OBJECTIVES

At the conclusion of this presentation, the participant will be able to:

1. Define differences between asthma and chronic obstructive pulmonary disorder (COPD).
2. Recognize key aspects of asthma and COPD diagnosis and management.
3. Apply general principles of asthma and COPD management to practice.

Asthma

National Statistics

Adults

- 20 million
- Highest rates in Black adults
- Female > male

Children

- 5.1 million
- Leading chronic disease in children.
- Black children 3x more likely to have asthma than white children
- Male > female

Asthma Facts and Figures.
Asthma and Allergy Foundation of America.
Available from: https://www.aafa.org/asthma-facts/. Last updated April 2022. Accessed June 27, 2022.

Asthma - Pathophysiology

Brief Overview

Usually characterized by **airway hyper-responsiveness and chronic airway inflammation**

Defined by the **history of respiratory or breathing symptoms** that change over time and increase in strength

- Wheeze
- Shortness of breath
- Chest tightness and cough
- Variable expiratory airflow limitation

Variations often **triggered** by factors such as exercise, allergen or irritant exposure, change in weather, or viral respiratory infections

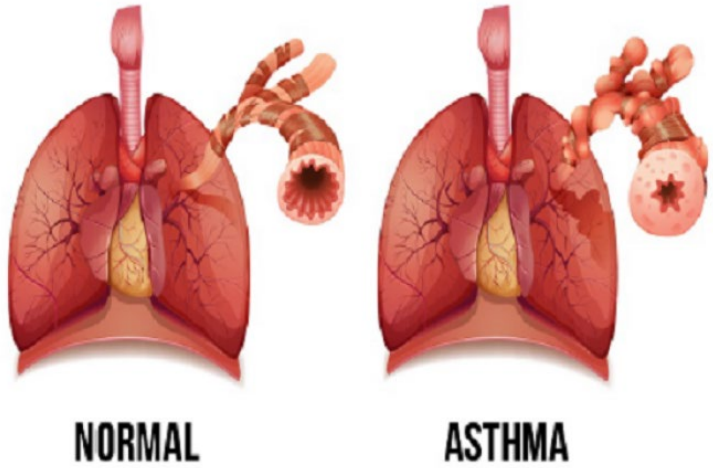
Airflow limitation **may become persistent** later in the course of the disease.

Global Strategy for Asthma Management and Prevention (2022 update). Global Initiative for Asthma.

Asthma - Pathophysiology

Asthma Phenotypes

- Allergic asthma
- Non-allergic asthma
- Adult-onset (late-onset) asthma
- Asthma with persistent airflow limitation
- Asthma with obesity



General Overview
Khardori R. Type 2 Diabetes Mellitus. Available from: https://emedicine.medscape.com/article/117853-overview. Last updated April 25, 2022. Accessed May 14, 2022.
Robertson RP and Udler MS. Pathogenesis of type 2 diabetes mellitus. In: UpToDate, Mulder JE (Ed), UpToDate, Waltham, MA, 2022.

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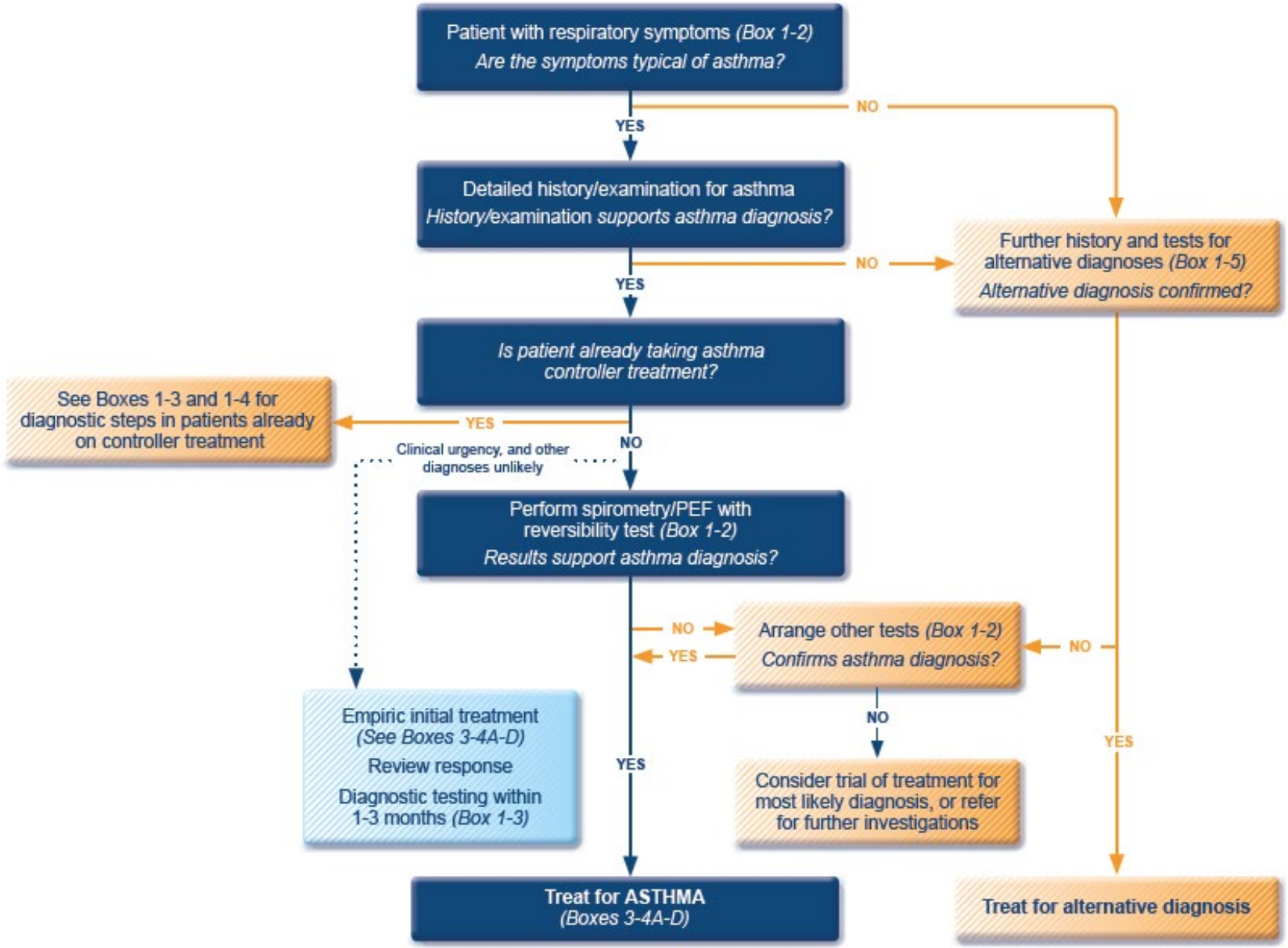
Asthma Diagnosis



Global Initiative for Asthma (GINA) What's new in GINA 2022? GINA Global Strategy for Asthma Management and Prevention. Available from: https://ginasthma.org/gina-slide-set/. Accessed June 29, 2022.
Global Strategy for Asthma Management and Prevention (2022 update). Global Initiative for Asthma.

COPD
Statistics & Pathophysiology

Statistics

Worldwide

- 10% of individuals ≥ 40 years of age
- Prevalence varies by country and increases with age

United States

- 4th-ranked cause of death

Pathophysiology

Characterized by persistent respiratory/breathing symptoms and airflow limitation

Symptoms result from airway and/or alveolar (part of the lung that contains air) abnormalities

Usually caused by significant exposure to harmful particles or gases

Han MK et al. Chronic obstructive pulmonary disease: Definition, clinical manifestations, diagnosis, and staging. In: UpToDate, Dieffenbach P(Ed), UpToDate, Waltham, MA, 2022.
Pocket Guide to COPD Diagnosis, Management, and Prevention. A Guide for Health Care Professionals. 2022 Report. Global Initiative for Chronic Obstructive Lung Disease.

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Clinical Risk Factors COPD

****Tobacco Smoke****	Indoor Air Pollution	Occupational Exposures
Outdoor Air Pollution	Genetics	Age and Sex
Lung Growth and Development	Socioeconomic Status	Asthma and Airway Higher-Reactivity
Chronic Bronchitis	Infections	

Pocket Guide to COPD Diagnosis, Management, and Prevention. A Guide for Health Care Professionals. 2022 Report. Global Initiative for Chronic Obstructive Lung Disease.
Weiss ST. Chronic obstructive pulmonary disease: Risk factors and risk reduction. In: UpToDate, Mulder JE (Ed), UpToDate, Waltham, MA, 2022

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Smoking and Mental Illness

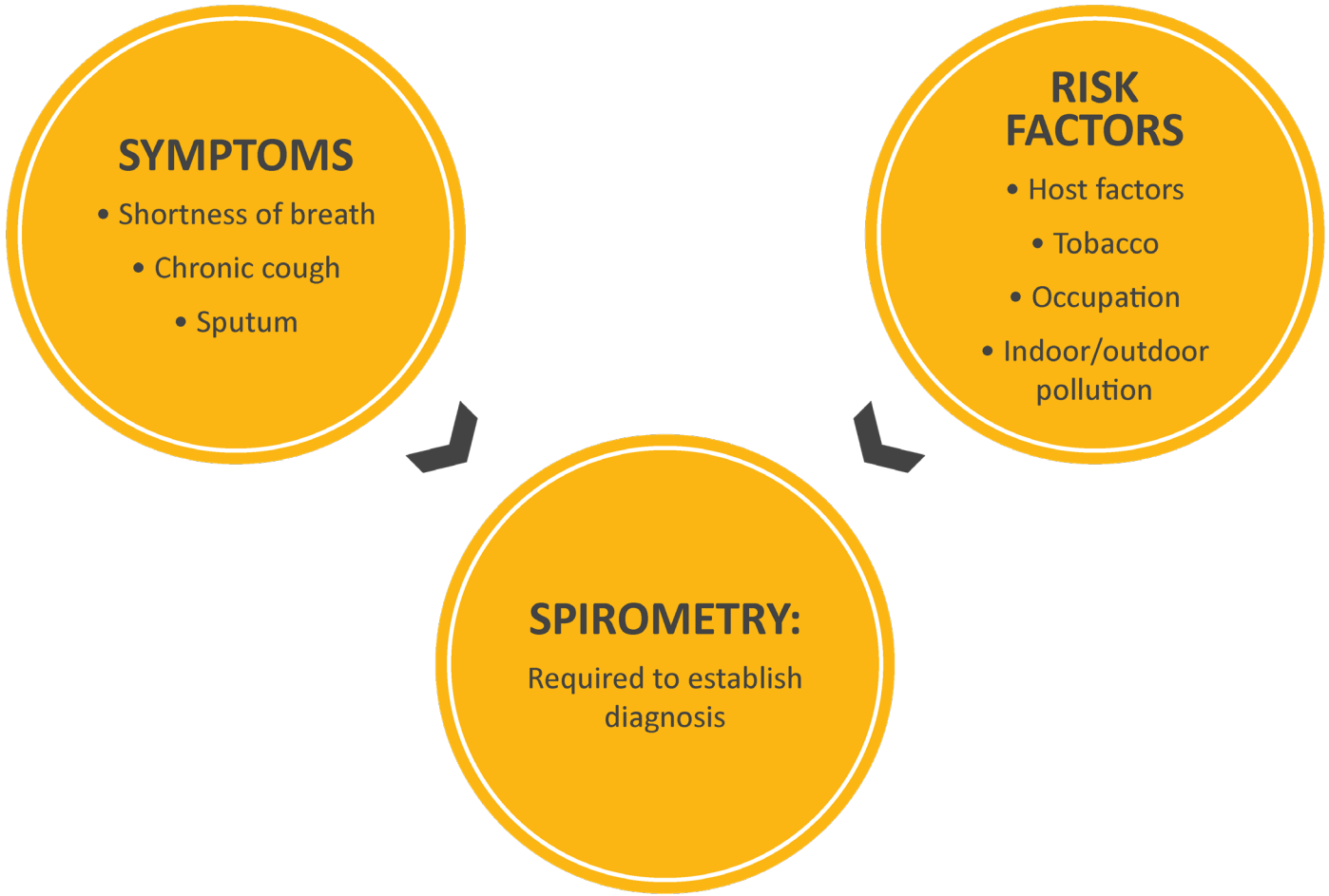
According to the National Institute on Drug Abuse:

"A larger proportion of people diagnosed with mental disorders report cigarette smoking compared with people without mental disorders. Among US adults in 2019, the percentage who reported past-month cigarette smoking was 1.8 times higher for those with any past-year mental illness than those without (28.2% vs. 15.8%).[140] Smoking rates are particularly high among people with serious mental illness (those who demonstrate greater functional impairment). While estimates vary, as many as 70-85% of people with schizophrenia and as many as 50-70% of people with bipolar disorder smoke."

Smoking is believed to be more prevalent among people with depression and schizophrenia because nicotine may temporarily lessen the symptoms of these illnesses, such as poor concentration, low mood, and stress. But it is important to note that **smoking cessation has been linked with improved mental health—including reduced depression, anxiety, and stress, and enhanced mood and quality of life."**

https://nida.nih.gov/publications/research-reports/tobacco-nicotine-e-cigarettes/do-people-mental-illness-substance-use-disorders-use-tobacco-more-often

PATHWAYS TO THE DIAGNOSIS OF COPD



Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teach Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.
Pocket Guide to COPD Diagnosis, Management, and Prevention. A Guide for Health Care Professionals. 2022 Report. Global Initiative for Chronic Obstructive Lung Disease.

Spirometry

Brief Overview

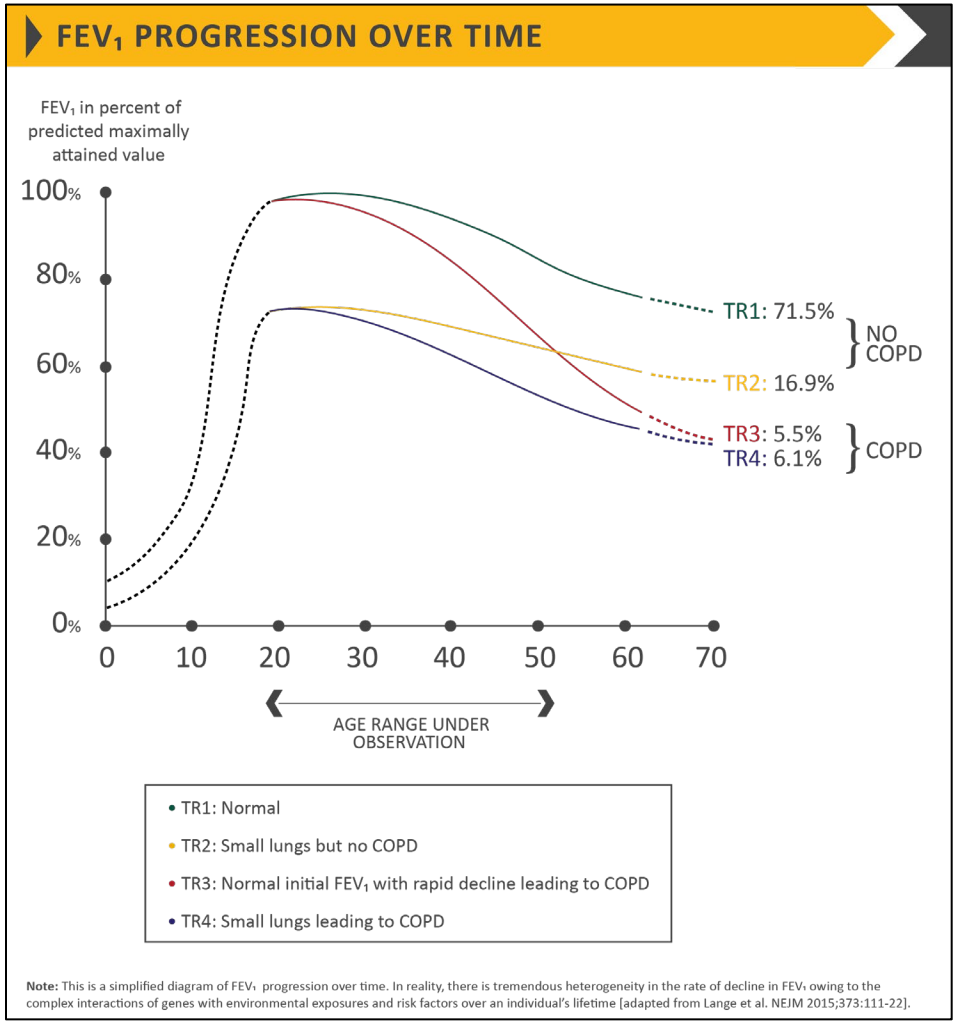
Most common and readily available type of pulmonary function / breathing test

FVC = forced vital capacity

FEV_1 = forced expiratory volume in one second

- Declines over time in COPD (see graph to right)

FEV_1/FVC ratio may also be considered



What Is Spirometry and Why It Is Done. American Lung Association. Available from: https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/spirometry. Accessed June 29, 2022.
Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teach Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.
Kaminsky DA. Overview of pulmonary function testing in adults. In: UpToDate, Deffenbach P (Ed), UpToDate, Waltham, MA, 2022

Asthma Treatment

Goals of Therapy

Symptom control

Minimize future risk

- Asthma-related death
- Exacerbations
- Persistent airflow limitation
- Medication side effects

The patient's own goals should be identified and considered as well

Global Strategy for Asthma Management and Prevention (2022 update). Global Initiative for Asthma.

Treatment of Asthma

Medication Treatment Options

Controller Medications	• Contain inhaled corticosteroids • Reduce airway inflammation, control symptoms, and reduce future risks (e.g., exacerbation and lung function decline)
Reliever Medications	• Provided to all patients • As-needed relief of breakthrough symptoms • Short-acting and long-acting beta agonists (SABAs and LABAs)
Add-On Therapies	• Considered when patients have persistent symptoms and/or exacerbations despite optimized treatment with high dose controller medications and treatment of modifiable risk factors

Global Strategy for Asthma Management and Prevention (2022 update). Global Initiative for Asthma.
Kaminsky DA. Overview of pulmonary function testing in adults. In: UpToDate, Deffenbach P (Ed), UpToDate, Waltham, MA, 2022

Diagnosing & Management of Asthma

General Guidelines

Diagnosis and management goals:

Detailed medical history and physical exam to determine precipitating factors and that symptoms of recurrent episodes of airflow obstruction are present and reversed by bronchodilator.

Use **spirometry** (FEV1 , FEV6 , FVC, FEV1 /FVC) in all patients age ≥ 5 to determine that airway obstruction is at least partially reversible. [C]

Consider alternative causes of airway obstruction.

Goals of therapy are to achieve control by:

- *Reducing impairment:* chronic symptoms, need for rescue therapy and maintain near-normal lung function and activity level. [A]
- *Reducing risk:* exacerbations, need for emergency care or hospitalization, loss of lung function or reduced lung growth in children, or adverse effects of therapy.[A]

http://www.mqic.org/pdf/mqic_general_principles_for_the_diagnosis_and_management_of_asthma_cpg.pdf

Education

Develop a written asthma action plan in partnership with the patient

- Provide **self-management education**. [A]
- **Teach and reinforce**: self-monitoring to assess control and signs of worsening asthma (either symptoms or peak flow monitoring)
- [B]; using **written asthma action plan**; taking medication correctly (inhaler technique and use of devices); recognizing, reporting and avoiding environmental and occupational factors that worsen asthma (outdoor activity, reflux; see Eligible Population column).
- **Tailor education to literacy level** of patient; appreciate potential role of patient's cultural beliefs and practices in asthma management. [C]

http://www.mqic.org/pdf/mqic_general_principles_for_the_diagnosis_and_management_of_asthma_cpg.pdf

Asthma Management

Control environmental factors and comorbid conditions

- **Recommend measures to control exposures** to allergens (dust, mold, pollen), smoke, pollutants, or other irritants (perfumes, chemicals) that make asthma worse. [A]
- **Consider allergen immunotherapy** for patients with persistent asthma and when there is clear evidence of a relationship between symptoms and exposure to an allergen (dust, mold, pollen, pets) to which the patient is sensitive. [B]
- **Treat relevant conditions** (e.g., gastroesophageal reflux/laryngotracheal reflux [B], allergic bronchopulmonary aspergillosis [A], obesity [B], obstructive sleep apnea [D], rhinitis and sinusitis [B], chronic stress or depression [D], vocal cord dysfunction, especially in adolescent females [D].)
- **Inactivated influenza vaccine for all patients over 6 months of age** [A] unless contraindicated. Do not use intranasal influenza vaccine. Give 23-valent pneumococcal polysaccharide vaccine (PPSV23) age 19 and older (age 2-18 if using high-dose oral steroids). Provide self-management education. [A]
- **Teach and reinforce: self-monitoring** to assess control and signs of worsening asthma (either symptoms or peak flow monitoring) [B]; using written asthma action plan; taking medication correctly (inhaler technique and use of devices); recognizing, reporting and avoiding environmental and occupational factors that worsen asthma (outdoor activity, reflux; see Eligible Population column). T

Asthma Management

Medications

Initial treatment should be based on the **severity of asthma**, both impairment and risk.

Inhaled short-acting beta agonist and/or inhaled corticosteroids (ICS), for **intermittent asthma.**

For **persistent asthma**, Inhaled corticosteroids (ICS) alone or in combination with Long-Acting Beta Agonist (LABA) appears to be the most effective long-term control strategy. [D]

Re-evaluate in 2 - 6 weeks for control. Modify treatment based on level of control.

Asthma Action Plan (AAP)

Brief Overview

ALL patients with asthma should receive an AAP, education, and follow-up

”Traffic light” configuration

Green Zone	Yellow Zone	Red Zone
• Describes acceptable control and lists baseline medications	• Details loss of control and instructions for transiently intensifying therapy	• Indicates severe symptoms that require urgent medical attention

Kouri, A., Kaplan, A., Boulet, L. P., & Gupta, S. (2019). New evidence-based tool to guide the creation of asthma action plans for adults. *Canadian family physician Medecin de famille canadien*, *65*(2), 103–106.

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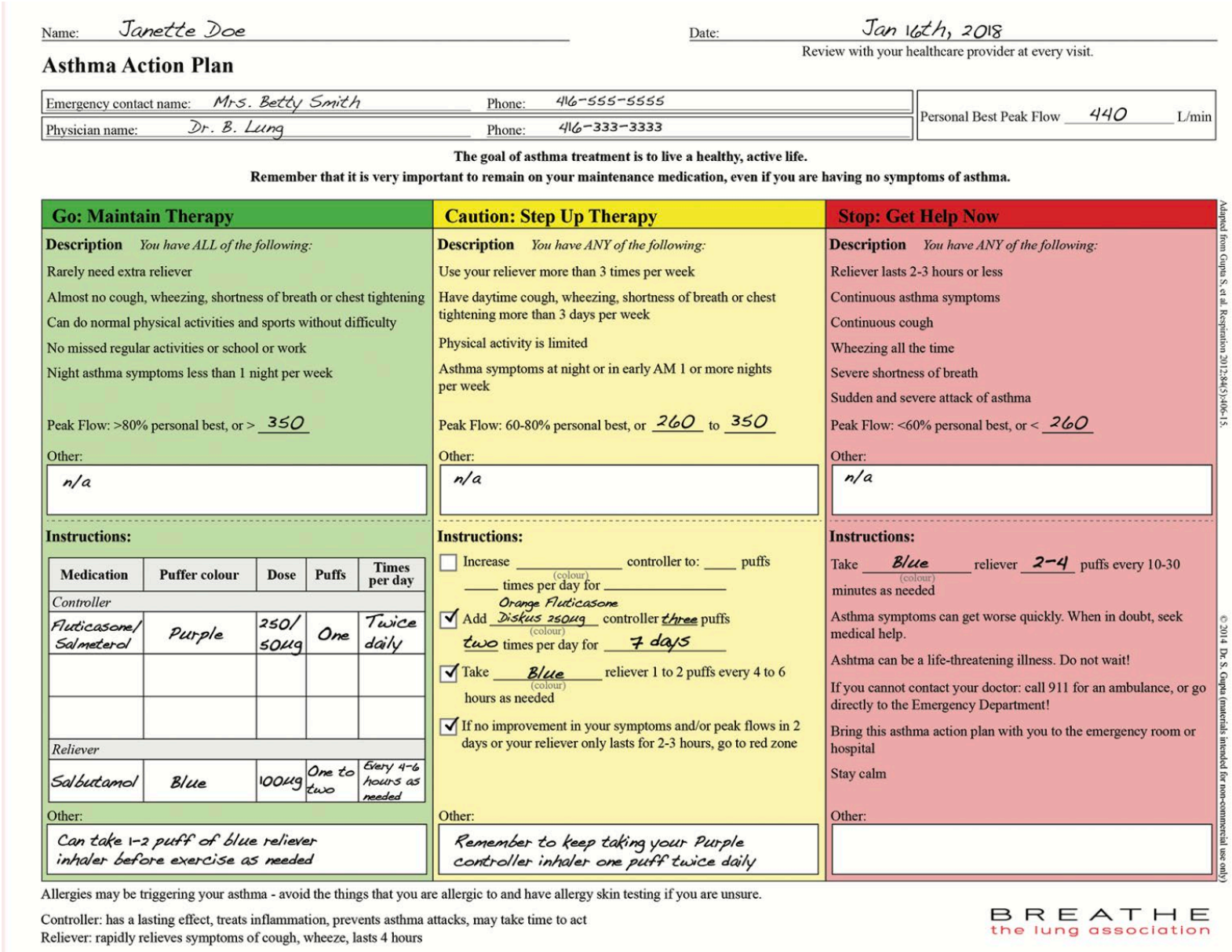
Example Asthma Action Plan (AAP)



Name: Janette Doe Date: Jan 16th, 2018

Review with your healthcare provider at every visit.

Asthma Action Plan

Emergency contact name: Mrs. Betty Smith Phone: 416-555-5555

Physician name: Dr. B. Lung Phone: 416-333-3333

Personal Best Peak Flow 440 L/min

The goal of asthma treatment is to live a healthy, active life.

Remember that it is very important to remain on your maintenance medication, even if you are having no symptoms of asthma.

Go: Maintain Therapy

Description *You have ALL of the following:*

Rarely need extra reliever

Almost no cough, wheezing, shortness of breath or chest tightening

Can do normal physical activities and sports without difficulty

No missed regular activities or school or work

Night asthma symptoms less than 1 night per week

Peak Flow: >80% personal best, or > 350

Other: n/a

Instructions:

Medication	Puffer colour	Dose	Puffs	Times per day
Controller				
Fluticasone/ Salmeterol	Purple	250/ 50ug	One	Twice daily
Reliever				
Salbutamol	Blue	100ug	One to two	Every 4-6 hours as needed

Other: Can take 1-2 puff of blue reliever inhaler before exercise as needed

Caution: Step Up Therapy

Description *You have ANY of the following:*

Use your reliever more than 3 times per week

Have daytime cough, wheezing, shortness of breath or chest tightening more than 3 days per week

Physical activity is limited

Asthma symptoms at night or in early AM 1 or more nights per week

Peak Flow: 60-80% personal best, or 260 to 350

Other: n/a

Instructions:

☐ Increase _____ (colour) controller to: ____ puffs ____ times per day for _____

☑ Add Orange Fluticasone Diskus 250ug (colour) controller three puffs two times per day for 7 days

☑ Take Blue (colour) reliever 1 to 2 puffs every 4 to 6 hours as needed

☑ If no improvement in your symptoms and/or peak flows in 2 days or your reliever only lasts for 2-3 hours, go to red zone

Other: Remember to keep taking your Purple controller inhaler one puff twice daily

Stop: Get Help Now

Description *You have ANY of the following:*

Reliever lasts 2-3 hours or less

Continuous asthma symptoms

Continuous cough

Wheezing all the time

Severe shortness of breath

Sudden and severe attack of asthma

Peak Flow: <60% personal best, or < 260

Other: n/a

Instructions:

Take Blue (colour) reliever 2-4 puffs every 10-30 minutes as needed

Asthma symptoms can get worse quickly. When in doubt, seek medical help.

Ashtma can be a life-threatening illness. Do not wait!

If you cannot contact your doctor: call 911 for an ambulance, or go directly to the Emergency Department!

Bring this asthma action plan with you to the emergency room or hospital

Stay calm

Other:

Allergies may be triggering your asthma - avoid the things that you are allergic to and have allergy skin testing if you are unsure.

Controller: has a lasting effect, treats inflammation, prevents asthma attacks, may take time to act
Reliever: rapidly relieves symptoms of cough, wheeze, lasts 4 hours

BREATHE the lung association

Adapted from Gupta S, et al. Respiration 2012;84(5):406-15.

© 2014 Dr. S. Gupta (materials intended for non-commercial use only)

Kouri, A., Kaplan, A., Boulet, L. P., & Gupta, S. (2019). New evidence-based tool to guide the creation of asthma action plans for adults. *Canadian family physician Medecin de famille canadien*, *65*(2), 103–106.

COPD Treatment

Approach to Therapy

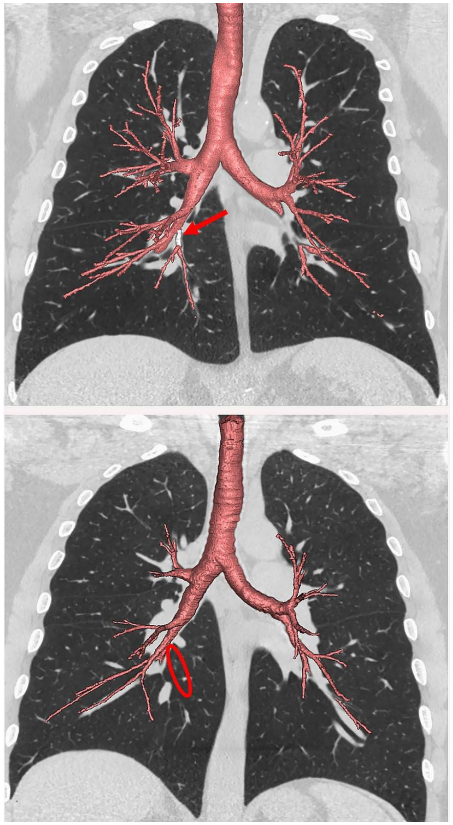
Goals

- Reduce symptoms and risk
- Improve function and quality of life

Treatment will vary depending on if COPD is stable, unstable, or the patient is having an acute exacerbation

Non-pharmacologic management in addition to medications

- Supplemental oxygen
- Pulmonary rehabilitation is recommended for symptomatic COPD



Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teaching Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.
Ferguson GT and Make B. Stable COPD: Overview of management.. In: UpToDate, Deffenbach P (Ed), UpToDate, Waltham, MA, 2022

Treatment of COPD

Medication Therapy Options

Beta agonists

- SABAs
- LABAs

Antimuscarinic

- Short-acting antimuscarinics (SAMAs)
- Long-acting antimuscarinics (LAMAs)

Inhaled corticosteroids

Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teaching Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.

COPD Treatment
Continuous Evaluation

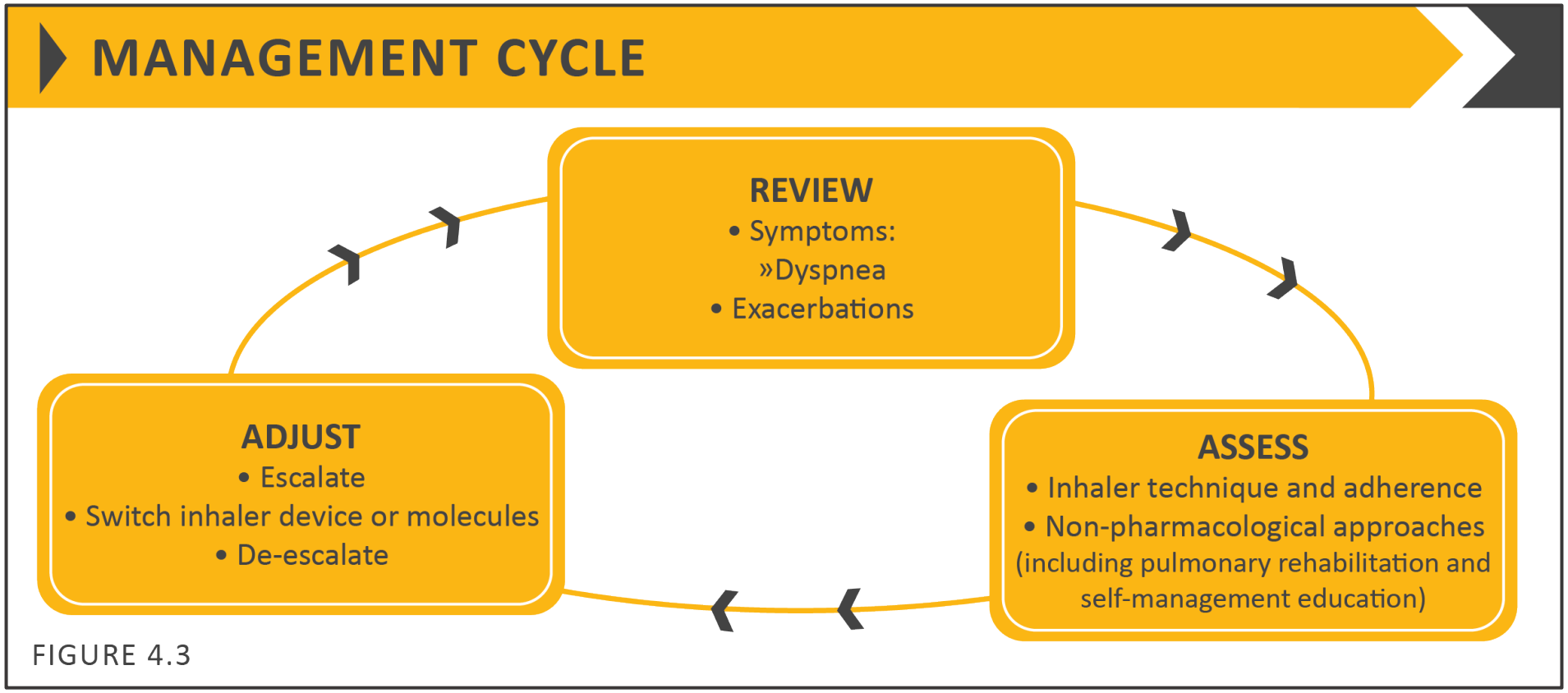


FIGURE 4.3

Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teaching Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.

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COPD Action Plan

American Lung Association.

My COPD Action Plan

Patients and healthcare providers should complete this action plan together.
This plan should be discussed at each visit and updated as needed.

The green, yellow and red zones show symptoms of COPD. The list of symptoms is not complete. You may experience other symptoms. In the "Actions" column, your healthcare provider will recommend actions for you to take. Your healthcare provider may write down other actions in addition to those listed here.

Green Zone: I am doing well today	Actions
• Usual activity and exercise level • Usual amounts of cough and phlegm/mucus • Sleep well at night • Appetite is good	☐ Take daily medicines ☐ Use oxygen as prescribed ☐ Continue regular exercise/diet plan ☐ Avoid tobacco product use and other inhaled irritants ☐ _____

Yellow Zone: I am having a bad day or a COPD flare	Actions
• More breathless than usual • I have less energy for my daily activities • Increased or thicker phlegm/mucus • Using quick relief inhaler/nebulizer more often • More swelling in ankles • More coughing than usual • I feel like I have a "chest cold" • Poor sleep and my symptoms woke me up • My appetite is not good • My medicine is not helping	☐ Continue daily medication ☐ Use quick relief inhaler every _____ hours ☐ Start an oral corticosteroid (specify name, dose, and duration) _____ ☐ Start an antibiotic (specify name, dose, and duration) _____ ☐ Use oxygen as prescribed ☐ Get plenty of rest ☐ Use pursed lip breathing ☐ Avoid secondhand smoke, e-cigarette aerosol, and other inhaled irritants ☐ Call provider immediately if symptoms do not improve ☐ _____

Red Zone: I need urgent medical care	Actions
• Severe shortness of breath even at rest • Not able to do any activity because of breathing • Not able to sleep because of breathing • Fever or shaking chills • Feeling confused or very drowsy • Chest pains • Coughing up blood	☐ Call 911 or seek medical care immediately ☐ While getting help, immediately do the following: ☐ _____

COPD Management Tools. American Lung Association. Available from: https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/living-with-copd/copd-management-tools. Accessed June 29, 2022.

Smoking Cessation

Resources

- American Lung Association
- Centers for Disease Control & Prevention
- Your local pharmacist

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Smoking Cessation Strategies

BRIEF STRATEGIES TO HELP THE PATIENT WILLING TO QUIT

• **ASK:**	Systematically identify all tobacco users at every visit. *Implement an office-wide system that ensures that, for EVERY patient at EVERY clinic visit, tobacco-use status is queried and documented.*
• **ADVISE:**	Strongly urge all tobacco users to quit. *In a clear, strong, and personalized manner, urge every tobacco user to quit.*
• **ASSESS:**	Determine willingness and rationale of patient's desire to make a quit attempt. *Ask every tobacco user if he or she is willing to make a quit attempt at this time (e.g., within the next 30 days).*
• **ASSIST:**	Aid the patient in quitting. *Help the patient with a quit plan; provide practical counseling; provide intra-treatment social support; help the patient obtain extra-treatment social support; recommend use of approved pharmacotherapy except in special circumstances; provide supplementary materials.*
• **ARRANGE:**	Schedule follow-up contact. *Schedule follow-up contact, either in person or via telephone.*

Global Initiative for Chronic Obstructive Lung Disease (GOLD): Teach Slide Set 2022. Available from: https://goldcopd.org/2022-gold-reports-2/. Accessed June 29, 2022.

Role of the Case Holder

Determine the consumers understanding of the diagnosis

If gaps, encourage the consumer to discuss this with their health care provider.

Consider using the “Ask Me 3” tool

1. What is my main problem?
   Diagnosis

2. What do I need to do?
   Treatment

3. Why is it important for me to do this?
   Context

Health Coaching

Review risk behaviors with the client

Smoking, not using maintenance inhaler, exposure to toxins/triggers

Explore the **consumer's knowledge**

With permission, fill in gaps

Use motivational interviewing to **promote ambivalence**

"If you did quit smoking what would be different?"

Explore the consumer's ideas to quit, and **create a SMART plan**

Specific, Measurable, Attainable, Relevant, Time bound

Using the Readiness ruler, **assess the consumer's readiness to implement** the plan

On a scale of 0-10 how ready are you with this plan?

- If below 7, why this higher number and not a 0 or 1
  - Listen for the consumer's own arguments for change
- Then, what will it take to get this number to a 6 or 7?
  - Allow the consumer to come up with their own plan

Emphasize the importance of the plan. **Follow up** with the consumer within 1-2 weeks. How did it go?

If the consumer was not able to complete the plan – honor small successes and re-evaluate the plan. Make adjustments and follow up on the new plan.

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Thank You

Please email Sue.Vos@miccsi.org with any questions.