GLIDES Project – Technical Expert Panel

Andrew Hamilton RN, MS
Overview

• Background/Overview of the Alliance of Chicago
• History of EHRS Adoption and Clinical Decision Support
• GLIDES Asthma Project Overview and lessons learned
OVERVIEW OF ALLIANCE OF CHICAGO
Alliance Overview

- HRSA funded network/collaborative of Community Health Centers
- Essentially a joint venture organizations with the desire and ability to work together on building some common infrastructure to improve service delivery and health status
- Dedication to quality and use of data to improve care
- Ability to access higher quality, efficiency and economy of scale
- Desire to ultimately share with others
11 States
30 Health Centers
148 Clinical Locations
500 Providers (MD, NP, PA, DO)

380,000 patients
1,077,257 visits
Alliance Programs

- Electronic Medical Records & HIT
- Quality Improvement & Research
- Consulting & Technical Assistance
- Technology Innovations & Partnerships
Network Role in HIT Implementation and Support
Health Centers Working Independently
A Learning Community
2012 Goals

• Provide HIT support to member health centers with a particular focus on achieving Meaningful Use and Patient Centered Medical Home Certification

• Strength the collaborative learning model to foster/promote use of evidenced-based care, improved financial sustainability, and overall excellence

• Implement HIT tools to support patient engagement

• Implement shared infrastructure to enable multi-institutional, patient-centered research

• Support member health center readiness to leverage the EHR, Data Analytics Platform, and Patient Engagement technologies for participation in Accountable Care.
HISTORY OF EHRS ADOPTION AND CDS
Link between EMR Adoption and Quality

1. National Practice Guidelines
2. Evidence Based Guidelines
3. Aggregate Level Quality Reporting
4. Clinical Screens Capture Data
5. Patient Care
6. EMR Clinical Screens
7. EMR Decision Support Prompts
8. Reporting
9. Research
Clinical Content Development

• **Benefit**
  – Directly address **CHC needs** that affect us all
  – **Structured, standardized data mapping** for reporting needs

• **Challenge**
  – Consistently **meeting the needs** across all Alliance Health Centers
  – Keeping up with the **volume** of requests for clinical content development
Mission & Vision

• Create clinical content that can be used for safe, quality patient care at Alliance Health Centers.
• Design content with the full patient workflow in mind, not just a singular task.
• Foster efficient, effective operations.
• Facilitate real-time EHRS documentation.
• Promote best-practice and evidence-based guidelines for clinical care.
• Facilitate data extraction and review.
Usability Survey

2. Simplicity

Simplicity

Does information presented seem uniform and organized, or chaotic? Simplicity refers to having a lack of visual clutter and concise information display. Simplicity is difficult to achieve as the more complex a task becomes, the more important it is to maintain a sense of simplicity. Think of a “less is more” philosophy while assessing this principle.

Please answer/rate the following questions on a 1-5 scale.

1 - Terrible
2 - Poor
3 - Fair
4 - Good
5 - Excellent

1. Please rate how well visual clutter is minimized:
   ● 1  ● 2  ● 3  ● 4  ● 5

2. Please rate the degree of ease in visually following onscreen formatting to move from one topic/option to the next:
   ● 1  ● 2  ● 3  ● 4  ● 5

3. With respect to simplicity as a whole, please rate the Patient History form:
   ● 1  ● 2  ● 3  ● 4  ● 5

4. Additional comments on simplicity:
Measuring Usability

• The brief survey that is distributed to all clinicians selected to evaluate content usability
• The results of the survey are reviewed with clinical sponsor and SMEs
• Changes based on user feedback are incorporated into the revised content
• The survey is redistributed at 3-6 months to evaluate impact of changes
Testing Cloud Based CDS
Salmonella Outbreak Scenario

Public Health Agency

States/CDC monitoring public health discover Salmonella outbreak

Salmonella Outbreak Identified

Salmonella Message Created

Rule based Alerts
Salmonella: Symptoms Locations Event Information Recommendations

Knowledge Repository

Case Archive
An extension of the knowledge repository, alerts will be stored to assist in biosurveillance

Salmonella message sits on a standalone knowledge repository or on a PH grid

Providers Desktop

Providers Seeing Patients

As part of their workflow providers poll for messages when seeing patients and click the info button for more detail.

Infobutton Request

Rule Based Public Health profile matching

Rule Based Public Health alert information to CIS providing decision support objects (text for display), order sets, etc

Context based request using standardized, anonymous case data.
- User context
- User action
- Patient record content

EMR decision support algorithms envoke

Medical Community

Hospital HIE COE MD Office INTL Healthcare Facility Citizen PHR WWW

EHR+ OpenMRS
Physical Exam Form with ALERT

**Physical Exam: CDC Test**

**General Appearance:**
- Normal
- Previous
- Clear

**Eyes:**
- Normal unless otherwise specified
- Previous unless otherwise specified
  - External:
  - Pupil:
  - Ophthalmoscopic:

**Alert:**
- Multistate Outbreak of E. coli O157:H7 Infections Associated with Lebanon Bolognese, Multistate Outbreak of E. coli O157:H7 Infections Associated with In-shell Hazelnuts

**TEST CDC v2.05 - version date xx/xx/2011**

Alliance of Chicago Community Health Services, LLC
Overview of GLIDES Project
Expected Outcomes

- Update EMR based CDS for Asthma Management to reflect most current NHLBI Guidelines
- Incorporate EPA standards related to collecting asthma trigger data and developing interventions, (eg, large scale education programs)
- Demonstrate the use of GLIDES based CDS Implementation Toolkit
Phase 1: Building Revised Content

• Reviewed the Asthma CDS available from GLIDES
• Incorporated GLIDES CDS into Alliance Content
• Expanded GLIDES content to include EPA Standards for documenting and managing Asthma Triggers

• Key Deliverables:
  – Revised Asthma Content & CDS
  – Documentation of the lessons learned and key challenges associated with incorporating CDS developed “externally”
# Assessment of Asthma Severity

**Pediatric**

## Classifying Components of Asthma Severity and Initiating Treatment

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Intermittent</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough due to asthma</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk</td>
<td>All Day</td>
</tr>
<tr>
<td>Wheezing</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk</td>
<td>All Day</td>
</tr>
<tr>
<td>Chest tightness</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk</td>
<td>All Day</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>None</td>
<td>&lt;=1x/month</td>
<td>1-2x/month</td>
<td>&gt;1x/week</td>
</tr>
<tr>
<td>Nighttime awakenings</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk</td>
<td>&gt;1x/week</td>
</tr>
<tr>
<td>Interference with normal activity Reduction in school/activities</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk but not</td>
<td>Several times per</td>
</tr>
<tr>
<td>SABA use (not for EB)</td>
<td>None</td>
<td>&lt;=2 days/wk</td>
<td>&gt;2 days/wk</td>
<td>All Day</td>
</tr>
</tbody>
</table>

## Impairment Classification:

<table>
<thead>
<tr>
<th>Risk</th>
<th>0</th>
<th>1 in last year</th>
<th>2 in last year</th>
<th>3 in last year</th>
<th>&gt;=4 in last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute/ER visit(s) due to asthma</td>
<td>0</td>
<td>1 in last year</td>
<td>2 in last year</td>
<td>3 in last year</td>
<td>&gt;=4 in last year</td>
</tr>
<tr>
<td>Hospitalizations due to asthma</td>
<td>0</td>
<td>1 in last year</td>
<td>2 in last year</td>
<td>3 in last year</td>
<td>&gt;=4 in last year</td>
</tr>
<tr>
<td>Exacerbations requiring oral/systemic corticosteroids</td>
<td>0-1/yr</td>
<td>&gt;=2 exacerbations in last 6 months</td>
<td>&gt;=4 wheezing episodes/1 year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Treatment-related adverse effects**

<table>
<thead>
<tr>
<th>Medication Adverse Effect</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrush</td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
</tr>
<tr>
<td>Jitteriness</td>
<td></td>
</tr>
<tr>
<td>Sleep Disturbances</td>
<td></td>
</tr>
<tr>
<td>Decreased Growth</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

**Risk Classification:**

Asthma Severity Classification: **Moderate Persistent**
## Adult Severity

### CLASSIFYING COMPONENTS OF ASTHMA SEVERITY AND INITIATING TREATMENT

<table>
<thead>
<tr>
<th>Assessment for:</th>
<th>Control</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment</td>
<td>Intermittent</td>
<td>Mild</td>
</tr>
<tr>
<td>Cough due to asthma</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>Wheezing</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>Chest tightness</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>Nighttime awakening</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>Interference with normal activity Reduction in schoolplay/work</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
<tr>
<td>SABA use (not for EIB)</td>
<td>None</td>
<td>&lt;=2 days/ wk</td>
</tr>
</tbody>
</table>

**Lung Function:**
- Normal FEV1/FVC:
  - 6-19 yr: 95%
  - 20-39 yr: 90%
  - 40-59 yr: 75%
  - 60-80 yr: 70%
- FEV1/FVC normal: None

**Impairment Classification:**

<table>
<thead>
<tr>
<th>Risk</th>
<th>Acute/ER visit(s) due to asthma</th>
<th>Hospitalizations due to asthma</th>
<th>Exacerbations requiring oral systemic corticosteroids</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-5</td>
<td>1 in last year</td>
<td>2 in last year</td>
<td>3 in last year</td>
</tr>
<tr>
<td>6-10</td>
<td>3 in last year</td>
<td>4 in last year</td>
<td>5 in last year</td>
</tr>
<tr>
<td>&gt;10</td>
<td>4 in last year</td>
<td>5 in last year</td>
<td>6 in last year</td>
</tr>
</tbody>
</table>

**Medication Adverse Effect**
- Throat
- Polypathias
- Jitteriness
- Sleep Disturbances
- Decreased Growth
- Other

**Risk Classification:**
- Asthma Severity Classification: Mild Persistent
Assessment of Asthma Control

**Pediatric**

### Classifying Components of Asthma Control

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Well Controlled</th>
<th>Not Well Controlled</th>
<th>Poorly Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough due to asthma</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>Wheezing</td>
<td>&lt;= 2 days/wk</td>
<td>&gt; 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>Chest tightness</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>Nighttime awakening</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>Interference with normal activity</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>Reduction in school/play/work</td>
<td>None</td>
<td>None</td>
<td>Daily</td>
</tr>
<tr>
<td>SABA use (not for EB)</td>
<td>None</td>
<td>None</td>
<td>Several times per day</td>
</tr>
</tbody>
</table>

**Impairment Classification:** Severe

### Risk

<table>
<thead>
<tr>
<th>Risk</th>
<th>0</th>
<th>1 in last year</th>
<th>2 in last year</th>
<th>&gt;3 in last year</th>
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<td>0</td>
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<td>2 in last year</td>
<td>&gt;3 in last year</td>
</tr>
<tr>
<td>Hospitalizations due to asthma</td>
<td>0</td>
<td>1 in last year</td>
<td>2 in last year</td>
<td>&gt;3 in last year</td>
</tr>
<tr>
<td>Exacerbations requiring oral steroids</td>
<td>0-1/year</td>
<td>2-3/year</td>
<td>&gt;3/year</td>
<td></td>
</tr>
</tbody>
</table>

### Medication Adverse Effect

- Thrush
- Paresthesias
- Jitteriness
- Sleep Disturbances
- Decreased Growth
- Other

### Comments

**Risk Classification:** Moderate

**Asthma Control Classification:** Poorly Controlled
**Adult Control**

### Classifying Components of Asthma Control

**Is patient currently on controller medication?**
- Yes
- No

**Has this patient's severity been classified?**
- Yes
- No

**Assessment for:**
- Control
- Severity

<table>
<thead>
<tr>
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<th>Poorly Controlled</th>
</tr>
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<tbody>
<tr>
<td>Cough due to asthma</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>Wheezing</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
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<tr>
<td>Chest tightness</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>Nighttime awakening</td>
<td>None</td>
<td>&lt;= 2x/month</td>
<td>Daily</td>
</tr>
<tr>
<td>Interference with normal activity</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>Reduction in schoolplay/work</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>SABA use (not for EIB)</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>FEV1 or peak flow</td>
<td>None</td>
<td>&lt;= 2 days/wk</td>
<td>Daily</td>
</tr>
<tr>
<td>ACT Score</td>
<td>None</td>
<td>&lt;= 20</td>
<td>Daily</td>
</tr>
</tbody>
</table>

**Impairment Classification:** Minimal

### Risk

- **Acute ER visit(s) due to asthma**
  - 0
  - 1 in last year
  - 2 in last year
  - >=3 in last year

- **Hospitalizations due to asthma**
  - 0
  - 1 in last year
  - 2 in last year
  - >=3 in last year

- **Exacerbations requiring oral steroids**
  - <= 1/year
  - 1 in last year
  - 2 in last year
  - >=2/year

### Medication Adverse Effect

- Thrush
- Papillations
- Jitteriness
- Sleep Disturbances
- Decreased Growth
- Other

### Comments

**Risk Classification:** Low

**Asthma Control Classification:** Well Controlled
Assessment of Triggers

Asthma Management - TEST: Billy S. Pendergast

Triggers:

Allergies:
- Dust Mites: Yes
- Pollen/Cut Grass/Flowers: Yes
- Animals: Yes
- Mice/Rats/Cockroaches: Yes
- Indoor Mold: Yes

Irritants:
- Tobacco Smoke: Yes
- Outdoor Pollution: Yes
- Wood Smoke: Yes
- Chalk Dust: Yes
- Cleaning Products: Yes

Current Exposure?

Current Allergy List: [input field]

Comorbidities -

Please review patient's problem list for conditions that may impact asthma including GERD, Rhinitis, and Depression

Update Allergies
Asthma Assessment

Provider Assessment - Today

Control Class: Not Well Controlled
Impairment: Moderate
Risk: Moderate

Decision Support - Today

Recommend step up in therapy
Regular follow up every 2 - 6 weeks
Re-Classify Patient Asthma Severity

Intermittent Asthma

Persistent Asthma: Daily Medication

Preferred: Low-dose ICS

Preferred: Medium-dose ICS

Preferred: High-dose ICS + either LABA or Montelukast

Preferred: High-dose ICS + either LABA or Montelukast

Preferred: Oral systemic corticosteroids
Asthma Medication Management

Selected Treatment Step: 3

**Quick-Relief**
Short acting B-2 agonist
- PROVENTIL 90 MCG/ACT AERS

**Long Term Control**
Preferred
1. Medium-dose inhaled steroid
- FLOVENT 110 1 puff BID
- PULMICORT 0.5 MG/2ML SUSP
- QVAR 40 2 puffs BID
- QVAR 80 2 puffs BID
Asthma Action Plan

Asthma Management - TEST: Billy S. Pendergast

Asthma Management - Asthma Action Plan Recommendations

**Green Zone**

**Peak Flow Range**

More than:

- No previous result

Instructions:

- Take controller medications as prescribed.
- Before exercise, take _1_ puffs of ________ 5-60 minutes before exercise.
- Avoid things that make your asthma worse.
- Avoid tobacco smoke.
- Ask people to smoke outside.

**Other Instructions:**

Reviewed

**Yellow Zone**

**Peak Flow Range**

From: ____________________________ To: ____________________________

Instructions:

First...

- Continue taking controller medications as prescribed.
- Add quick-relief medication: ALBUTEROL SULFATE (2.5 MG/3ML) 0.083% NEBU 2.5 mg 5cc with 3cc NS nebulized every 4 hours.
- If you are taking your quick-relief medication more than 2 to 3 times/week, then call your provider.

If your symptoms and/or peak flows do not improve after 1 hour of treatment, then...

- Take quick relief medication:
- Take quick relief medication:
- Call your primary care provider if no improvement in __________ days.

**Other Instructions:**

**Red Zone**

**Peak Flow Range**

Less than: ____________________________

Instructions:

- Take this medication: ALBUTEROL SULFATE (2.5 MG/3ML) 0.083% NEBU 2.5 mg 5cc with 3cc NS nebulized every 4 hours.
- Call your provider NOW.
- Go to the nearest emergency room.
- Call 911 if person doesn’t respond to you, skin is sucked in around the neck and ribs, and/or if lips or fingernails are grey or blue.
- Make an appointment with your primary care provider within two days of an emergency room visit or hospitalization.

**Other Instructions:**
Phase 2: Evaluating Results

- Conduct Usability Testing
- Incorporate SME Feedback into revised CDS
- Train Key Staff on New Asthma CDS
- Support implementation of New Asthma CDS
- Evaluate Clinician Adoption and Satisfaction with Revised CDS

Key Deliverables

- Documentation of Usability Testing Results
- Synthesize results of CDS Satisfaction survey and Adoption Measures
- Correlate system use with quality
Key Lessons Learned

• Exchange of content required HIT vendor involvement – to coordinate customized data element usage
• Technical limitations/capacity of the EHRS to support complex CDS
• Maintained underlying “programming” however adjusted content/CDS to meet “local” workflows and system preferences
• Incorporated changes based on user feedback to increase usability of content
• Lack of alignment of data standards (value sets) between CDS and Quality Reporting
Thank You

Email:

ahamilton@alliancechicago.org