Drugs to treat Asthma or COPD

Preliminary Update Scan #2
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History

- Date of Previous Report
  - Update 1: June 2016 (searches through November 2015)
- Date of Last Scan
  - Preliminary Update Scan #1: June 2017
- Date of Searches for Current Scan
  - March 2017 through May 2018

Key Questions

1. What is the comparative efficacy and effectiveness *within-class* and *across-class* of long-acting inhaled and long-acting oral medications used to treat outpatients with asthma or chronic obstructive pulmonary disease (COPD)?
2. What is the comparative *within-class* and *across-class* tolerability and frequency of adverse events of long-acting inhaled and long-acting oral medications used to treat outpatients with asthma or COPD?
3. Are there subgroups of patients for which asthma or COPD controller medications differ in efficacy, effectiveness, or frequency of adverse events?

Inclusion Criteria

- Populations
  - Adult or pediatric (≥12 months) patients with persistent or chronic asthma
  - Adult patients (≥ 18 years) with chronic obstructive pulmonary disease (COPD)

Included Interventions

- **Long-acting β-2 agonists (LABA)**: arformoterol, formoterol, indacaterol, olodaterol, salmeterol
- **Long-acting muscarinic antagonists (LAMA)**: aclidinium, glycopyrrolate, tiotropium, umeclidinium
- **Inhaled corticosteroids (ICS)**: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone furoate, fluticasone propionate, mometasone
- **ICS/LABA**: formoterol/budesonide, formoterol/mometasone, salmeterol/fluticasone propionate, vilanterol/fluticasone furoate
- **LABA/LAMA**: indacaterol/glycopyrrolate, olodaterol/tiotropium, umeclidinium/vilanterol, <u>formoterol/glycopyrrolate</u>
- <u>**ICS/LABA/LAMA**: fluticasone/umeclidinium/vilanterol</u>
- **Leukotriene modifiers**: montelukast, zileuton, zafirlukast
- **Phosphodiesterase 4-inhibitor**: roflumilast

<u>Underlined drugs and combinations</u> new since last report

Results since last report: drugs

- **New Drugs:** none since last report
- **New formulations and indications:**
  - Glycopyrrolate (Lonhala Magnair)
    - Approved 12/5/17 for COPD
  - Fluticasone/umeclidinium/vilanterol (Trelegy Ellipta)
    - Approved 9/18/17 for COPD
  - Beclomethasone (QVAR Redihaler)
    - Approved 8/3/17 for asthma patients ≥ 4 years old
  - Fluticasone propionate (Armonair Respiclick)
    - Approved 1/27/17 for asthma
  - Salmeterol/fluticasone propionate (Airduo Respiclick)
    - Approved 1/27/17 for asthma
  - Formoterol/glycopyrrolate (Bevespi Aero Sphere)
    - ICS/LAMA approved 4/25/16 for COPD

Underlined drugs and combinations new this scan

Results since last report: harms, CERs (all new this scan)

- **New Boxed Warnings**
  - ICS/LABA: previous boxed warning of increased asthma-related hospitalization and deaths ***removed*** (Dec. 2017)
- **New Comparative Effectiveness Reviews**
  - One AHRQ CER covering part of our scope
    - Sobieraj, et al. Intermittent Inhaled Corticosteroids and Long-Acting Muscarinic Antagonists for Asthma. Comparative Effectiveness Review 2018.

Results since last report: trials

- 11 trials comparing the same drug in different delivery devices
  - 7 new this scan
- 13 head-to-head trials of included drugs
  - 10 new this scan
  - 2 trials of triple therapy with ICS/LABA/LAMA compared with dual therapy with different drugs in the same class
- 18 secondary publications of previously included trials
  - 16 new this scan

Head-to-head RCTs of included drugs since last report

Author, Year Trial name	N Duration	Population	Comparison
Bernstein, 2017	N=1,504 24 weeks	Adults and adolescents with controlled asthma	Fluticasone furoate/Vilanterol vs. Fluticasone propionate/Salmeterol vs. Fluticasone propionate
Feldman, 2016	N=1,017 12 weeks	COPD	Umeclidinium vs. Tiotropium
Ferguson, 2017	N=1,086 48 weeks	Moderate-to-very severe COPD	Glycopyrrolate vs. Tiotropium
Hsieh, 2017	N=253 12 weeks	Moderate-to-severe asthma	Beclomethasone/Formoterol vs. Fluticasone/Salmeterol
Kalberg, 2016 NCT02257385	N=NR 12 weeks	Moderate-to-severe COPD	Umeclidinium/Vilanterol vs. Tiotropium plus Indacaterol
Kerwin, 2017 NCT01899742	N=494 Duration: NR	Moderate COPD	Umeclidinium/Vilanterol vs. Tiotropium

Shaded trials new this scan

Head-to-head RCTs of included drugs since last report (continued)

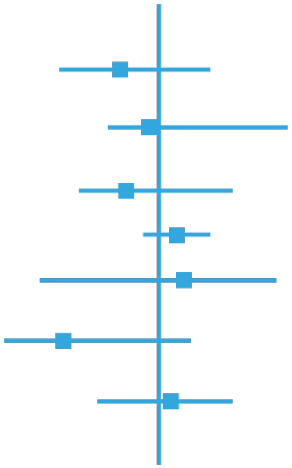
Author, Year Trial name	N Duration	Population	Comparison
Lin, 2017	N=317 12 weeks	Adults - persistent, severe asthma	Fluticasone propionate vs. Budesonide
Lipson, 2017	N=1,810 24 weeks	COPD	Fluticasone furoate/ Umeclidinium/Vilanterol vs. Budesonide/Formoterol
Oliver, 2016	N=593 12 weeks	Children (5-11 years) -asthma	Fluticasone propionate vs. Fluticasone furoate
Papi, 2018	N=1,532 52 weeks	Symptomatic COPD	Beclometasone dipropionate/ Formoterol fumarate/Glycopyrronium vs. Indacaterol/ Glycopyrronium
Usmani, 2017	N=225 12 weeks	Asthma	Fluticasone propionate/ Salmeterol vs. Fluticasone propionate/ Formoterol fumarate dehydrate
Vestbo, 2016 SUMMIT	N=16,4845 1.8 years	COPD and CVD risk	Fluticasone furoate vs. Vilanterol vs. Fluticasone furoate/Vilanterol
Wedzicha, 2016	N=3,362 1 year	COPD	Indacaterol/Glycopyrronium once-daily vs. Salmeterol/Fluticasone twice-daily

Shaded trials new this scan

Summary since last update report

- 6 new formulations of or indications for existing drugs (3 new this scan)
  - One new FDCP of 3 drugs
- One boxed warning removed for ICS/LABA in asthma
- 1 new comparative effectiveness review
- Trial evidence
  - 13 head-to-head trials of included drugs (10 new this scan)
    - 2 of triple vs. dual therapy
  - 11 trials comparing 2 devices (7 new this scan)
  - 18 secondary publications (16 new this scan)

Questions?



Drug
Effectiveness
Review
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