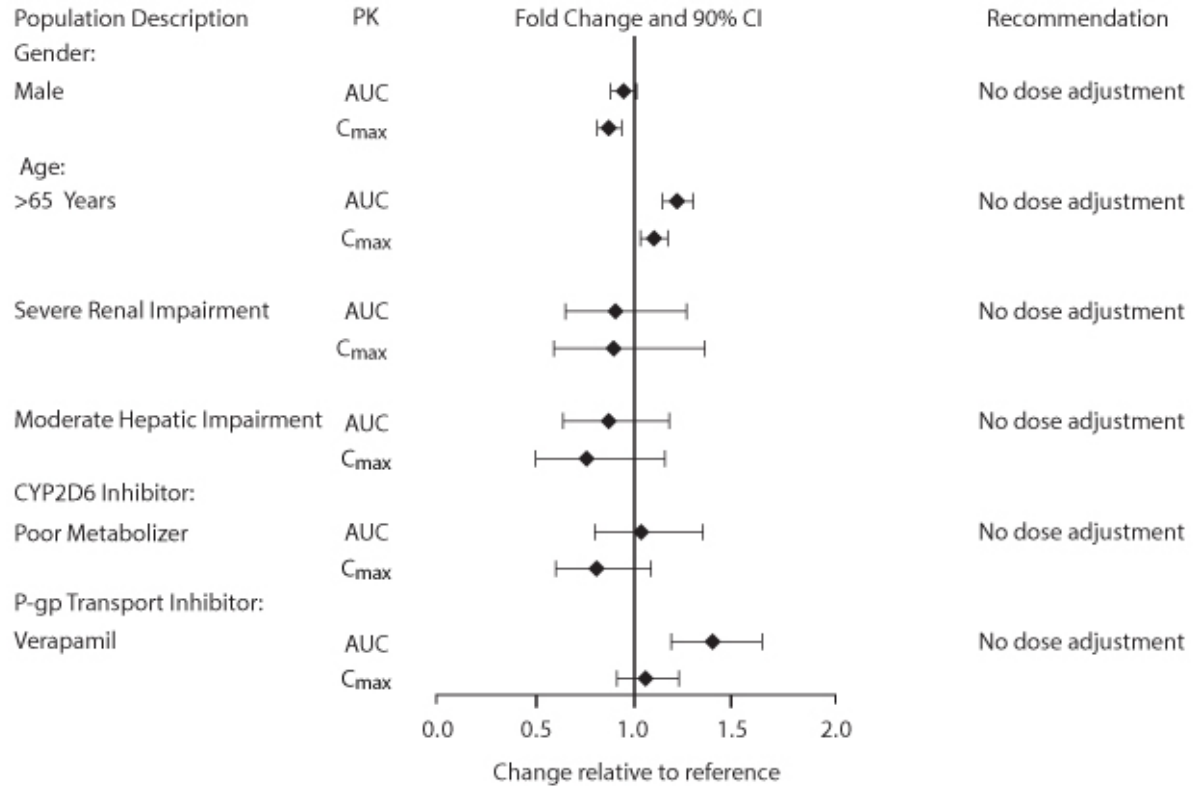
Population pharmacokinetic analysis showed no evidence of a clinically significant effect of age (40 to 93 years) (Figure 1), gender (69% male) (Figure 1), inhaled corticosteroid use (48%), or

weight (34 to 161 kg) on systemic exposure of umeclidinium. In addition, there was no evidence of a clinically significant effect of race.

Hepatic Impairment: The impact of hepatic impairment on the pharmacokinetics of INCRUSE ELLIPTA has been evaluated in subjects with moderate hepatic impairment (Child-Pugh score of 7-9). There was no evidence of an increase in systemic exposure to umeclidinium (C_{max} and AUC) (Figure 1). There was no evidence of altered protein binding in subjects with moderate hepatic impairment compared with healthy subjects. INCRUSE ELLIPTA has not been evaluated in subjects with severe hepatic impairment.

Renal Impairment: The pharmacokinetics of INCRUSE ELLIPTA have been evaluated in subjects with severe renal impairment (creatinine clearance less than 30 mL/min). There was no evidence of an increase in systemic exposure to umeclidinium (C_{max} and AUC) (Figure 1). There was no evidence of altered protein binding in subjects with severe renal impairment compared with healthy subjects.

Figure 1. Impact of Intrinsic and Extrinsic Factors on the Systemic Exposure of Umeclidinium



Drug Interactions

Umeclidinium and P-glycoprotein Transporter: Umeclidinium is a substrate of P-gp. The effect of the moderate P-gp transporter inhibitor verapamil (240 mg once daily) on the steady-state

pharmacokinetics of umeclidinium was assessed in healthy subjects. No effect on umeclidinium C_{max} was observed; however, an approximately 1.4-fold increase in umeclidinium AUC was observed (Figure 1).

Umeclidinium and Cytochrome P450 2D6: In vitro metabolism of umeclidinium is mediated primarily by CYP2D6. However, no clinically meaningful difference in systemic exposure to umeclidinium (500 mcg) (8 times the approved dose) was observed following repeat daily inhaled dosing to normal (ultrarapid, extensive, and intermediate metabolizers) and CYP2D6 poor metabolizer subjects (Figure 1).

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Umeclidinium produced no treatment-related increases in the incidence of tumors in 2-year inhalation studies in rats and mice at inhaled doses up to 137 and 295/200 mcg/kg/day (male/female), respectively (approximately 20 and 25/20 times the MRHDID in adults on an AUC basis, respectively).

Umeclidinium tested negative in the following genotoxicity assays: the *in vitro* Ames assay, *in vitro* mouse lymphoma assay, and *in vivo* rat bone marrow micronucleus assay.

No evidence of impairment of fertility was observed in male and female rats at subcutaneous doses up to 180 mcg/kg/day and inhaled doses up to 294 mcg/kg/day, respectively (approximately 100 and 50 times, respectively, the MRHDID in adults on an AUC basis).

14 CLINICAL STUDIES

The safety and efficacy of umeclidinium 62.5 mcg were evaluated in 3 dose-ranging trials, 2 placebo-controlled clinical trials (one 12-week trial and one 24-week trial), and a 12-month long-term safety trial. The efficacy of INCRUSE ELLIPTA is based primarily on the dose-ranging trials in 624 subjects with COPD and the 2 placebo-controlled confirmatory trials in 1,738 subjects with COPD.

The safety and efficacy of INCRUSE ELLIPTA in combination with an ICS/LABA were also evaluated in four 12-week clinical trials. The efficacy of INCRUSE ELLIPTA in combination with an ICS/LABA is based on 1,637 subjects with COPD.

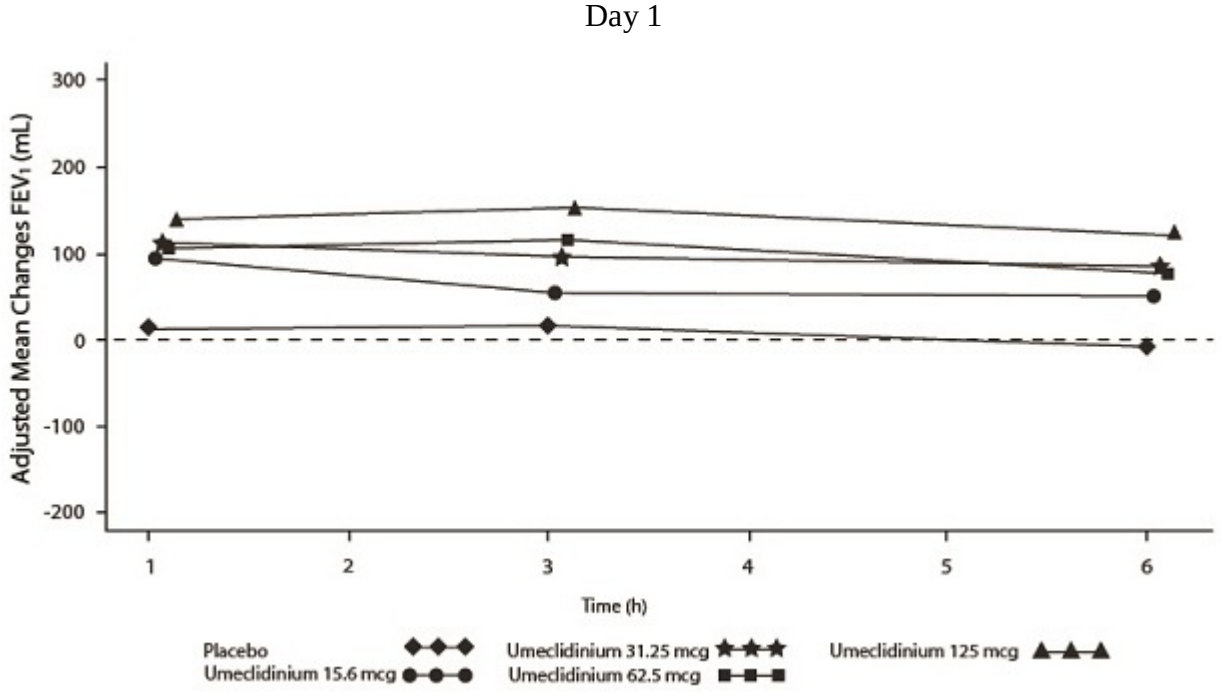
14.1 Dose-Ranging Trials

Dose selection for umeclidinium in COPD was supported by a 7-day, randomized, double-blind, placebo-controlled, crossover trial evaluating 4 doses of umeclidinium (15.6 to 125 mcg) or placebo dosed once daily in the morning in 163 subjects with COPD. A dose ordering was observed, with the 62.5- and 125-mcg doses demonstrating larger improvements in FEV_1 over 24 hours compared with the lower doses of 15.6 and 31.25 mcg (Figure 2).

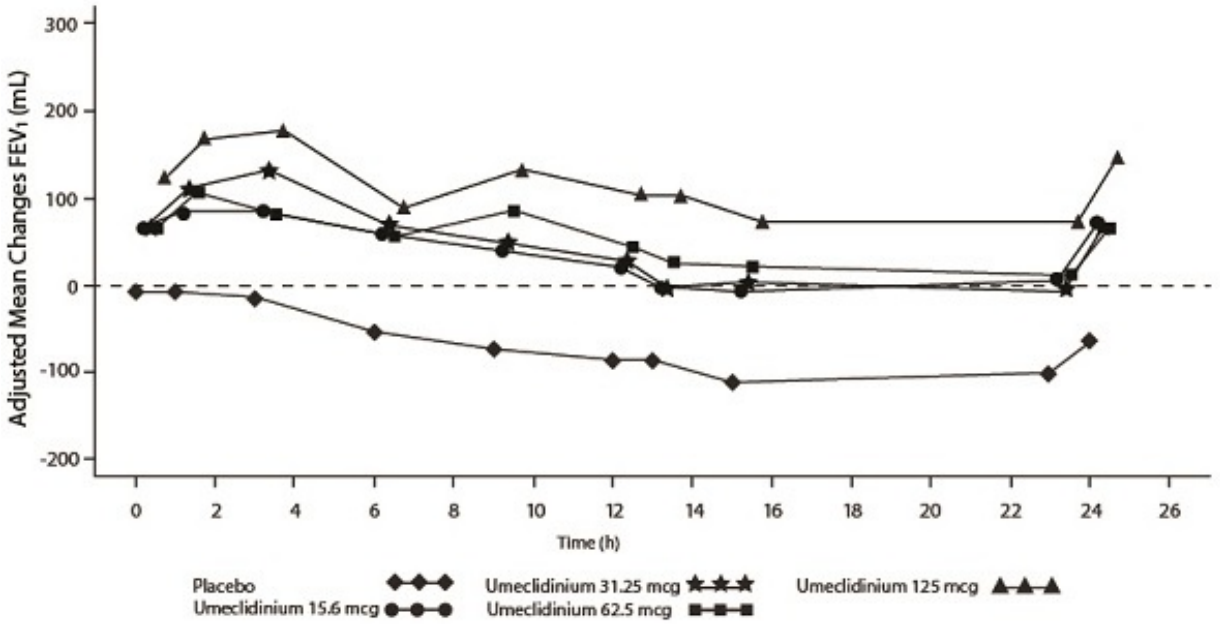
The differences in trough FEV_1 from baseline after 7 days for placebo and the 15.6-, 31.25-, 62.5-, and 125-mcg doses were -74 mL (95% CI: -118, -31), 38 mL (95% CI: -6, 83), 27 mL (95% CI: -18, 72), 49 mL (95% CI: 6, 93), and 109 mL (95% CI: 65, 152), respectively. Two additional dose-ranging trials in subjects with COPD demonstrated minimal additional benefit at doses above 125 mcg. The dose-ranging results supported the evaluation of 2 doses of umeclidinium, 62.5 and 125 mcg, in the confirmatory COPD trials to further assess dose response.

Evaluations of dosing interval by comparing once- and twice-daily dosing supported selection of a once-daily dosing interval for further evaluation in the confirmatory COPD trials.

Figure 2. Adjusted Mean Change from Baseline in Postdose Serial FEV_1 (mL) on Days 1 and 7



Day 7



14.2 Maintenance Treatment: Confirmatory Trials

The clinical development program for INCRUSE ELLIPTA included 2 randomized, double-blind, placebo-controlled, parallel-group trials in subjects with COPD designed to evaluate the efficacy of INCRUSE ELLIPTA on lung function. Trial 1 was a 24-week placebo-controlled trial, and Trial 2 was a 12-week placebo-controlled trial. These trials treated subjects that had a clinical diagnosis of COPD, were 40 years of age or older, had a history of smoking greater than or equal to 10 pack-years, had a post-albuterol FEV_1 less than or equal to 70% of predicted normal values, had a ratio of FEV_1/FVC of less than 0.7, and had a Modified Medical Research Council (mMRC) score greater than or equal to 2. Subjects in Trial 1 had a mean age of 63 years and an average smoking history of 46 pack-years, with 50% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 47% (range: 13% to 74%), the mean postbronchodilator FEV_1/FVC ratio was 0.47 (range: 0.20 to 0.74), and the mean percent reversibility was 15% (range: -35% to 109%). Baseline demographics and lung function for subjects in Trial 2 were similar to those in Trial 1.

Trial 1 evaluated umeclidinium 62.5 mcg and placebo. The primary endpoint was change from baseline in trough (predose) FEV_1 at Day 169 (defined as the mean of the FEV_1 values obtained at 23 and 24 hours after the previous dose on Day 168) compared with placebo. INCRUSE ELLIPTA 62.5 mcg demonstrated a larger increase in mean change from baseline in trough (predose) FEV_1 relative to placebo (Table 2). Similar results were obtained from Trial 2.

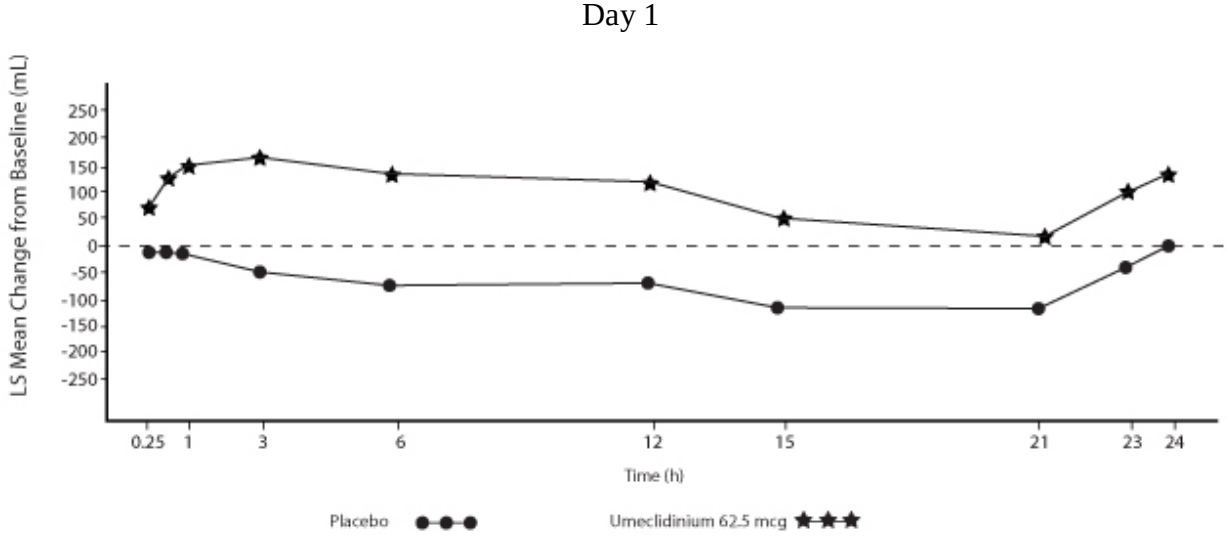
Table 2. Least Squares Mean Change from Baseline in Trough FEV_1 (mL) at Day 169 in the Intent-to-Treat Population (Trial 1)

Treatment	n	Trough FEV_1 (mL) at Day 169 Difference from Placebo (95% CI) n = 280
INCRUSE ELLIPTA	n = 418	115 (76, 155)

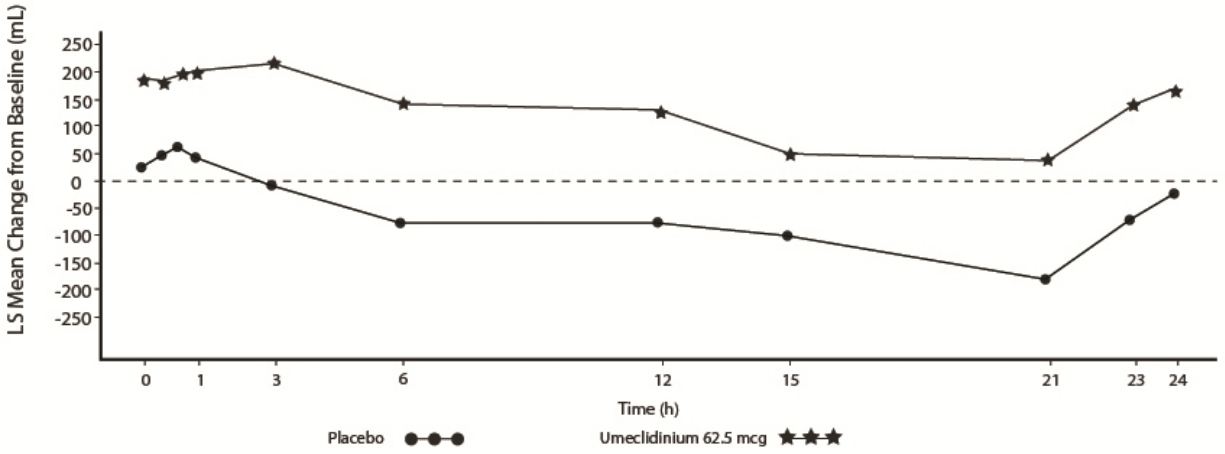
n = Number in intent-to-treat population.

Serial spirometric evaluations throughout the 24-hour dosing interval were performed in a subset of subjects (n = 54, umeclidinium 62.5 mcg; n = 36, placebo) at Days 1, 84, and 168 in Trial 1, and for all patients at Days 1 and 84 in Trial 2. Results from Trial 1 at Day 1 and Day 168 are shown in Figure 3.

Figure 3. Least Squares (LS) Mean Change from Baseline in FEV_1 (mL) over Time (0-24 h) on Days 1 and 168 (Trial 1 Subset Population)



Day 168



In Trial 1, the mean peak FEV_1 (over the first 6 hours relative to baseline) at Day 1 and at Day 168 for the group receiving umeclidinium 62.5 mcg compared with placebo was 126 and 130 mL, respectively.

Health-related quality of life was measured using St. George's Respiratory Questionnaire (SGRQ). Umeclidinium demonstrated an improvement in mean SGRQ total score compared with placebo treatment at Day 168: -4.69 (95% CI: -7.07,-2.31). The proportion of patients with a clinically meaningful decrease (defined as a decrease of at least 4 units from baseline) at Week 24 was greater for INCRUSE ELLIPTA 62.5 mcg (42%; 172/410) compared with placebo (31%; 86/274).

14.3 Maintenance Treatment: Combination with an ICS/LABA Trials

The efficacy of INCRUSE ELLIPTA in combination with an ICS/LABA was evaluated in 4 randomized, double-blind, parallel-group trials in subjects with COPD. These trials, all of similar study design, were of 12-weeks' treatment duration. Subjects were randomized to INCRUSE ELLIPTA 62.5 mcg + ICS/LABA or placebo + ICS/LABA. Entry criteria for subjects enrolled in these trials were similar to those described above in Section 14.2. The primary endpoint for these trials was change from baseline in trough (predose) FEV_1 at Day 85 (defined as the mean of the FEV_1 values obtained at 23 and 24 hours after the previous dose on Day 84). Baseline FEV_1 was measured while subjects were on background ICS/LABA.

Combination with Fluticasone Furoate + Vilanterol

Trials 1 and 2 randomized subjects to INCRUSE ELLIPTA 62.5 mcg + FF/VI 100 mcg/25 mcg administered once daily or placebo + FF/VI 100 mcg/25 mcg administered once daily. Trial population demographics and results for Trials 1 and 2 were similar; therefore, only Trial 1 results are presented below.

Subjects in Trial 1 across all treatment arms had a mean age of 64 years and an average smoking history of 50 pack-years, with 42% identified as current smokers. At screening, the mean

postbronchodilator percent predicted FEV_1 was 45% (range: 13% to 76%), the mean postbronchodilator FEV_1/FVC ratio was 0.48 (range: 0.22 to 0.70), and the mean percent reversibility was 14% (range: -20% to 71%).

The primary endpoint was change from baseline in trough (predose) FEV_1 at Day 85 (defined as the mean of the FEV_1 values obtained at 23 and 24 hours after the previous dose on Day 84) compared with placebo (INCRUSE ELLIPTA + FF/VI vs. placebo + FF/VI). INCRUSE ELLIPTA + FF/VI demonstrated a larger mean change from baseline in trough (predose) FEV_1 relative to placebo + FF/VI (Table 3).

Table 3. Least Squares Mean Change from Baseline in Trough FEV_1 (mL) at Day 85 in the Intent-to-Treat Population (Trial 1)

		Trough FEV_1 (mL) at Day 85
		Difference from Placebo + FF/VI (95% CI)
Treatment	**n**	**n = 206**
INCRUSE ELLIPTA + FF/VI	n = 206	124 (93, 154)

FF/VI = Fluticasone furoate/vilanterol.
n = Number in intent-to-treat population.

Combination with Fluticasone Propionate + Salmeterol

Trials 3 and 4 randomized subjects to INCRUSE ELLIPTA 62.5 mcg + FP/SAL 250 mcg/50 mcg or placebo + FP/SAL 250 mcg/50 mcg. The treatments with INCRUSE ELLIPTA and placebo were administered once daily, while the FP/SAL treatment was administered twice daily. Trial population demographics and results for Trials 3 and 4 were similar; therefore, only Trial 3 results are presented below.

Subjects in Trial 3 across all treatment arms had a mean age of 63 years and an average smoking history of 50 pack-years, with 54% identified as current smokers. At screening, the mean postbronchodilator percent predicted FEV_1 was 47% (range: 12% to 70%), the mean postbronchodilator FEV_1/FVC ratio was 0.47 (range: 0.22 to 0.69), and the mean percent reversibility was 16% (range: -36% to 79%).

The primary endpoint was change from baseline in trough (predose) FEV_1 at Day 85 (defined as the mean of the FEV_1 values obtained at 23 and 24 hours after the previous dose on Day 84) compared with placebo (INCRUSE ELLIPTA + FP/SAL vs. placebo + FP/SAL). INCRUSE ELLIPTA + FP/SAL demonstrated a larger mean change from baseline in trough (predose) FEV_1 relative to placebo + FP/SAL (Table 4).

Table 4. Least Squares Mean Change from Baseline in Trough FEV_1 (mL) at Day 85 in the Intent-to-Treat Population (Trial 3)

Treatment	n	Trough FEV_1 (mL) at Day 85 Difference from Placebo + FP/SAL (95% CI) n = 205
INCRUSE ELLIPTA+FP/SAL	n = 204	147 (107, 187)

FP/SAL = Fluticasone propionate/salmeterol.
n = Number in intent-to-treat population.

16 HOW SUPPLIED/STORAGE AND HANDLING

INCRUSE ELLIPTA is supplied as a disposable light grey and light green plastic inhaler containing a foil strip with 30 blisters (NDC 0173-0873-10) or 7 blisters (institutional pack) (NDC 0173-0873-06).

The inhaler is packaged in a moisture-protective foil tray with a desiccant and a peelable lid.

Store at room temperature between 68°F and 77°F (20°C and 25°C); excursions permitted from 59°F to 86°F (15°C to 30°C) [See USP Controlled Room Temperature]. Store in a dry place away from direct heat or sunlight. Keep out of reach of children.

INCRUSE ELLIPTA should be stored inside the unopened moisture-protective foil tray and only removed from the tray immediately before initial use. Discard INCRUSE ELLIPTA 6 weeks after opening the foil tray or when the counter reads “0” (after all blisters have been used), whichever comes first. The inhaler is not reusable. Do not attempt to take the inhaler apart.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information and Instructions for Use).

Not for Acute Symptoms

Inform patients that INCRUSE ELLIPTA is not meant to relieve acute symptoms of COPD and extra doses should not be used for that purpose. Advise patients to treat acute symptoms with an inhaled, short-acting $beta_2$-agonist such as albuterol. Provide patients with such medicine and instruct them in how it should be used.

Instruct patients to seek medical attention immediately if they experience any of the following:

- Decreasing effectiveness of inhaled, short-acting $beta_2$-agonists
- Need for more inhalations than usual of inhaled, short-acting $beta_2$-agonists
- Significant decrease in lung function as outlined by the physician

Tell patients they should not stop therapy with INCRUSE ELLIPTA without healthcare provider guidance since symptoms may recur after discontinuation.

Paradoxical Bronchospasm

As with other inhaled medicines, INCRUSE ELLIPTA can cause paradoxical bronchospasm. If paradoxical bronchospasm occurs, instruct patients to discontinue INCRUSE ELLIPTA.

Worsening of Narrow-Angle Glaucoma

Instruct patients to be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a healthcare provider immediately if any of these signs or symptoms develops.

Worsening of Urinary Retention

Instruct patients to be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination). Instruct patients to consult a healthcare provider immediately if any of these signs or symptoms develops.

GlaxoSmithKline
Research Triangle Park, NC 27709

INC:4PI

Patient Information

INCRUSE® ELLIPTA® *[IN-cruise e-LIP-ta]*
(umeclidinium inhalation powder)

What is INCRUSE ELLIPTA?

INCRUSE ELLIPTA is an anticholinergic medicine. Anticholinergic medicines help the muscles around the airways in your lungs stay relaxed to prevent symptoms such as wheezing, cough, chest tightness, and shortness of breath. These symptoms can happen when the muscles around the airways tighten. This makes it hard to breathe.

INCRUSE ELLIPTA is a prescription medicine used to treat COPD. COPD is a chronic lung disease that includes chronic bronchitis, emphysema, or both. INCRUSE ELLIPTA is used long term as 1 inhalation, 1 time each day, to improve symptoms of COPD for better breathing.

- **INCRUSE ELLIPTA is not for use to treat sudden symptoms of COPD.** Always have a rescue inhaler (an inhaled, short-acting bronchodilator) with you to treat sudden symptoms. If you do not have a rescue inhaler, contact your healthcare provider to have one prescribed for you.
- INCRUSE ELLIPTA should not be used in children. It is not known if INCRUSE ELLIPTA is safe and effective in children.

Who should not use INCRUSE ELLIPTA?

Do not use INCRUSE ELLIPTA if you:

- have a severe allergy to milk proteins. Ask your healthcare provider if you are not sure.
- are allergic to umeclidinium or any of the ingredients in INCRUSE ELLIPTA. See “What are the ingredients in INCRUSE ELLIPTA?” below for a complete list of ingredients.

What should I tell my healthcare provider before using INCRUSE ELLIPTA?

Tell your healthcare provider about all of your health conditions, including if you:

- have heart problems.
- have eye problems such as glaucoma. INCRUSE ELLIPTA may make your glaucoma worse.
- have prostate or bladder problems, or problems passing urine. INCRUSE ELLIPTA may make these problems worse.
- are allergic to any of the ingredients in INCRUSE ELLIPTA, any other medicines, or food products. See “What are the ingredients in INCRUSE ELLIPTA?” below for a complete list of ingredients.
- have any other medical conditions.
- are pregnant or planning to become pregnant. It is not known if INCRUSE ELLIPTA may harm your unborn baby.
- are breastfeeding. It is not known if the medicine in INCRUSE ELLIPTA passes into your milk and if it can harm your baby.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. INCRUSE ELLIPTA and certain other medicines may interact with each other. This may cause serious side effects.

Especially tell your healthcare provider if you take:

- anticholinergics (including tiotropium, ipratropium, aclidinium)
- atropine

Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist when you get a new medicine.

How should I use INCRUSE ELLIPTA?

Read the step-by-step instructions for using INCRUSE ELLIPTA at the end of this Patient Information.

- **Do not** use INCRUSE ELLIPTA unless your healthcare provider has taught you how to use the inhaler and you understand how to use it correctly.
- Use INCRUSE ELLIPTA exactly as your healthcare provider tells you to use it. **Do not** use INCRUSE ELLIPTA more often than prescribed.
- Use 1 inhalation of INCRUSE ELLIPTA 1 time each day. Use INCRUSE ELLIPTA at the same time each day.
- If you miss a dose of INCRUSE ELLIPTA, take it as soon as you remember. Do not take more than 1 inhalation each day. Take your next dose at your usual time. Do not take 2 doses at 1 time.
- If you take too much INCRUSE ELLIPTA, call your healthcare provider or go to the nearest hospital emergency room right away if you have any unusual symptoms, such as worsening shortness of breath, chest pain, increased heart rate, or shakiness.
- **Do not use other medicines that contain an anticholinergic for any reason.** Ask your healthcare provider or pharmacist if any of your other medicines are anticholinergic medicines.
- Do not stop using INCRUSE ELLIPTA unless told to do so by your healthcare provider because your symptoms might get worse. Your healthcare provider will change your medicines as needed.
- **INCRUSE ELLIPTA does not relieve sudden breathing problems.** Always have a rescue inhaler with you to treat sudden symptoms. If you do not have a rescue inhaler, call your healthcare provider to have one prescribed for you.
- Call your healthcare provider or get medical care right away if:
  - your breathing problems get worse
  - you need to use your rescue inhaler more often than usual
  - your rescue inhaler does not work as well to relieve your symptoms

What are the possible side effects with INCRUSE ELLIPTA?

INCRUSE ELLIPTA can cause serious side effects, including:

- **sudden breathing problems immediately after inhaling your medicine.** If you have sudden breathing problems immediately after inhaling your medicine, stop taking INCRUSE ELLIPTA and call your healthcare provider right away.
- **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction:
  - rash
  - hives

- swelling of your face, mouth, and tongue
- breathing problems

- **new or worsened eye problems including acute narrow-angle glaucoma.** Acute narrow-angle glaucoma can cause permanent loss of vision if not treated. Symptoms of acute narrow-angle glaucoma may include:
  - eye pain or discomfort
  - nausea or vomiting
  - blurred vision
  - seeing halos or bright colors around lights
  - red eyes

  If you have these symptoms, call your healthcare provider right away before taking another dose.

- **urinary retention.** People who take INCRUSE ELLIPTA may develop new or worse urinary retention. Symptoms of urinary retention may include:
  - difficulty urinating
  - painful urination
  - urinating frequently
  - urination in a weak stream or drips

  If you have these symptoms of urinary retention, stop taking INCRUSE ELLIPTA, and call your healthcare provider right away before taking another dose.

Common side effects of INCRUSE ELLIPTA include:

- upper respiratory infection
- stuffy or runny nose
- cough
- sore throat
- joint pain
- muscle pain
- tooth pain
- stomach pain
- bruising or dark areas of skin
- fast or irregular heartbeat

Tell your healthcare provider about any side effect that bothers you or that does not go away.

These are not all the side effects with INCRUSE ELLIPTA. Ask your healthcare provider or pharmacist for more information.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How do I store INCRUSE ELLIPTA?

- Store INCRUSE ELLIPTA at room temperature between 68°F and 77°F (20°C and 25°C). Keep in a dry place away from heat and sunlight.
- Store INCRUSE ELLIPTA in the unopened foil tray and only open when ready for use.
- Safely throw away INCRUSE ELLIPTA in the trash 6 weeks after you open the foil tray or when the counter reads “0”, whichever comes first. Write the date you open the tray on the label on the inhaler.
- **Keep INCRUSE ELLIPTA and all medicines out of the reach of children.**

General information about the safe and effective use of INCRUSE ELLIPTA

Medicines are sometimes prescribed for purposes not mentioned in a Patient Information leaflet. Do not use INCRUSE ELLIPTA for a condition for which it was not prescribed. Do not give your INCRUSE ELLIPTA to other people, even if they have the same condition that you have. It may harm them.

This Patient Information leaflet summarizes the most important information about INCRUSE ELLIPTA. If you would like more information, talk with your healthcare provider or pharmacist. You can ask your healthcare provider or pharmacist for information about INCRUSE ELLIPTA that was written for healthcare professionals.

For more information about INCRUSE ELLIPTA, call 1-888-825-5249 or visit our website at www.INCRUSE.com.

What are the ingredients in INCRUSE ELLIPTA?

Active ingredients: umeclidinium
Inactive ingredients: lactose monohydrate (contains milk proteins), magnesium stearate

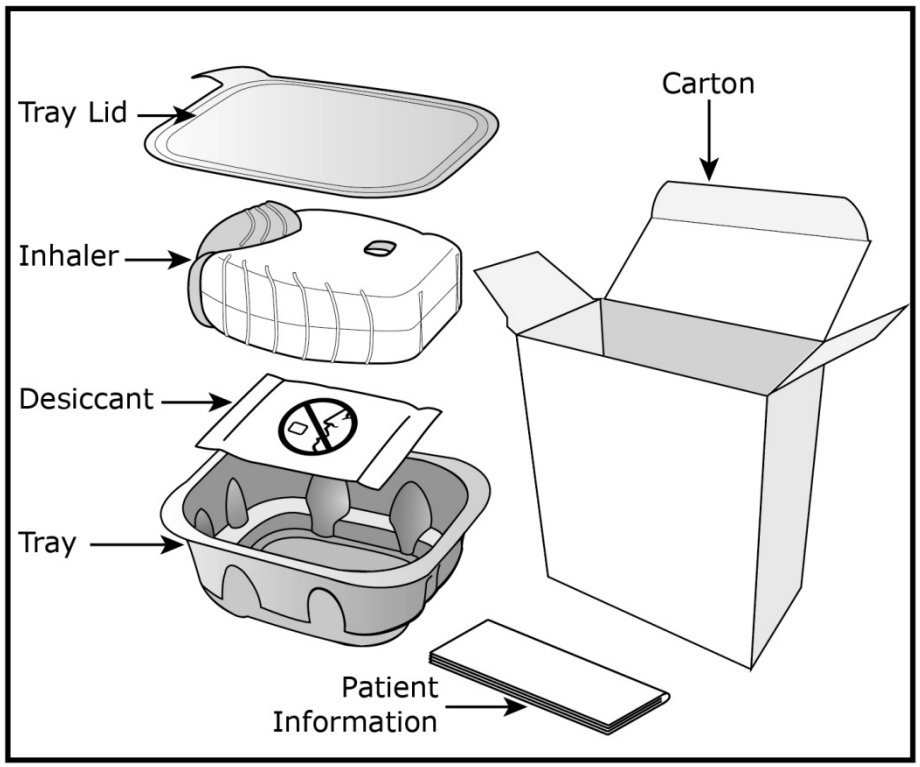
Instructions for Use

For Oral Inhalation Only.

Read this before you start:

- **If you open and close the cover without inhaling the medicine, you will lose the dose.**
- **The lost dose will be securely held inside the inhaler, but it will no longer be available to be inhaled.**
- **It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.**

Your INCRUSE ELLIPTA inhaler



How to use your inhaler

- INCRUSE ELLIPTA comes in a foil tray.
- Peel back the lid to open the tray. See Figure A.
- The tray contains a desiccant to reduce moisture. Do not eat or inhale. Throw it away in the household trash out of reach of children and pets. See Figure B.

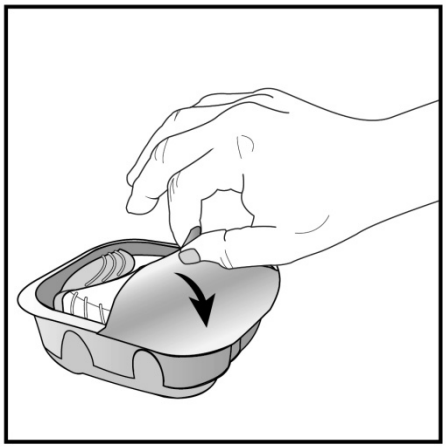


Figure A

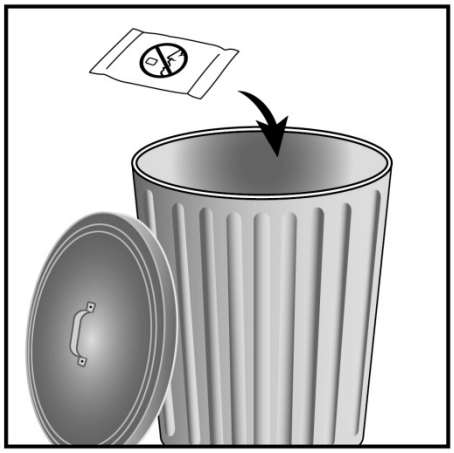


Figure B

Important Notes:

- Your inhaler contains 30 doses (7 doses if you have a sample or institutional pack).
- Each time you fully open the cover of the inhaler (you will hear a clicking sound), a dose is ready to be inhaled. This is shown by a decrease in the number on the counter.
- If you open and close the cover without inhaling the medicine, you will lose the dose. The lost dose will be held in the inhaler, but it will no longer be available to be inhaled. It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.
- **Do not** open the cover of the inhaler until you are ready to use it. To avoid wasting doses after the inhaler is ready, **do not** close the cover until after you have inhaled the medicine.
- Write the “Tray opened” and “Discard” dates on the inhaler label. The “Discard” date is 6 weeks from the date you open the tray.

Check the counter. See Figure C.

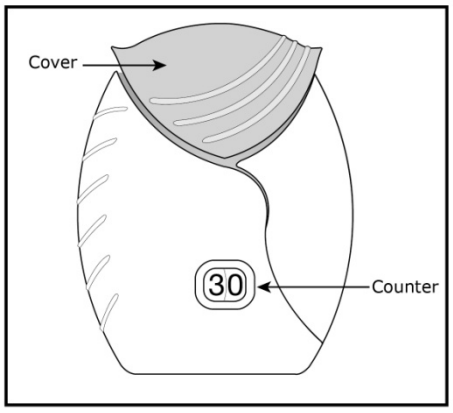


Figure C

- Before the inhaler is used for the first time, the counter should show the number 30 (7 if you have a sample or institutional pack). This is the number of doses in the inhaler.
- Each time you open the cover, you prepare 1 dose of medicine.
- The counter counts down by 1 each time you open the cover.

Prepare your dose:

Wait to open the cover until you are ready to take your dose.

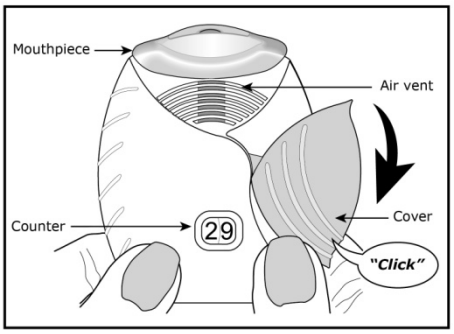


Figure D

Step 1. Open the cover of the inhaler. See Figure D.

- Slide the cover down to expose the mouthpiece. You should hear a “click.” The counter will count down by 1 number. You do not need to shake this kind of inhaler. **Your inhaler is now ready to use.**
- If the counter does not count down as you hear the click, the inhaler will not deliver the medicine. Call your healthcare provider or pharmacist if this happens.

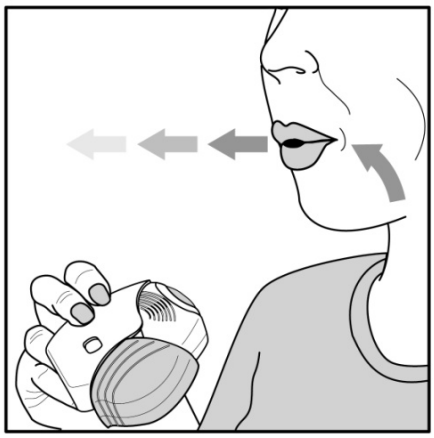


Figure E

Step 2. Breathe out. See Figure E.

- While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not breathe out into the mouthpiece.

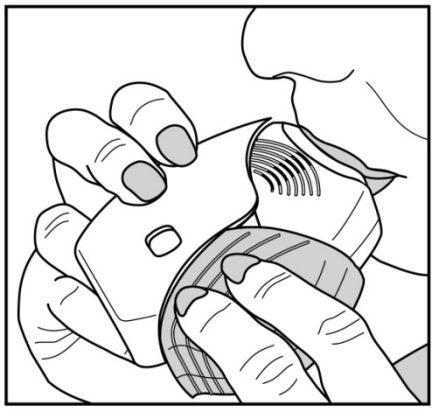


Figure F

Step 3. Inhale your medicine. See Figure F.

- Put the mouthpiece between your lips, and close your lips firmly around it. Your lips should fit over the curved shape of the mouthpiece.
- Take 1 long, steady, deep breath in through your mouth. **Do not** breathe in through your nose.

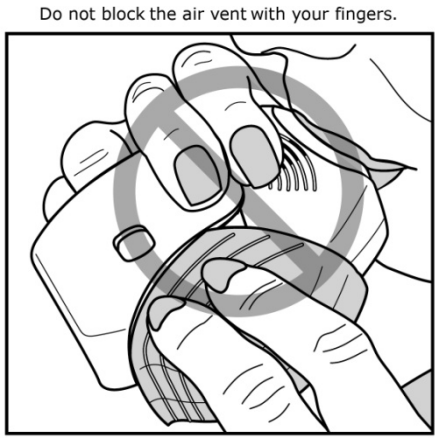


Figure G

- Do not block the air vent with your fingers. **See Figure G.**

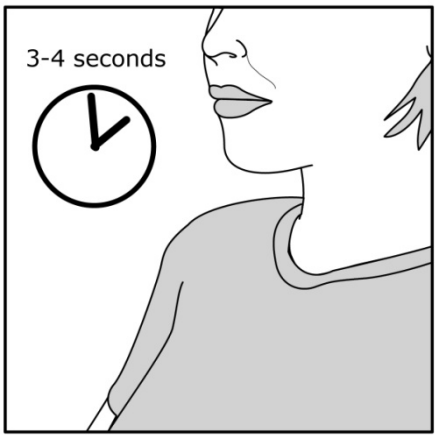


Figure H

- **Remove the inhaler from your mouth and hold your breath for about 3 to 4 seconds** (or as long as comfortable for you). **See Figure H.**

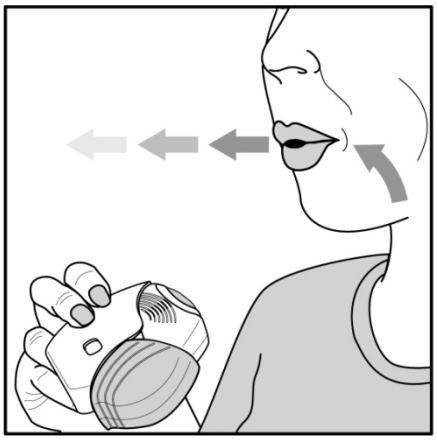


Figure I

Step 4. Breathe out slowly and gently. See Figure I.

- You may not taste or feel the medicine, even when you are using the inhaler correctly.
- **Do not** take another dose from the inhaler even if you do not feel or taste the medicine.

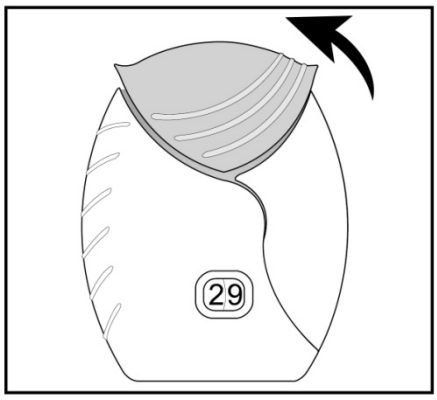


Figure J

Step 5. Close the inhaler. See Figure J.

- You can clean the mouthpiece if needed, using a dry tissue, before you close the cover. Routine cleaning is not required.
- Slide the cover up and over the mouthpiece as far as it will go.

Important Note: When should you get a refill?

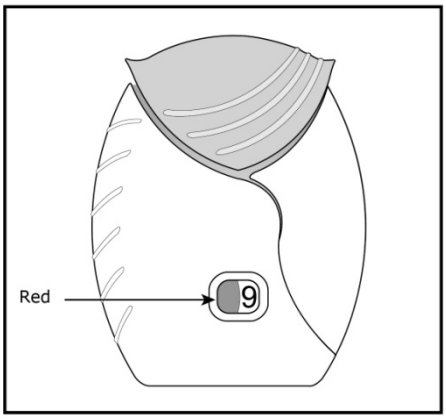


Figure K

- **When you have less than 10 doses remaining** in your inhaler, the left half of the counter shows red as a reminder to get a refill. **See Figure K.**
- After you have inhaled the last dose, the counter will show “0” and will be empty.
- Throw the empty inhaler away in your household trash out of reach of children and pets.

If you have questions about INCRUSE ELLIPTA or how to use your inhaler, call GlaxoSmithKline (GSK) at 1-888-825-5249 or visit www.INCRUSE.com.

This Patient Information and Instructions for Use have been approved by the U.S. Food and Drug Administration.

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