

# Nemours®



## **Implementing CDS for the Asthma Guidelines: From Narrative Guideline to Formal CDS**

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# HPI

HPI	Past Hx's	Exam	Medication	Assessment	Action plan	Education
<p style="text-align: right;">New patient <input checked="" type="checkbox"/> Y <input type="checkbox"/> N</p>						
<b>Symptom History</b> # hospitalizations for asthma <input type="text" value="1"/> last admission <input type="text" value="mm/yyyy"/> previous intubation <input type="text" value="yes"/> ICU <input type="text" value="yes"/> urgent visits for asthma <input type="text" value="2"/> last urgent visit date <input type="text" value="mm/yyyy"/> # steroid courses in last 6 months <input type="text" value="1"/> last taken <input type="text" value="10/2008"/> <input type="text" value="mm/yyyy"/> daytime symptom frequency <input type="text" value="3"/> day/week nighttime awakenings <input type="text" value="2"/> night/wk or <input type="text"/> per month			<b>Legend</b> Used for guideline calculation Automatic population		<b>Asthma impact</b> interference with normal activities <input type="text" value="some limitations"/> <input type="checkbox"/> chooses not to be active missed school/daycare <input type="text" value="yes"/>	
<b>Seasonal conditional variation of symptom frequency</b> <input type="checkbox"/> no <input type="checkbox"/> spring <input type="checkbox"/> summer <input type="checkbox"/> only with colds <input checked="" type="checkbox"/> unknown <input type="checkbox"/> fall <input type="checkbox"/> winter			<b>Symptoms</b> <input checked="" type="checkbox"/> cough <input type="checkbox"/> chest tightness <input type="checkbox"/> shortness of breath <input checked="" type="checkbox"/> wheeze		<b>Medication</b> frequency of rescue medication use (SABA) <input type="text" value="1"/> days/week <input type="checkbox"/> several times per day degree of medication adherence <input type="text" value="fair"/> barriers to adherence Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
<b>Asthma triggers</b> <input type="text" value="triggers"/> <input type="checkbox"/> cockroaches <input type="checkbox"/> heat <input type="checkbox"/> weather changes <input checked="" type="checkbox"/> cold air <input checked="" type="checkbox"/> humidity <input checked="" type="checkbox"/> vacuuming <input type="checkbox"/> colds(URI) <input type="checkbox"/> medications <input checked="" type="checkbox"/> dust mites <input checked="" type="checkbox"/> mold <input type="checkbox"/> emotional or psychological factors <input type="checkbox"/> outdoor and indoor pollutants <input checked="" type="checkbox"/> environmental tobacco smoke <input checked="" type="checkbox"/> pets <input checked="" type="checkbox"/> exercise <input checked="" type="checkbox"/> pollen <input type="checkbox"/> food <input type="checkbox"/> sinus infection <input type="checkbox"/> GE reflux <input type="checkbox"/> strong odors or fumes			<b>Environmental history</b> exposure to furry pets or birds <input type="checkbox"/> Y <input checked="" type="checkbox"/> exposure to tobacco smoke <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		<b>ACT Score</b> <input type="text" value="18"/> >= 20 well controlled 16-19 not well controlled <= 15 very poorly controlled	

Accept

Cancel

# Exam

HPI	Past Hx's	<b>Exam</b>	Medication	Assessment	Action plan	Education
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<b>HEENT</b>	Chest/abd/extrem/neuro
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Normal HEENT

<b>General appearance</b> <ul style="list-style-type: none"><li><input type="checkbox"/> well developed and well nourished</li><li><input type="checkbox"/> mouth breathing</li><li><input checked="" type="checkbox"/> thin</li><li><input type="checkbox"/> obese</li><li><input type="checkbox"/> in no acute distress</li></ul>	<b>Ears</b> <p><b>Otology</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> otoscopy deferred</li><li><input type="checkbox"/> uncooperative</li></ul> <table border="1"><thead><tr><th></th><th>R</th><th>L</th></tr></thead><tbody><tr><td>normal landmarks</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>view obstructed by cerumen</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>myringotomy tube present</td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td>pearly grey</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td>erythematous</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>amber</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></tbody></table> <p><b>Middle ear fluid</b></p> <table border="1"><thead><tr><th></th><th>Right</th><th>Left</th></tr></thead><tbody><tr><td>none</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>clear</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>serous</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>purulent</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></tbody></table>		R	L	normal landmarks	<input type="checkbox"/>	<input type="checkbox"/>	view obstructed by cerumen	<input type="checkbox"/>	<input type="checkbox"/>	myringotomy tube present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	pearly grey	<input type="checkbox"/>	<input checked="" type="checkbox"/>	erythematous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	amber	<input type="checkbox"/>	<input type="checkbox"/>		Right	Left	none	<input type="checkbox"/>	<input type="checkbox"/>	clear	<input type="checkbox"/>	<input type="checkbox"/>	serous	<input type="checkbox"/>	<input type="checkbox"/>	purulent	<input type="checkbox"/>	<input type="checkbox"/>	<b>Nose</b> <ul style="list-style-type: none"><li>discharge: <input type="text" value="clear"/></li><li>mucosal color: <input type="text" value="erythematous"/></li><li>polyp presence: <input type="text" value="no"/></li><li>patency: <input type="text" value="partially obstructed"/></li></ul>
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<b>Cough description</b> <input type="text" value="staccato"/>		<b>Throat</b> <ul style="list-style-type: none"><li>tonsil size: <input type="text" value="small"/></li><li>post nasal drip: <input type="text" value="absent"/></li><li>mucosal cobblestoning: <input type="text" value="absent"/></li></ul>																																				
<b>Head</b> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> normocephalic</li><li><input type="checkbox"/> dolichocephalic</li><li><input type="checkbox"/> with Down's facies</li></ul>		<b>Neck</b> <ul style="list-style-type: none"><li>trachea orientation: <input type="text" value="deviated right"/></li><li>lymph node palpable: <table border="1"><tr><td>Y</td><td>N</td></tr><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table></li><li>anterior cervical chain: <table border="1"><tr><td>R</td><td>L</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table></li><li>posterior cervical chain: <table border="1"><tr><td>R</td><td>L</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table></li><li>submandibular: <table border="1"><tr><td>R</td><td>L</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table></li></ul>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	R	L	<input type="checkbox"/>	<input type="checkbox"/>	R	L	<input type="checkbox"/>	<input type="checkbox"/>	R	L	<input type="checkbox"/>	<input type="checkbox"/>																				
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General appearance: thin.  
Cough description: staccato  
Head: normocephalic  
Eyes: infraorbital shiners: present | conjunctival injection: on the right

Accept

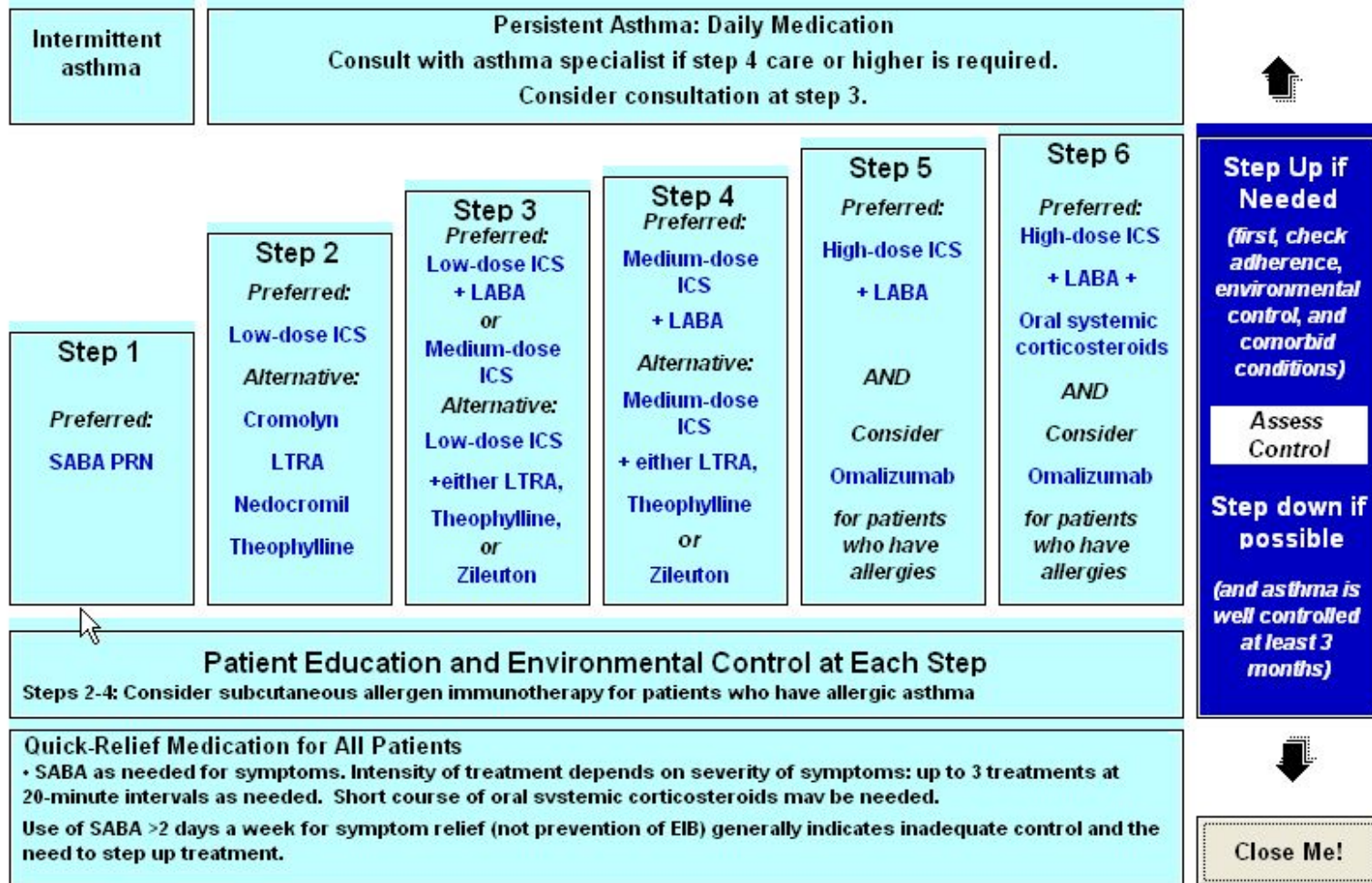
Cancel

# Assessment

HPI	Past Hx's	Exam	Medication	Assessment	Action plan	Education
<b>Chest x-ray</b> <span style="float:right">Y N</span> performed since onset of respiratory symptoms <input checked="" type="checkbox"/> <input type="checkbox"/>		<b>Diagnostic/imaging</b> Asthma has had a chest x-ray performed since the onset of respiratory symptoms. Chest x-ray was reviewed at today's visit and film indicated hyperinflated, and diffuse interstitial changes. Focal opacification present in the right middle lobe.				
<b>Chest x-ray reviewed this visit</b> X-ray reviewed today <input type="text" value="yes, film indicated"/>		<div style="border: 1px solid gray; padding: 5px; text-align: center; background-color: #f0f0f0;"> <b>To review NHLBI stepwise treatment, click here</b> </div>				
<input type="checkbox"/> normal <input type="checkbox"/> patchy atelectasis <input checked="" type="checkbox"/> hyperinflated <input checked="" type="checkbox"/> diffuse interstitial changes <input type="checkbox"/> peribronchial thickening <input type="checkbox"/> focal opacification		<b>Initial severity</b> <input type="text" value="severe"/> <input type="checkbox"/> severity reassessed today				
<b>focal opacification location</b> <input type="checkbox"/> right upper lobe <input type="checkbox"/> left lower lobe <input type="checkbox"/> left upper lobe <input checked="" type="checkbox"/> right middle lobe <input type="checkbox"/> right lower lobe <input type="checkbox"/> lingula		<b>Guideline assessment today</b> <b>Clinician assessment</b> <b>severity</b> <input type="text" value="severe"/> <b>control today</b> <input type="text" value="very poorly controlled"/>				
<b>PFT results</b> <input type="checkbox"/> normal <input checked="" type="checkbox"/> abnormal <input type="checkbox"/> patient unable to perform reliable test <input type="checkbox"/> normal FEV1 between exacerbations		<div style="border: 1px solid gray; padding: 5px; text-align: center; background-color: #f0f0f0;"> <b>Accept calculated control?</b> </div>				
restrictive lung disease <input type="text" value="moderate"/> airway obstruction <input type="text" value="Moderate"/> airflow obstruction is <input type="text" value="partially"/> reversible with a bronchodilator results are <input type="text" value="unchanged"/> compared with previous test		<b>Assessment</b> Asthma's initial asthma classification is severe. Today's examination indicates her asthma is very poorly controlled.				
<b>FEV1 predicted</b> <input type="text" value="69"/> <input type="text" value="03/25/2009"/>		<b>Plan</b>				
<b>FEV1/FVC</b> <input type="text" value="72"/> <input type="text" value="03/25/2009"/>						

# NHLBI Guidelines

## STEPWISE APPROACH FOR MANAGING ASTHMA IN YOUTHS $\geq 12$ YEARS OF AGE



# Action Plan

HPI	Past Hx's	Exam	Medication	Assessment	Action plan	Education
<input checked="" type="checkbox"/> Action plan given <input type="checkbox"/> Action plan reviewed this visit with no changes <input type="button" value="Print action plan"/>						
<b>Action Plan</b>						
<b>Doing Well / Green Zone</b>			<b>Peak flow 80% or above</b>			
	<b>Medication</b>	<b>Dose #</b>	<b>route</b>	<b>Timing</b>		
ICS	Pulmicort Respules 0.5 mg	1	vial nebulized	1 time per day		
LABA	Foradil Aerolizer 12 mcg	2	capsule	1 time per day		
ICS/LABA	Symbicort 80/4.5	1	puff	2 times per day		
OTHER	Methylprednisolone 4 mg	2	tablet	2 times per day		
5 minutes before exercise take	Xopenex HFA 45 mcg	1	puff			
<b>Getting Worse / Yellow Zone</b>			<b>Peak flow 50 to 80% or above</b>			
	<b>Medication</b>	<b>Dose #</b>	<b>route</b>	<b>Timing</b>	<b>Additional instructions</b>	
Quick relief	Albuterol 0.083% (3 mL)	3	vial nebulized	3 times per day	Additional yellow zone instructions can be placed here. This can be used to document patient specific instructions. You can tell the patient to call the	
Feel better in 20 min - relief lasts 4 hrs, then take	Ventolin HFA 90 mcg	3	puff	3 times a day for 2-3 days		
If not improving start	Proventil 90 mcg/metered inhalation	3	puff	3 times a day for 2-3 days		
Change daily med	Flovent HFA 110 mcg/inhalation	2	puff	3 times per day		
<b>Medical Alert / Red Zone</b>			<b>Peak flow below 50% or</b>			
	<b>Medication</b>	<b>Dose #</b>	<b>route</b>	<b>Timing</b>		
Quick relief	Xopenex 1.25 mg	4	vial nebulized	4 times per day		
Steroid	Medrol 8 mg	1	tablet	2 times per day		



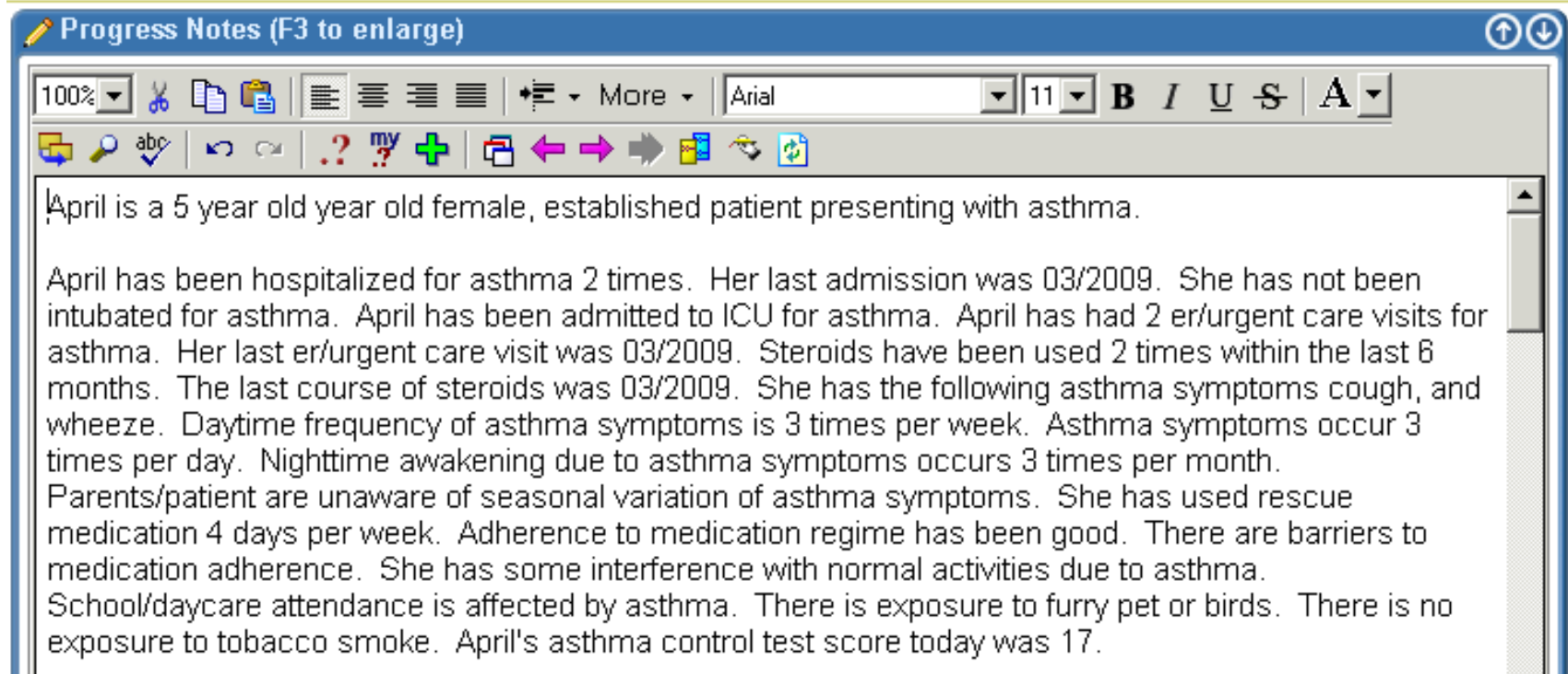
# Education

HPI	Past Hx's	Exam	Medication	Assessment	Action plan	Education
<b>Education modules</b>		<b>Environmental control measures</b>				
		<i>Highlighting indicates this is a known asthma trigger</i>				
<input type="checkbox"/> basic facts about asthma	Last done <input type="text"/>	<input type="checkbox"/> get rid of furry pet or bird	<input type="text"/>			
<input type="checkbox"/> roles of controller medications	<input type="text"/>	<input checked="" type="checkbox"/> place dust mite covers on mattress/pillows	<input type="text"/>			
<input type="checkbox"/> roles of quick-relief medications	<input type="text"/>	<input checked="" type="checkbox"/> remove fabric window coverings	<input type="text"/>			
<b>Skills check</b>		<input type="checkbox"/> remove feather or wool bedding	<input type="text"/>			
<input type="checkbox"/> inhaler use	<input type="text"/>	<input checked="" type="checkbox"/> remove mold from home	<input type="text"/>			
<input type="checkbox"/> spacer use	<input type="text"/>	<input type="checkbox"/> remove indoor plants	<input type="text"/>			
<input type="checkbox"/> symptom monitoring	<input type="text"/>	<input type="checkbox"/> remove stuffed animals	<input type="text"/>			
<input type="checkbox"/> peak flow monitoring	<input type="text"/>	<input type="checkbox"/> create smoke-free home	<input type="text"/>			
<input type="checkbox"/> recognizing early signs of deterioration	<input type="text"/>	<input type="checkbox"/> create smoke-free car	<input type="text"/>			
<input type="checkbox"/> when and where to seek care	<input type="text"/>	<input checked="" type="checkbox"/> dust with damp cloth	<input type="text"/>			
<input type="checkbox"/> when and how to take rescue actions	<input type="text"/>	<input type="checkbox"/> vacuum at least once a week	<input type="text"/>			
		<input type="checkbox"/> keep pets off furniture	<input type="text"/>			
		<input type="checkbox"/> use scarf during cold weather	<input type="text"/>			
		<input type="checkbox"/> use air conditioner	<input type="text"/>			
<p>No asthma education modules were delivered at today's visit.</p>						

Accept

Cancel

# Progress Note



Progress Notes (F3 to enlarge)

100% [Clipboard icons] [List icons] More [Font: Arial] [Size: 11] [Bold] [Italic] [Underline] [Strikethrough] [Color]

[Navigation icons]

April is a 5 year old year old female, established patient presenting with asthma.

April has been hospitalized for asthma 2 times. Her last admission was 03/2009. She has not been intubated for asthma. April has been admitted to ICU for asthma. April has had 2 er/urgent care visits for asthma. Her last er/urgent care visit was 03/2009. Steroids have been used 2 times within the last 6 months. The last course of steroids was 03/2009. She has the following asthma symptoms cough, and wheeze. Daytime frequency of asthma symptoms is 3 times per week. Asthma symptoms occur 3 times per day. Nighttime awakening due to asthma symptoms occurs 3 times per month. Parents/patient are unaware of seasonal variation of asthma symptoms. She has used rescue medication 4 days per week. Adherence to medication regime has been good. There are barriers to medication adherence. She has some interference with normal activities due to asthma. School/daycare attendance is affected by asthma. There is exposure to furry pet or birds. There is no exposure to tobacco smoke. April's asthma control test score today was 17.