Virginia Long-Term Care Clinician Network Monthly Forum

February 21, 2024

Welcome!

As you join, please turn on cameras and mic or unmute your phone and say hello to your Virginia colleagues. We all have a common bond: the choice to serve in a unique area of health care. During the presentation we can mute ourselves until it is time for more interaction.

Let's Network!

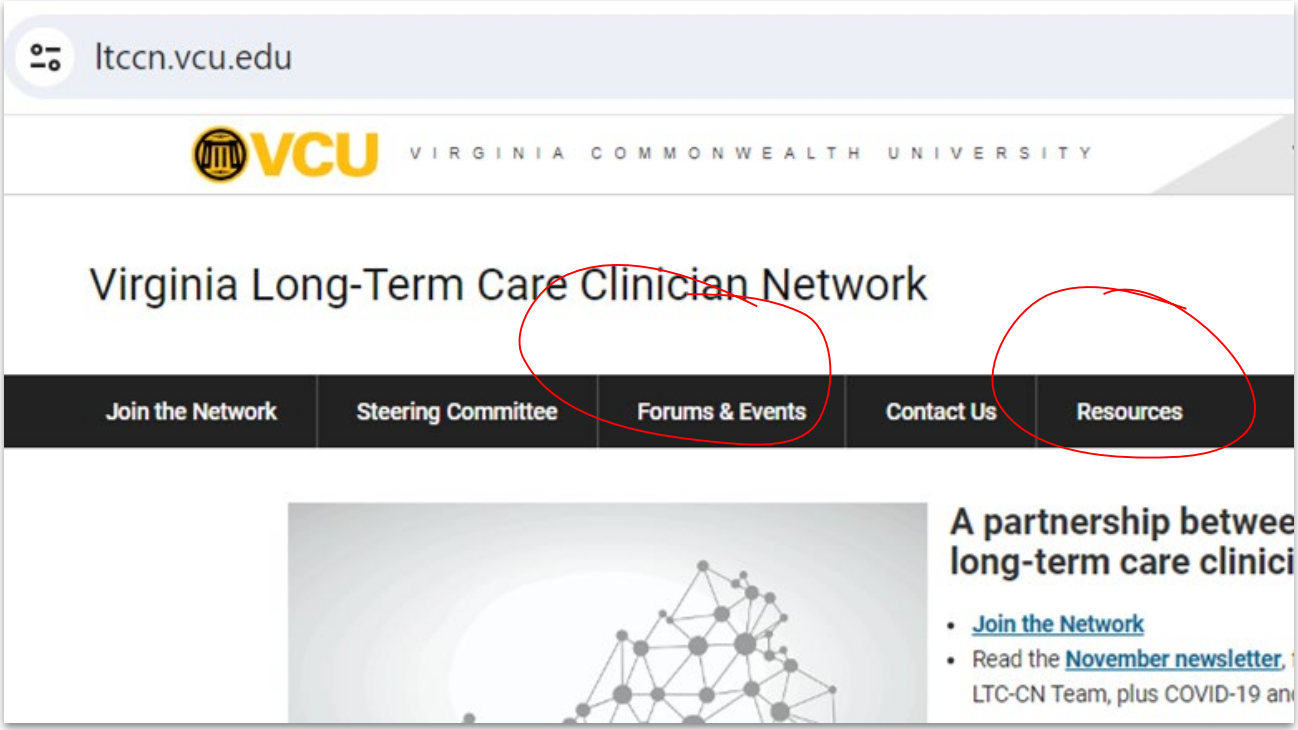
Please use the chat box:

- Your name and region/city/town
- Is your facility masking everywhere or just in required rooms?

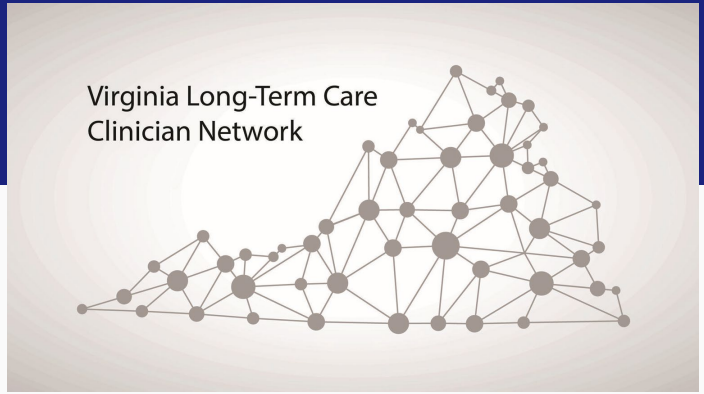
Thank you for taking care of Virginia's residents of PACE, assisted living and nursing homes!

To find us, resources or archived Forum presentations, come to our website.

SCAN ME



Welcome New Members!



Brad Murray, MD - NW Region

Emily Johnson, NP - NW Region

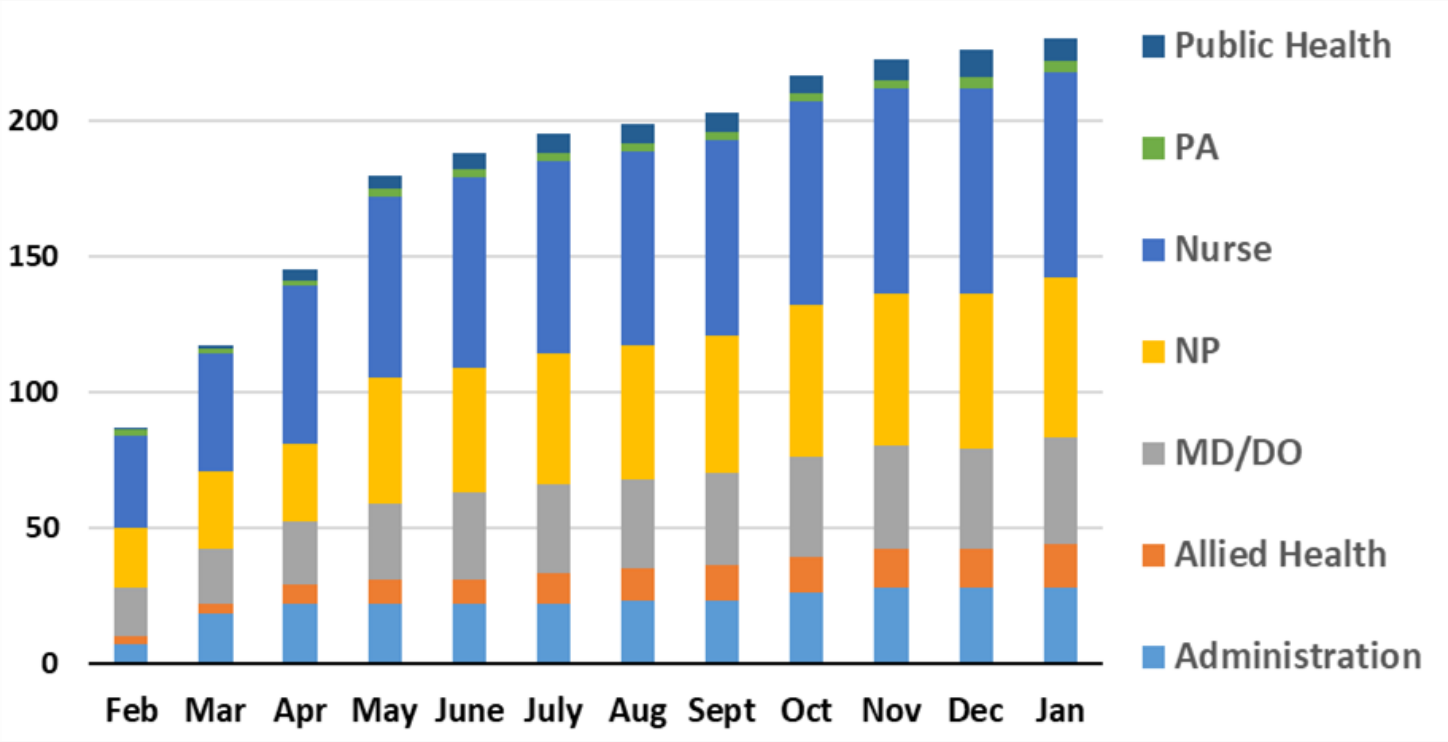
Ja'Nay Crippen-Derry, DHA MSN RN - Central Region

Kimberley Richards, FNP-BC - Central Region

Lindsey Price, Allied Health - NW Region

Michael Saval, DO - Central & SW Region

Our Network is 234 members strong!



ltccn.vcu.edu

Chat Waterfall

Answer in chat, but do not press send until we count down:

As we move through state budget time, which is scheduled to adjourn March 9, if you had a hand in the bills and budget, how would you improve LTC?

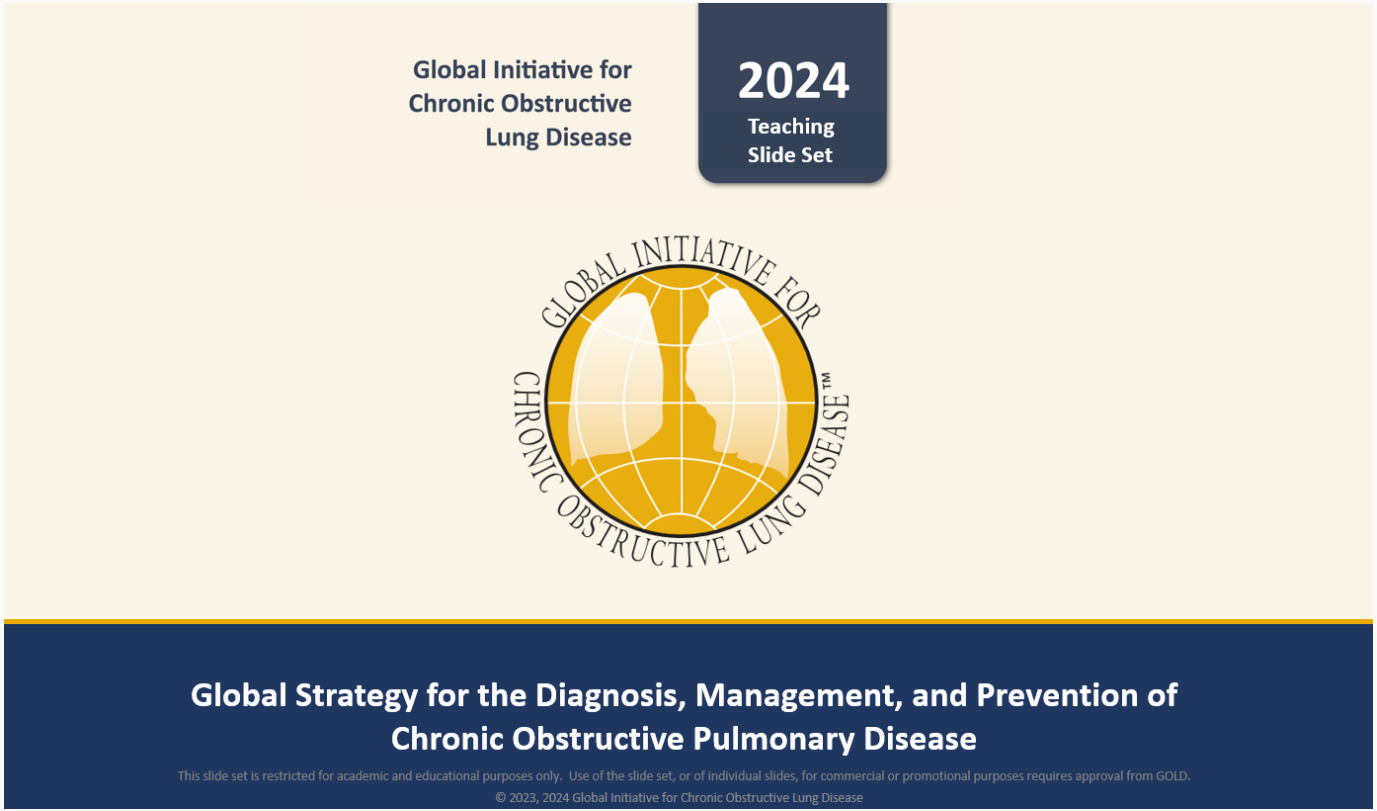
COPD in LTC: an Update

Christian Bergman, MD, CMD, FACP
Assistant Professor, Division of Geriatric Medicine, VCU

Learning Objectives

1. Provide an overview of the latest 2023/2024 GOLD guidelines
2. Discuss LTC specific issues in regards to COPD clinical management
3. Review management of acute exacerbation of COPD

GOLD Guidelines



2024
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Slide set

Clinical Indicators for Considering a Diagnosis of COPD

Figure 2.1

Consider the diagnosis of COPD, and perform spirometry, if any of these clinical indicators are present:
(these indicators are not diagnostic themselves, but the presence of multiple key indicators increases the probability of the presence of COPD; in any case, spirometry is required to establish a diagnosis of COPD)

- **Dyspnea that is**
- **Recurrent wheeze**
- **Chronic cough**
- **Recurrent lower respiratory tract infections**
- **History of risk factors**

Other Causes of Chronic Cough

Figure 2.2

INTRATHORACIC	EXTRATHORACIC
• Asthma • Lung Cancer • Tuberculosis • Bronchiectasis • Left Heart Failure • Interstitial Lung Disease • Cystic Fibrosis • Idiopathic Cough	• Chronic Allergic Rhinitis • Post Nasal Drip Syndrome (PNDS) • Upper Airway Cough Syndrome (UACS) • Gastroesophageal Reflux • Medication (e.g., ACE Inhibitors)

Differential Diagnosis of COPD

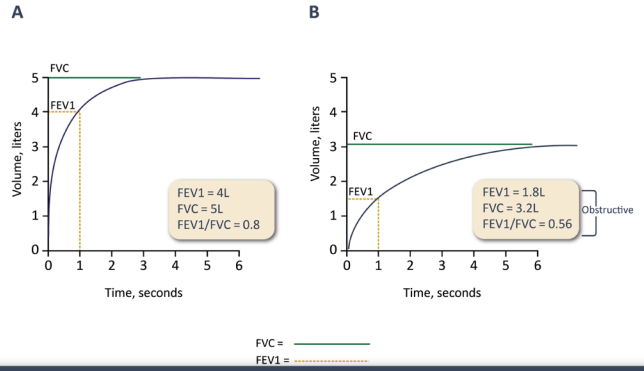
Figure 2.3

Diagnosis	Suggestive Features
COPD	Symptoms slowly progressive History of tobacco smoking or other risk factors
Asthma	Variable airflow obstruction Symptoms vary widely from day to day Symptoms worse at night/early morning Allergy, rhinitis, and/or eczema also present Often occurs in children Family history of asthma
Congestive heart failure	Chest X-ray shows dilated heart, pulmonary edema Pulmonary function tests indicate volume restriction, not airflow obstruction
Bronchiectasis	Large volumes of purulent sputum Commonly associated with bacterial infection Chest X-ray/HRCT shows bronchial dilation
Tuberculosis	Onset at all ages Chest X-ray shows lung infiltrate Microbiological confirmation High local prevalence of tuberculosis
Obliterative bronchiolitis	Can occur in children Seen after lung or bone marrow transplantation HRCT on expiration shows hypodense areas
Diffuse panbronchiolitis	Predominantly seen in patients of Asian descent Most patients are male and nonsmokers Almost all have chronic sinusitis Chest X-ray & HRCT show diffuse small centrilobular nodular opacities & hyperinflation

These features tend to be characteristic of the respective diseases, but are not mandatory. For example, a person wh has never smoked may develop COPD (especially in LMICs where other risk factors may be more important than cig smoking).

A. Spirometry - Normal Trace B. Spirometry - Airflow Obstruction

Figure 2.5



GOLD Grades and Severity of Airflow Obstruction in COPD (based on post-bronchodilator FEV1)

Figure 2.7

In COPD patients (FEV1/FVC < 0.7):

GOLD 1:	Mild	FEV1 ≥ 80% predicted
GOLD 2:	Moderate	50% ≤ FEV1 < 80% predicted
GOLD 3:	Severe	30% ≤ FEV1 < 50% predicted
GOLD 4:	Very Severe	FEV1 < 30% predicted

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Case 1 (*Source: UNT Health– 2011*)

Your patient is a 67-year-old male who complains of progressively worsening shortness of breath with exertion over the last year. He currently smokes half a pack of cigarettes daily and has accumulated 45 pack years. He uses a short acting beta agonist 3-4 times a day with limited relief. He is no longer able to ride a bike with his grandchildren.

His last hospitalization was 4 months ago secondary to right lower lobe pneumonia. He does not complain of weight loss or loss of appetite. He has a past medical history of dietary controlled diabetes and mild osteoarthritis.

Medications include Albuterol and Celecoxib.

On exam respiratory rate is 22 per minute; chest exam reveals mild end expiratory wheezing without use of accessory muscles of respiration and no retractions. No clubbing, cyanosis or lower extremity edema is noted. Spirometry reveals an FVC of 78% predicted, FEV1 of 62% predicted and FEV1/FVC of 68%, post bronchodilator.

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Question 1: Based on GOLD guidelines your patient:

A. Has mild COPD.

B. Has moderate COPD.

C. Has severe COPD.

D. Has very severe COPD.

E. Is at risk of developing COPD.

Case 1 (*Source: UNT Health– 2011*)

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Question One

It is important to determine the severity of COPD as this impacts treatment. Based on GOLD guidelines spirometry is indicated in patients with COPD to facilitate a diagnosis and determine severity. An FEV1/ FVC ratio less than 70% is diagnostic of obstruction. The severity of obstruction is based on the FEV1. If the FEV1 is above or equal to 80% of predicted, the patient has mild COPD. If the FEV1 is between 50-80% of predicted the patient has moderate COPD making answer B correct. Severe COPD is diagnosed if the FEV1 is between 30-50% of predicted and very severe COPD is diagnosed when the FEV1 is less than 30% of predicted (below 50% with evidence of respiratory failure). The “at risk” category is no longer used.

Case 1 (*Source: UNT Health– 2011*)

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Question 2: Based on GOLD guidelines the most appropriate next step would be to initiate:

A. An inhaled corticosteroid.

B. A Leukotriene inhibitor.

C. Daily oral steroid.

D. Long acting anticholinergic agent.

E. Nebulized short acting beta 2 agonist.

Case 1 (*Source: UNT Health– 2011*)

Your patient is a 67-year-old male who complains of progressively worsening shortness of breath with exertion over the last year. He currently smokes half a pack of cigarettes daily and has accumulated 45 pack years. He uses a short acting beta agonist 3-4 times a day with limited relief. He is no longer able to ride a bike with his grandchildren.

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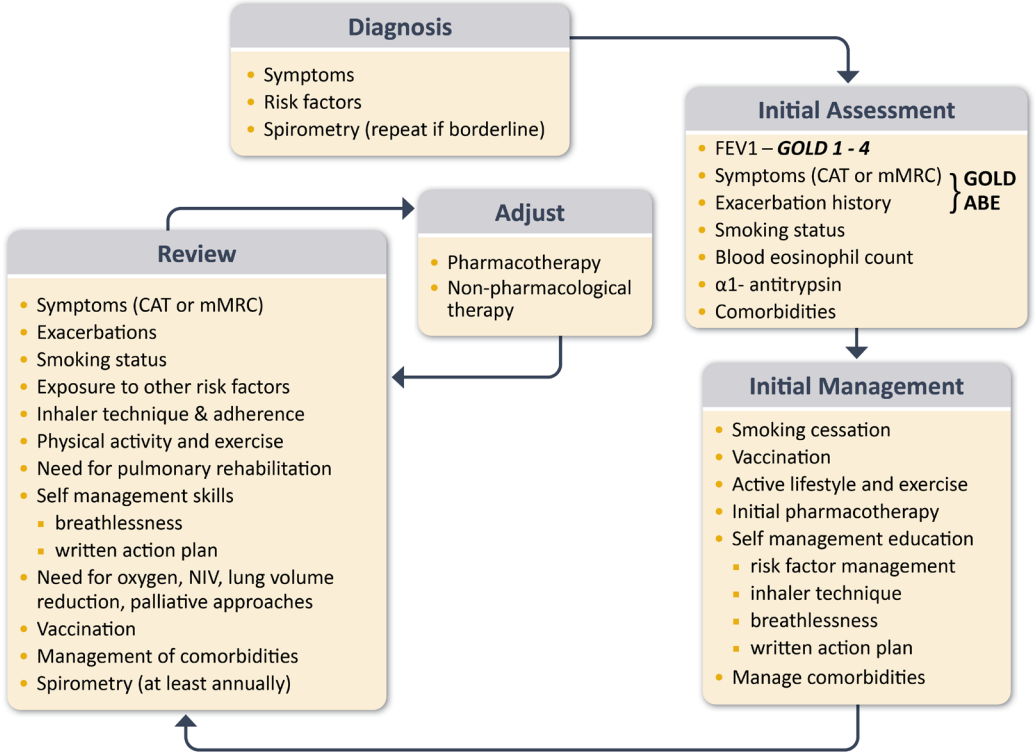
Question Two

Our patient has moderate COPD based on an FEV1/FVC ratio less than 70% and an FEV1 between 50-80%. GOLD guidelines recommend the use of a long acting bronchodilator for patients with moderate COPD. A long acting cholinergic (answer D) such as tiotropium should be considered in our patient. An inhaled corticosteroid may be indicated in patients with severe or very severe disease in combination with a long acting bronchodilator. Leukotrine inhibitors are indicated in asthma but are not routinely used in patients with COPD. Daily oral steroids may be utilized in some patients with very severe debilitating COPD when the perceived benefits outweigh potential side effects. Short acting beta 2 agonists may be used on an as needed basis to supplement long acting bronchodilators.

Management of COPD

Figure 3.2



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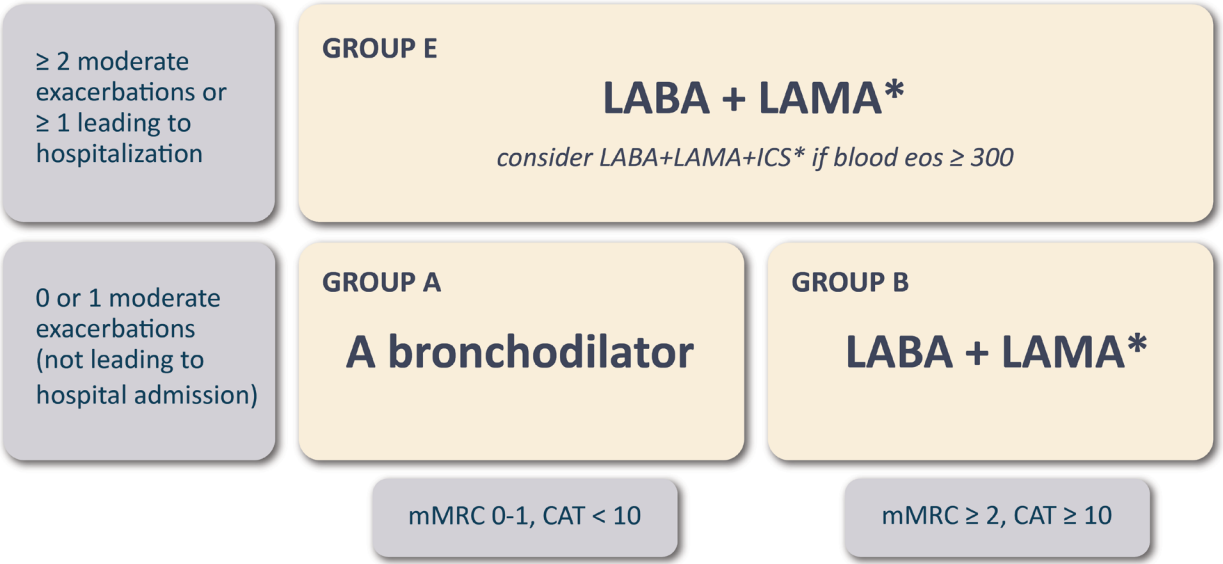
# of CT in Stable COPD

Figure 2.11

Differential Diagnosis	• Frequent exacerbations with excessive cough with sputum production, raising concern for bronchiectasis or atypical infection • Symptoms out of proportion to disease severity based on lung function testing
Lung Volume Reduction	• Endobronchial valve therapy may be a therapeutic option for patients if they demonstrate postbronchodilator FEV1 between 15% to 45% and evidence of hyperinflation • Lung volume reduction surgery may be a therapeutic option for patients with hyperinflation, severe upper lobe predominant emphysema and low exercise capacity after pulmonary rehabilitation
Lung Cancer Screening	• Annual low-dose CT scan is recommended for lung cancer screening in patients with COPD due to smoking according to recommendations for the general population

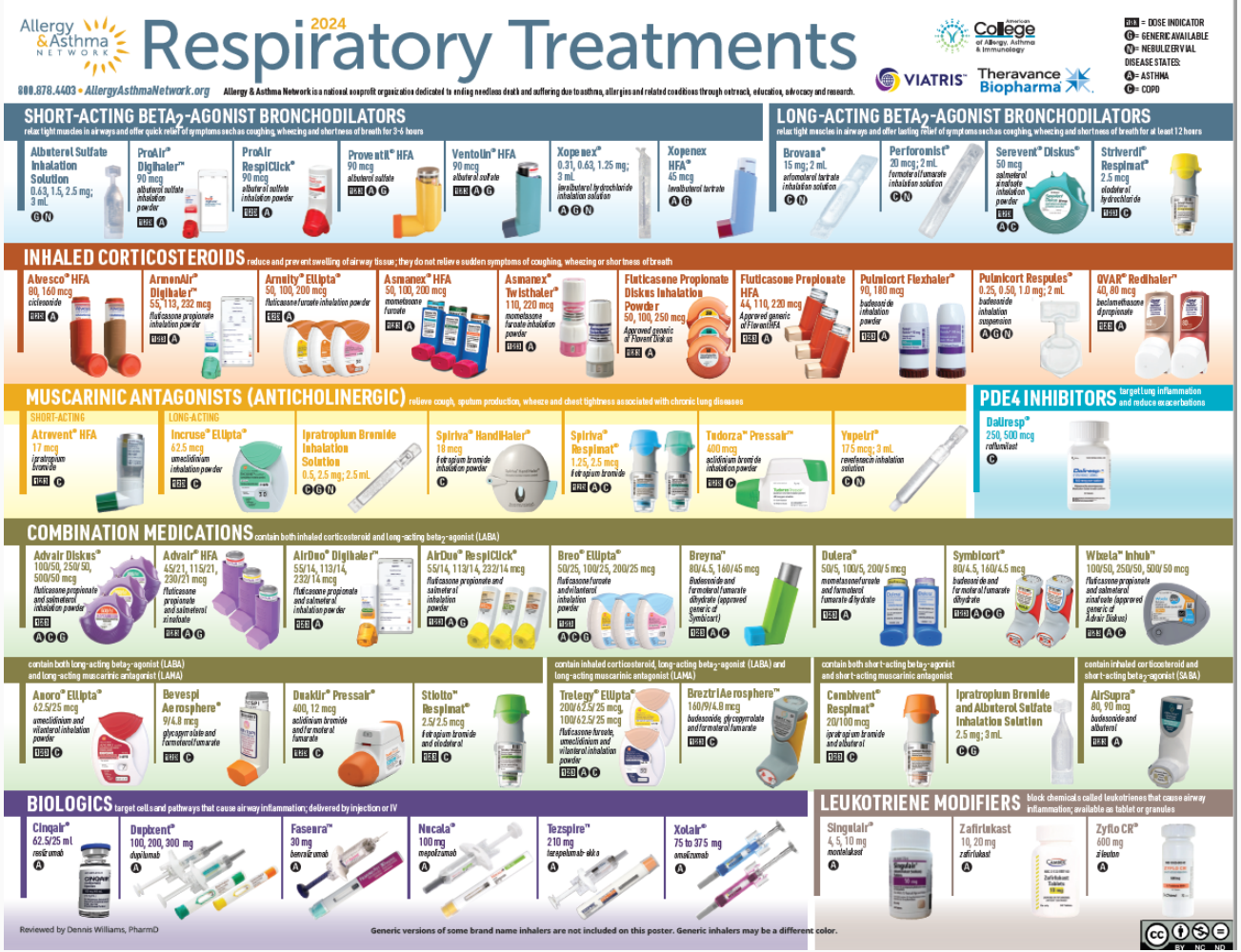
Initial Pharmacological Treatment

Figure 3.7



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment

Exacerbations refers to the number of exacerbations per year; eos: blood eosinophil count in cells per microliter; mMRC: modified Medical Research Council dyspnea questionnaire; CAT™: COPD Assessment Test™.



Allergy & Asthma NETWORK

- SABA: albuterol, levoalbuterol
- LABA: salmeterol, formoterol
- ICS: fluticasone, mometasone, budesonide, beclomethasone
- SAMA: iptratropium
- LAMA: umeclidinium, tiotropium, aclidinium

- COMBOs
- LABA/ICS: Advair, Breo, Dulera, Symbicort, Wixela
- LABA/LAMA: Anoro, Stiolto,
- LABA/LAMA/ICS: Trelegy
- SABA/SAMA: Combivent, Duoneb

https://allergyasthmanetwork.org/news/inhalers-at-a-glance-posters-resources/ - free PDF / poster

Follow-up Pharmacological Treatment

Figure 3.9

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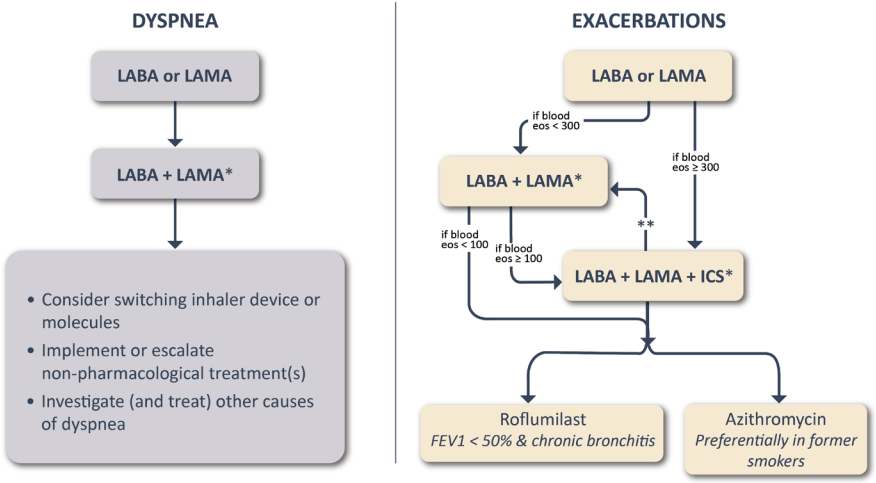
1. **IF RESPONSE TO INITIAL TREATMENT IS APPROPRIATE, MAINTAIN IT.**
2. **IF NOT:**
   - Check adherence, inhaler technique and possible interfering comorbidities
   - Consider the predominant treatable trait to target (dyspnea or exacerbations)
     - Use exacerbation pathway if both exacerbations and 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 ABE assessment at diagnosis



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment

**Consider de-escalation of ICS if pneumonia or other considerable side-effects. In case of blood eos ≥ 300 cells/µl de-escalation is more likely to be associated with the development of exacerbations

Exacerbations refers to the number of exacerbations per year

Device	Correct technique
"Press and breathe" pMDI	Remove mouthpiece cap Shake inhaler (suspensions only) Hold inhaler upright Breathe out Place mouthpiece between lips Fire while breathing in deeply and slowly Continue to inhale after firing Hold breath (10 s)
Breath-actuated pMDI	Remove mouthpiece cap Shake inhaler (suspensions only) Hold inhaler upright Prepare device (*e.g.* lift lever) Breathe out Place mouthpiece between lips Breathe in deeply and slowly Continue to inhale after firing Hold breath (10 s)

Device	Correct technique
"Press and breathe" pMDI plus spacer	Remove mouthpiece cap Shake inhaler (suspensions only) Hold inhaler upright Insert pMDI into spacer Breathe out Fire while breathing in deeply and slowly Continue to inhale after firing Hold breath (10 s)
DPIs	Remove cover (device specific) Load dose (device specific) Pierce capsule (single-dose devices) Breathe out Place mouthpiece between lips Inhale deeply and quickly Hold breath (10 s) Store in cool dry place

pMDI: pressurised metered-dose inhaler; DPI: dry powder inhaler. *: crucial error, likely to result in zero lung deposition of drug; #: manufactured by Boehringer Ingelheim GmbH & Co. KG, Ingelheim, Germany; ¶: error that may be crucial.

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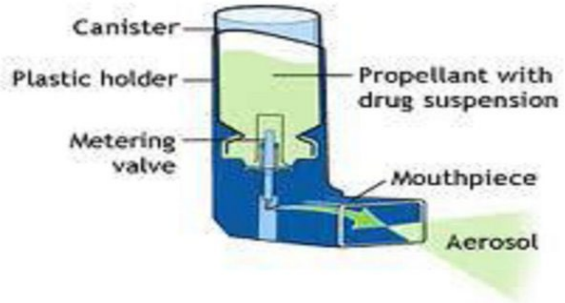


Pictorial guide for Inhaler devices. The inhaler colour will vary depending on content.

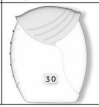
Accuhaler Dry powder inhaler Example of inhalers with this device: Ventolin, Flixotide, Seretide and Serevent Accuhaler Link to Accuhaler Inhaler Technique Video		**Pressurised metered dose inhalers (pMDI)** Co-prescribe a spacer with pMDI Example of inhalers with this device: Ventolin & Seretide Evohaler, Sereflo, Clenil Modulite, Fostair pMDI Link to pMDI Inhaler Technique Video Link to use of SpacerVideos	
Easi-Breathe Breath actuated inhaler Example of inhalers with this device: Qvar, Salamol Link to Easi-Breathe Inhaler Technique Video		**NEXThaler** Dry powder inhaler Currently, the only inhaler with this device is Fostair NEXThaler Link to NEXThaler Inhaler Technique Video	
Easyhaler Dry powder inhaler Example of inhalers with this device: Easyhaler Salbutamol, Easyhaler Beclometasone Link to Easyhaler Inhaler Technique Video		**Spiromax** Dry powder inhaler Example of Inhalers with this device: DuoResp Link to Spiromax Inhaler Technique Video	
Ellipta Dry powder inhaler Example of inhalers with this device: Relvar, Anoro, Incruse Link to Ellipta Inhaler Technique Video		**Turbohaler** Dry powder inhaler Example of inhalers with this device: Bricanyl, Oxis, Pulmicort, Symbicort Link to Turbohaler Inhaler Technique Video	

TABLE 2 Advantages and disadvantages of different inhaler devices

Device	Advantages	Disadvantages
"Press and breathe" pMDI	Compact Portable 100+ doses Convenient Quick to use Relatively cheap Cannot contaminate contents	Contains propellants Not breath-actuated Many patients cannot use it correctly (*e.g.* coordination difficulties, "cold Freon" effect) Usually low lung deposition/high oropharyngeal deposition
Breath-actuated pMDI	Compact Portable 100+ doses Convenient Quick to use Breath-actuated (no coordination needed) Cannot contaminate contents	Contains propellants "Cold Freon" effect Usually low lung deposition/high oropharyngeal deposition
"Press and breathe" pMDI plus spacer	100+ doses Quick to use Easier to coordinate Tidal breathing often OK Less oropharyngeal deposition Usually higher lung deposition than a pMDI	Contains propellants Not very portable or convenient Not breath-actuated Plastic spacers may acquire static charge
DPI	Compact Portable Convenient (multi-dose devices) Quick to use Breath-actuated (no coordination needed) Usually higher lung deposition than a pMDI Do not contain propellants	Work poorly if inhalation is not forceful enough Many patients cannot use them correctly (*e.g.* capsule handling problems for elderly) Most types are moisture sensitive
Respimat® Soft Mist™ Inhaler*	Compact Portable Multi-dose device (1 month's supply) Convenient Probably easier to use correctly than pMDI High lung deposition Does not contain propellants	Not breath-actuated Not currently available in most countries

pMDI: pressurised metered-dose inhaler; DPI: dry powder inhaler. *: manufactured by Boehringer Ingelheim GmbH & Co. KG, Ingelheim, Germany.

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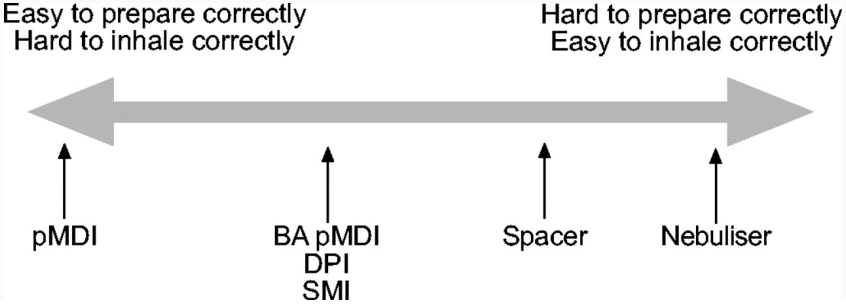

TABLE 3 Crucial errors in inhaler use

Error	Devices affected				
	pMDI	BA pMDI	pMDI + spacer	DPI	Respimat® Soft Mist™ Inhaler[§]
Failure to remove mouthpiece cap or device cover	✓	✓	✓	✓	✓
Incorrect preparation/priming of device or loading of dose*		✓		✓	✓
Failure to pierce capsule				✓[#]	
Inhaler upside down	✓	✓	✓		
Breathing out into device*				✓	
Firing device at or after end of inhalation*	✓				✓
Open-mouth inhalation technique		✓		✓	
Weak or very slow inhalation*		✓[¶]	✓[+]	✓[ƒ]	
Inhaling through nose	✓	✓	✓	✓	✓
Stopping inhalation as device is fired*	✓	✓	✓		✓

pMDI: pressurised metered-dose inhaler; BA pMDI: breath-actuated pMDI; DPI: dry powder inhaler. *: common errors; [#]: single-dose devices; [¶]: failure to trigger device; [+]: failure to open spacer valve; [ƒ]: too slow to aerosolise the dose; [§]: manufactured by Boehringer Ingelheim GmbH & Co. KG, Ingelheim, Germany.

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Basic Principles for Appropriate Inhalation Device Choice

Figure 3.11

- Availability of the drug in the device
- Patients' beliefs, satisfaction with current and previous devices and preferences need to be assessed and considered
- The number of different device types should be minimized for each patient. Ideally, only one device type should be used
- Device type should not be switched in the absence of clinical justification nor without proper information, education and medical follow-up
- Shared decision-making is the most appropriate strategy for inhalation device choice
- Patient's cognition, dexterity and strength must be taken into account
- Patient's ability to perform the correct specific inhalation maneuver for the device must be assessed:
  - Dry powder inhalers are appropriate only if the patient can make a forceful and deep inhalation. Check visually that the patient can inhale forcefully through the device - if there is doubt assess objectively or choose alternative device
  - Metered-dose inhalers and, to a lesser extent, soft mist inhalers require coordination between device triggering and inhalation and patients need to be able to perform a slow and deep inhalation. Check visually that the patient can inhale slowly and deeply from the device - if there is doubt consider adding a spacer/VHC or choose an alternative device
  - For patients unable to use an MDI (with or without spacer/VHC), SMI or DPI a nebulizer should be considered
- Other factors to consider include size, portability, cost
- Smart inhalers may be useful if there are issues with adherence/persistence or inhalation technique (for devices that can check it)
- Physicians should prescribe only devices they (and the other members of the caring team) know how to use

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Oxygen Therapy and Ventilatory Support in Stable COPD

Figure 3.14

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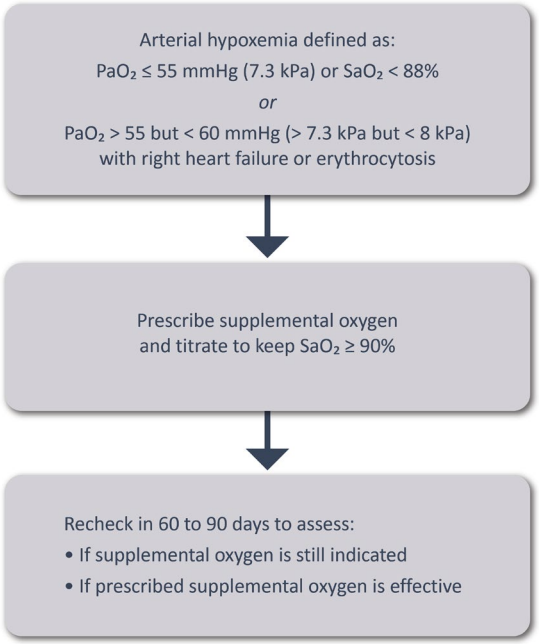
Oxygen Therapy

- The long-term administration of oxygen increases survival in patients with severe chronic resting arterial hypoxemia **(Evidence A)**
- In patients with stable COPD and moderate resting or exercise-induced arterial desaturation, prescription of long-term oxygen does not lengthen time to death or first hospitalization or provide sustained benefit in health status, lung function and 6-minute walk distance **(Evidence A)**
- Resting oxygenation at sea level does not exclude the development of severe hypoxemia when traveling by air **(Evidence C)**

Ventilatory Support

- NPPV may improve hospitalization-free survival in selected patients after recent hospitalization, particularly in those with pronounced daytime persistent hypercapnia ($PaCO_2$ > 53 mmHg) **(Evidence B)**
- In patients with severe chronic hypercapnia and a history of hospitalization for acute respiratory failure, long-term noninvasive ventilation may be considered **(Evidence B)**



Evidence Supporting a Reduction in Mortality with Pharmacotherapy and Non-pharmacotherapy in COPD Patients

Figure 3.17

Therapy	RCT*	Treatment effect on mortality	Patient characteristics
Pharmacotherapy			
LABA+LAMA+ICS[1]	Yes	Single inhaler triple therapy compared to dual LABD therapy relative risk reduction: IMPACT: HR 0.72 (95% CI: 0.53, 0.99)[1a] ETHOS: HR 0.51 (95% CI: 0.33, 0.80)[1b]	Symptomatic people with a history of frequent and/or severe exacerbations
Non-pharmacological Therapy			
Smoking cessation[2]	Yes	HR for usual care group compared to intervention group (smoking cessation) HR 1.18 (95% CI: 1.02, 1.37)[2]	Asymptomatic or mildly symptomatic
Pulmonary rehabilitation[3#]	Yes	Old trials: RR 0.28 (95% CI 0.10, 0.84)[3a] New trials: RR 0.68 (95% CI 0.28, 1.67)[3b]	Hospitalized for exacerbations of COPD (during or ≤ 4 weeks after discharge)
Long-term oxygen therapy[4]	Yes	NOTT: ≥ 19 hours of continuous oxygen vs ≤ 13 hours: 50% reduction[4a] MRC: ≥ 15 hours vs no oxygen: 50% reduction[4b]	PaO_2 ≤ 55 mmHg or < 60 mmHg with *cor pulmonale* or secondary polycythemia
Noninvasive positive pressure ventilation[5]	Yes	12% in NPPV (high IPAP level) and 33% in control HR 0.24 (95% CI 0.11, 0.49)[5]	Stable COPD with marked hypercapnia
Lung volume reduction surgery[6]	Yes	0.07 deaths/person-year (LVRS) vs 0.15 deaths/person-year (UC) RR for death 0.47 (p = 0.005)[6]	Upper lobe emphysema and low exercise capacity

*RCT with pre-specified analysis of the mortality outcome (primary or secondary outcome); #Inconclusive results likely due to differences in pulmonary rehabilitation across a wide range of participants and settings.

1. a) IMPACT trial (Lipson et al. 2020) and b) ETHOS trials (Martinez et al. 2021); 2.Lung Health Study (Anthonisen et al. 2005); 3. a) Puhan et al. (2011) and b) Puhan et al. 2016; 4. a) NOTT (NOTT, 1980) and b) MRC (MRC, 1981); 5. Kohlein trial (Kohlein et al. 2014); 6. NETT trial (Fishman et al. 2003)

ICS: inhaled corticosteroid; IPAP: inspiratory positive airway pressure; LABA: long-acting beta$_2$-agonist; LABD: long-acting bronchodilator; LAMA: long-acting anti-muscarinic; LTOT: long-term oxygen therapy; NPPV: noninvasive positive pressure ventilation; LVRS: lung volume reduction surgery; UC: usual treatment control group.

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Key Points

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- Combinations of SABA and SAMA are superior compared to either medication alone in improving FEV1 and symptoms **(Evidence A)**

- LAMAs have a greater effect on exacerbation reduction compared with LABAs **(Evidence A)** and decrease hospitalizations **(Evidence B)**

- Combinations can be given as single inhaler or multiple inhaler treatment. Single inhaler therapy may be more convenient and effective than multiple inhalers

Oral Glucocorticoids	• Long-term use of oral glucocorticoids has numerous side effects **(Evidence A)** with no evidence of benefits **(Evidence C)**
PDE4 Inhibitors	• In patients with chronic bronchitis, severe to very severe COPD and a history of exacerbations: ▪ Roflumilast improves lung function and reduces moderate and severe exacerbations **(Evidence A)**
Antibiotics	• Long-term azithromycin and erythromycin therapy reduces exacerbations over one year **(Evidence A)** • Preferentially, but not only in former smokers with exacerbations despite appropriate therapy, azithromycin can be considered (**Evidence B**) • Treatment with azithromycin is associated with an increased incidence of bacterial resistance **(Evidence A)** and hearing test impairments **(Evidence B)**

Key Points

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Inhaled Corticosteroids

- Regular treatment with ICS increases the risk of pneumonia especially in those with severe disease **(Evidence A)**
- An ICS combined with a LABA is more effective than the individual components in improving lung function and health status and reducing exacerbations in patients with exacerbations and moderate to very severe COPD **(Evidence A)**
- We do not encourage the use of a LABA+ICS combination in COPD. If there is an indication for an ICS the combination LABA+LAMA+ICS has been shown to be superior to LABA+ICS and is therefore the preferred choice
- Triple inhaled therapy of LABA+LAMA+ICS improves lung function, symptoms and health status, and reduces exacerbations, compared to LABA+ICS, LABA+LAMA or LAMA monotherapy **(Evidence A)**. Recent data suggesta beneficial effect of triple inhaled therapy versus fixed-dose LABA+LAMA combinations on mortality in symptomatic COPD patients with a history of frequent and/or severe exacerbations
- If patients with COPD have features of asthma, treatment should always contain an ICS
- Independent of ICS use, there is evidence that a blood eosinophil count < 2% increases the risk of pneumonia **(Evidence C)**
- Combinations can be given as single or multiple inhaler therapy. Single inhaler therapy may be more convenient and effective than multiple inhalers

Factors to consider when adding ICS to long-acting bronchodilators:
(note the scenario is different when considering ICS withdrawal)

STRONGLY FAVORS USE	History of hospitalization(s) for exacerbations of COPD[#]
	≥ 2 moderate exacerbations of COPD per year[#]
	Blood eosinophils ≥ 300 cells/μL
	History of, or concomitant asthma
FAVORS USE	1 moderate exacerbation of COPD per year[#]
	Blood eosinophils 100 to < 300 cells/μL
AGAINST USE	Repeated pneumonia events
	Blood eosinophils < 100 cells/μL
	History of mycobacterial infection

Potential Indications for Hospitalization Assessment*

Figure 4.4

- Severe symptoms such as sudden worsening of resting dyspnea, high respiratory rate, decreased oxygen saturation, confusion, drowsiness
- Acute respiratory failure
- Onset of new physical signs (e.g., cyanosis, peripheral edema)
- Failure of an exacerbation to respond to initial medical management
- Presence of serious comorbidities (e.g., heart failure, newly occurring arrhythmias, etc.)
- Insufficient home support

*Local resources need to be considered

Key Points for the Management of Exacerbations

Figure 4.6

- Short-acting inhaled beta$_2$-agonists, with or without short-acting anticholinergics, are recommended as the initial bronchodilators to treat an acute exacerbation **(Evidence C)**
- Systemic corticosteroids can improve lung function (FEV1), oxygenation and shorten recovery time and hospitalization duration. Duration of therapy should not normally be more than 5 days **(Evidence A)**
- Antibiotics, when indicated, can shorten recovery time, reduce the risk of early relapse, treatment failure, and hospitalization duration. Duration of therapy should normally be 5 days **(Evidence B)**
- Methylxanthines are not recommended due to increased side effect profiles **(Evidence B)**
- Non-invasive mechanical ventilation should be the first mode of ventilation used in COPD patients with acute respiratory failure who have no absolute contraindication because it improves gas exchange, reduces work of breathing and the need for intubation, decreases hospitalization duration and improves survival **(Evidence A)**

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Management of Severe but not Life-threatening Exacerbations*

Figure 4.5

Assess severity of symptoms, blood gases, chest radiograph

Administer supplemental oxygen therapy, obtain serial arterial blood gas, venous blood gas and pulse oximetry measurements

Bronchodilators:

- Increase doses and/or frequency of short-acting bronchodilators
- Combine short-acting beta 2-agonists and anticholinergics
- Consider use of long-acting bronchodilators when patient becomes stable
- Use spacers or air-driven nebulizers when appropriate

Consider oral corticosteroids

Consider antibiotics (oral) when signs of bacterial infection are present

Consider noninvasive mechanical ventilation (NIV)

At all times:

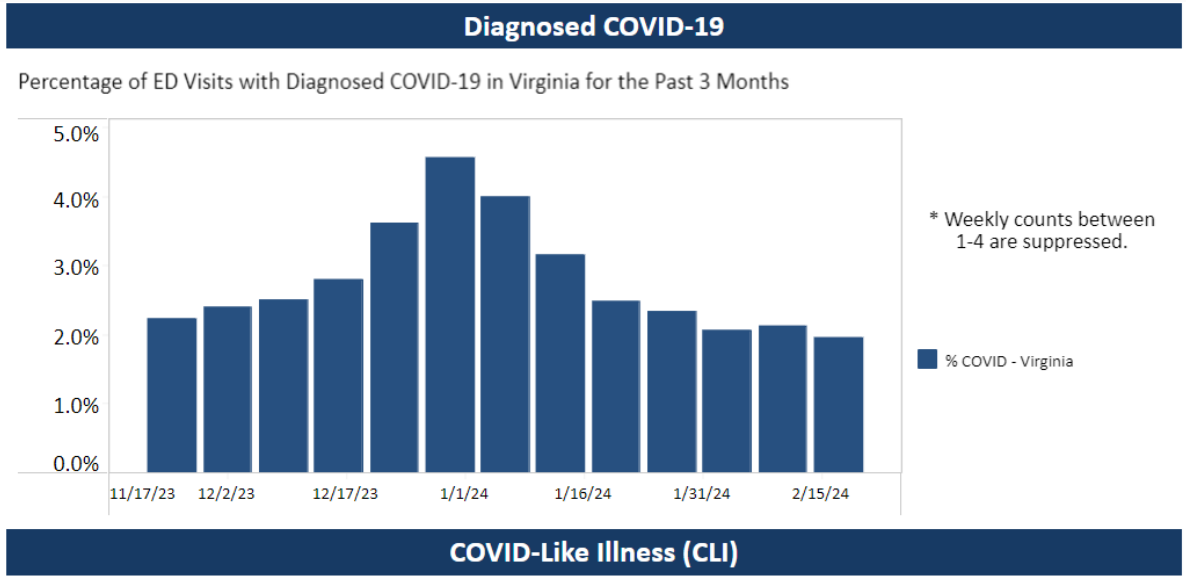
- Monitor fluid balance
- Consider subcutaneous heparin or low molecular weight heparin for thromboembolism prophylaxis
- Identify and treat associated conditions (e.g., heart failure, arrhythmias, pulmonary embolism etc.)

*Local resources need to be considered

Open Forum

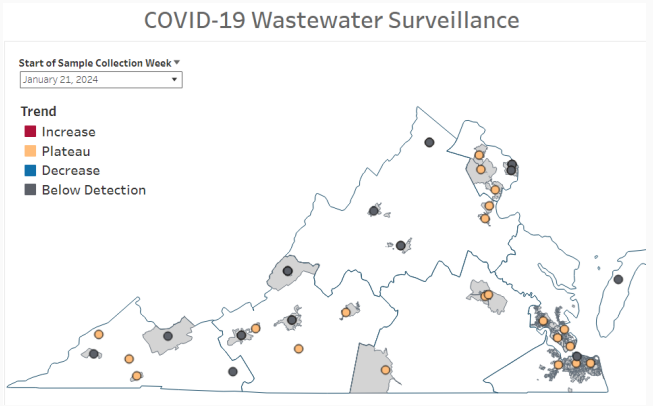
Share an idea. Anything you need help with? What's new in your Virginia Health District? Any announcements?

VDH Dashboard Snapshot



https://www.vdh.virginia.gov/coronavirus/see-the-numbers/covid-19-in-virginia/

ED COVID rates are least in Eastern VA



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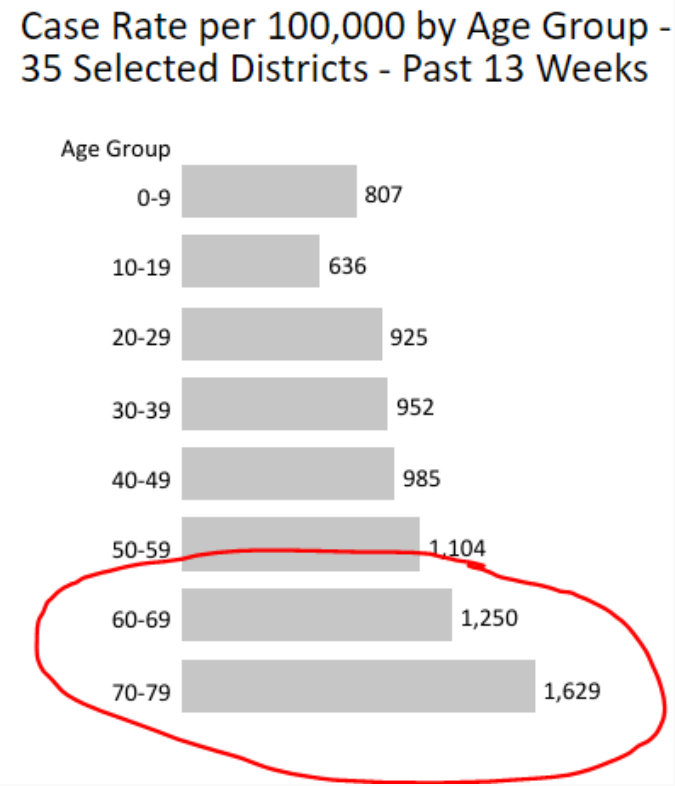

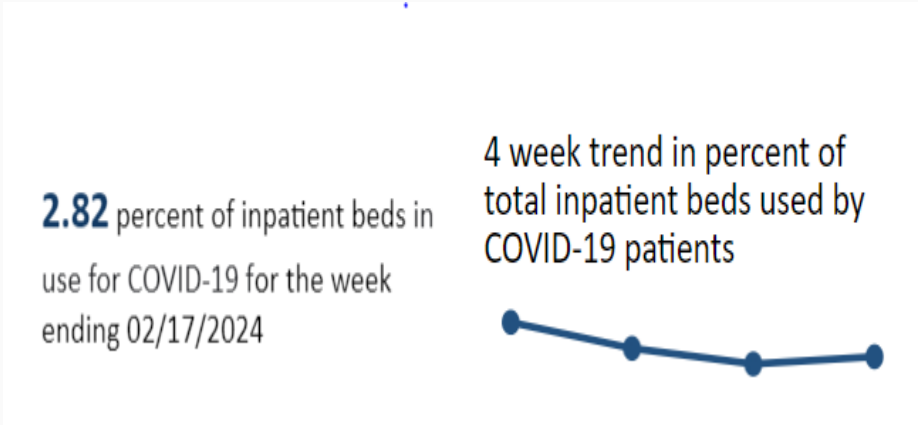

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Thank you for joining us!

Next Newsletter - coming to you in **March**

Next Monthly Forum - **Wednesday, March 20, 2024, 4-5 pm**

Your Calendar Link - In the Zoom Registration Confirmation email you received today, there's a calendar link to update your calendar for future meetings.

On your way out of our meeting today, kindly answer a brief feedback survey.

Stay in touch! Email us at ltccn@vcu.edu

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Disclosures

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Virginia Long-Term Care Infrastructure Pilot Project (VLIPP) funding will be utilized in nursing homes and long-term care facilities to assist with the ongoing COVID-19 response and to bolster preparedness for emerging infections. The projects are based on identified needs that align with funding objectives.