VA/DOD Clinical Practice Guidelines

THE PRIMARY CARE MANAGEMENT OF ASTHMA

Provider Summary

Version 4.0 | 2025

VA/DOD CLINICAL PRACTICE GUIDELINE FOR THE PRIMARY CARE MANAGEMENT OF ASTHMA

Department of Veterans Affairs

Department of Defense

Provider Summary

QUALIFYING STATEMENTS

The Department of Veterans Affairs (VA) and the Department of Defense (DOD) guidelines are based on the best information available at the time of publication. The guidelines are designed to provide information and assist decision making. They are not intended to define a standard of care and should not be construed as one. Neither should they be interpreted as prescribing an exclusive course of management.

This clinical practice guideline (CPG) is based on a systematic review of both clinical and epidemiological evidence. Developed by a panel of multidisciplinary experts, it provides a clear explanation of the logical relationships between various care options and health outcomes while rating both the quality of the evidence and the strength of the recommendation.

Variations in practice will inevitably and appropriately occur when providers consider the needs of individual patients, available resources, and limitations unique to an institution or type of practice. Therefore, every health care professional using these guidelines is responsible for evaluating the appropriateness of applying them in the setting of any particular clinical situation with a patient-centered approach.

These guidelines are not intended to represent VA or DOD policies. Further, inclusion of recommendations for specific testing, therapeutic interventions, or both within these guidelines does not guarantee coverage of civilian sector care.

Version 4.0 – 2025

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Introduction

The Department of Veterans Affairs (VA) and Department of Defense (DOD) Evidence-Based Practice Work Group (EBPWG) was established and first chartered in 2004, with a mission to advise the "…Health Executive Council on the use of clinical and epidemiological evidence to improve the health of the population across the Veterans Health Administration and Military Health System," by facilitating the development of clinical practice guidelines (CPGs) for the VA and DOD populations.(1) Development and update of VA/DOD CPGs is funded by VA Evidence Based Practice, Office of Quality and Patient Safety. The system-wide goal of evidence-based CPGs is to improve patient health and wellbeing.

In 2019, the VA and DOD published a CPG for the Primary Care Management of Asthma, (2019 Asthma CPG), which was based on evidence reviewed through July 2018. Since the release of that CPG, the evidence based on asthma has expanded. Consequently, a recommendation to update the 2019 Asthma CPG was initiated in 2024. This updated CPG's use of Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach reflects a more rigorous application of the methodology than previous iterations.(2) Therefore, the strength of some recommendations might have been modified because of the confidence in the quality of the supporting evidence (see Evidence Quality and Recommendation Strength).

This CPG provides an evidence-based framework for evaluating and managing care for children aged five years and older and adults who have asthma treated in a VA/DOD ambulatory care setting.

Successful implementation of this CPG will:

- Assess the patient's condition and determine, in collaboration with the patient, the best treatment method;
- Optimize human health outcomes and improve quality of life;
- Minimize preventable complications and morbidity;
- Emphasize the use of Patient-Centered Care (PCC) or Family-centered care (FCC), especially when caring for children.

The full VA/DOD Asthma CPG, as well as additional toolkit materials including a pocket card and patient summary, can be found at: VA/DOD Clinical Practice Guidelines Home.

Recommendations

The evidence-based clinical practice recommendations listed in the table below were developed using a systematic approach considering four domains as per the GRADE approach (see Summary of Guideline Development Methodology in the full text version of the Asthma CPG). These domains include confidence in the quality of the evidence, balance of desirable and undesirable outcomes (i.e., benefits and harms), patient values and preferences, and other implications (e.g., resource use, equity, acceptability

Table 1. Evidence-based Clinical Practice Recommendations with Strength and Category[a,b]

Topic	Sub-topic	#	Recommendation	Strength[a]	Category[b]
Diagnosis and Assessment		1.	We suggest identifying known risk factors (e.g., deployment, smoking) for developing asthma and asthma-associated conditions (e.g., depression, anxiety disorders).	Weak for	Reviewed, New-replaced
		2.	In adults and children with asthma, we suggest identifying known risk factors of asthma-related outcomes including overweight/obesity, atopy, air quality, secondhand smoke exposure in children, and history of lower respiratory infection and screening for presence of anxiety or depression.	Weak for	Not Reviewed, Amended
Treatment and Management	*Asthma Education*	3.	We suggest offering a written asthma action plan to improve asthma control and asthma-related quality of life.	Weak for	Reviewed, Amended
		4.	There is insufficient evidence to recommend for or against offering any particular patient-oriented technology to augment usual care for asthma.	Neither for nor against	Reviewed, New-replaced
	Pharmacotherapy	5.	We recommend inhaled corticosteroids (ICS) for asthma control.	Strong for	Not reviewed, Amended
		6.	For patients (ages 12 and over) with asthma, we suggest inhaled corticosteroids combined with a rapid-onset long-acting beta agonist (e.g., formoterol), for control and relief of asthma.	Weak for	Reviewed, New-replaced
		7.	For patients with uncontrolled asthma on inhaled corticosteroids alone, we recommend the use of both inhaled corticosteroids and rapid-onset long-acting beta agonists (e.g., formoterol) as both controller and reliever.	Strong for	Reviewed, Amended
		8.	In patients with uncontrolled asthma on inhaled corticosteroids and long-acting beta agonists, who use short-acting beta agonists for relief, we suggest inhaled corticosteroids and rapid-onset long-acting beta agonists (e.g., formoterol) as both controller and reliever.	Weak for	Reviewed, New-added
		9.	For patients with asthma (ages 12 and over) not controlled by medium or high dose inhaled corticosteroids and long-acting beta agonists, we suggest adding a long-acting muscarinic antagonist (LAMA).	Weak for	Reviewed, New-added
		10.	In patients with exercise-induced bronchoconstriction, we suggest pre-exertional short-acting beta agonists.	Weak for	Reviewed, New-replaced
		11.	In patients with controlled asthma on a stable medication regimen, we suggest either stepping down (not discontinuing) inhaled corticosteroids dose or discontinuing long-acting beta agonists.	Weak for	Not reviewed, Not changed

Topic	Sub-topic	#	Recommendation	Strength[a]	Category[b]
Treatment and Management (contd.)		12.	We suggest offering the treatment of gastroesophageal reflux disease in patients with gastroesophageal reflux disease and asthma for improving asthma control and lung function.	Weak for	Reviewed, New-added
	Non-pharmacotherapy	13.	We suggest weight loss in adults with asthma and obesity to improve asthma control.	Weak for	Reviewed, New-added
		14.	We suggest against the use of indoor air filtration devices such as high efficiency particulate air and nitric oxide filters, for asthma control.	Weak against	Reviewed, New-added
		15.	We suggest a multidisciplinary treatment approach to improve asthma-related quality of life, asthma control, and treatment adherence.	Weak for	Not reviewed, Not changed
		16.	We suggest patients with asthma participate in regular exercise to improve quality of life and asthma control.	Weak for	Not reviewed, Not changed
		17.	We suggest offering cognitive behavioral therapy as a means of improving asthma-related quality of life and self-reported asthma control for adult patients with asthma.	Weak for	Not reviewed, Not changed
	Monitoring and Follow-up	18.	We suggest against utilizing spirometry for routine monitoring of patients with stable asthma.	Weak against	Not reviewed, Not changed
		19.	There is insufficient evidence to recommend for or against routine use of fractional exhaled nitric oxide in monitoring patients in primary care settings to improve asthma-related clinical outcomes.	Neither for nor against	Not reviewed, Not changed
		20.	For patients with asthma, there is insufficient evidence to recommend for or against offering telemedicine as an alternative to in-person treatment.	Neither for nor against	Reviewed, New-added
		21.	We suggest leveraging electronic health record capabilities, such as trackers and reminders, in the care of patients with asthma.	Weak for	Not reviewed, Not changed

[a] For additional information, see Determining Recommendation Strength and Direction in the full text version of the Asthma CPG.

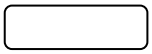
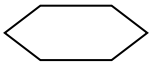
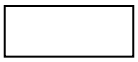
[b] For additional information, see Recommendation Categorization in the full text version of the Asthma CPG.

Algorithm

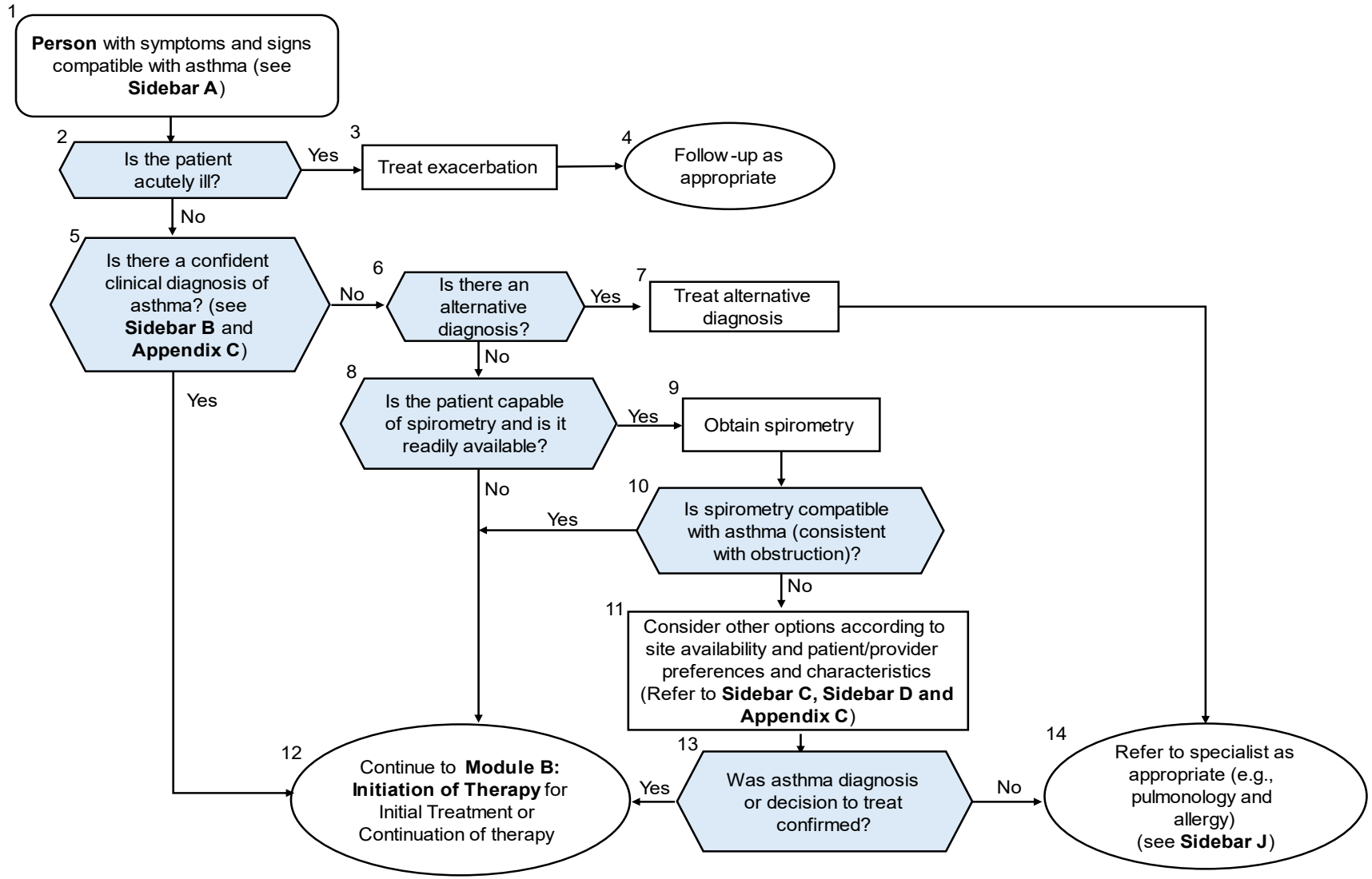
This CPG's algorithm is designed to facilitate understanding of the clinical pathway and decision-making process used in the primary care management of asthma. This algorithm simplified flow of the management of patients with asthma and helps foster efficient decision making by providers. It includes:

- An ordered sequence of steps of care,
- Recommended observations and examinations,
- Decisions to be considered, and
- Actions to be taken

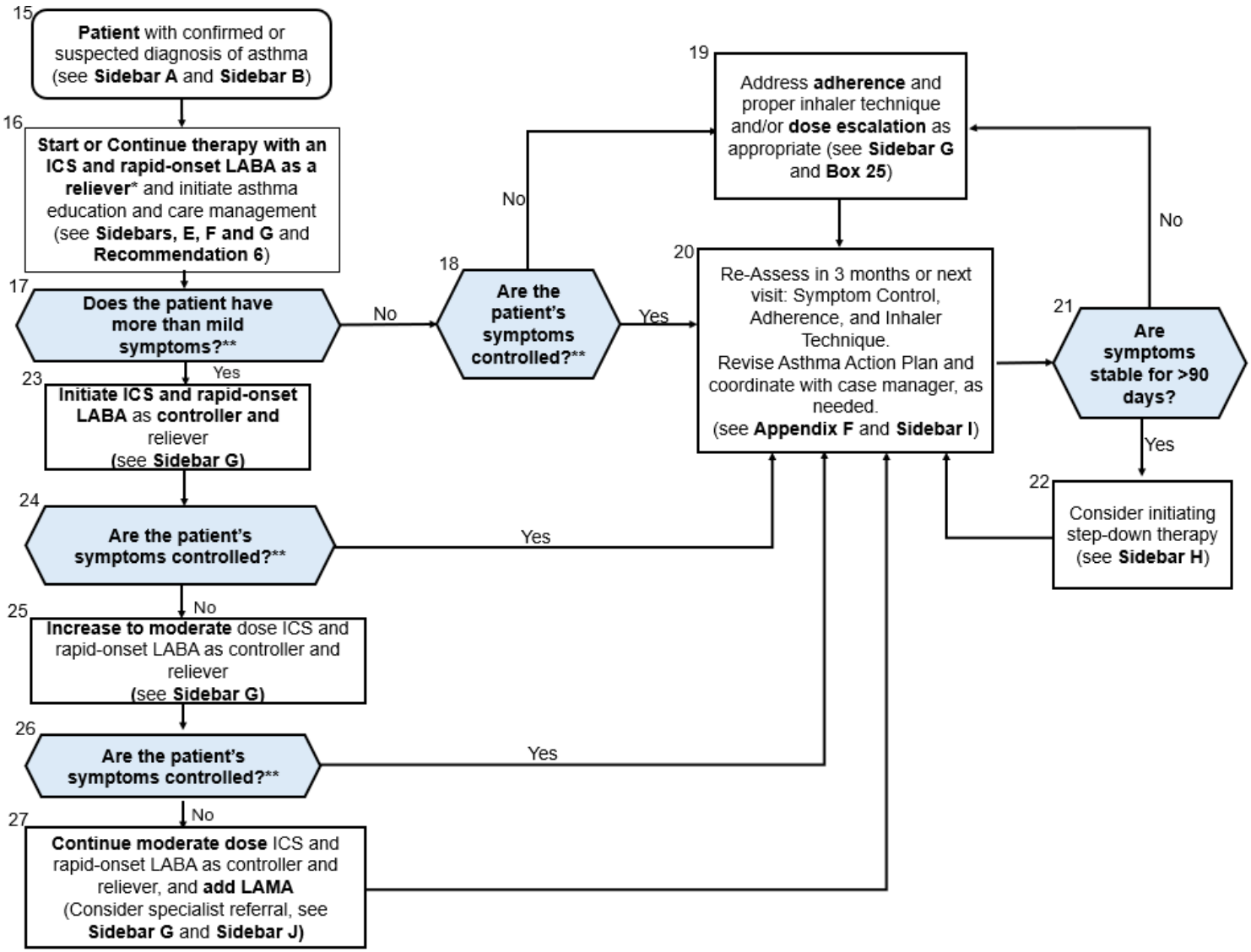
The algorithm is a step-by-step decision tree. Standardized symbols display each step, and arrows connect the numbered boxes indicating the order in which the steps should be followed.(3) Sidebars provide more detailed information to assist in defining and interpreting elements in the boxes.

Shape	Description
	Rounded rectangles represent a clinical state or condition.
	Hexagons represent a decision point in the guideline, formulated as a question that can be answered "Yes" or "No".
	Rectangles represent an action in the process of care.
	Ovals represent a link to another section within the algorithm

Module A: Assessment and Diagnosis of Asthma



Module B: Initiation of Therapy



Abbreviations: LABA: Long-acting beta agonist; ICS: inhaled corticosteroid; LAMA: long-acting muscarinic receptor
*Use lowest effective dose of ICS or intermittent therapy to reduce side effects

**At every visit address patient's adherence and proper inhaler technique

Sidebar A: Asthma Symptoms

- **Adult:** Daytime or nighttime chronic recurring cough, wheeze, chest tightness, and shortness of breath
- **Child:** Daytime or nighttime prolonged (more than 2 weeks) or recurring cough, wheeze, chest tightness, shortness of breath and other associated non-respiratory symptoms including irritability and being fatigued or tired

Sidebar B: Assessment

- Symptoms (see Sidebar A)
- Pattern (exercise, diurnal vs. nocturnal symptoms)
- Precipitating triggers (exercise, allergens, cold air, laughter)
- Aggravating factors/risk factors (see **Recommendations 1 and 2**)
    - Adults and children: Overweight/obesity, atopy, secondhand smoke exposure in children, history of lower respiratory infection
    - Adults: Depression, current smokers, OIF/OEF deployment
    - Occupational exposure
- Medical history including allergic rhinitis or eczema and physical exam (Appendix D)
- Comorbidities
- Effects of symptoms on quality of life, sleep, and performance (work or school)
- Response to treatment
- If not previously done, suggest radiograph if other diagnoses are being considered
- Review CBC for eosinophil count
- Assess patient/caregiver educational needs (health literacy, knowledge, skills, confidence, preferences for education methods, modalities)
- Utilize the ACT to assess asthma control

Abbreviations: ACT: Asthma Control Test; CBC: complete cell blood count; OIF/OEF: Operation Iraqi Freedom/Operation Enduring Freedom

Sidebar C: Alternative Evaluation for Asthma

Asthma is a clinical diagnosis, though diagnostic studies and response to treatment may be supportive of the diagnosis. In situations in which routine spirometry does not demonstrate obstruction yet there remains a clinical suspicion for asthma, any of the following options should be offered dependent upon site availability and patient/provider preferences:

- Spirometry with bronchodilator testing (if not previously performed)
- Bronchoprovocation testing
    - May be required for some service members or in some situations in the DOD
    - Methacholine is the preferred agent for bronchoprovocation
    - Bronchoprovocation should not be ordered for children; refer to specialist only
- Trial of treatment (See Module B)
- Specialist Referral (Pulmonary or Allergy and Immunology)

Abbreviations: DOD: Department of Defense

Sidebar D: Lung Function Testing

- **Spirometry:** initial test for use when obstructive or restrictive ventilatory disease are suspected
- Use bronchodilators testing to assess for reversibility if obstruction is noted on spirometry
- **Bronchoprovocation** should be considered when reactive airways disease/asthma is suspected despite baseline spirometry inconsistent with the diagnosis. Methacholine is a reasonable first line bronchoprovocative test. It may be required for some DOD personnel. However, due to administrative and logistical concerns related to MCT, patients requiring bronchoprovocation testing should be referred to specialist for evaluation
- Bronchoprovocation should not be ordered for children; refer to specialist only
- Exercise challenge test considered for patients with symptoms only with exercise
- **Full PFT** (spirometry, plethysmography, and SB DLCO measurement): plethysmography allows for a confirmation of a restrictive ventilatory defect. SB DLCO measurement is used to assess for abnormal alveolar gas exchange

Abbreviations: DOD: Department of Defense; MCT: Marine Combat Training; PFT: pulmonary function testing; SB DLCO: single breath diffusing capacity of the lung for carbon monoxide

Sidebar E: Asthma Education and Self-Management Support

Patients and caregivers should be informed of the diagnosis of asthma. Their current understanding of asthma and treatment adherence should be assessed, they should be provided evidence-based education and materials/resources, and they should be given the opportunity to ask questions so they can fully understand their asthma. Consistent follow-up should ensure the patient and caregiver are confident in their ability to self-manage their asthma and take a more active role in the management of their asthma with their healthcare team. Asthma education should include:

- Basic pathophysiology of asthma
- Typical asthma symptoms (see Sidebar A)
- How to identify well-controlled asthma
- Asthma patterns (exercise, nocturnal symptoms, and seasonal allergens) and risk factors (see **Recommendations 1 and 2**)
- Asthma exacerbations and precipitating triggers
- Goals of treatment and use of Asthma Action Plan
- Medication use (e.g., what it does, how to use it, potential side effects, and rationale for why each medication was selected) including assessment of device technique
- How to recognize loss of asthma control and steps to take to regain control of symptoms
- When and how to seek emergency care for asthma exacerbations
- Consider a personalized written asthma action plan (see **Recommendation 3**)
- Consider a team approach to asthma management (dietician, pulmonologist, behavioral health provider, disease manager, health coach, etc.)
- Lifestyle changes and psychosocial considerations (see Sidebar F)

Sidebar F: Care Management

- **Multidisciplinary care management:**
  - Multidisciplinary care management consists of comprehensive assessment and treatment (not necessary to be in the same location) (see **Recommendation 15**)
  - CBT may be considered to reduce anxiety and improve quality of life (see **Recommendation 17**)
  - Triggers for worsening control should be identified for both indoor and outdoor settings, and if possible, steps taken to reduce exposure
  - Psychological comorbidities may affect patient outcome
  - Medical co-occurring conditions should be identified and addressed such as: Gastroesophageal Reflux Disease (GERD), Obstructive Sleep Apnea (OSA), hormonal disorders, rhinitis, along with chronic disorders such as diabetes and depression
- **Lifestyle changes:**
  - Smoking/vaping cessation
  - Regular exercise to help reduce obesity (see **Recommendation 16**)
  - Weight management, choose healthy foods, allergy reducing diet choices
  - Avoidance of triggers especially outdoor seasonal allergies such as dust, tree and grass pollen, and fungus; indoor triggers such as dust mites, mold, scented candles and strong perfumes/odors
  - Ensure patient compliance with medications, allergy testing and treatment, etc.
  - Avoid environmental triggers which may include wood burning fireplaces or stoves in winter, particulate matter (PM) – ozone, vehicle exhaust and others
- **Psychosocial considerations and impact on asthma:**
  - Patient ability to absorb financial burden of medication cost
  - Time away from work, home responsibilities for follow-up (e.g., office visits, testing)
  - Increased anxiety may be experienced during times of asthma trigger exposure and lead to poor asthma control and/or perception of a lower quality of life
  - Family support of patient treatment emotionally, spiritually, and behaviorally
  - Reduce stress response through stress management and reduction techniques, medications, mindfulness, etc.

Abbreviations: CBT: cognitive behavioral therapy

Sidebar G: Steps for Escalation and De-escalation of Asthma

- **Consideration for Step-up Therapy**
  - Low dose ICS + rapid-onset long-acting beta agonist as reliever
  - Low dose ICS + rapid-onset long-acting beta agonist as controller and reliever (See **Recommendation 6**, **Recommendation 7**, and **Recommendation 8**)
  - Moderate dose ICS + rapid-onset long-acting beta agonist as controller and reliever
  - Moderate dose ICS + rapid-onset long-acting beta agonist as controller and reliever + LAMA (See **Recommendation 9**)
    - Consider specialist referral
  - High dose ICS + rapid-onset long-acting beta agonist as controller and reliever + LAMA
    - Consider specialist referral for consideration of advanced treatments (e.g., biologics, PD4 inhibitor, etc.)
- **Additional Consideration for Step-up Therapy**
  - Assess and address inhaler technique whenever step-up therapy is indicated
  - Monitor whether patient is overusing reliever beta agonist medications (e.g., SABA, rapid-onset long-acting beta agonist)
- **Consideration for Step-down Therapy**
  - Patient selection
    - De-escalation of therapy should be avoided in patients who cannot be closely monitored and patients at high risk of severe exacerbations, such as pregnant persons and those with recent acute illness
  - Use lowest effective dose of ICS or intermittent therapy to reduce side effects. (See **Recommendation 11**, Sidebar H)
    - ICS dose should be reduced gradually with regular reassessment of asthma control
    - ICS should not be discontinued (See **Recommendation 5**) when de-escalating therapy. In cases of mild and well-controlled asthma, low dose ICS + rapid- onset long-acting beta agonist should be continued as reliever therapy
    - Patients should have a written action plan including instructions for recognizing early signs of worsening asthma and steps to take, including medication adjustments and when to seek medical attention
- Refer to Appendix G, Tables G-1 and G-2 for discussion of specific medications

Abbreviations: ICS: inhaled corticosteroid; LAMA: long-acting muscarinic antagonist; PD4: phosphodiesterase-4; SABA: short-acting beta agonist

Sidebar I: Considerations for Short Term Follow-up

- Recent hospitalization
- Urgent Care (UC)/Emergency Department (ED) visit
- Step medication change
- Recent exacerbation
- Increasing use of rescue inhalers
- Inability to use inhaler correctly

Sidebar J: Considerations for Specialty Referral

- Life-threatening exacerbation/intubation
- Multiple hospitalizations or ICU admission
- Difficulty confirming the diagnosis of asthma
- Persistent or severely uncontrolled asthma or frequent exacerbations
- Evidence of, or risk of, significant treatment side effects
- Suspected occupational asthma
- Symptoms suggesting complications or a sub-type of asthma (e.g., eosinophilia)

Abbreviations: ICU: intensive care unit

Additional Information on Drugs Used in Treatment of Asthma

Table 2. Drugs Used in the Treatment of Asthma[a, b, c]

Drug Class[a]	Place in Therapy	Clinical Considerations[b]
Rapid-onset SABA ▪ Albuterol (HFA MDI/Neb SOLN) ▪ Levalbuterol (HFA MDI/Neb SOLN) ▪ Albuterol DPI	▪ Short-acting agents are used for acute relief of bronchospasm, intermittent asthma, and prevention of exercise-induced bronchospasm	▪ May cause palpitations, chest pain, rapid heart rate, increased blood pressure, tremor, nervousness ▪ Decreases in potassium levels or hyperglycemia have occurred ▪ Frequent use of SABA (>2 days/week) may indicate uncontrolled asthma and the need to intensify drug therapy regimen
ICS ▪ Beclomethasone (HFA MDI) ▪ Budesonide (DPI/Neb SOLN) ▪ Ciclesonide (HFA MDI) ▪ Fluticasone (HFA MDI/DPI) ▪ Mometasone (HFA MDI/DPI)	▪ Considered first line agents for maintenance treatment of asthma	▪ Local adverse effects include oral candidiasis, dysphonia, and reflex cough/bronchospasm. Advise patients to rinse mouth and spit after use of ICS ▪ Prolonged use may slow growth rate in children and adolescents ▪ Higher doses have been associated with adrenal suppression, glaucoma, cataracts, skin thinning, bruising, osteoporosis

Drug Class[a]	Place in Therapy	Clinical Considerations[b]
LABA ▪ Salmeterol (DPI) ▪ Olodaterol (SMI) [C] ▪ Indacaterol (DPI) [C] ▪ Formoterol (Neb SOLN) [C] ▪ Arformoterol (Neb SOLN) [C]	▪ Preferred add-on agents to inhaled corticosteroids	▪ May cause palpitations, chest pain, rapid heart rate, increased blood pressure, tremor, nervousness ▪ Decreases in potassium levels or hyperglycemia have occurred ▪ Because of the risk of asthma-related death and hospitalization, use of a LABA for the treatment of asthma without concomitant use of a long-term asthma control medication, such as an ICS, is contraindicated
SAMA ▪ Ipratropium (HFA MDI) and Neb SOLN	▪ Add-on agent to inhaled corticosteroids beta agonists (SABA or formoterol) cannot be used as rescue ▪ Note: SMI only approved for COPD	▪ May cause bitter taste in mouth, dry mouth, dry nasal mucosa, sinusitis
Combination Inhalers ▪ Budesonide/albuterol (HFA MDI) ▪ Budesonide/formoterol (HFA MDI) ▪ Fluticasone/salmeterol (HFA MDI/DPI) ▪ Mometasone/formoterol (MDI) ▪ Fluticasone/vilanterol (DPI) ▪ Mometasone/formoterol (MDI) ▪ Ipratropium/albuterol (MDI) or Neb SOLN Triple Agent Inhalers ▪ Fluticasone/umeclidium/vilanterol (DPI)	▪ Fixed-dose combination ICS/LABA is preferred over using both drugs as separate inhalers to encourage adherence to therapy. Separate ICS + LABA is alternative and effective with optimal adherence. ▪ SAMA/SABA not preferred in Asthma as recommended MART therapy should include ICS	▪ See comments for SAMA, ICS and beta agonists ▪ LAMA may cause headache, dry mouth, constipation, ▪ Albuterol and Formoterol onset for both 5 min. Albuterol lasts 6 hours, Formoterol lasts 12 hours. No evidence for budesonide/albuterol as more effective than Budesonide/formoterol ▪ ICS plus rapid-onset LABA preferred for MART therapy

Drug Class[a]	Place in Therapy	Clinical Considerations[b]
■ Budesonide/glycopyrrolate/formoterol (MDI)[C]	■ Triple agents appropriate when LABA/ICS adherent with continued symptoms. These can be triple agent inhaler or separate ingredient inhalers with appropriate adherence	■ See comments for SAMA, ICS, Beta Agonists and LAMA above
Leukotriene Modifiers ■ Montelukast (tablets, chewable tablet, oral granules) ■ Zafirlukast tablets ■ Zileuton (immediate- release and extended- release tablets)	■ Monotherapy may be considered as an alternative (not preferred) to ICS for mild persistent asthma ■ May be used as an alternative (not preferred) to a LABA for add on therapy to ICS ■ Montelukast may be used for prevention of exercise-induced bronchospasm (zafirlukast and zileuton are not FDA approved)	■ Neuropsychiatric events (e.g., suicidal ideation, depression, agitation, aggression, anxiousness, irritability, restlessness, dream abnormalities, hallucinations, and insomnia) have been reported ■ Rare cases of systemic eosinophilia, eosinophilic pneumonia, or clinical features of vasculitis consistent with eosinophilic granulomatosis with polyangiitis (formerly known as Churg-Strauss) have occurred with montelukast and zafirlukast and may be associated with the reduction of oral steroid therapy ■ Serious hepatic adverse events have been reported with zafirlukast. Use in patients with hepatic impairment, including hepatic cirrhosis is contraindicated ■ Zileuton may result in increased hepatic

Drug Class[a]	Place in Therapy	Clinical Considerations[b]
		transaminases and liver injury. Zileuton is contraindicated in patients with active liver disease or persistent serum alanine aminotransferase elevations of 3 or more times the upper limit of normal. ■ Zileuton is not indicated in children <12 years ■ Montelukast chewable tablets contain phenylaniline ■ Do not abruptly substitute leukotriene modifiers for inhaled or oral corticosteroids; reduce steroids gradually
Long-acting anticholinergics (LAMA) ■ Tiotropium (SMI/DPI) Note: Tiotropium is the only LAMA approved for asthma. Only the Soft Mist Inhaler is approved for use in asthma in patients ≥6 years.	■ May be considered as an alternative for add- on to ICS if unable to use LABAs ■ May be used as add-on for those who remain symptomatic despite maximal therapy with ICS/LABA (recommend referral to specialist)	■ Maximum benefits may take up to 4-8 weeks of dosing ■ May cause dizziness and blurred vision ■ Caution patient to avoid getting product in eyes; temporary blurred vision may result ■ Use with caution in patients with narrow angle glaucoma, prostatic hyperplasia, or bladder neck obstruction as these conditions may worsen ■ Use with caution in patients with moderate to severe renal impairment (CrCl ≤60 mL/minute); monitor patient for anticholinergic adverse

Drug Class[a]	Place in Therapy	Clinical Considerations[b]
		events. ■ Contraindicated in patients who have had hypersensitivity to ipratropium

[a] Refer to product package insert or other established resources for dosing recommendations and age specific use
[b] Table is not intended to be inclusive of all clinical considerations but rather to highlight some of the key points
[c] Approved for maintenance therapy for COPD; at present, they are not approved for use in asthma.
Abbreviations: COPD: chronic obstructive pulmonary disease; CrCl: creatinine clearance; DPI: dry powder inhaler; FDA: U.S. Food and Drug Administration; HFA: Hydrofluoroalkane; ICS: inhaled corticosteroid; LABA: long-acting beta agonist; LAMA: long-acting muscarinic antagonist; MDI: metered dose inhaler; mL: milliliter; SABA: short-acting beta agonist; SAMA: selective beta-2 adrenergic agonists; SMI: soft mist inhaler; Neb SOLN: nebulizer solution

Table 3. Inhaled Steroids[a, b, c, d, e]

Inhaled Steroid Strengths	Usual Dosing Interval	FDA-approved ages	Ages	Low Dose	Medium Dose	High Dose	Highest recommended dose per product labeling (mcg/day)
Beclomethasone HFA MDI (*QVAR REDIHALER*) 40, 80 mcg	Twice daily	≥4 years	≥ 12 years 4-11 years	80-240 80-160	>240-480 >160-320	>480 >320	640 160
Budesonide DPI (*PULMICORT FLEXHALER*) 90, 180 mcg *Also available in Neb SOLN	Twice daily	≥6 years	≥18 years 6-17 years	180-540 180-360	>540-1170 >360-720	>1200 >800	1440 720
Ciclesonide HFA MDI (*ALVESCO*) 80, 160 mcg	Twice daily	≥12 years[c]	≥12 years	80-160	>160-320	>320	640
Fluticasone propionate HFA MDI (*FLOVENT HFA*) 44, 110, 220 mcg	Twice daily	≥4 years	≥12 years 4-11 years	88-264 88-176	>264-440 >176-352	>440 >352	1760 176

Inhaled Steroid Strengths	Usual Dosing Interval	FDA-approved ages	Ages	Low Dose	Medium Dose	High Dose	Highest recommended dose per product labeling (mcg/day)
Fluticasone propionate DPI (*FLOVENT DISKUS*) 50, 100, 250 mcg	Twice daily	≥4 years	≥12 years 4-11 years	100-300 100-200	>300-500 >200-400	>500 >400	2000 200
Fluticasone propionate DPI (*ARMONAIR RESPICLICK*) 55, 113, 232 mcg	Twice daily	≥12 years	≥12 years	110	226	464	464
Fluticasone furoate DPI (*ARNUITY ELLIPTA*) 50,100, 200 mcg	Once daily	≥5 years	≥12 years[d]	100	N/A	200	200 (≥12 years) 50 (5-11 years)
Mometasone DPI (*ASMANEX TWISTHALER*) 110, 220 mcg	Once or Twice daily	≥4 years	≥12 years[e]	110-220	>220-440	>440	880 (≥12 years) 110 (4-11 years)
Mometasone HFA MDI (*ASMANEX HFA*) 100, 200 mcg	Twice daily	≥12 years	≥12 years	100-200	>200-400	>400	800

[a] Comparative daily dose adapted from guidance from National Heart, Lung, and Blood Institute and Global Initiative for Asthma

[b] For dosing recommendations, refer to the manufacturer's product package insert.

[c] Although ciclesonide is not approved for children <12 years of age, there are clinical data using ciclesonide once daily in this population.

[d] The dose of fluticasone furoate (*ARNUITY*) dry powder inhaler for children aged 5-11 years is 50 mcg daily.

[e] The dose of mometasone dry powder inhaler for childresn aged 4-11 years is 110 mcg daily.

Abbreviations: DPI: dry powder inhaler; FDA: U.S. Food and Drug Administration; HFA: hydrofluoroalkane; mcg: microgram; MDI: metered dose inhaler; N/A: not applica

Highlighted Features of this Guideline

The current document is an update to the 2019 VA/DOD Asthma CPG. The following significant updates make it important that providers review this version of the CPG:

- Updated Algorithm;
- Added 6 new recommendations, reviewed and replaced 4 recommendations, reviewed and amended 3 recommendations, carried over 6 recommendations not changed, and carried over 1 recommendation amended from the 2019 VA/DOD Asthma CPG.

This CPG also provides expanded recommendations on research needed to strengthen future guidelines.

The 2025 VA/DOD Clinical Practice Guideline for the Management of Asthma (VA/DOD DM CPG) was developed with the active engagement of a multidisciplinary team of clinicians whose expertise and broad perspectives helped create a document that addresses clinically relevant topics related to the diagnosis and treatment of Asthma in the primary/care ambulatory care setting. This CPG includes many updates from the 2019 VA/DOD Asthma CPG. The Work Group developed 12 key questions (KQ) to guide evidence synthesis. In drafting its recommendations, the Work Group considered the strength of evidence, the balance of desired outcomes with potential harms, the potential for variation in patient values and preferences, and considerations such as resource use and equity.

Some of the recommendations are new-added or new-replaced, and the strength of the evidence recommendation is noted:

- We suggest identifying known risk factors (e.g., deployment, smoking) for developing asthma and asthma-associated conditions (e.g., depression, anxiety disorders). (Weak for)

- There is insufficient evidence to recommend for or against offering any particular patient-oriented technology to augment usual care for asthma. (Neither for nor against)

- For patients (ages 12 and over) with asthma, we suggest inhaled corticosteroids combined with a rapid-onset long-acting beta agonist (e.g., formoterol), for control and relief of asthma. (Weak for)

- In patients with uncontrolled asthma on inhaled corticosteroids and long-acting beta agonists using short-acting beta agonists for relief, we suggest inhaled corticosteroids and rapid-onset long-acting beta agonists as both controller and reliever. (Weak for)

- For patients with asthma (ages 12 and over) not controlled by medium or high dose inhaled corticosteroids and long-acting beta agonists, we suggest adding a long-acting muscarinic antagonist (LAMA). (Weak for)

- In patients with exercise-induced bronchoconstriction, we suggest pre-exertional short-acting beta agonists. (Weak for)

- We suggest offering the treatment of gastroesophageal reflux disease in patients with gastroesophageal reflux disease and asthma for improving asthma control and lung function. (Weak for)
- We suggest weight loss in adults with asthma and obesity to improve asthma control. (Weak for)
- We suggest against the use of indoor air filtration devices such as high efficiency particulate air and nitric oxide filters, for asthma control. (Weak against)
- For patients with asthma, there is insufficient evidence to recommend for or against offering telemedicine as an alternative to in-person treatment. (Neither for nor against)

Finally, the 2025 VA/DOD Asthma CPG applied rigorous criteria for reviewing evidence compared with prior versions of this CPG. The GRADE methodology carefully defines how data will be interpreted. It applies rating criteria that assign strength of evidence to critical outcomes, which might result in some recommendations being excluded or downgraded (see Evidence Quality and Recommendation Strength). However, these methods protect the integrity of the Asthma CPG and ensure the recommendation statements are true to the underlying and available evidence.

Scope of the CPG

This CPG is based on published clinical evidence and related information available through May 15, 2024. It is intended to provide general guidance on best evidence-based practices (see Appendix A in the full text of the Asthma CPG for additional information on the evidence review methodology). Although the CPG is intended to improve the quality of care and clinical outcomes (see Introduction), it is not intended to define a standard of care (i.e., mandated or strictly required care).

This CPG is intended for use by primary care providers and others on the healthcare team involved in the care of service members, Veterans, or their family members with asthma.

This CPG is designed to assist providers in managing patients with asthma, not including any co-occurring conditions such as COPD. Moreover, the patient population of interest for this CPG are children aged 5 years and older and adults with asthma treated in a VA/DOD ambulatory care setting. It includes Veterans as well as Active, Guard and Reserve service members and their adult beneficiaries.

Methods

The Work Group used the GRADE approach to craft each recommendation and determine its strength. Per the GRADE approach, recommendations must be evidence based and cannot be made based on expert opinion alone. The GRADE approach uses the following four domains to inform the strength of each recommendation (see Determining Recommendation Strength and Direction).(4)

1. Balance of desirable and undesirable outcomes
2. Confidence in the quality of the evidence

3. Patient or provider values and preferences
4. Other implications, as appropriate (e.g., resource use, equity, acceptability, feasibility, subgroup considerations)

Using these four domains, the Work Group determined the relative strength of each recommendation (*Strong or Weak*). The strength of a recommendation is defined as the extent to which one can be confident that the desirable effects of an intervention outweigh its undesirable effects and is based on the framework above, which incorporates the four domains.(4) A Strong recommendation generally indicates High or Moderate confidence in the quality of the available evidence, a clear difference in magnitude between the benefits and harms of an intervention, similar patient values and preferences, and understood influence of other implications (e.g., resource use, feasibility).

In some instances, insufficient evidence exists on which to base a recommendation for or against a particular therapy, preventive measure, or other intervention. For example, the systematic evidence review might have found little or no relevant evidence, inconclusive evidence, or conflicting evidence for the intervention. The way this finding is expressed in the CPG might vary. In such instances, the Work Group might include among its set of recommendations a statement of insufficient evidence for an intervention that might be in common practice although it is unsupported by clinical evidence and particularly if other risks of continuing its use might exist (e.g., high opportunity cost, misallocation of resources). In other cases, the Work Group might decide to exclude this type of statement about an intervention. For example, the Work Group might remain silent where an absence of evidence occurs for a rarely used intervention. In other cases, an intervention might have a favorable balance of benefits and harms but might be a standard of care for which no recent evidence has been generated.

Using these elements, the Work Group determines the strength and direction of each recommendation and formulates the recommendation with the general corresponding text as shown in Table 4.

Table 4. Strength and Direction of Recommendations and General Corresponding Text

Recommendation Strength and Direction	General Corresponding Text
Strong for	We recommend . . .
Weak for	We suggest …
Neither for nor against	There is insufficient evidence to recommend for or against . . .
Weak against	We suggest against . . .
Strong against	We recommend against . . .

Guideline Development Team

Table 5. Guideline Work Group and Guideline Development Team

Organization	Names*
	Amir Sharafkhaneh, MD, PhD (Champion)

Organization	Names*
Department of Veteran Affairs	**William C. "Claibe" Yarbrough, MD (Champion)**
	Donald Curran, MD
	Katherine Richards, MD
	Mary H. Gollings, LCSW
	LaToya Huff, RT
	Christina Nguyen, RT
	Kimberly Schnacky, PharmD
	Elizabeth Rees Atayde, RN, MSN, FNP, CCM-R
Department of Defense	**Kimberly D. Fabyan, MD (Champion)**
	Jonathan C. Schroeder, MD (Champion)
	Lan-Anh Ngo, MD
	Daniel A. Steigelman, MD
	Brian D. Nibbelink, PharmD
	William C. Wilson, RRT
	Jane E. Jacknewitz-Woolard, DNP, CRNP-BC, AE-C
	Juhyun Cho, MD
	Deona J. Eickhoff, MBA, BSN, RN, CCM
VA Evidence Based Practice, Office of Quality and Patient Safety Veterans Health Administration	James Sall, PhD, FNP-BC
	René M. Sutton, BS, HCA, FAC-COR II
	Jennifer Ballard-Hernandez, DNP, RN, FNP-BC
	Sarah Davis-Arnold, MSN, RN, NPD-BC, RCIS, EBP-C
	Lisa M. Wayman, PhD, RN, EBP-C
	Kelley Ern
Clinical Quality Improvement Program Defense Health Agency	Isabella M. Alvarez, MA, BSN, RN
	Lynn M. Young, BSN, RN, CIC
	Gwen Holland, MSN, RN
Sigma Health Consulting, LLC	Frances Murphy, MD, MPH
	James Smirniotopoulos, MD
	Will Wester, MLIS
	Erin Gardner, MPH, PMP
	James Reston, MPH, PhD
	Joann Fontanarosa, PhD
	Samantha Speed-Gangitano, MPH
	Jennifer Falgione, MPH
	Ruth Bekele, MPP
	Annie Tran, MPH

Organization	Names*
	Sophie Roberts
	Susan Connor
	Dan Sztubinski
Duty First Consulting	Kate Johnson, BS
	Anita Ramanathan, BA

* Additional contributor contact information is available in Appendix J in the full text version of the Asthma CPG.

Patient-Centered Care

VA/DOD CPGs encourage clinicians to use patient- (and family-) centered care (PCC) approach that is individualized based on patient needs, characteristics, and preferences. Regardless of setting, all patients in the healthcare system should be able to access evidence-based care appropriate to that patient. When properly executed, PCC may decrease patient anxiety, increase trust in clinicians, and improve treatment adherence.(5,6) Improved patient-clinician communication and a PCC approach conveys openness and supports disclosure of current and future concerns. This can be included as part of VA's Whole Health system.

As part of the PCC approach, clinicians should engage patients in SDM to review the outcomes of previous healthcare experiences with the patients who are living with asthma. They should ask each patient about any concerns he or she has or barriers to high quality care he or she might experience. Lastly, they should educate the patient on the Asthma Action Plan (see Appendix F for example), that need to be taken and any decisions that need to be made and should involve the individual in decision making regarding management of their asthma.

An Asthma Action Plan (AAP) is a written tool that is jointly created by medical provider, patient, and/or caregiver. It is important that the AAP is individualized with clear instructions for patient and/or caregivers to prevent asthma from worsening. The AAP should include guidance on:

- Signs of asthma episode
- Patient specific reliever (how much to use and when to use)
- When to call healthcare provider
- When to go to the emergency department (ED)

Providers should choose the appropriate AAP for the patient's language and age to increase understanding of instructions and adherence. There are some examples of AAP ready for immediate printing or copy (Appendix F,(7)). There are also web sites with AAP in various languages for different age groups:

- Create an Asthma Action Plan | American Lung Association
- My Asthma Action Plan (lung.org)
- My Asthma Action Plan for Home and School (lung.org)
- School or Child Care Asthma/Allergy Action Plan March 2024 (aafa.org)
- Asthma Action Plan April 2018 (aafa.org)
- CDC Asthma Action Plan
- Asthma Action Plan (nih.gov)
- SMART Asthma Action Plan (allergyasthmanetwork.org)

Shared Decision Making

Throughout this VA/DOD CPG, the authors encourage clinicians to focus on SDM. The SDM model was introduced in *Crossing the Quality Chasm,* an Institute of Medicine (IOM) (now called the National Academy of Medicine [NAM]) report, in 2001.(8) It is readily apparent that patients, together with their clinicians, make decisions regarding their plan of care and management options. Clinicians must be adept at presenting information to their patients regarding individual treatments, expected outcomes, and levels and/or locations of care. Clinicians are encouraged to use SDM to individualize treatment goals and plans based on patient capabilities, needs, goals, and preferences.

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Access to the full guideline and additional resources is available at: https://www.healthquality.va.gov/.