This document provides a short summary of this study for a general audience. You can find more information in the scientific summaries of the study. Links to those summaries are provided at the end of this document.

Study names

Short Title: A study to compare single inhaler triple therapy with multiple inhaler triple therapy in patients with chronic obstructive pulmonary disease.

Full Scientific Title: A Phase IV, 12-week, randomised, double-blind, triple dummy study to compare single inhaler triple therapy (fluticasone furoate/umeclidinium/vilanterol) with multiple inhaler therapy (budesonide/formoterol plus tiotropium) based on lung function and symptoms in participants with chronic obstructive pulmonary disease.

Study Number: 207609

Who sponsored this study?

GlaxoSmithKline (GSK)
GSK Clinical Support Help Desk
Website: clinicalsupporthd.gsk.com/contact.html
Email: GSKClinicalSupportHD@gsk.com

General information about the clinical study

When was this study done?

The study started in June 2018 and ended in March 2019.

What was the main reason for this study?

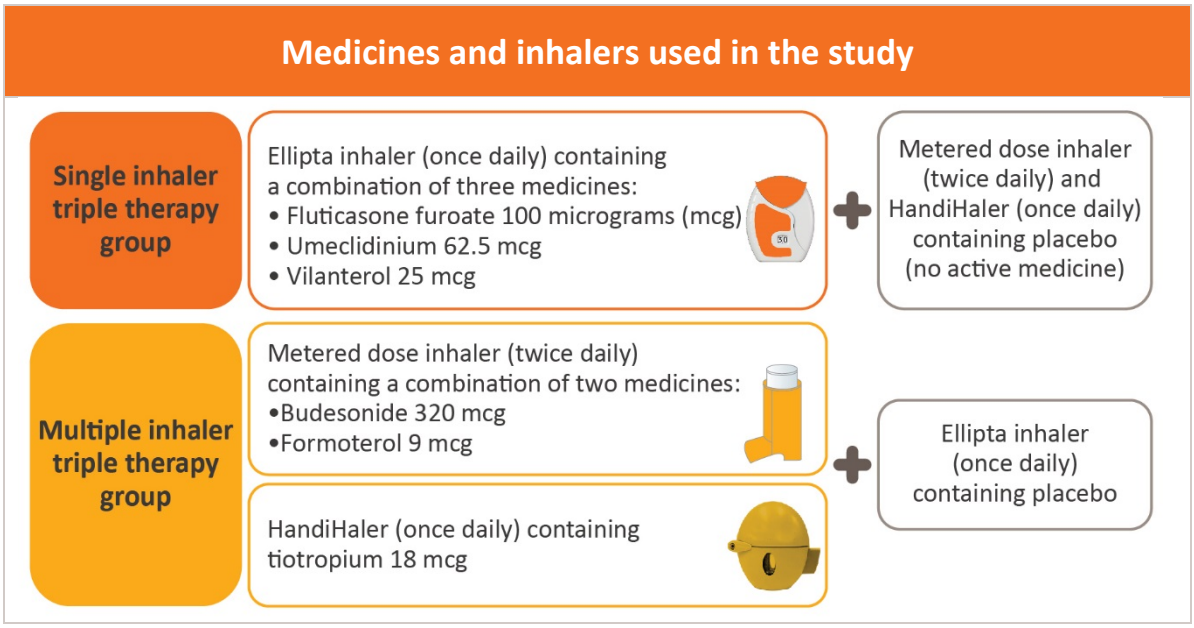
Chronic obstructive pulmonary disease (COPD) is a long-term disease of the lungs that makes it hard to breathe and gets worse over time. For patients with COPD, inhaled medicines are an important part of treatment. An inhaler is a handheld device that delivers medicine(s) to the lungs.

Patients with COPD who need to take three inhaled medicines (triple therapy) may often use two or three inhalers. GSK has developed the Ellipta inhaler that can deliver three medicines in one inhaler.

The main objective of this study was to compare lung function in patients with COPD taking triple therapy via the Ellipta inhaler (single inhaler triple therapy) with another triple therapy taken via two separate inhalers (multiple inhaler triple therapy). The researchers also assessed the safety of these medicines.

Which medicines were studied?

Patients were put into one of the two treatment groups by chance (randomisation). Patients in each of the two treatment groups received three inhalers, as shown in figure below.



Fluticasone furoate and budesonide are inhaled corticosteroids (inhaled medicines that reduce swelling and inflammation in the lungs).

Umeclidinium, vilanterol, formoterol, and tiotropium are long-acting bronchodilators (inhaled medicines that relax and open the airways in the lungs).

Neither patients nor study doctors knew who was receiving which treatment. This is called a double-blind study.

Which patients were included in this study?

Studies have a list of requirements for patients who can enrol (inclusion criteria) and those who can't (exclusion criteria). For this study, the main inclusion and exclusion criteria are listed below.

Men and women with COPD were included in the study if they:

- Were at least 40 years old.
- Were current or former smokers.
- Had impaired lung function.
- Were taking daily medicine(s) for their COPD for at least three months before starting the study.
- Had a history of at least two moderate episodes or one severe episode of sudden worsening of COPD symptoms (exacerbation), which required treatment and/or hospitalisation in the year before starting the study.

Men and women were excluded from the study if they had:

- Asthma.
- Respiratory tract infection or any other respiratory problem, such as tuberculosis.
- Removal of part of the lung in the year before starting the study.
- A specific genetic condition that led to COPD.
- Pneumonia and/or COPD exacerbation that had not improved in at least 14 days before starting the study.
- A higher risk of developing pneumonia during the study.

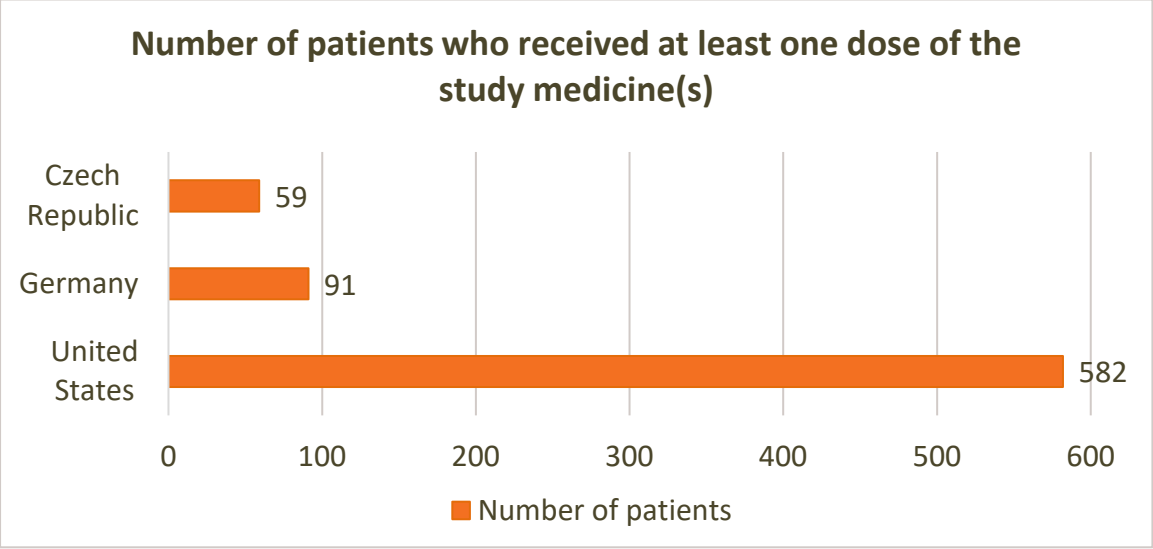
A total of 732 patients received at least one dose of the study medicine(s). The table below shows the gender and age of these patients.

Patients who received at least one dose of the study medicine(s)		
	Single inhaler triple therapy group 366 patients	**Multiple inhaler triple therapy group 366 patients**
Gender - Number of patients (percent)		
Female	180 (49%)	179 (49%)
Male	186 (51%)	187 (51%)
Age - in years		
Range	41 to 87	42 to 88
Average	66	65

For more detailed information about the patients included in this study, see the scientific results summaries (links to those summaries are provided at the end of this document).

Where was this study done?

Study sites were in three countries.



What were the overall results of the study?

Lung function tests measure how well a patient's lungs move air in and out of the body. Doctors can use the results of these tests to see if lung function is stable, getting better, or getting worse.

One measure of lung function is Forced Expiratory Volume in one second (FEV_1). FEV_1 measures the amount of air that a patient can breathe out in the first second when asked to blow as hard as possible into a tube connected to a machine (spirometer). Higher values of FEV_1 mean more air is flowing out of the lungs and that lung function is better.

Study doctors measured FEV_1 values before patients took the study medicine(s) and at multiple time points over 24 hours after taking the study medicine(s) on Day 1 and at Week 12. Average of FEV_1 at each of Day 1 and Week 12 was calculated for each patient. FEV_1 measured before taking study medicine(s) is called FEV_1 at baseline. The difference between average of FEV_1 at Week 12 (after 12 weeks of treatment) and FEV_1 at baseline is called the Week 12 change from baseline in average FEV_1.

The Week 12 change from baseline in average FEV_1 values from individual patients in each treatment group were combined and averaged. These averaged values were compared between the two treatment groups. The Week 12 change from baseline in average FEV_1 could be calculated for 551 patients who had both baseline and Week 12 values. The results are shown in the table below.

Week 12 change from baseline in average FEV_1		
	Single inhaler triple therapy group	**Multiple inhaler triple therapy group**
Number of patients with average FEV_1 values at baseline and at Week 12	274	277
Week 12 change from baseline in average FEV_1 (in millilitres [mL])	39 mL higher	29 mL higher

After 12 weeks of treatment, the difference in the Week 12 change from baseline in average FEV_1 between the two treatment groups was small. Researchers concluded that both the treatments had a similar effect on the lung function (FEV_1 values) of the patients.

More information about the study results is available in the scientific results summaries (links to those summaries are provided at the end of this document).

What were the side effects?

Unwanted medical events (adverse events) can happen to people when they receive a medicine. Study doctors record these events. A summary of all these events can be found in the scientific results summaries (links to those summaries are provided at the end of this document).

If the study doctor thinks that the event was caused by the study medicine, they record this as a possible side effect (adverse reaction).

In this summary, “side effects” refer to those events that the study doctor thinks may have been caused by the study medicine(s). The side effects in this summary may be different to those in the Informed Consent or other documents related to the study medicine(s).

Three serious side effects were reported in the study up to Week 12. One patient (less than 1%) from the single inhaler triple therapy group had two serious side effects: sudden failure of the lungs and worsening symptoms of COPD. One patient (less than 1%) from the multiple inhaler triple therapy group had a serious side effect of abnormal rapid, irregular heartbeat.

The table below shows the non-serious side effects reported by two or more of patients in any treatment group up to Week 12.

Number of patients (percent) with non-serious side effects that were reported by two or more of patients up to Week 12		
	Single inhaler triple therapy group 366 patients	**Multiple inhaler triple therapy group 366 patients**
Yeast infection	3 (less than 1%)	1 (less than 1%)
Pain in the mouth and throat	2 (less than 1%)	0
Muscle spasms	2 (less than 1%)	0
Yeast Infection in the mouth and throat	1 (less than 1%)	2 (less than 1%)
Shortness of breath	0	2 (less than 1%)

How has this study helped patients and researchers?

Researchers concluded that patients with COPD, when treated with triple therapy) showed an improvement in lung function. This improvement in lung function with Ellipta inhaler (single inhaler triple therapy) was similar to that observed after treatment with another triple therapy via two separate inhalers (multiple inhaler triple therapy). The side effects reported in this study were similar between the treatment groups.

Are there plans for further studies?

Other studies of fluticasone furoate, umeclidinium, and vilanterol in patients with COPD have been conducted and more are underway.

Where can I find more information about this study?

Clinical studies have unique study numbers that are included in publications and other information about the study. The unique study numbers associated with this study are shown below with internet links to scientific summaries and other information.

The scientific summaries include more details about the requirements for study enrolment, the study visit schedule, results from other endpoints and more detailed information about adverse events.

Organisation	Website	Study Number
European Medicines Agency	www.clinicaltrialsregister.eu	2017-001150-33[1]
United States National Institutes of Health (NIH)	www.clinicaltrials.gov	NCT03478696[2]

Your doctor can help you understand more about this study and the results. Speak to your doctor about the treatment options available in your country. You should not make changes to your care based on the results of this or any single study. Keep taking your current treatment unless instructed by your doctor.

We would like to thank the patients who contributed to this study. The results of this study will help answer scientific questions about treating patients with COPD.

The content for this document was finalised by GSK on the 16th of December 2019. The information in this summary does not include additional information available after this date.

[1] https://www.clinicaltrialsregister.eu/ctr-search/search?query=2017-001150-33

[2] https://clinicaltrials.gov/ct2/show/study/NCT03478696