NorthShore
University HealthSystem

Uncontrolled Adult asthma

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Healthcare for what's next.

Case presentation

- Anne, is a 42-year-old woman with lifelong asthma. She typically has worsening of her symptoms in the spring and fall season as well as with respiratory infections. Over the last several years Anne feels that her asthma symptoms are worsening. In the past she typically only used albuterol for a week or 2 in the spring and the fall. Now she needs albuterol and must use it in order to exercise. Last year she received 2 short bursts of oral corticosteroids when symptoms became more severe.
- Non smoker
- 2 school age children at home
- 8 year old dog

Medications

- Wixela (fluticasone/ salmeterol) 500/50 1 puff twice a day
- Montelukast (singulair) 10 mg daily.
- Albuterol as needed – currently using most days and before any activity
- Loratadine (Claritin)
- Fluticasone (Flonase) 2 sprays each nostril daily

Pulmonary function testing

Spirometry

		Ref	Pre	Pre%Ref	LLN	Post	Post%Ref	%Chg
FVC	L	3.21	2.32	72.2	2.54	3.43	106.8	48.0
FEV 1	L	2.61	0.93	35.7	2.06	1.56	59.9	67.5
FEV1/FVC	%	82	40	49.3	71	46	55.8	13.2
FEF 25-75%	L/s		0.39			0.58		46.4
PEF	L/s	6.07	2.88	47.5	4.58	4.02	66.2	39.5
FEF 50 % MIF	50%		12			18		53.2
MVV	L/min	96	31	32.3	82			

Lung Volumes

		Ref	Pre	Pre%Ref	LLN	ULN
TLC	L	4.61	5.90	128.0	3.53	5.68
VC	L	3.21	2.32	72.2	2.54	3.88
IC	L	1.87	1.72	91.9	1.87	1.87
FRCpleth	L	2.52	4.18	166.1	1.69	3.34
ERV	L	0.99	0.46	46.7	0.99	0.99
RV	L	1.54	3.58	233.2	0.76	2.31
RV % TLC	%	34	61	180.7	24	44
VTG	L		4.69			
Raw	cmH2O*s/L	3.06	11.06	361.6	3.06	3.06

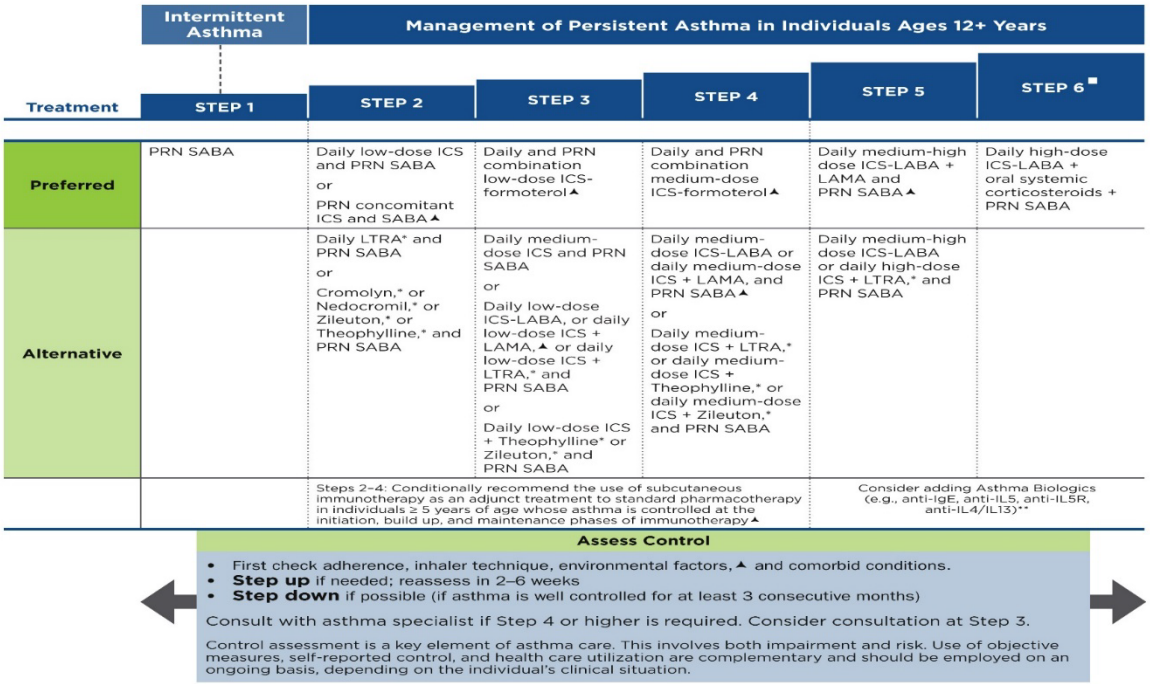
Diffusing Capacity

	Ref	Pre	Pre%Ref
DLCO_SBml/(min*mmH	19.36	20.16	104.1
DLCOcSBml/(min*mmH	19.36	20.16	104.1
VA Single BreathL	4.33	4.07	94.0

Blood work and allergy testing

- IgE – 213
- Absolute eosinophil count 400
- Skin testing is positive to trees, ragweed, dustmite and dog

AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA



Treatment	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 12+ Years				
	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6 ■
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA or PRN concomitant ICS and SABA▲	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily medium-high dose ICS-LABA + LAMA and PRN SABA▲	Daily high-dose ICS-LABA + oral systemic corticosteroids + PRN SABA
Alternative		Daily LTRA* and PRN SABA or Cromolyn,* or Nedocromil,* or Zileuton,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LAMA,▲ or daily low-dose ICS + LTRA,* and PRN SABA or Daily low-dose ICS + Theophylline* or Zileuton,* and PRN SABA	Daily medium-dose ICS-LABA or daily medium-dose ICS + LAMA, and PRN SABA▲ or Daily medium-dose ICS + LTRA,* or daily medium-dose ICS + Theophylline,* or daily medium-dose ICS + Zileuton,* and PRN SABA	Daily medium-high dose ICS-LABA or daily high-dose ICS + LTRA,* and PRN SABA	
		Steps 2–4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider adding Asthma Biologics (e.g., anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13)**	

Assess Control

- First check adherence, inhaler technique, environmental factors,▲ and comorbid conditions.
- **Step up** if needed; reassess in 2–6 weeks
- **Step down** if possible (if asthma is well controlled for at least 3 consecutive months)

Consult with asthma specialist if Step 4 or higher is required. Consider consultation at Step 3.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting beta$_2$-agonist; LAMA, long-acting muscarinic antagonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta$_2$-agonist

▲ Updated based on the 2020 guidelines.

* Cromolyn, Nedocromil, LTRAs including Zileuton and montelukast, and Theophylline were not considered for this update, and/or have limited availability for use in the United States, and/or have an increased risk of adverse consequences and need for monitoring that make their use less desirable. The FDA issued a Boxed Warning for montelukast in March 2020.

** The AHRQ systematic reviews that informed this report did not include studies that examined the role of asthma biologics (e.g. anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13). Thus, this report does not contain specific recommendations for the use of biologics in asthma in Steps 5 and 6.

■ Data on the use of LAMA therapy in individuals with severe persistent asthma (Step 6) were not included in the AHRQ systematic review and thus no recommendation is made.

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What are some options for treatment?

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