

GLIDES Status – May 2010 TEP

# **ADOPTION LESSONS LEARNED FROM THE SUBSPECIALTY CLINIC**

# Yale Pediatric Pulmonology

- First site for implementation
- “Fully” electronic
- Nine clinical providers
- Approximately 1800 visits/year for asthma
- Key members of clinical staff involved throughout design and implementation processes

# GLIDES

**Asthma Severity and Treatment5: GARY5-11 ZGLIDES**

**CLASSIFYING COMPONENTS OF ASTHMA SEVERITY AND INITIATING TREATMENT**

	Intermittent		Persistent		
	None	<=2days/wk	>2days/wk	Moderate	Severe
<b>Impairment</b>					
Cough	<input type="checkbox"/> None	<input type="checkbox"/> <=2days/wk	<input type="checkbox"/> >2days/wk	<input type="checkbox"/> Daily	<input type="checkbox"/> All Day
Wheezing	<input type="checkbox"/> None	<input type="checkbox"/> <=2days/wk	<input type="checkbox"/> >2days/wk	<input type="checkbox"/> Daily	<input type="checkbox"/> All Day
Chest tightness	<input type="checkbox"/> None	<input type="checkbox"/> <=2days/wk	<input type="checkbox"/> >2days/wk	<input type="checkbox"/> Daily	<input type="checkbox"/> All Day
Shortness of breath	<input type="checkbox"/> None	<input type="checkbox"/> <=2days/wk	<input type="checkbox"/> >2days/wk	<input type="checkbox"/> Daily	<input type="checkbox"/> All Day
Nighttime awakening	<input type="checkbox"/> None	<input type="checkbox"/> <=2x/month	<input type="checkbox"/> 3-4x/month	<input type="checkbox"/> >1x/wk	<input type="checkbox"/> Often 7x/wk
SABA use (not for EIB)	<input type="checkbox"/> None	<input type="checkbox"/> <=2days/wk	<input type="checkbox"/> >2days/wk but not daily	<input type="checkbox"/> Daily	<input type="checkbox"/> Several times per day
Reduction in school/play/work activities	<input type="checkbox"/> None		<input type="checkbox"/> Mild	<input type="checkbox"/> Moderate	<input type="checkbox"/> Severe
Lung function					
FEV1 (predicted)	<input type="checkbox"/> >80%		<input type="checkbox"/> >80%	<input type="checkbox"/> FEV=60-80%	<input type="checkbox"/> FEV<60%
FEV1/FVC	<input type="checkbox"/> >85%		<input type="checkbox"/> >80%	<input type="checkbox"/> =75-80%	<input type="checkbox"/> <75%
<b>Risk</b>					
Acute/ ER visit(s) due to asthma	<input type="checkbox"/> 0	<input type="checkbox"/> 1 in last year	<input type="checkbox"/> 2 in last year	<input type="checkbox"/> 3 in last year	<input type="checkbox"/> >=4 in last year
Hospitalizations due to asthma	<input type="checkbox"/> 0	<input type="checkbox"/> 1 in last year	<input type="checkbox"/> 2 in last year	<input type="checkbox"/> 3 in last year	<input type="checkbox"/> >=4 in last year
Exacerbations requiring oral systemic corticosteroids	<input type="checkbox"/> 0-1/year		<input type="checkbox"/> >=2 exacerbations in last year AND Risk Factors for persistent asthma		
Treatment-related adverse effects	<b>Medication Adverse Effect</b> <input type="checkbox"/> Thrush <input type="checkbox"/> Palpitations <input type="checkbox"/> Jitteriness <input type="checkbox"/> Sleep Disturbances <input type="checkbox"/> Decreased Growth <input type="checkbox"/> Other		<b>Comments</b> <input type="text"/>		

*\*\*\* The purple font indicates selections where YNH has augmented NHLBI guideline.*

CC	Med Hx	ROS	Environ Hx	Family Hx
Phys Exam	Treat Plan	Test	Prescrip	Assessment
	Steps	Meds	Plan	

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**Asthma Steps and Plan: GARY5-11 ZGLIDES**

**Recommended Step for Asthma Management**

**\*\*\* Based on recorded symptoms the NHLBI Guideline step 2 is recommended. \*\*\***

Intermittent Asthma	Persistent Asthma: Daily Medication				
<b>Step 1</b>	<b>Step 2</b>	<b>Step 3</b>	<b>Step 4</b>	<b>Step 5</b>	<b>Step 6</b>
Preferred: SABA PRN	Preferred: Low-dose ICS  Alternative: Cromolyn, LTRA, Nedocromil	Preferred: Low-dose ICS+ either LABA, LTRA, or COMBO  OR Medium-dose ICS	Preferred: Medium-dose ICS+LABA, or COMBO  Alternative: Medium-dose ICS+LTRA	Preferred: High-dose ICS+LABA, or COMBO  Alternative: High-dose ICS+LTRA	Preferred: High-dose ICS+LABA, or COMBO+ oral systemic corticosteroid  Alternative: High-dose ICS+ LTRA + oral systemic corticosteroid
Consider consultation	Consult Asthma Specialist	Consult Asthma Specialist	Consult Asthma Specialist	Consult Asthma Specialist	Consult Asthma Specialist
<<==== Step down if possible (If asthma is well controlled at least 3 months)			====>> Step up if needed (adherence, inhaler technique, and environmental control)		
<b>Patient Education and Environmental Control at Each Step</b>					
<b>Quick-Relief Medication for All Patients</b>					
* SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute interval as needed. Short course of oral systemic corticosteroids may be needed.					
* Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.					
Comments/Reason for variance: <input type="text"/>					
CC	Med Hx	ROS	Environ Hx	Family Hx	
Phys Exam	Treat Plan	Test	Prescrip	Sew/Ctrl	
	Assessment	Meds	Plan		

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# Electronic Data

- 445 visits for asthma in first five months
- 55 new patient visits
  - CDS triggered in 43/55 (78.2%)
- 390 return patient visits
  - CDS triggered in 354/390 (90.8%)
- Overall, clinicians entered enough structured data to trigger CDS in 397/445 (89.2%) of cases

# Direct Observation

- None of the clinicians used the computer in the exam room
  - Note: we performed a usage survey early in the design process, but this did not identify the extent of the problem
- During clinic, clinicians used smart forms in conference rooms to:
  - Review medications
  - Generate asthma action plans
  - Print prescriptions
- After clinic, clinicians used smart forms to:
  - Document
  - Create letters to referring physicians

# Qualitative Evaluation

- Performed semi-structured interviews of all nine clinicians
- Reviewed transcripts in teams
- Developed coding framework using “grounded” approach
- Generated themes using qualitative data analysis software (NVivo 8)

# Qualitative Results

- Factors contributing to low use
  - Clinical
  - Social
  - Technical
  - Workflow-related
- Themes
  - Computer use during general medical care
  - Computer use in a subspecialty setting

# General Medical Care

- Clinical
  - “I don't like it. [The computer] doesn't have to make decisions - I'm the one who should make the decisions. Because . . . it's not like one plus one equals two. It's different. We're dealing with human beings . . . I think that I just got used to me thinking instead [of the computer].” (Fellow)



# Subspecialty Care

- Clinical
  - “[Using the ‘smart forms’ ] is not possible in our setting...because our history-taking is complicated. It's long. People come with charts and studies...It just isn't like a well child visit. It can never be like a well child visit. Where, you know, you ask questions by rote, and sometimes the answers are by rote.”  
(Attending)

# Subspecialty Care

- Clinical
  - “[EPR-3] is based on expert opinion, and that's very clearly stated. So I think that, keeping that in mind, we have expertise, too, so I think that our expert opinion counts as well.” (Attending)

# Subspecialty Care

- Clinical

- “And so should I get an IgE and a RAST test or maybe send you to Allergy [clinic] to get skin prick testing done, and see if you qualify for immune therapy or [omalizumab] therapy? So those are the kinds of tools that specialists would need, which is not something that pediatricians would need. Because which pediatrician is gonna start thinking about [omalizumab] for an asthmatic in their office? They're not gonna do that. It's actually not even their job to do that.” (Attending)

# General Medical Care

- Workflow-related
  - “[I take notes] on paper. The [Interval History forms] that we were using before the electronic system came about. We still have the paper forms there because the nurses record vital signs on those paper forms. And so . . . they help to guide me through the questioning process. I'm able to take notes just as you would normally.” (Attending)

# Subspecialty Care

- Workflow-related
  - “There are times when the patient has left and I've thought about [the ‘smart forms’ ]. Actually as I'm typing the letter, because that's when you formulate your thoughts and try to put things on to paper. So that the person who has sent you the patient has some idea of what it is you were thinking and what you want to do. And suddenly you realize, you know, I just didn't ask this.” (Attending)

# General Medical Care

- Social
  - “I don't know how the computer can actually be part of the doctor-patient relationship in a natural and intuitive way. It actually cannot be. I mean I can tell you that the current system does not serve that purpose.” (Attending)

# Subspecialty Care

- Social
  - “I feel they come to the specialist because they want to hear from the specialist not from their own pediatrician.” (Attending)
  - “I need a five-minute visit to feel like a half an hour. But a half an hour visit while I'm documenting in front of them is going to make them feel like I haven't paid attention to them at all.” (Attending)

# Lessons Learned

- Subspecialty environments may require unique considerations
  - Subject matter expertise
  - Cognitive workflow split between patient care and communication to referring providers
  - Different patient expectations



# Lessons Confirmed

- End user involvement is critical but insufficient
- Separating computer use from CDS use is not straightforward
- Usability testing or more formal evaluation (e.g., direct observation) earlier in the process may have been helpful