1 Hour Session and Learning Collaborative

COPD & Asthma Medication Management

Thursday, April 8th 2021

12:00pm-1:00pm

1:00pm-1:30pm (LC Participants)

Learning Collaborative Participants Please remain on the WebEx following presentation

OneCare Vermont

onecarevt.org

Welcome

Norman Ward, MD
Chief Medical Officer

Agenda:

Session held via Microsoft Teams

	Presenter	Time
Noon-12:05pm	**Norman Ward, MD** Chief Medical Officer, OneCare Vermont Introduction & Session Logistics	5 Minutes
12:05pm-12:45pm	**Amy Yanicak, PharmD, MPH, CDE,** Assistant Professor of Pharmacy Practice Albany College of Pharmacy	40 Minutes
12:45pm-1:00pm	**Q&A**	15 Minutes

Presenter Bio: Amy Yanicak, PharmD, MPH, CDE

Amy is a clinical ambulatory care pharmacist and diabetes educator at Richmond Family Medicine. She is also an Assistant Professor in Pharmacy Practice at the Albany College of Pharmacy and Health Sciences - Vermont Campus. She completed her degrees at the University of South Carolina, a PGY1 residency in Pharmacy Practice at Providence St Peter Hospital in Olympia, WA, and a PGY2 residency in Family Medicine at University of Washington in Seattle. At Richmond Family Medicine, she works with providers on disease state management and population health projects, such as discontinuing aspirin use or correct inhaler technique counseling. She thoroughly enjoys working collaboratively with patients and their providers to get them off of medications that they don't receive benefit from in addition to optimizing the ones they need. She works with patients on diabetes, hypertension, pain, weight loss, asthma, and COPD management. She is available for provider appointments or to call if you have a medication question!

Session Learning Objectives

1. Describe the epidemiology, pathophysiology, diagnosis, treatment guidelines or standards of care and patient specific pharmacotherapy for a disease state
2. Identify innovative areas of research and advancement in the field of pharmacotherapy or new factors which impact the profession and the practice of pharmacy
3. Specify new techniques or methods to optimize patient care outcomes and ensure patient safety
4. Recall new health policies, regulations or issues that affect the profession and practice of pharmacy

Accreditation Designation Statement

In support of improving patient care, The Robert Larner College of Medicine at The University of Vermont is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

The University of Vermont designates this live activity for a maximum of 1AMA PRA Category 1 Credit(s)TM. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This program has been reviewed and is acceptable for up to 1 Nursing Contact Hours.

As a Jointly Accredited Organization, The Robert Larner College of Medicine at the University of Vermont is approved to offer social work continuing education by the Association of Social Work Boards (ASWB) Approved Continuing Education (ACE) program. Organizations, not individual courses, are approved under this program. State and provincial regulatory boards have the final authority to determine whether an individual course may be accepted for continuing education credit. The University of Vermont maintains responsibility for this course. Social workers completing this course receive 1 continuing education credits.

This activity was planned by and for the healthcare team, and learners will receive 1Interprofessional Continuing Education (IPCE) credit for learning and change.

NOONTIME KNOWLEDGE: ASTHMA AND COPD

PRESENTED BY AMY YANICAK, PHARMD, MPH, CDCES

ASSISTANT PROFESSOR OF PHARMACY PRACTICE ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES (COLCHESTER, VT CAMPUS)

CLINICAL PHARMACIST AT RICHMOND FAMILY MEDICINE

DISCLOSURES

- Nothing to disclose

OBJECTIVES

At the completion of this activity, the pharmacist will be able to:

- 1. Describe the epidemiology, pathophysiology, diagnosis, treatment guidelines or standards of care and patient specific pharmacotherapy for a disease state
- 2. Identify innovative areas of research and advancement in the field of pharmacotherapy or new factors which impact the profession and the practice of pharmacy
- 3. Specify new techniques or methods to optimize patient care outcomes and ensure patient safety
- 4. Recall new health policies, regulations or issues that affect the profession and practice of pharmacy

KNOWLEDGE CHECK

RESCUE INHALER

What is the most appropriate agent for a 33 year old female newly diagnosed with mild asthma who reports symptoms 2-3 times per month?

A. Terbutaline 0.5mg 1 puff q4h prn for shortness of breath or wheezing

B. Proair 90mcg 1-2 puffs q4t6hr prn for shortness of breath or wheezing

C. Pulmicort 90mcg 1 puff BID and Ventolin 90mcg 1-2 puffs q4t6hr prn shortness of breath or wheezing

D. Symbicort 80/4.5 1-2 puffs q4-6 hr prn for shortness of breath or wheezing

CORRECT INHALER USE

- What words correctly describe a patient's inhalation technique with a Dry Powder Inhaler?

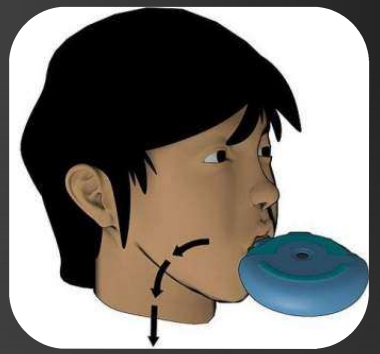
A. Forceful

B. Deep

C. Slow

D. Quick

E. Breathe-Actuated



BBW ADDED

- Which medication had a block box warning added in 2020 for risk of serious neuropsychiatric events?

A. Trelegy

B. Chantix

C. Montelukast

D. Mepolizumab

TRIPLE THERAPY USED FOR

- What is triple therapy of LABA/LAMA/ICS (Trelegy Ellipta) approved for?

A. Asthma

B. COPD

C. Acute Bronchospasm

D. Both Asthma and COPD

ASTHMA

- Reversible airway disease
  - Up to 35% of patients will have a "normal" physical exam
- Assessed by:
  - Symptom control
  - Risk factors

What is NOT Asthma?
-Persistent cough
-COPD
-GERD
-Bronchitis
Respiratory infection
-COVID

Global Initiative for Asthma. Globa; Strategy for Asthma Management and Prevention, 2020. Available from: www.ginaasthma.org

COVID CONSIDERATIONS

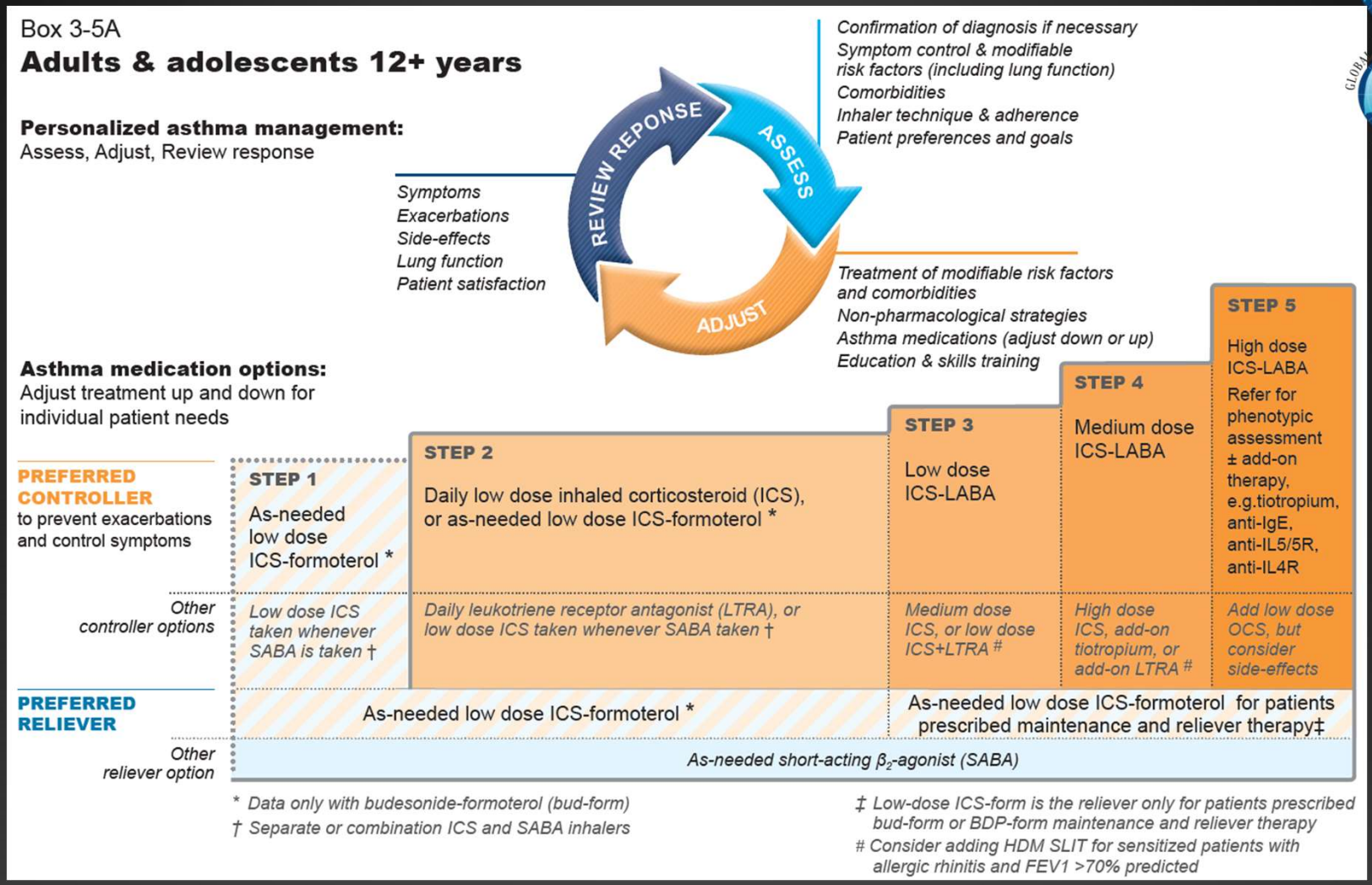
- Have a written asthma action plan
- Avoid nebulizer use around others
- Avoid spirometry with suspected COVID
- Benefits of continuing steroids outweighs the risk

Study says inhalers OK to use amid COVID-19 concern (News Release), July 9, 2020, Huddersfield, England, ScienceDaily, accessed July 13, 2020

EVERYONE GETS ICS!

- SABA alone (Such as albuterol only) no longer recommended for asthma
- ICS (inhaled corticosteroid) controller
  - Reduces risk of serious exacerbations
  - Better symptom control
- Low dose ICS-fomoterol is preferred
  - Alternative: low-dose ICS whenever SABA is taken

GINA, 2020

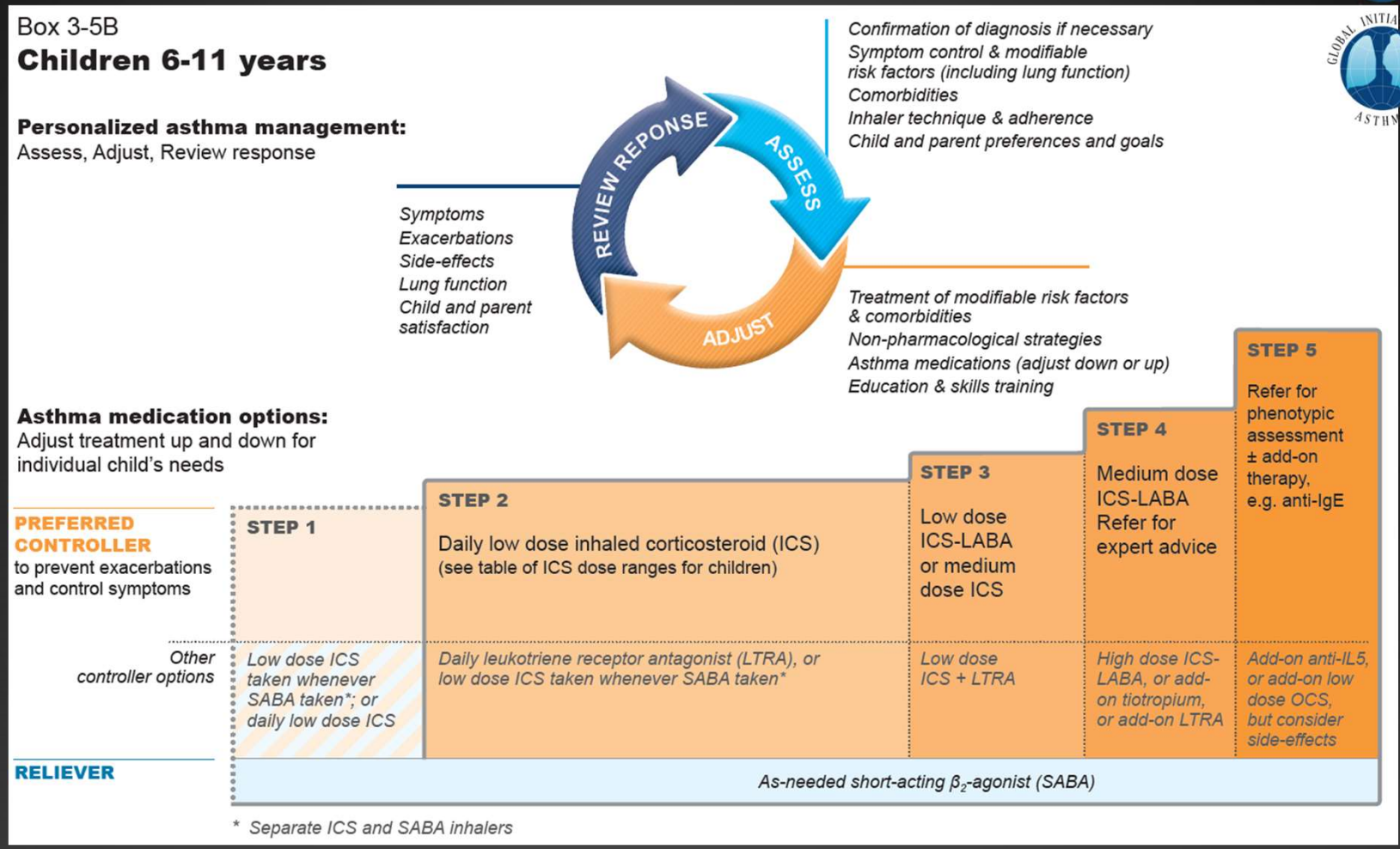


GINA 2020, Box 3-5A

ADDITIONAL SUPPORTING EVIDENCE

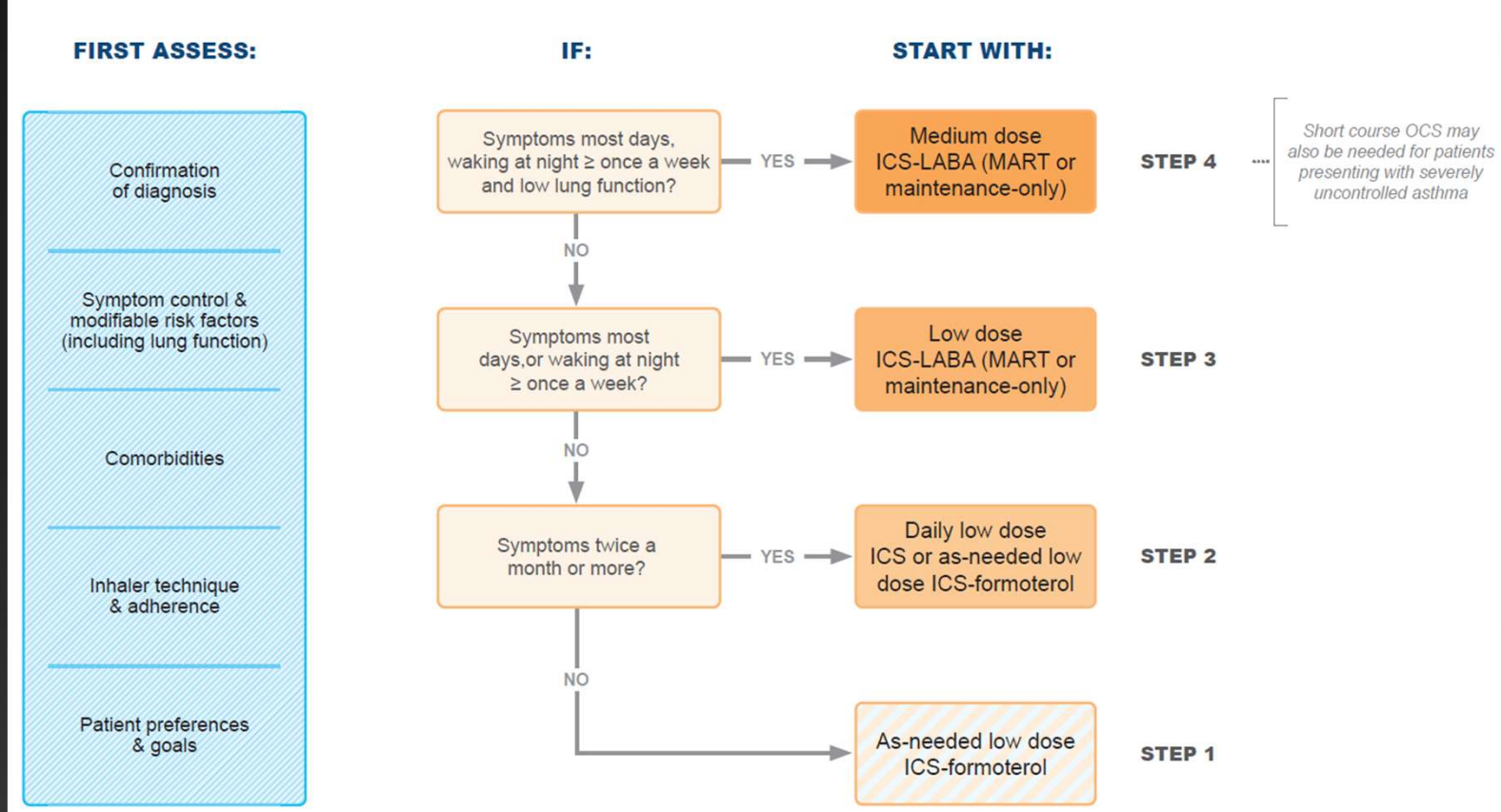
- Two additional RCTs of as-needed low dose budesonide-formoterol in mild asthma
  - 12-month studies, open-label, no twice-daily placebo, i.e. the way it would be used in real life
  - Novel START *(Beasley et al, NEJM 2019, n=668)* and PRACTICAL *(Hardy et al, Lancet 2019, independent study, n=885)*
  - Significant reduction in severe exacerbations vs SABA alone, and vs maintenance ICS, with small or no difference in symptom control, and lower average ICS dose
  - Patients in RCTs of this regimen **in mild asthma** now total n=9,565
- Both of these studies included inflammatory markers
  - FeNO was significantly reduced by as-needed ICS-formoterol (with average 3-5 doses per week)
  - Reduction in risk of severe exacerbations with as-needed ICS-formoterol was independent of baseline characteristics, including blood eosinophils and exhaled nitric oxide
- An additional RCT of taking ICS whenever SABA is taken (separate inhalers)
  - ASIST, in African-American children 6-17 years with mild asthma, compared with physician-adjusted treatment *(Sumino et al, JACI in Pract 2019, n=206)*

GINA, 2020, References at end



GINA 2020, Box 3-5B

SUGGESTED INITIAL CONTROLLER TREATMENT IN ADULTS AND ADOLESCENTS WITH A DIAGNOSIS OF ASTHMA



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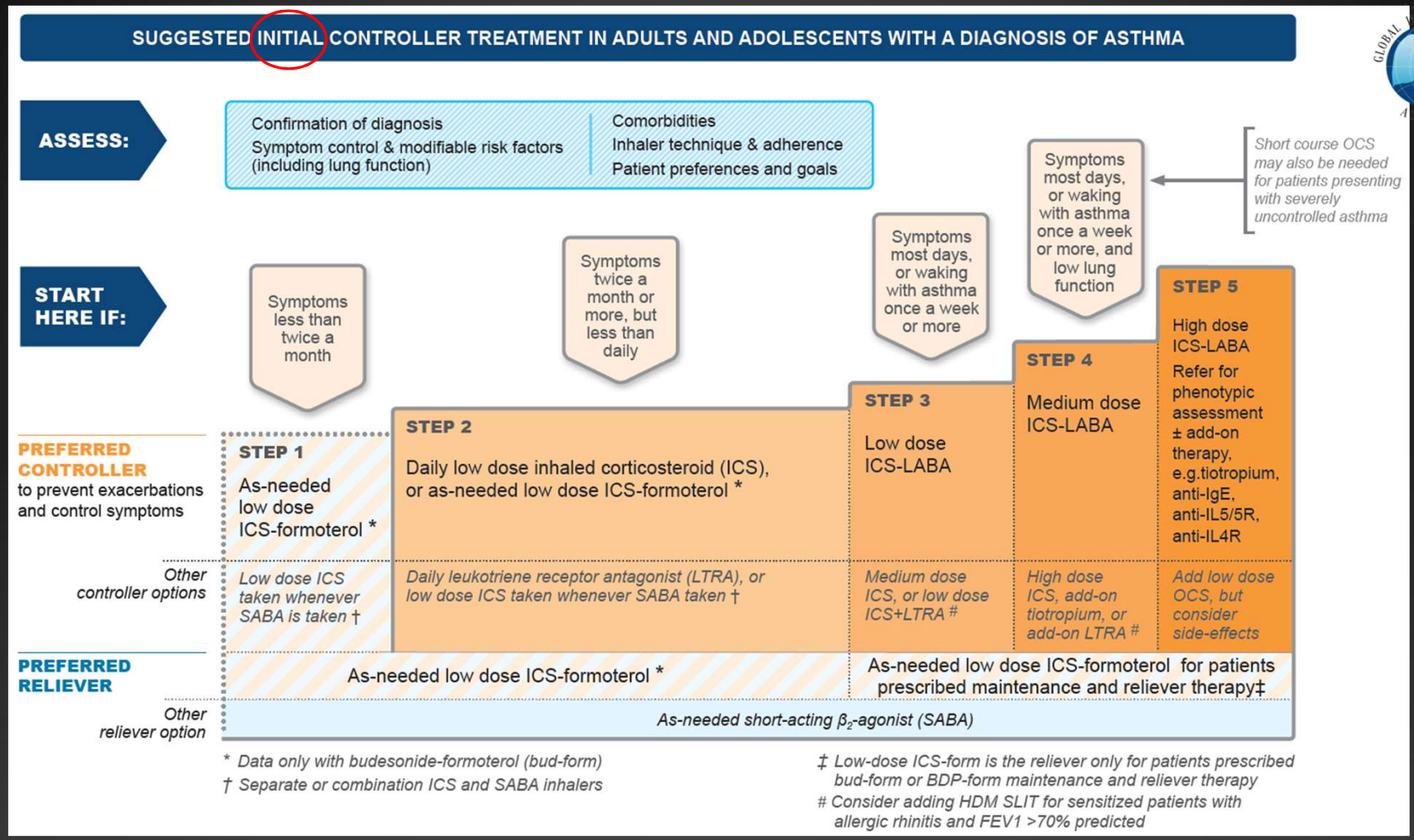
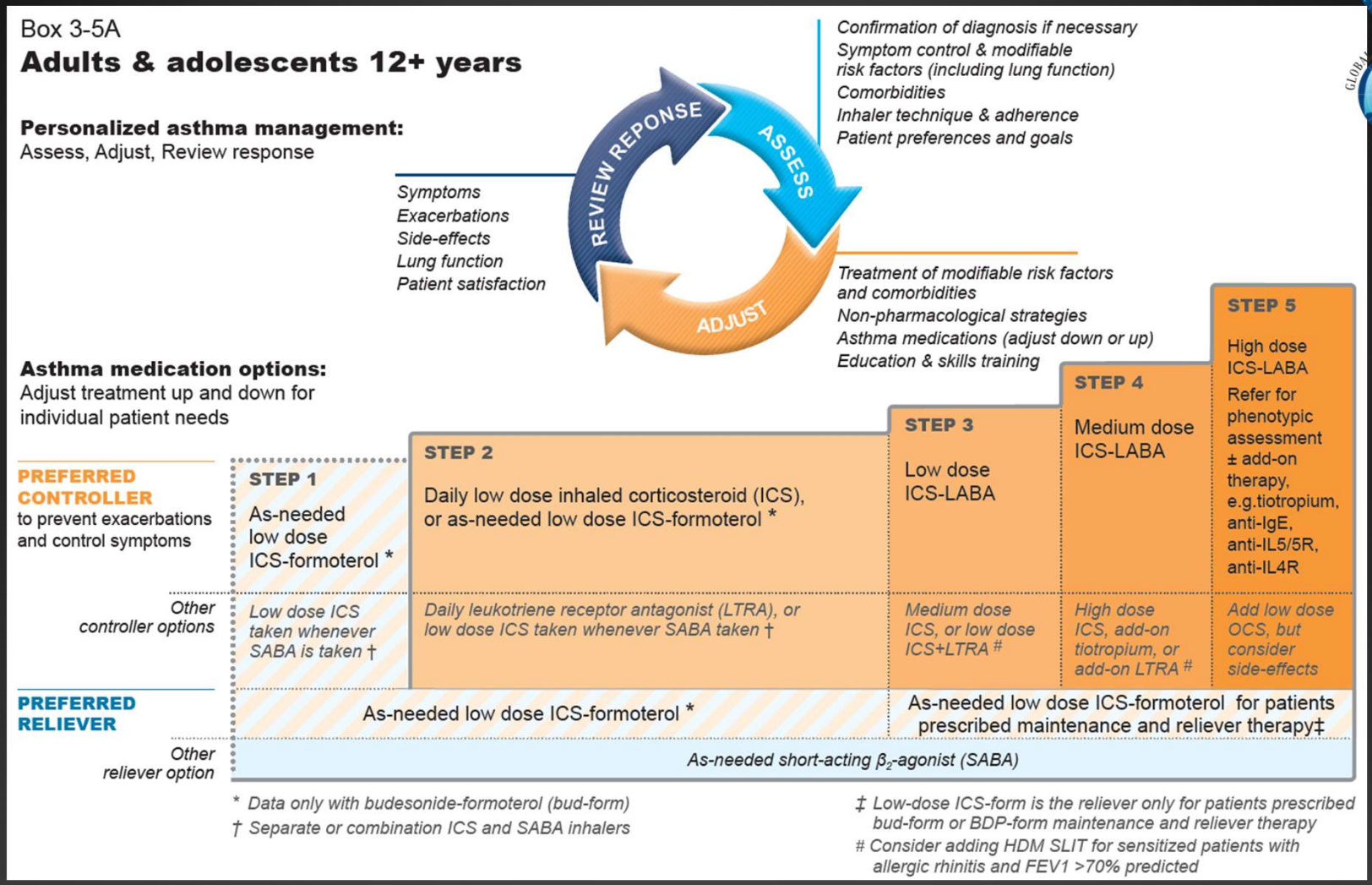


GINA 2020, Box 3-4A

EVALUATING UNCONTROLLED PATIENTS

- Do not use initial treatment tables
- Investigate
  - Watch patient using their inhaler(s)
  - Confirm asthma diagnosis
  - Remove and manage risk factors
  - Consider:
    - Step up treatment
    - Referral to specialist or asthma clinic



GINA 2020, Box 3-5A

ASSESSING INHALER TECHNIQUE

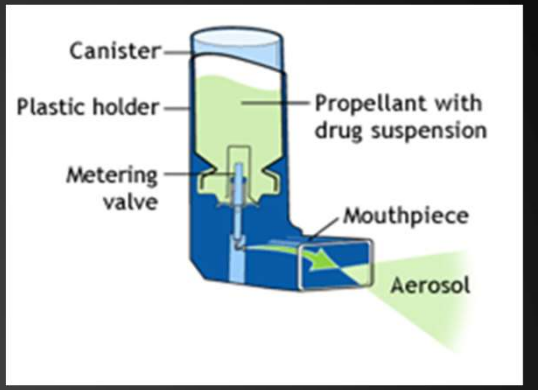
Metered dose inhalers (MDI)

- Aerosol
  - With or without spacer
- Respimat
- Breath-actuated

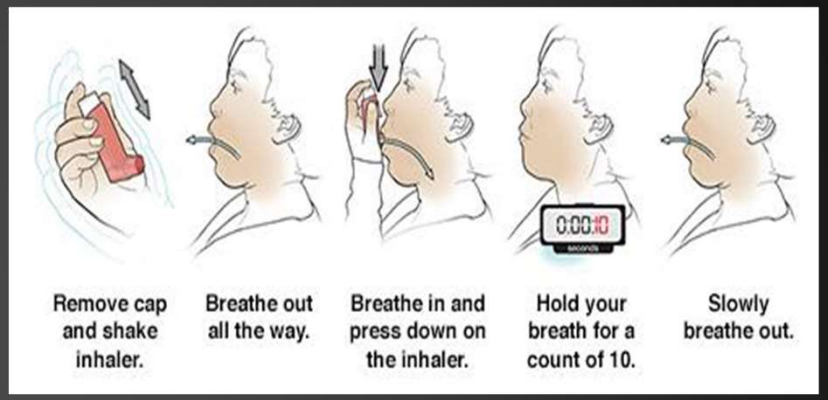
Dry powder inhaler (DPI)

MDI- AEROSOLS

- **Flovent® HFA** (fluticasone propionate)
- **Ventolin® HFA /Proventil® HFA** (albuterol sulfate)
- **Advair® HFA** (Fluticasone propionate/salmeterol xinafoate)
- **Atrovent® HFA** (Ipratropium bromide)
- **Alvesco® HFA** (ciclesonide)
- **Asmanex® HFA** (mometasone furoate)
- **QVAR® HFA** (beclomethasone dipropionate)
- **ProAir® HFA** (albuterol sulfate)
- **Symbicort® HFA** (budesonide/formoterol fumarate dihydrate)
- **Xopenex® HFA** (albuterol sulfate)



MDI- AEROSOL GENERAL INSTRUCTIONS (WITHOUT SPACER)



1. Remove cap
2. Look inside the mouthpiece for foreign objects
3. Hold inhaler **upright and <u>shake well</u>**
4. **Prime device (test spray) by spraying 3-4 times**
    a. **ONLY prior to 1st use OR inhaler has not been used in a couple days***
    b. ***Check specific device for desinated time**
5. Breathe out fully & g ently, **away from the inhaler**
6. Put mouthpiece between teeth without biting and close lips to form good seal

MDI- AEROSOL GENERAL INSTRUCTIONS (WITHOUT SPACER)- CONT.

7. Start to **breathe in deeply & slowly through mouth and, at the same time, press down firmly on canister**

8. Continue to breathe in slowly and deeply

9. **Hold breath** for about 5 seconds or as long as comfortable

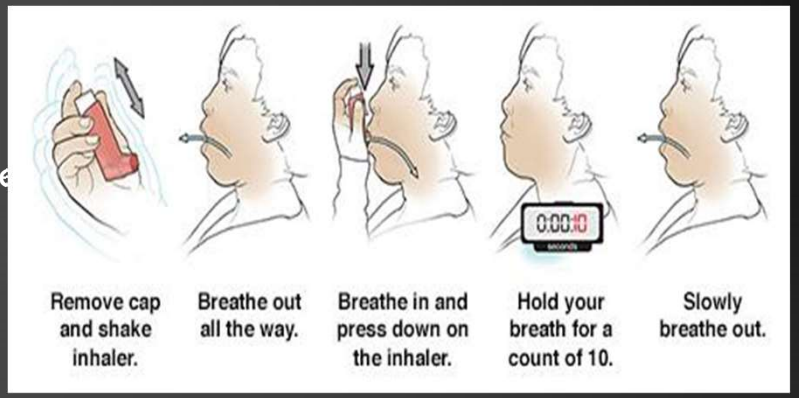
10. While holding breath, remove inhaler from mouth

11. Breathe out gently, **away from the inhaler**

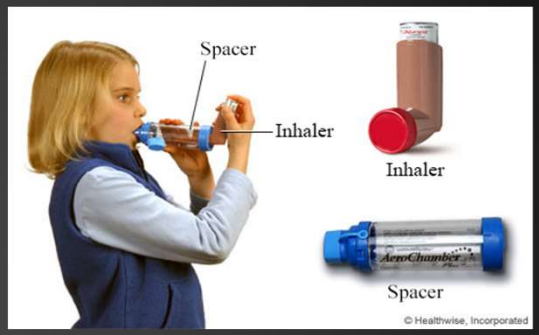
12. If an extra dose is needed, repeat steps in about 30 seconds

13. Replace cap

Instructional Video



MDI- AEROSOL GENERAL INSTRUCTIONS (WITH SPACER)



1. Take off the cap

2. Look inside the mouthpiece for foreign objects

3. **Shake the inhaler well**, if necessary (noted for each individual brand of inhaler in rows below)

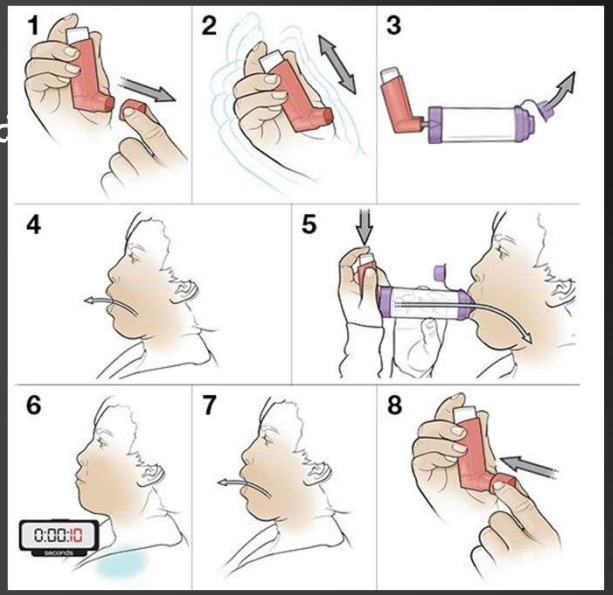
4. Attach the spacer and the inhaler together, with the inhaler's canister in a **vertical position**

5. Breathe out fully through the mouth, away from the inhaler

6. Put the mouthpiece of the spacer between the teeth and tighten the lips around it (or if you use a spacer with a mask, position the mask over the nose and mouth and make sure there's a tight seal against the cheeks and chin)

MDI- AEROSOL GENERAL INSTRUCTIONS (WITH SPACER)- CONT.

7. **Press the canister down** and inhale deeply and slowly through the mouth
8. Move the mouthpiece away from the mouth
9. **Hold the breath** for as long as comfortably possible, ~ 10 second
10. Breathe out
11. Wait before repeating, usually 30 to 60 seconds



Instructional Video 1

Instructional Video 2

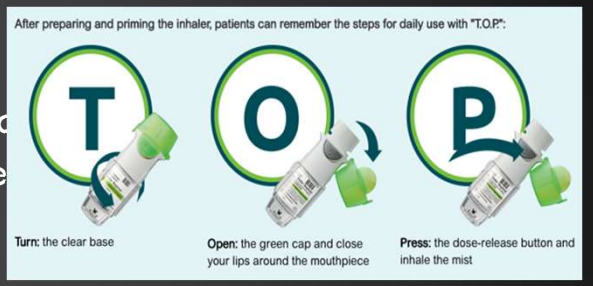
MDIS - RESPIMAT (SOFT-MIST INHALERS)

- **Combivent ® Respimat**
  - (ipratropium bromide and albuterol)
- **Spiriva ® Respimat ®**
  - (tiotropium bromide)
- **Stiolto ™ Respimat ®**
  - (tiotropium bromide and olodaterol
- **Striverdi ® Respimat ®**
  - (olodaterol hydrochloride)

MDIS - RespiMAT (SOFT-MIST INHALERS) GENERAL INSTRUCTIONS

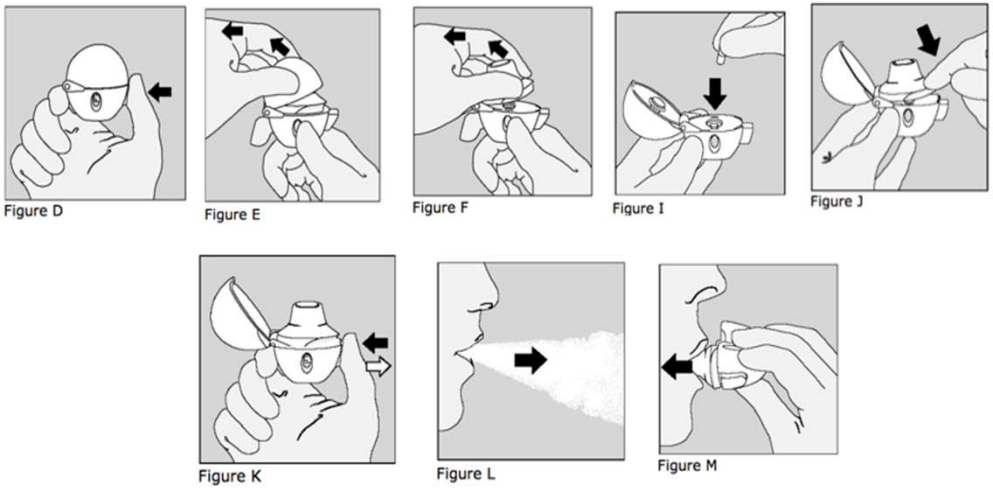
1. Hold cap and **Turn** clear base counterclockwise.
2. **Open** cap.
3. To prime, point inhaler to ground and press the dose release butto
4. To use, exhale completely and then place mouth over mouthpiece
5. **Press** the dose release button and take a slow, deep breath.
6. Hold for at least 10 seconds and replace cap.

Instructional Video



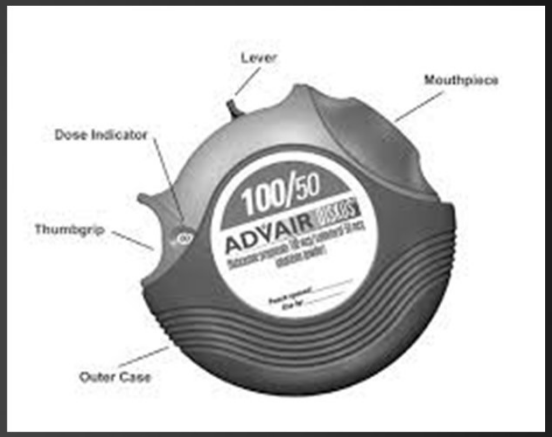
DRY POWDER INHALERS- HANDIHALER

1. Press on the green button and lift the cap upwards to open
2. Pull the mouthpiece ridge up and away from the base so the center chamber is showing
3. Insert Spiriva capsule insert it into the chamber. Close the mouthpiece, you should hear a click
4. Press the green piercing button. Do NOT shake the device
5. Turn head away from the inhaler and breathe out fully
6. Raise the HandiHaler to your mouth in a horizontal position and close your lips around the mouthpiece. Breath in **deeply** and **fully**.
7. Remove inhaler from your mouth and hold your breath for a few seconds. Breathe normally.
8. Repeat the last two steps to receive the full dose



DRY POWDER INHALERS (DPIS)- DISKUS

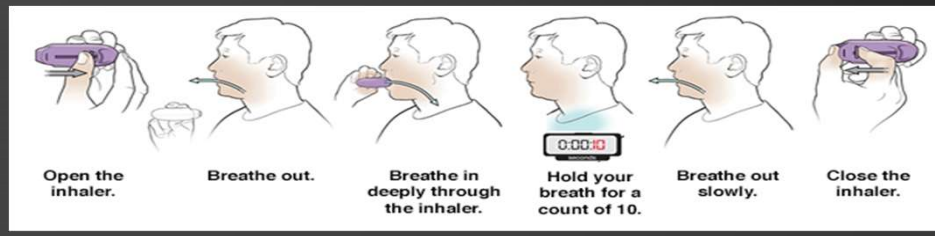
- **Advair ® Diskus ®** (fluticasone-salmeterol)
- **Serevent ® Diskus ®** (salmeterol xinafoate)



Dry Powder Inhalers (DPIs)- Diskus - General Instructions

1. Open the inhaler using the thumb grip
2. Hold the inhaler **flat and level**, and slide the lever from left to right until it clicks
3. Breathe out fully through the mouth, away from the inhaler
4. Put the mouthpiece in the mouth and tighten the lips around it
5. Inhale **forcefully, quickly and deeply** through the mouth
6. Remove the device from the mouth
7. Hold the breath as long as comfortably possible, up to 10 seconds
8. Use the thumb grip to close the inhaler

Instructional video



DRY POWDER INHALERS (DPIS)- ELLIPTA

- **Arnuity ® Ellipta ®** (fluticasone furoate)
- **Breo ® Ellipta ® (**fluticasone furoate and vilanterol)
- **Incruse ® Ellipta ®** (umeclidinium)
- **Anoro ® Ellipta ®** (umeclidinium and vilanterol)

- Trelegy ® Ellipta ® (**Fluticasone Furoate/Umeclidinium/Vilanterol)**

Dry Powder Inhalers (DPIs)- ELLIPTA- GENERAL INSTRUCTIONS

1. Slide the inhaler cover down to reveal the mouthpiece
2. Breathe out fully through the mouth, away from the inhaler
3. Put the mouthpiece between the lips
4. Do not block the air vents with the fingers
5. Breathe in **deeply and slowly** through the mouth
6. Remove the inhaler from the mouth
7. **Hold the breath** for 3 or 4 seconds or as long as comfortably possible
8. Close the inhaler

Instructional video

ASSESSING SYMPTOMS

- Daytime symptoms
- Nighttime symptoms
- Quick Relief or Rescue Inhaler Use
  - SABA use evaluated; not enough date to know if ICS-SABA use correlates
- Activity Level

ASSESSING SYMPTOMS

1. Baylor College of Medicine's Rules of Two®

- Do you have asthma symptoms or use your quick-relief inhaler more than **two** times per week?
- Do you awaken at night with symptoms more than **two** times per month?
- Do you refill your quick-relief inhaler more than **two** times per year?
- If you answer "yes" to one or more questions, your asthma may not be well controlled. Plan a visit with your healthcare provider and share your results.

2. Asthma Control Test™

- Answer five questions about your asthma to determine if your asthma is well controlled. There is a test for children and adults. This assessment provides a score. Share the results with your healthcare provider.

CHOOSING THERAPIES – MEDICATION PEARLS

- ICS dose tables (NOT equivalency charts) for different age groups
  - Start at the lowest ICS dose needed
    - Most patients don't need high dose ICS
    - Titrate to responsiveness, symptoms, adherence
- LABA
  - Not all created equal

LOW, MEDIUM AND HIGH ICS DOSES: ADULTS/ADOLESCENTS

Adults and adolescents (12 years and older)			
Inhaled corticosteroid	**Total daily ICS dose (mcg)**		
	Low	**Medium**	**High**
Beclometasone dipropionate (pMDI, standard particle, HFA)	200-500	>500-1000	>1000
Beclometasone dipropionate (pMDI, extrafine particle*, HFA)	100–200	>200–400	>400
Budesonide (DPI)	200–400	>400–800	>800
Ciclesonide (pMDI, extrafine particle*, HFA)	80–160	>160–320	>320
Fluticasone furoate (DPI)	100		200
Fluticasone propionate (DPI)	100–250	>250–500	>500
Fluticasone propionate (pMDI, standard particle, HFA)	100–250	>250–500	>500
Mometasone furoate (DPI)	200		400
Mometasone furoate (pMDI, standard particle, HFA)	200-400		>400

This is NOT a table of equivalence. These are suggested total daily doses for the 'low', 'medium' and 'high' dose treatment options with different ICS.

DPI: dry powder inhaler; HFA: hydrofluoroalkane propellant; pMDI: pressurized metered dose inhaler (non-CFC); * see product information

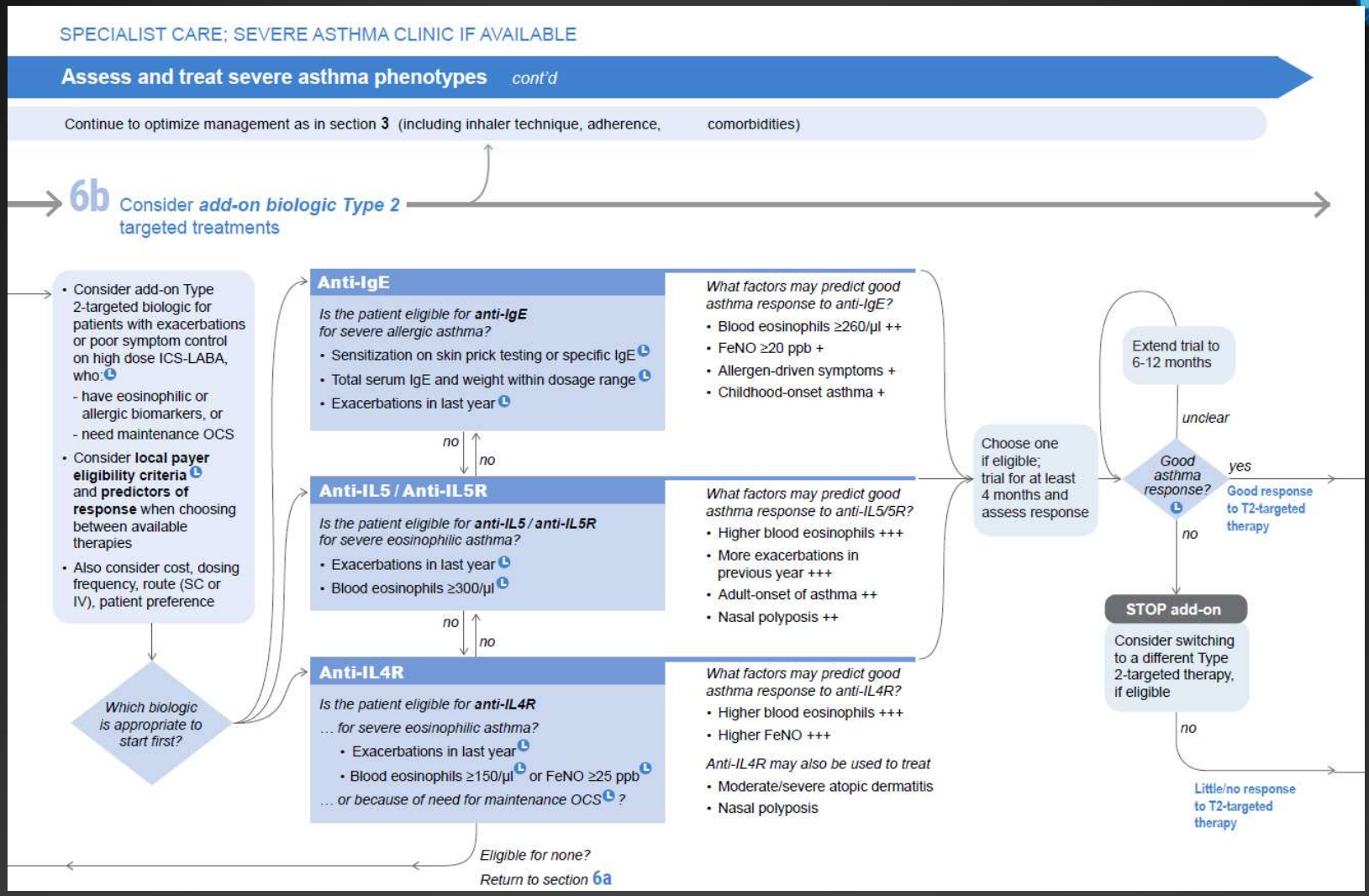
GINA 2020, Box 3-6A

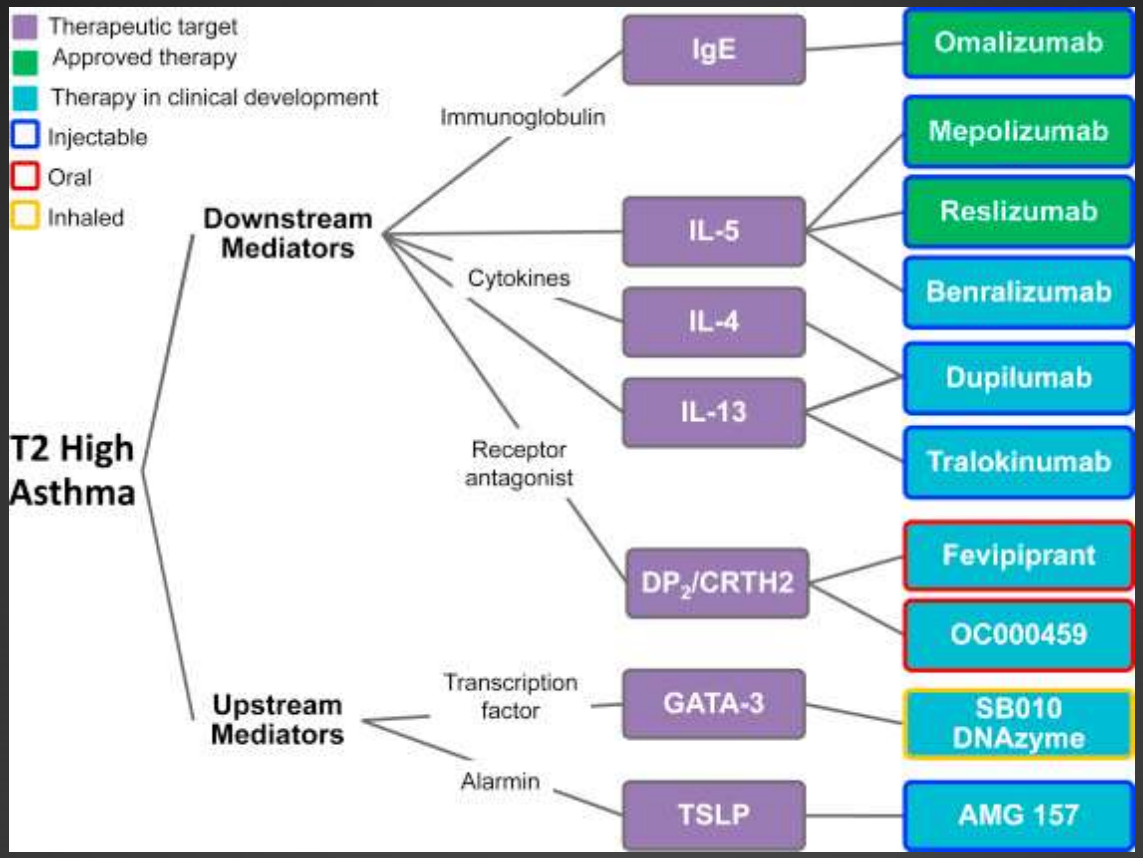
CHOOSING THERAPIES – MEDICATION PEARLS

- Montelukast
  - Risk of serious neuropsychiatric events, including suicidality
- Ffluticasone furoate, umeclidinium & vilanterol (Trelegy)
  - Improved lung function and FEV1 but not in exacerbations compared to patients uncontrolled on LABA/ICS alone (CAPTAIN study)
- Tiotropium (Spiriva)
  - Additional benefit of LAMA to prevent exacerbations and hospitalizations seen in real world studies
- Biologics
  - New studies for younger patients
  - Each has its own criteria for selection

FDA requires Boxed Warning about serious mental health side effects for asthma and allergy drug montelukast (Singulair); advises restricting use for allergic rhinitis

Risks may include suicidal thoughts or actions





ASTHMA AND COPD OVERLAP

- Asthma: never treat with bronchodilators alone (risk of death, hospitalization, severe exacerbations)
- COPD: start treatment with LABA and/or LAMA without ICS
- Patients with diagnoses of both asthma and COPD are more likely to die or be hospitalized if treated with LABA vs ICS-LABA *(Gershon et al, JAMA 2014; Kendzerska et al, Annals ATS 2019)*
- High dose ICS may be needed for severe asthma, but should not be used in COPD (risk of pneumonia)

COPD

COPD

- Persistent respiratory symptoms, likely from exposure to noxious particles
- Assessed by:
  - Imaging
  - Lung volume, capacity spirometry
  - Oximetry
  - Exercise testing

CLASSIFICATION OF AIRFLOW LIMITATION SEVERITY IN COPD (BASED ON POST-BRONCHODILATOR FEV_1)

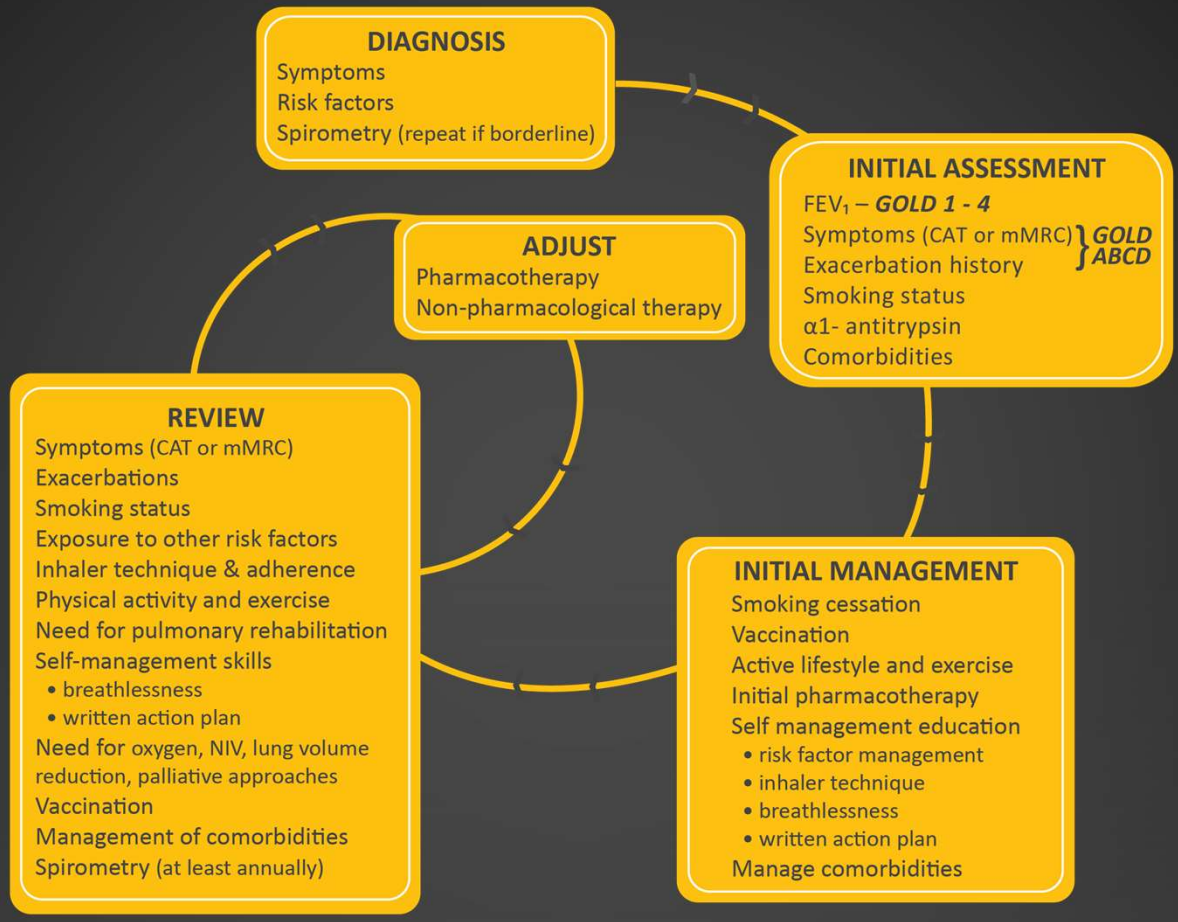
In patients with FEV1/FVC < 0.70:

GOLD 1:	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2:	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3:	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4:	Very Severe	$FEV_1 < 30\%$ predicted

What is NOT COPD?
-TB
-CHF
-Bronchiectasis
-Other bronchiolitis conditions

GOLD, 2021 Edition

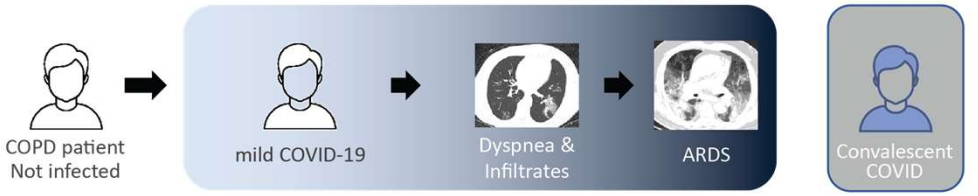
MANAGEMENT OF COPD



COVID CONSIDERATIONS

- Limit spirometry
- Stick to evidence based risk reduction and risk reduction
- Maintain exercise and vaccines
- Continue medications and ensure refills

COVID-19 & COPD



Clinical Features	**COPD:** Cough, SOB	Mild constitutional symptoms Fever > 37.5 °C, ↑ SOB Dry Cough, Fatigue, Diarrhea	↑↑ SOB ± hypoxia $PaO_2/FiO_2 \leq 300$ mmHg	ARDS SIRS/Shock Cardiac Failure VTE	Fatigue SOB Cough
Abnormal Investigations		SARS-CoV-2 PCR CXR/CT, SpO_2 Lymphopenia Thrombocytopenia CRP, D-dimer	CXR/CT, SpO_2 Lymphopenia Thrombocytopenia Transaminases D-dimer, PCT	SpO_2 CRP, LDH, IL-6 D-dimer, ferritin troponin, BNP	PFT CT Chest
	Continue Usual COPD Maintenance Therapy				
Possible Interventions	Home Exercise Protective Strategies	Protective Strategies, COPD Exacerbation Therapy Low intensity exercise *Therapeutic Trials*	Controlled Oxygen Systemic Steroids Remdesivir Anticoagulation *Therapeutic Trials*	NIV, HFNT IMV Prone positioning Anticoagulation *Therapeutic Trials*	Home exercise PR

(ARDS, Adult respiratory distress syndrome; BNP, brain natriuretic peptide; CRP, C reactive protein; CT, computed tomography; CXR, chest radiograph; HFNT, high flow nasal therapy; IL-6, interleukin 6; IMV, invasive mechanical ventilation; LDH, lactate dehydrogenase; NIV, non-invasive ventilation; PCT, procalcitonin; PFT, pulmonary function tests; PR, pulmonary rehabilitation; SOB, Shortness of breath; SpO_2 , peripheral oxygen saturation; VTE, venous thromboembolism)

Halpin et al. 2020. Global Initiative for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease: The 2020 GOLD Science Committee Report on COVID-19 & COPD. Published Ahead of Print: https://www.atsjournals.org/doi/abs/10.1164/rccm.202009-3533SO

The American Journal of Respiratory and Critical Care Medicine is an official journal of the American Thoracic Society

EVERYONE GETS SMOKING CESSATION

- Combination therapy is the way to go
  - NRT, Bupropion, Varenicline, CBT, MI
- Revisit this at EVERY visit for COPD follow up

EVERYONE DOES NOT GET ICS

- Reserved for more exacerbations and more severe COPD
  - Always with a LABA
- Triple therapy LABA/LAMA/ICS improves lung function, symptoms & health status
  - May improve mortality in symptomatic patients with severe or frequent exacerbations
- But… increased pneumonia risk

- Other anti-inflammatories such as azithromycin or erithromycin reduce exacerbations if taken over a year

GOLD, 2021 Edition

FACTORS TO CONSIDER WHEN INITIATING ICS TREATMENT

Factors to consider when initiating ICS treatment in combination with one or two long-acting bronchodilators (note the scenario is different when considering ICS withdrawal):

· STRONG SUPPORT ·	· CONSIDER USE ·	· AGAINST USE ·
• History of hospitalization(s) for exacerbations of COPD#	• 1 moderate exacerbation of COPD per year#	• Repeated pneumonia events
• ≥ 2 moderate exacerbations of COPD per year#	• Blood eosinophils 100-300 cells/µL	• Blood eosinophils <100 cells/µL
• Blood eosinophils >300 cells/µL		• History of mycobacterial infection
• History of, or concomitant, asthma		

#despite appropriate long-acting bronchodilator maintenance therapy (see Table 3.4 and Figure 4.3 for recommendations);

*note that blood eosinophils should be seen as a continuum; quoted values represent approximate cut-points; eosinophil counts are likely to fluctuate.

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INITIAL ASSESSMENT

GOAL:
-Reduce symptoms
-Reduce risk and progression

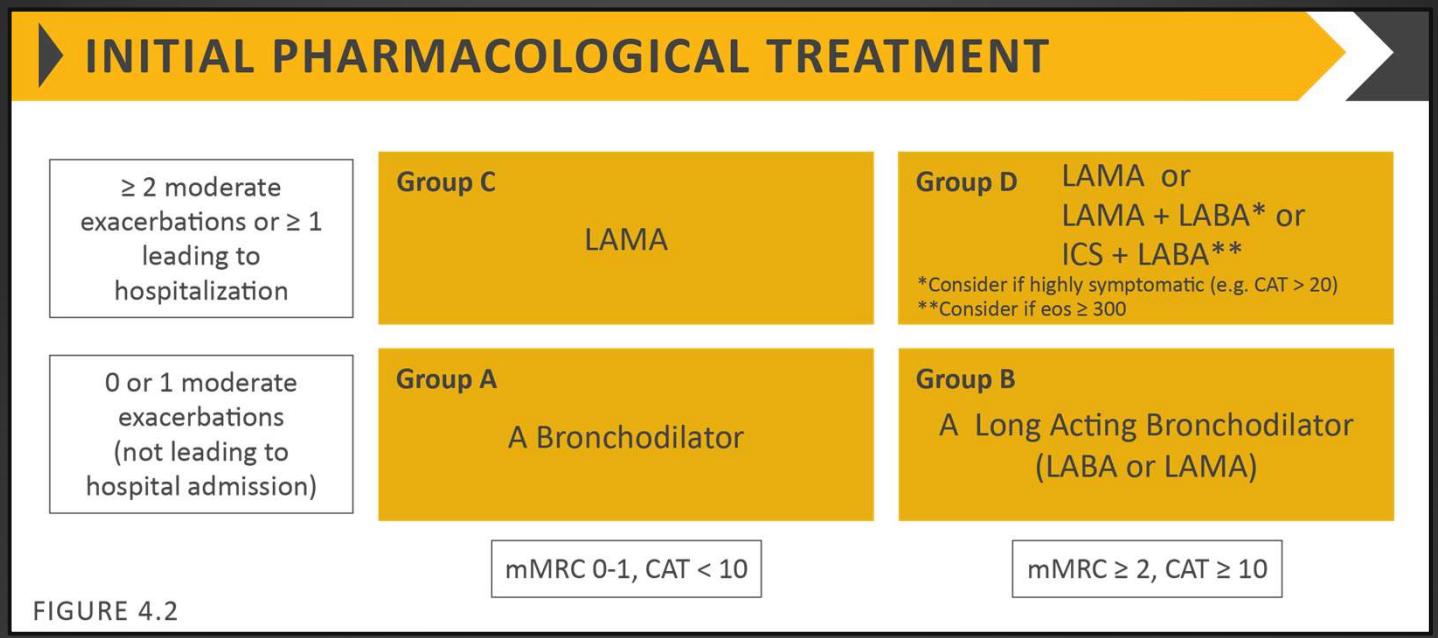


FIGURE 4.2

GOLD, 2021 Edition

THE REFINED ABCD ASSESSMENT TOOL

Spirometrically Confirmed Diagnosis

Assessment of airflow limitation

Assessment of symptoms/risk of exacerbations

Post-bronchodilator $FEV_1/FVC < 0.7$

Grade	FEV_1 (% predicted)
GOLD 1	≥ 80
GOLD 2	50-79
GOLD 3	30-49
GOLD 4	< 30

Moderate or Severe Exacerbation History

≥2 or ≥ 1 leading to hospital admission

0 or 1 (not leading to hospital admission)

C	D
A	B

mMRC 0-1 CAT < 10 | mMRC ≥ 2 CAT ≥ 10

Symptoms

INITIAL ASSESSMENT

GOAL:
-Reduce symptoms
-Reduce risk and progression

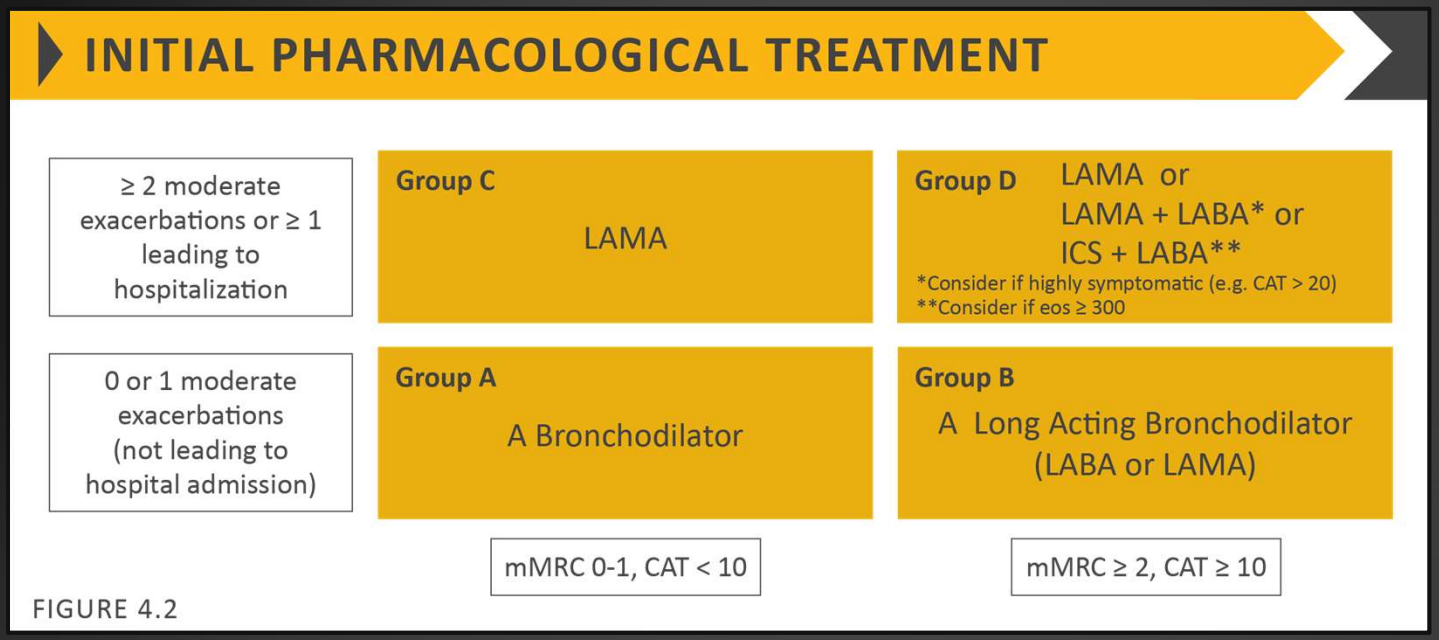


FIGURE 4.2

-Patients with almost daily symptoms need a LAMA or LABA
-Worsening patients should be evaluated for triggers, risks, and inflammatory component (blood eosinophils)

GOLD, 2021 Edition

WHAT'S NEXT

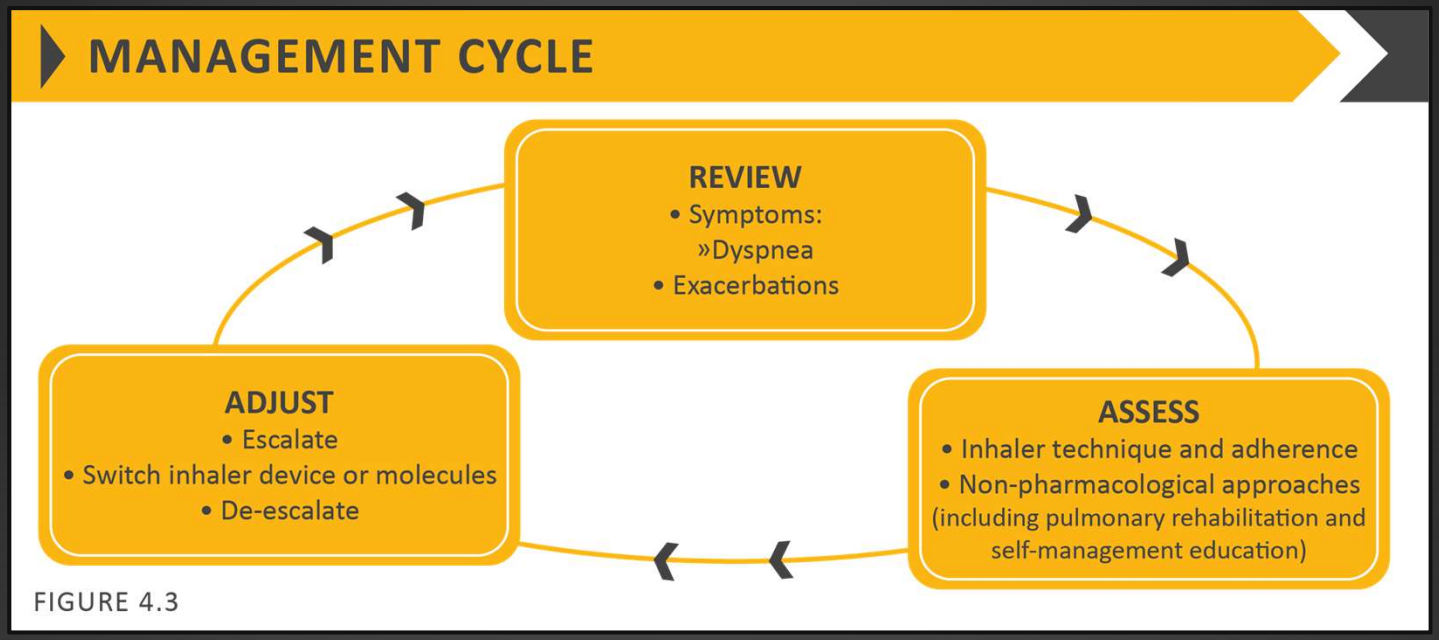
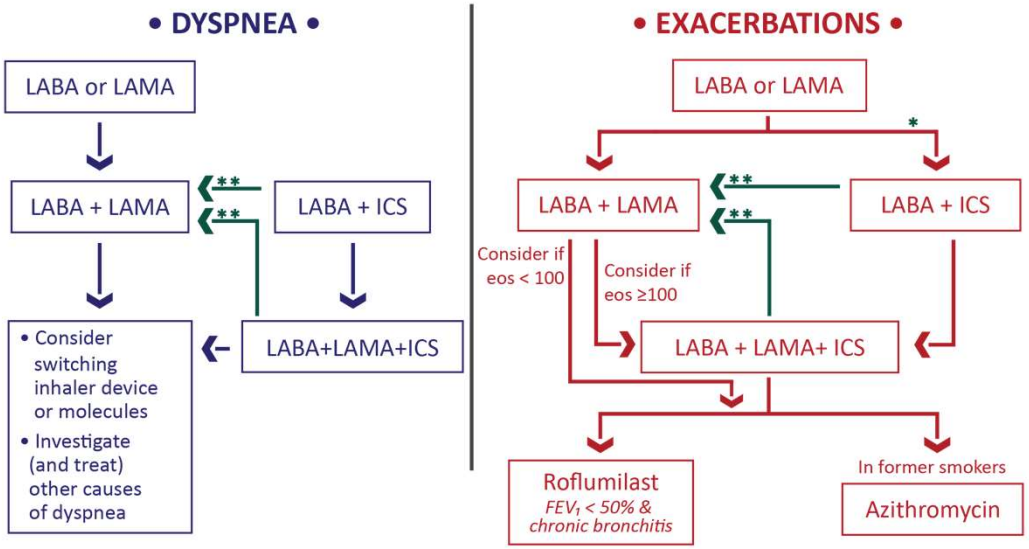


FIGURE 4.3

GOLD, 2021 Edition

FOLLOW-UP PHARMACOLOGICAL TREATMENT

1. **IF RESPONSE TO INITIAL TREATMENT IS APPROPRIATE, MAINTAIN IT.**
2. **IF NOT:**
   - ✓ Consider the predominant treatable trait to target (dyspnea or exacerbations)
     - Use exacerbation pathway if both exacerbations and dyspnea need to be targeted
   - ✓ Place patient in box corresponding to current treatment & follow indications
   - ✓ Assess response, adjust and review
   - ✓ These recommendations do not depend on the ABCD assessment at diagnosis



eos = blood eosinophil count (cells/µL)
** Consider if eos ≥ 300 or eos ≥ 100 AND ≥2 moderate exacerbations / 1 hospitalization*
*** Consider de-escalation of ICS or switch if pneumonia, inappropriate original indication or lack of response to ICS*

FIGURE 4.4

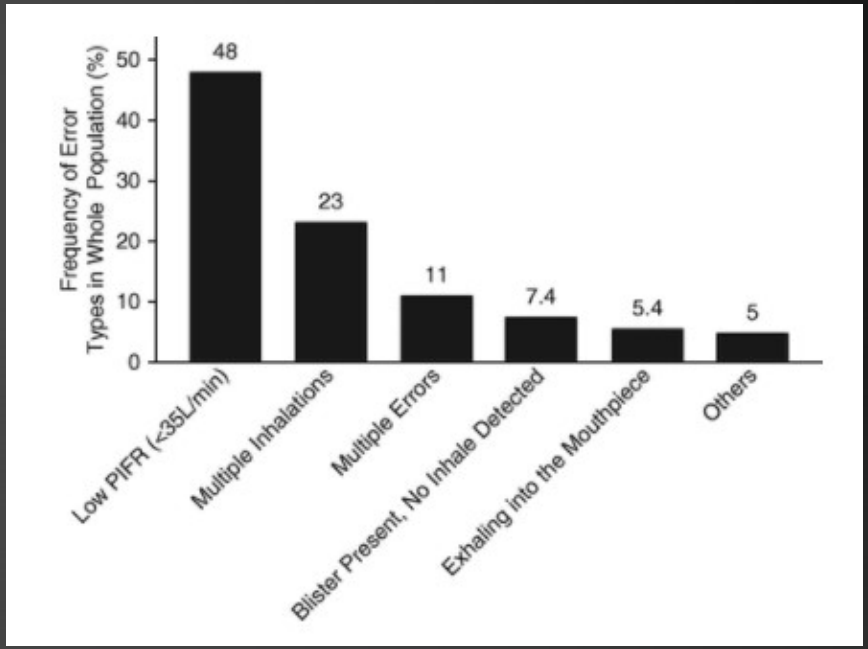
GOLD, 2021 Edition

INTERVENTIONS THAT REDUCE THE FREQUENCY OF COPD EXACERBATIONS

INTERVENTION CLASS	INTERVENTION
Bronchodilators	LABAs LAMAs LABA + LAMA
Corticosteroid-containing regimens	LABA + ICS LABA + LAMA + ICS
Anti-inflammatory (non-steroid)	Roflumilast
Anti-infectives	Vaccines Long Term Macrolides
Mucoregulators	N-acetylcysteine Carbocysteine Erdosteine
Various others	Smoking Cessation Rehabilitation Lung Volume Reduction Vitamin D

LETS TALK ABOUT INHALER TECHNIQUE…AGAIN

- 2/3 of patients don't use correctly
  - 23% used DPIs correctly at discharge for COPD
  - Very low adherence rates
  - Low lung capacity, age, cognitive function as predictors



Sulaiman I, et al. Objective Assessment of Adherence to Inhalers by Patients with Chronic Obstructive Pulmonary Disease. Am J Respir Crit Care Med. 2017 May 15;195(10)

KEY QUESTIONS TO ASK

- Show me how you use it
  - Look for a forceful inhalation with DPIs
- Are they treating it like other scheduled meds?
- Is cost undermining adherence?
- Are they tracking benefit?

INSURANCE COVERAGE

- Generic options or specific brands are sometimes preferred
- Advocate for a medication your patient needs
  - Prior Authorization
  - Tier lowering
  - Coupons
- Spacers usually not covered but worth the investment

PULMONARY AGENTS		
ANTICOLINERGICS: INHALED		
SHORT-ACTING BRONCHODILATORS ATROVENT HFA® (ipratropium) COMBIVENT® RESPIMAT (ipratropium/albuterol)		**Incruse Ellipta/ Tudorza:** The patient has had documented side effect, allergy or treatment failure Spiriva. **Duaklir Pressiar, Stiolto Respimat:** The patient has a documented side effect,

PREFERRED AGENTS (No PA required unless otherwise noted)	NON-PREFERRED AGENTS (PA required)	PA CRITERIA
QTY LIMIT: 3 inhalers (12 grams)/90 days IPRATROPIUM NEBULIZER SOLN IPRATROPIUM/ALBUTEROL NEBULIZER SOLN		allergy, or treatment failure to TWO preferred LAMA/LABA combinations. **Lonhala Magnair, Yupelri:** patient has a diagnosis of COPD (not FDA approved for asthma) AND has a failure of nebulized ipratropium solution AND at least 3 inhaled LAMAs. **Breztri:** patient has a diagnosis of COPD (not FDA approved for asthma) AND patient has a treatment failure of at least 2 different combinations of a preferred Inhaled Corticosteroid, LABA, and LAMA used in combination for a minimum of 30 consecutive days AND patient has a documented side effect, allergy, treatment fairlure, or contraindication with Trelegy Ellipta. **Trelegy Ellipta:** patient has a treatment failure of at least 2 different combinations of a preferred Inhaled Corticosteroid, LABA, and LAMA used in combination for a minimum of 30 consecutive days.
LONG-ACTING BRONCHODILATORS (LAMA) SPIRIVA® HANDIHALER (tiotropium) *QTY LIMIT:* 1 capsule/day SPIRIVA® RESPIMAT (tiotropium) *QTY LIMIT:* 3 inhalers/90 days	Incruse Ellipta® (umeclidinium bromide) *QTY LIMIT:* 1 inhaler/30 days Lonhala® Magnair (glycopyrollate) inhalation solution *QTY LIMIT:* 60 vials/30 days Tudorza® Pressair® (aclidinium bromide) *QTY LIMIT:* 3 inhalers/90 days Yupelri™ (revefenacin) inhalation solution *QTY LIMIT:* 300 vials/30 days	
COMBINATION LONG-ACTING BRONCHODILATORS (LAMA & LABA) ANORO® ELLIPTA (umeclidinium/vilanterol) *QTY LIMIT:* 3 inhalers (180 blisters)/90 days BEVESPI AEROSPHERE® (glycopyrrolate/formoterol) *QTY LIMIT:* 3 inhalers/90 days	Duaklir® Pressair (aclidinium bromide/ formoterol fumarate) QTY LIMIT: 3 inhalers/90 days Stiolto® Respimat (tiotropium/olodaterol) *QTY LIMIT:* 3 inhalers/90 days	
LAMA/LABA/ICS COMBINATION All products require PA	Breztri® Aerosphere (budesonide/glycopyrrolate/formoterol fumarate) QTY LIMIT: 1 inhaler (120 blisters)/30 days Trelegy® Ellipta (fluticasone/umeclidinium/vilanterol) *QTY LIMIT:* 1 inhaler (60 blisters)/30 days	

https://dvha.vermont.gov/sites/dvha/files/documents/providers/Pharmacy/VERMONT%20PDL_03.12.2021.pdf

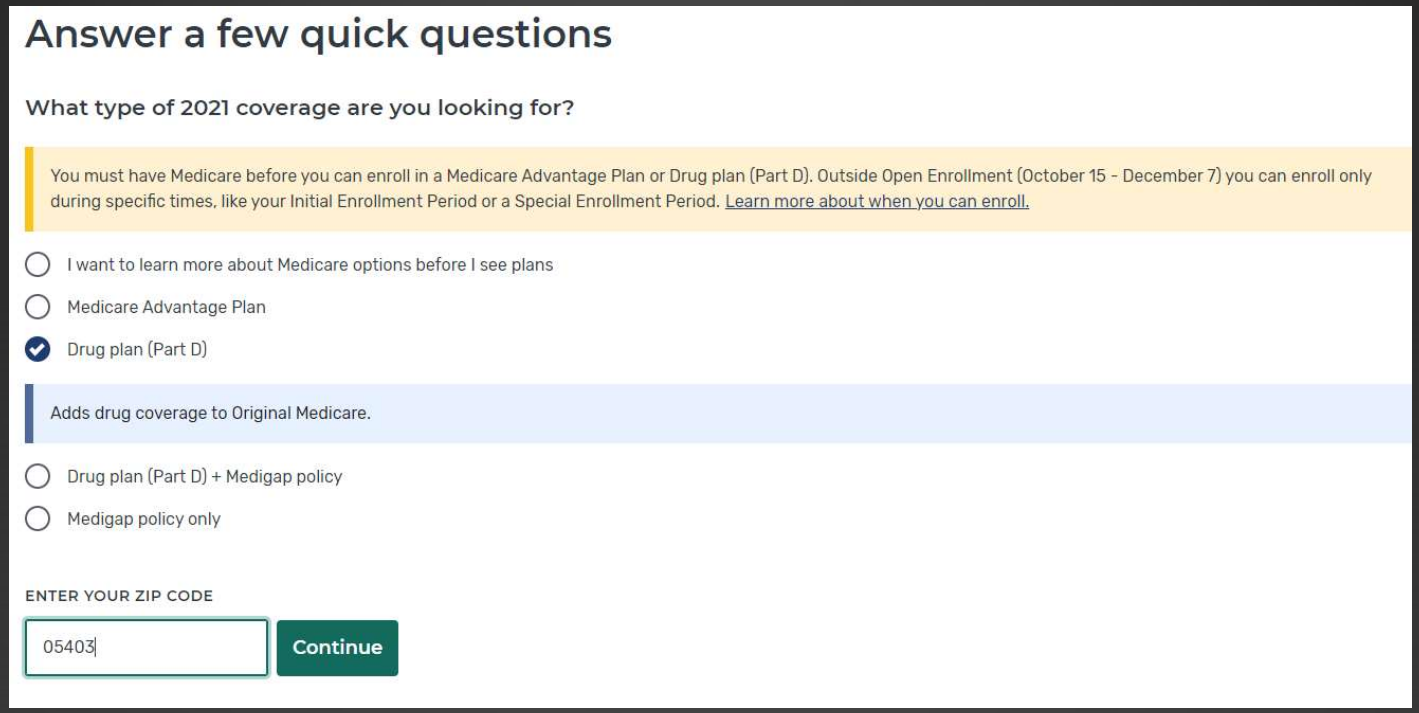
BETA-ADRENERGIC AGENTS		
METERED-DOSE INHALERS (SHORT-ACTING) PROAIR® HFA (albuterol) PROAIR® Respiclick (albuterol) VENTOLIN® HFA (albuterol)	Albuterol HFA (compare to Proventil® HFA, ProAir® HFA, Ventolin® HFA) Levalbuterol Aerosol (compare to Xopenex ® HFA) ProAir® Digihaler (albuterol)	**Albuterol HFA, Levalbuterol (aerosol), Proventil HFA, Xopenex HFA**: patient has a documented side effect, allergy, or treatment failure to two preferred short acting metered dose inhalers. AND for approval of levalbuterol aerosol, the patient must have a documented intolerance to brand Xopenex HFA. **ProAir Digihaler:** Preferred albuterol metered dose inhalers and Xopenex HFA

PREFERRED AGENTS (No PA required unless otherwise noted)	NON-PREFERRED AGENTS (PA required)	PA CRITERIA
	Proventil® HFA (albuterol) Xopenex® HFA (levalbuterol)	are on a long-term backorder and unavailable from the manufacturer **Serevent**: The patient has a diagnosis of asthma and is prescribed an inhaled corticosteroid (pharmacy claims will be evaluated to assess compliance with long term controller therapy) OR the patient has a diagnosis of COPD.
METERED-DOSE INHALERS (LONG-ACTING) ***Preferred After Clinical Criteria Are Met*** SEREVENT® DISKUS (salmeterol xinafoate) *QTY LIMIT:* 1 inhaler (60 blisters)/30 days	Striverdi Respimat® (olodaterol)	**Striverdi:** The patient has a diagnosis of COPD (not FDA approved for asthma). AND The patient has a documented side effect, allergy, or treatment failure to Serevent.
NEBULIZER SOLUTIONS (SHORT-ACTING) ALBUTEROL neb solution (all strengths) LEVALBUTEROL neb solution (age ≤ 12 years)	Levalbuterol neb solution (compare to Xopenex®) (age > 12 years) Xopenex® neb solution (all ages)	**Levalbuterol, Xopenex nebulizer solution (age > 12 years):** The patient must have had a documented side effect, allergy, or treatment failure to albuterol nebulizer. AND for approval of brand Xopenex, the patient must have had a documented intolerance to the generic. **Xopenex (age <12 years):** The patient must have a documented intolerance to generic levalbuterol nebulizer solution
NEBULIZER SOLUTIONS (LONG-ACTING) All products require PA	Brovana® (arformoterol) *QTY LIMIT:* 2 vials/day Perforomist® (formoterol) *QTY LIMIT:* 2 vials/day	**Brovana or Perforomist Nebulizer Solution:** The patient must have a diagnosis of COPD. AND The patient must be unable to use a non-nebulized long-acting bronchodilator or anticholinergic (Serevent or Spiriva) due to a physical limitation
TABLETS/SYRUP (SHORT-ACTING) ALBUTEROL tablets/syrup	Metaproterenol tablets/syrup	**Metaproterenol tablets/syrup:** The patient has had a documented side effect, allergy or treatment failure with generic albuterol tablets/syrup.
TABLETS (LONG-ACTING) ALBUTEROL ER tablets	Terbutaline tablets	**Terbutaline tablets:** The medication is not being prescribed for the prevention/treatment of preterm labor.

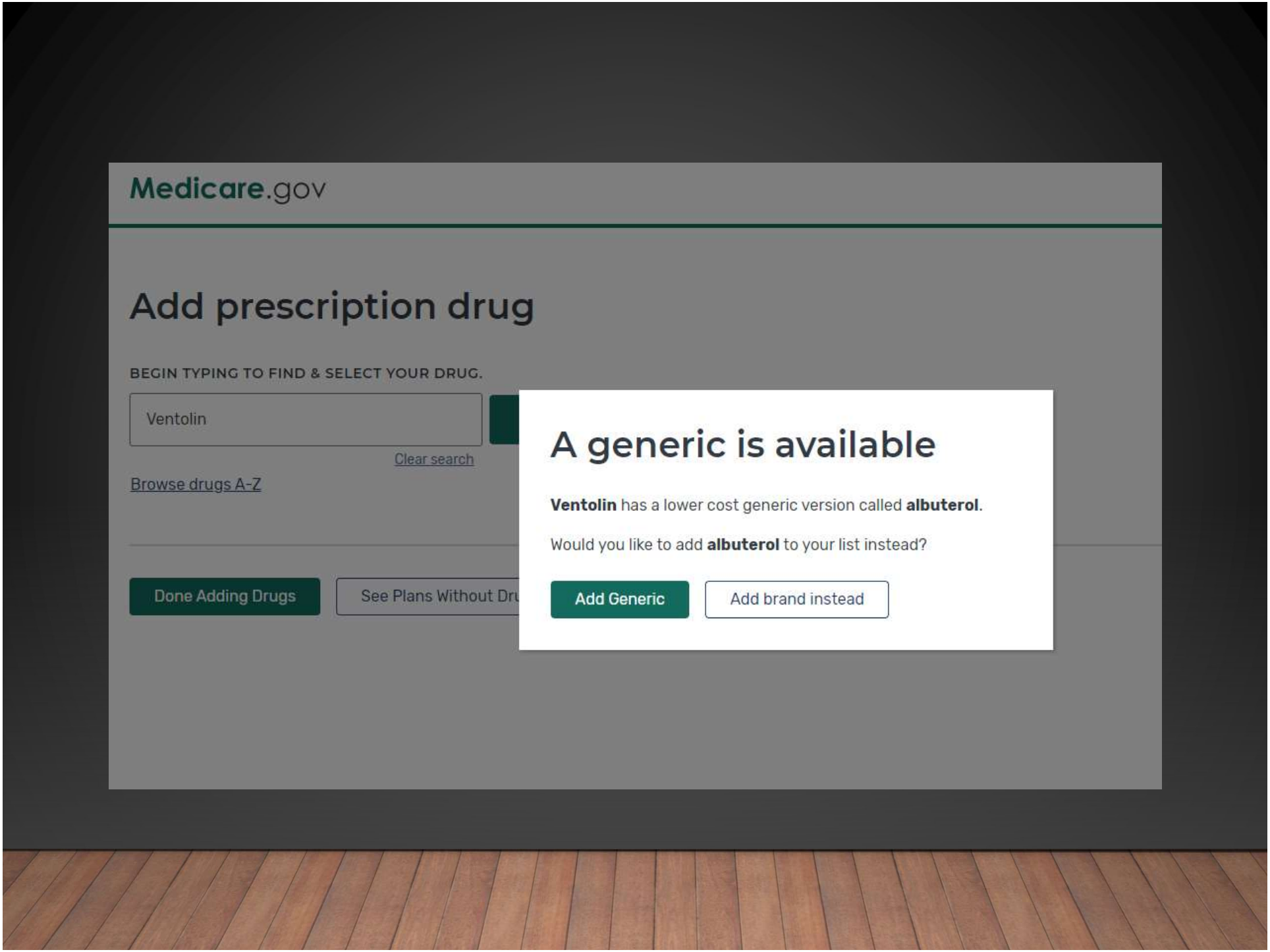
CORTICOSTEROIDS/COMBINATIONS: INHALED		
METERED DOSE INHALERS (SINGLE AGENT) ASMANEX® (mometasone furoate) *QTY LIMIT:* 3 inhalers/90 days FLOVENT® DISKUS (fluticasone propionate) *QTY LIMIT:* 3 inhalers/90 days FLOVENT® HFA (fluticasone propionate) *QTY LIMIT:* 3 inhalers (36 gm)/90 days PULMICORT FLEXHALER® (budesonide) *QTY LIMIT:* 6 inhalers/90 days QVAR® REDIHALER™ 40mcg/inh *QTY LIMIT:* 2 inhalers (21.2 gm)/90 days	Aerospan® (flunisolide HFA) *QTY LIMIT:* 6 inhalers (53.4 gm)/90 days Alvesco® (ciclesonide) *QTY LIMIT:* 80 mcg = 3 inhalers (18.3 gm)/90 days 160 mcg = 3 inhalers (36.6 gm)/90 days Arnuity Ellipta 100 or 200 mcg/inh (fluticasone furoate) *QTY LIMIT:* 90 blisters/90 days Asmanex® (mometasone furoate) HFA *QTY LIMIT:* 3 inhalers (39 gm)/90 days	**Metered-dose inhalers (single agent):** The patient has had a documented side effect, allergy, or treatment failure to at least two preferred agents AND for approval of Asmanex HFA, there must be a clinically compelling reason the patient is unable to use Asmanex. **AirDuo Respiclick, Breo Ellipta, Fluticasone/Salmeterol (non-authorized generics):** The patient has had a documented side effect, allergy, or treatment failure to any 2 of the following: Advair HFA, Advair Diskus, Dulera, or Symbicort. **Budesonide/formoterol:** the patient has a documented intolerance to brand Symbicort. **Budesonide Inh Suspension:** The patient requires a nebulizer formulation AND if the dose is 1mg, the patient must be unable to use two 0.5 mg vials

PREFERRED AGENTS (No PA required unless otherwise noted)	NON-PREFERRED AGENTS (PA required)	PA CRITERIA
QVAR® REDIHALER™ 80mcg/inh *QTY LIMIT:* 3 inhalers (31.8 gm)/90 days **METERED DOSE INHALERS (COMBINATION PRODUCT)** ADVAIR® DISKUS (fluticasone/salmeterol) *QTY LIMIT:* 3 inhalers/90 days ADVAIR® HFA (fluticasone/salmeterol) *QTY LIMIT:* 3 inhalers (36 gm)/90 days DULERA® (mometasone/formoterol) *QTY LIMIT:* 3 inhalers (39 gm)/90 days SYMBICORT® (budesonide/formoterol) *QTY LIMIT: 9 inhalers (91.8gm)*/90 days	AirDuo Respiclick® (fluticasone/salmeterol) *QTY LIMIT:* 3 inhalers/90 days Breo Ellipta® (fluticasone furoate/vilanterol) *QTY LIMIT:* 3 inhalers (180 blisters) 90 days Budesonide/formoterol (compare to Symbicort®) *QTY LIMIT:* 9 inhalers (91.8gm)/90 days Fluticasone/salmeterol (compare to AirDuo Respiclick®) *QTY LIMIT:* 3 inhalers/90 days Fluticasone/salmeterol inhalation Powder (compare to Advair® Diskus) *QTY LIMIT:* 3 inhalers/90 days Wixela™ Inhub™	**Fluticasone/salmeterol powder (authorized generic), Wixela Inhub:** A clinically compelling reason must be provided detailing why the patient is unable to use Advair HFA or Advair Diskus. **Pulmicort Respules:** The patient requires a nebulizer formulation AND if the dose is 1 mg, the patient must be unable to use two 0.5 mg vials AND the patient has a documented intolerance to the generic.

MEDICARE
- GO TO MEDICARE WEBSITE AND LOOK AT DRUG PLANS



https://www.medicare.gov/plan-compare/#/questions?year=2021&lang=en


Medicare.gov
Add prescription drug
BEGIN TYPING TO FIND & SELECT YOUR DRUG.
Ventolin
Clear search
Browse drugs A-Z
Done Adding Drugs
See Plans Without Dru
A generic is available
Ventolin has a lower cost generic version called albuterol.
Would you like to add albuterol to your list instead?
Add Generic
Add brand instead

powder	Dispensable pack of 60 aerosol powders	60	Every month
Remove drug			Edit drug

Budesonide / formoterol 80-4.5mcg/act aerosol	**Package Type**	**Quantity**	**Frequency**
	10.2gm inhaler	1	Every month
Remove drug			Edit drug

Spiriva 18mcg capsule	**Package Type**	**Quantity**	**Frequency**
	Box of 30 capsules	30	Every month
Remove drug			Edit drug

Add Another Drug

Done Adding Drugs

KINNEY DRUGS - Drug costs during coverage phases

✔ Standard in-network pharmacy

Selected drugs	Retail cost	Cost before deductible	Cost after deductible	Cost in coverage gap	Cost after coverage gap
Albuterol sulfate hfa 108 (90 Base)mcg/act aerosol solution	$680.51	$680.51	$47.00	$170.13	$34.03
Breo 100-25mcg/inh aerosol powder	$23,478.26	$23,478.26	$47.00	$5,869.57	$1,173.91
Budesonide / formoterol 80-4.5mcg/act aerosol [1]	$263.02	$263.02	$263.02	$263.02	$263.02
Spiriva 18mcg capsule	$15,057.50	$15,057.50	$47.00	$3,764.38	$752.88
Monthly totals	$39,479.29	$39,479.29	$404.02	$10,067.10	$2,223.84

[1] This plan does not cover this drug, the price shown is the full cash price.

Estimated total drug + premium cost

You will pay **$22,201.12** per year on drug + premium costs.
Based on current drug costs, it's estimated that:

IN SUMMARY

- Asthma patients need PRN ICS with SABA or formoterol
- COPD patients usually don't need an ICS but do need repeat smoking cessation and likely a LAMA or LABA
- Extra considerations should be taken during COVID
  - Routine follow up
  - Checking inhaler technique and adherence

RESCUE INHALER

What is the most appropriate agent for a 33 year old female newly diagnosed with mild asthma who reports symptoms 2-3 times per month?

A. Terbutaline 0.5mg 1 puff q4h prn for shortness of breath or wheezing

B. Proair 90mcg 1-2 puffs q4t6hr prn for shortness of breath or wheezing

C. Pulmicort 90mcg 1 puff BID and Ventolin 90mcg 1-2 puffs q4t6hr prn shortness of breath or wheezing

D. Symbicort 80/4.5 1-2 puffs q4-6 hr prn for shortness of breath or wheezing

CORRECT INHALER USE

- What words correctly describe a patient's inhalation technique with a Dry Powder Inhaler?

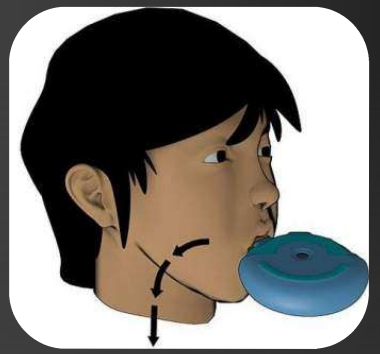
A. Forceful

B. Deep

C. Slow

D. Quick

E. Breathe-Actuated



BBW ADDED

- Which medication had a block box warning added in 2020 for risk of serious neuropsychiatric events?

A. Trelegy

B. Chantix

C. Montelukast

D. Mepolizumab

TRIPLE THERAPY USED FOR

- What is triple therapy of LABA/LAMA/ICS (Trelegy Ellipta) approved for?

A. Asthma

B. COPD

C. Acute Bronchospasm

D. Both Asthma and COPD

QUESTIONS

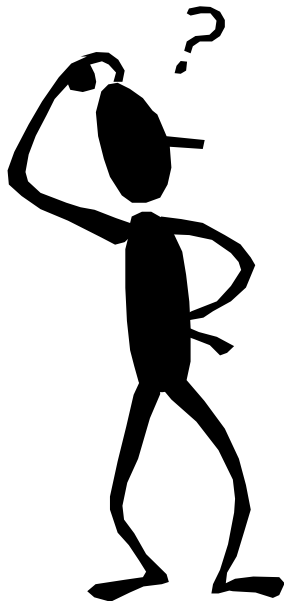

I THINK ONE OF YOU IS GOING TO BE REALLY UPSET.
I HOPE IT'S NOT ME. I HAVE ASTHMA.
CAUTION! WET PAINT
WWW.NOTFUNNY.COM

RESOURCES

- Inhalers4u – Great for instructions
  - https://www.inhalers4u.org/index.php/instructions/
- GOLD Pocket Guide 2021 Report
  - https://goldcopd.org/2021-gold-reports/
- GINA Pocket Guide 2020
  - https://ginasthma.org/pocket-guide-for-asthma-management-and-prevention/
- iFORUMRx.org

REFERENCES

1. O'Byrne, P. M., Fitzgerald, J. M., Bateman, E. D., Barnes, P. J., Zhong, N., Keen, C., … Reddel, H. K. (2018). Inhaled Combined Budesonide–Formoterol as Needed in Mild Asthma. *New England Journal of Medicine*, *378*(20), 1865–1876. doi: 10.1056/nejmoa1715274
2. Bateman, E. D., Reddel, H. K., O'Byrne, P. M., Barnes, P. J., Zhong, N., Keen, C., … Fitzgerald, J. M. (2018). As-Needed Budesonide–Formoterol versus Maintenance Budesonide in Mild Asthma. *New England Journal of Medicine*, *378*(20), 1877–1887. doi: 10.1056/nejmoa1715275
3. Beasley, R., Holliday, M., Reddel, H. K., Braithwaite, I., Ebmeier, S., Hancox, R. J., … Weatherall, M. (2019). Controlled Trial of Budesonide–Formoterol as Needed for Mild Asthma. *New England Journal of Medicine*, *380*(21), 2020–2030. doi: 10.1056/nejmoa1901963
4. Pocket Guide for Asthma Management and Prevention - Global Initiative for Asthma. (2020). Retrieved from https://ginasthma.org/pocket-guide-for-asthma-management-and-prevention/
5. Sulaiman I, Cushen B, Greene G, Seheult J, Seow D, Rawat F, MacHale E, Mokoka M, Moran CN, Sartini Bhreathnach A, MacHale P, Tappuni S, Deering B, Jackson M, McCarthy H, Mellon L, Doyle F, Boland F, Reilly RB, Costello RW. Objective Assessment of Adherence to Inhalers by Patients with Chronic Obstructive Pulmonary Disease. Am J Respir Crit Care Med. 2017 May 15;195(10):1333-1343. doi: 10.1164/rccm.201604-0733OC. Erratum in: Am J Respir Crit Care Med. 2017 May 15;195(10):1407. PMID: 27409253.
6. Halpin DMG, Criner GJ, Papi A, Singh D, Anzueto A, Martinez FJ, Agusti AA, Vogelmeier CF. Global Initiative for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease. The 2020 GOLD Science Committee Report on COVID-19 and Chronic Obstructive Pulmonary Disease. Am J Respir Crit Care Med. 2021 Jan 1;203(1):24-36. doi: 10.1164/rccm.202009-3533SO. PMID: 33146552; PMCID: PMC7781116.



Questions & Answers

***please use chat box for questions**

Who to Contact with Questions:

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