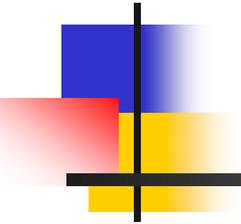
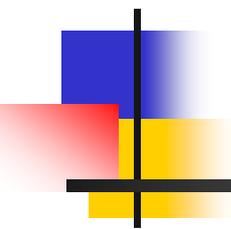


# Slides from eAAP Training Presentations for Final Implementation Report

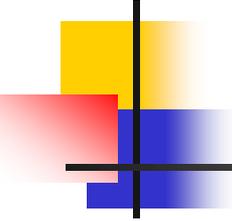
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# Presentation #1

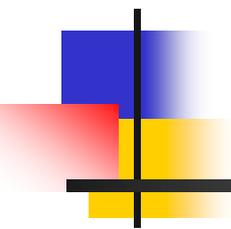
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# Basic eAAP Presentation for Providers and Clinic Staff

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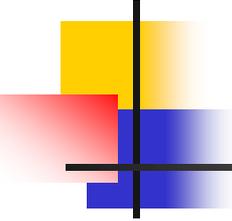
- Basic information on how the application will improve asthma care
  - Includes the importance of a written asthma action plan (AAP)
- Points out the complexity of the NAEPP Guidelines
- Compares current workflow of writing an AAP with the suggested new workflow for the eAAP application



# Incorporating the electronic Asthma Action Plan (e-AAP) into Patient Care

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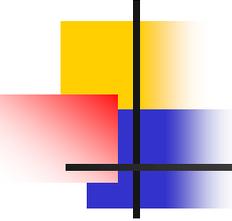
Gail M Brottman MD  
Co-PI HIT Asthma Project  
HCMC



# How does the eAAP Improve Asthma Care?

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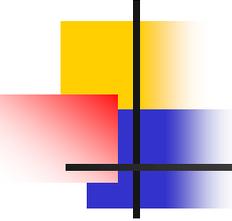
- Per the NAEPP Expert Panel Report (EPR-3)
  - Guideline-based practice will improve and standardize the quality of care given to people with asthma
  - “Asthma self management education is essential to provide patients with the skills needed to control asthma and improve outcomes” (p93)
  - “Provide all patients with a written asthma action plan for daily treatment and self-management of worsening asthma symptoms” (p93)
  - “Develop, implement and evaluate system-based interventions to support clinical decision-making.” (p95)



# Written Asthma Action Plans

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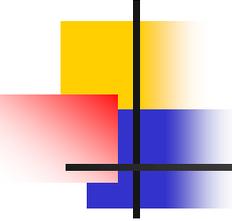
- Important chronic care document
  - Helps patients know what medications to take on a daily basis to control their asthma
  - Explains what they should do if they have increased asthma symptoms
  - Explains what to do if they have respiratory distress and documents clinic phone numbers



# Current WAAP Work-flow

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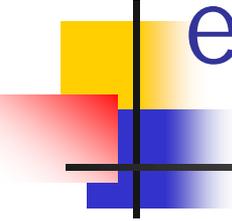
- Patient gets roomed
- Has chronic respiratory symptoms
- Asthma diagnosis made from Hx and exam
- Provider struggles to figure out what is asthma severity to start proper dose of therapy
- Rx written for inhaled steroid
- Provider has to leave room to find AAP to write for patient
- AAP gets scanned (hopefully) into Epic for future reference



# New eAAP Decision-support Workflow

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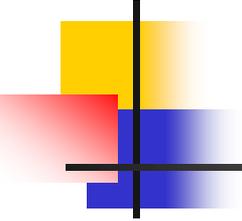
- Patient gets roomed
- Has chronic respiratory symptoms
- Provider thinks that patient has asthma diagnosis based on history and exam
- Launches the eAAP in Epic from an order



# eAAP Decision-support continued

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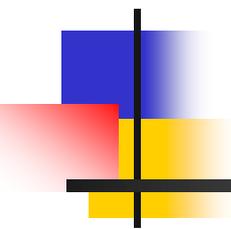
- Chooses to “Asses Asthma Severity” or “Control”
- Fills in “radio buttons” with answers to simple questions about frequency of symptoms
- Asthma Severity or Control determined by the application
- Recommendation for treatment step given to provider
- Provider chooses meds from drop down lists
- AAP generated by application to be given to patient with the AVS
- Provider copies clinic note generated by the eAAP into Epic progress note
- Orders meds in Epic with help from med list from eAAP



# How does the eAAP Improve Asthma Care?

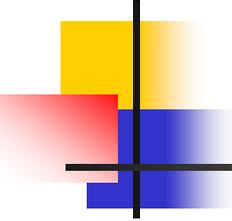
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The eAAP has put the NAEPP  
Asthma Guidelines into a  
computerized decision support  
tool to help you take better care  
of your patients with asthma



# Presentation #2

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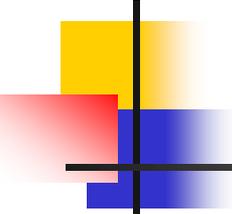


# eAAP Presentation for Providers with a Review of the Guidelines

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- Review of asthma prevalence and its impact
- Basic information on how the application will improve asthma care
  - Includes the importance of a written asthma action plan (AAP)
- Points out the complexity of the NAEPP Guidelines
- Added a focus on the Emergency care for the ED staff
- Compares current workflow of writing an AAP with the suggested new workflow for the eAAP application

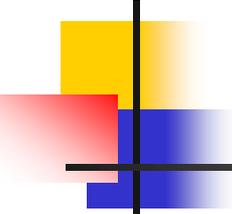
# Overview of Asthma Statistics



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- 17m asthmatics in the US & rising<sup>1</sup>
- Every year, asthmatics have
  - 2 million emergency room visits<sup>2</sup>
  - 500,000 hospitalizations<sup>2</sup>
- Estimated costs:
  - Direct \$9.4 billion
  - Indirect \$4.6 billion<sup>3</sup>
- Asthma mortality rates > doubled: 1979-1990s<sup>2</sup>

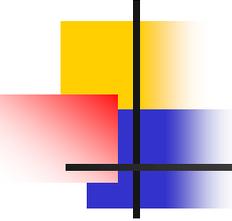
1. National Institute of Allergy and Infectious Disease. Focus on Asthma. <http://www.niaid.nih.gov/newsroom/focuson/asthma01/default.htm>.
2. National Institute of Allergy and Infectious Disease. Focus on Asthma. <http://www.niaid.nih.gov/newsroom/focuson/asthma01/basics.htm#stats>.
3. American Lung Association Fact Sheet: Asthma in Adults. March 2003. Available at <http://www.lungusa.org/asthma/aduasthmfac99.html>.



# Falling Short on Asthma Control

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- **Daily impairment from asthma\***
  - Missing school or work: 49% of children, 25% of adults
  - Waking with breathing problems at least weekly: 30%
  - Limited participation in:
    - Sports & recreation (48%)
    - Normal physical exertion (36%)
    - Social activities (25%)



# Falling Short on Asthma Control

---

- **Among asthmatics, health care encounters in past year:**
  - Emergency room due to asthma attacks: 32% of children, 19% of adults
  - Unscheduled emergency visits to doc's ofc or clinic: 55% of children, 36% of adults

(continued)

# Hennepin Health Service Summary Data

## ■ Asthma Patients at HCMC – CY2005

(Includes those individuals *with either a primary or secondary Asthma diagnosis*)

### Inpatients

Unique Pts

1,835

Admissions

2,390

**(47% AA -greater than 50% age 36-65 years)**

### Outpatients

Unique Pts

12,461

Registrations

23,379

**(49% AA -greater than 50% age 19-65 years)**

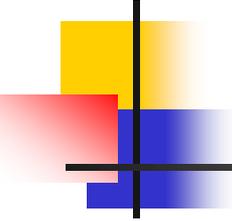
### Emergency/Urgent Care patients

Unique Patients

6,152

Registrations

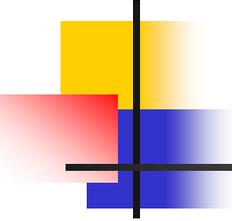
8,673



## EPR-3 Revisions: Concept change

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- **Severity**: The intrinsic intensity of the disease process
- **Control**: The degree to which the manifestations of asthma (symptoms, functional impairments and risks of untoward events) are minimized and the goals of therapy are met
- **Responsiveness**: The ease by which asthma control is achieved by therapy



# 2007 NAEPP Guideline Update

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- **Previous guidelines**

- Frequency of Daytime symptoms
- Frequency of Nighttime symptoms
- Lung function

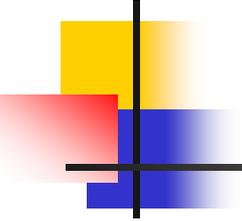
- **2007 Guidelines**

- Impairment

- Frequency of Daytime symptoms
- Frequency of Nighttime symptoms
- Frequency of SABA use
- Interference with normal activity
- Lung function (FEV<sub>1</sub>/FVC for children)

- Risk

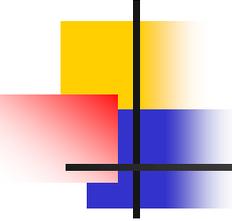
- Exacerbations (frequency and severity)



# New Guidelines: Definitions, continued

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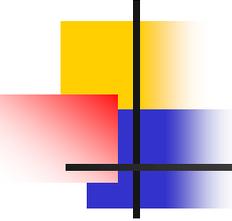
- Both Severity and Control include the domain of current impairment and future risk
  - **Impairment**: Frequency and intensity of symptoms and functional limitations a patient is experiencing or recently experienced
  - **Risk**: The likelihood of either asthma exacerbations, progressive decline in lung function (or for children, reduced lung growth) or risk of adverse effects from medication



# NAEPP Expert Panel Recommendations on Improving Asthma Care

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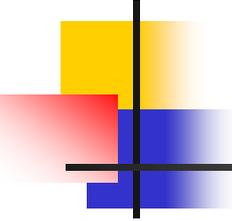
- Guideline-based practice will improve and standardize the quality of care given to people with asthma
- “Asthma self management education is essential to provide patients with the skills needed to control asthma and improve outcomes” (p93)
- “Provide all patients with a written asthma action plan for daily treatment and self-management of worsening asthma symptoms” (p93)
- “Develop, implement and evaluate system-based interventions to support clinical decision-making.” (p95)



# Emergency Department Asthma Care

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- Written Asthma Action Plan
  - Having an AAP decreases hospitalization rates for patients with moderate-severe persistent asthma
- Prescribing Inhaled Steroids
  - Use of ICS after discharge from ED decreases relapse rates



# In Summary

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- To help improve patient outcomes, the e-AAP brings the Asthma Guidelines to the point of care in the Emergency Department
- For further information regarding the eAAP and to try a demonstration at home go to the website at  
<http://e-aap.net>



- Home
- About
- Demo
- Sponsors/Contributors
- Community
- FAQ
- Contact Us

THE E-AAP:

- > About
  - > Overview
  - > Development
  - > Implementation
  - > Technical details
  - > Written AAP
- > Demo
  - > Demo v. actual
- > Sponsors/Contributors
- > Community
  - > Install and use
  - > Share ideas
  - > Sponsor new development
- > FAQ
- > Contact Us

## Welcome to the e-AAP.

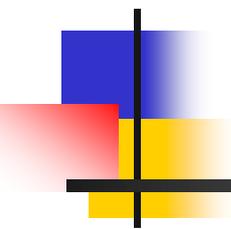
The e-AAP is a software application that provides busy clinicians with real-time administrative and clinical decision support while seeing patients for asthma. Running on all standard web browsers, it currently is built to be invoked from an enterprise EHR (electronic health record) system; with minor modifications, it can run from a desktop as well.

The e-AAP is based upon guidelines released in 2007 by the National Asthma Education and Prevention Program (**NAEPP-3**).

The e-AAP was created by the **Center for Urban Health**, under a contract from the **Agency for Health Research and Quality**. The code was prepared by **Lighthouse Software Solutions**. See the **DEVELOPMENT** page for more information about how the e-AAP was developed, and the individuals and organizations that contributed to it.

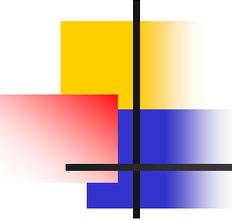
Please contact us if you are interested in learning more about the e-aap or would like to install the software in your organization. Please use the **Community Discussion** page to leave comments, and/or stimulate the creation of an on-line user community.

UPDATES



# Presentation #3

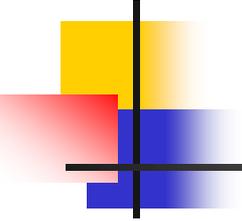
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# eAAP Presentation for Providers with a Comprehensive Asthma Review

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- Definition of Asthma
  - Determining the diagnosis
- Review of NAEPP 2002 guidelines
- Comparison between 2002 and 2007 guidelines
- Reviewing assessment of severity and control for all 3 age groups
- Basic information on how the application will improve asthma care
  - Includes the importance of a written asthma action plan (AAP)
- Compares current workflow of writing an AAP with the suggested new workflow for the eAAP application

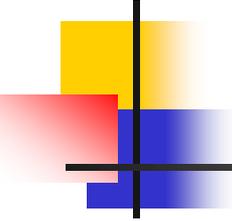


# To make a diagnosis of asthma:

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Determine the presence of:

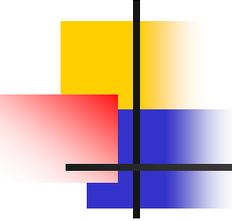
1. Airflow obstruction is at least partially reversible
2. Airway hyperresponsiveness or episodic symptoms of airflow obstruction are present
3. Airway inflammation
4. Alternative diagnoses are excluded



# Is It Asthma?

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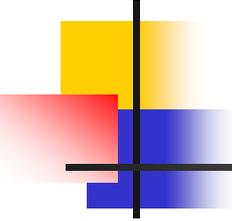
- Recurrent episodes of cough, rattle
- Recurrent episodes of wheezing
- Troublesome cough at night
- Cough or wheeze after exercise
- Cough, wheeze, or chest tightness after exposure to airborne allergens or pollutants
- Colds “go to the chest” or take more than 10 days to clear



# Asthma Guidelines: History and Context

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- Initial version released in 1997
- Revised in 2002 with a focus on several key questions about medications, monitoring and prevention.
  - Long-term management of asthma in children
  - Combination therapy
  - Antibiotic use
  - Written Asthma Action Plans (WAAP) and Peak Flow meters (PFM)
  - Effects of early treatment on the progression of asthma



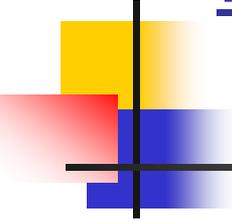
# NAEPP 2002 Asthma Guidelines

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- Guidelines also focused on assessment of Asthma Severity as the basis for prescribing and dosing controller medications
- Reinforced the “Step wise approach” to asthma management using 4 severity levels:
  - Mild Intermittent
  - Mild Persistent
  - Moderate Persistent
  - Severe Persistent

# Old and New Asthma Guidelines: What Has NOT Changed

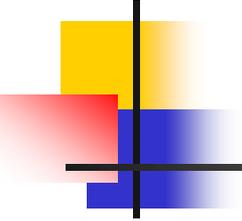
- Initial asthma therapy is determined by assessment of asthma severity.
  - Ideally, before the patient is on a long-term controller
- Stepping therapy up or down is based on whether asthma is **controlled** or not
  - (we really did this anyway, but now it is better defined!)
- Inhaled Corticosteroids (ICS) are the preferred first-line therapy for asthma
- Systemic steroids are to be used for asthma exacerbations
- Peak flows and Written Asthma Action Plans (WAAP) are useful for asthma self management
  - Especially in Moderate and Severe Persistent asthma



# New Guidelines: Definitions

---

- **Severity:** The intrinsic intensity of the disease process
- **Control:** The degree to which the manifestations of asthma (symptoms, functional impairments and risks of untoward events) are minimized and the goals of therapy are met
- **Responsiveness:** The ease by which asthma control is achieved by therapy

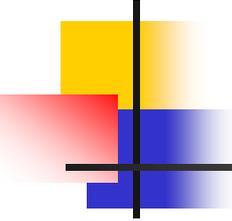


## New Guidelines: Definitions, continued

---

- Both Severity and Control include the domain of current impairment and future risk
  - **Impairment:** Frequency and intensity of symptoms and functional limitations a patient is experiencing or recently experienced
  - **Risk:** The likelihood of either asthma exacerbations, progressive decline in lung function (or for children, reduced lung growth) or risk of adverse effects from medication

# Assessment of Asthma Severity



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## ■ Previous guidelines

- Frequency of Daytime symptoms
- Frequency of Nighttime symptoms
- Lung function

## ■ 2007 Guidelines

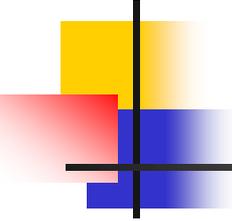
### ■ Impairment

- Frequency of Daytime symptoms
- Frequency of Nighttime symptoms
- Frequency of SABA use
- Interference with normal activity
- Lung function (FEV<sub>1</sub>/FVC for children)

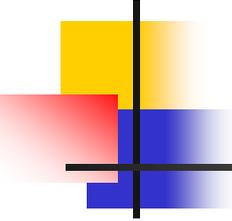
### ■ Risk

- Exacerbations (frequency and severity)

# Assessment of Asthma Severity



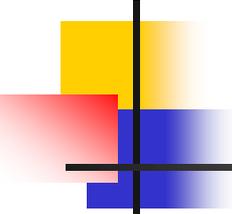
- **Previous guidelines**
  - Frequency of Daytime symptoms
  - Frequency of Nighttime symptoms
  - Lung function
- **2007 Guidelines**
  - Impairment
    - Frequency of Daytime symptoms
    - Frequency of Nighttime symptoms
    - Frequency of SABA use
    - Interference with normal activity
    - Lung function (FEV<sub>1</sub>/FVC for children)
  - Risk
    - Exacerbations (frequency and severity)



# Asthma Treatment: Selected New Recommendations

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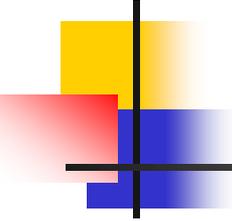
- ICS are the preferred initial therapy for asthma in all age groups.
  - Dosing recommendations for 3 age ranges:
    - 0-4 years
    - 5-11 years
    - $\geq$  12 years
- Leukotriene Receptor Antagonists (LTRA) are not preferred treatment for mild persistent asthma



## 2007 Guidelines: Asthma Follow-up Visits

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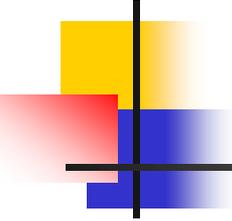
- Asthma severity is ideally assessed prior to beginning patient on long-term controller medication
- The follow-up visit should be scheduled within 4-6 weeks of initiating therapy to evaluate how/if the treatments are working
- What are we looking for at this follow-up visit? Asthma Control.



# Assessment of Asthma Control

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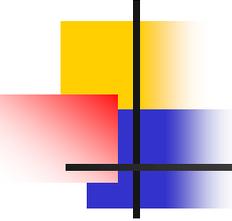
- **Classification of Control**
  - Well controlled
  - Not Well controlled
  - Very Poorly Controlled
- **Components of Control**
- 1) Impairment
  - Frequency of Daytime symptoms
  - Frequency of Nighttime symptoms
  - Frequency of SABA use
  - Interference with normal activity
  - Lung function
- 2) Risk
  - Exacerbations (frequency and severity)



# How does the eAAP Improve Asthma Care?

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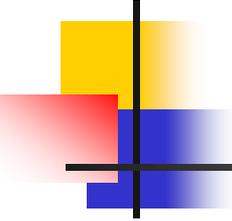
- Per the NAEPP Expert Panel Report (EPR-3)
  - Guideline-based practice will improve and standardize the quality of care given to people with asthma
  - “Asthma self management education is essential to provide patients with the skills needed to control asthma and improve outcomes” (p93)
  - “Provide all patients with a written asthma action plan for daily treatment and self-management of worsening asthma symptoms” (p93)
  - “Develop, implement and evaluate system-based interventions to support clinical decision-making.” (p95)



# Written Asthma Action Plans

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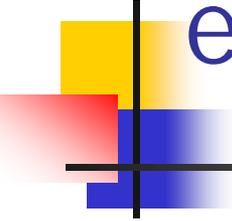
- Important chronic care document
  - Helps patients know what medications to take on a daily basis to control their asthma
  - Explains what they should do if they have increased asthma symptoms
  - Explains what to do if they have respiratory distress and documents clinic phone numbers



# New eAAP Decision-support Workflow

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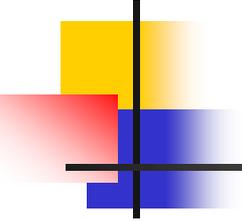
- Patient gets roomed
- Has chronic respiratory symptoms
- Provider thinks that patient has asthma diagnosis based on history and exam
- Launches the eAAP in Epic from an order



# eAAP Decision-support continued

---

- Chooses to “Asses Asthma Severity” or “Control”
- Fills in “radio buttons” with answers to simple questions about frequency of symptoms
- Asthma Severity or Control determined by the application
- Recommendation for treatment step given to provider
- Provider chooses meds from drop down lists
- AAP generated by application to be given to patient with the AVS
- Provider copies clinic note generated by the eAAP into Epic progress note
- Orders meds in Epic with help from med list from eAAP



# How does the eAAP Improve Asthma Care?

---

The eAAP has put the NAEPP  
Asthma Guidelines into a  
computerized decision support  
tool to help you take better care  
of your patients with asthma