



GLIDES PROJECT

GuideLines Into DEcision Support

sponsored by

The Agency for Healthcare Research and Quality

Usability and Access

Yale: iPad tool for patient-centered data capture

Case 1: Yale Pulmonology

- With input from 2 pediatric pulmonologists, we developed CDS for chronic management of asthma based on newly released NHLBI guidelines
 - Assist assessment and documentation of control, severity, impairment, and risk
 - Facilitate choice and ordering of appropriate pharmacologic interventions
 - Provide patient handout and med authorization form for school
- Direct observation demonstrated that CDS templates were used for documentation at end-of-session (Lomotan, et al)

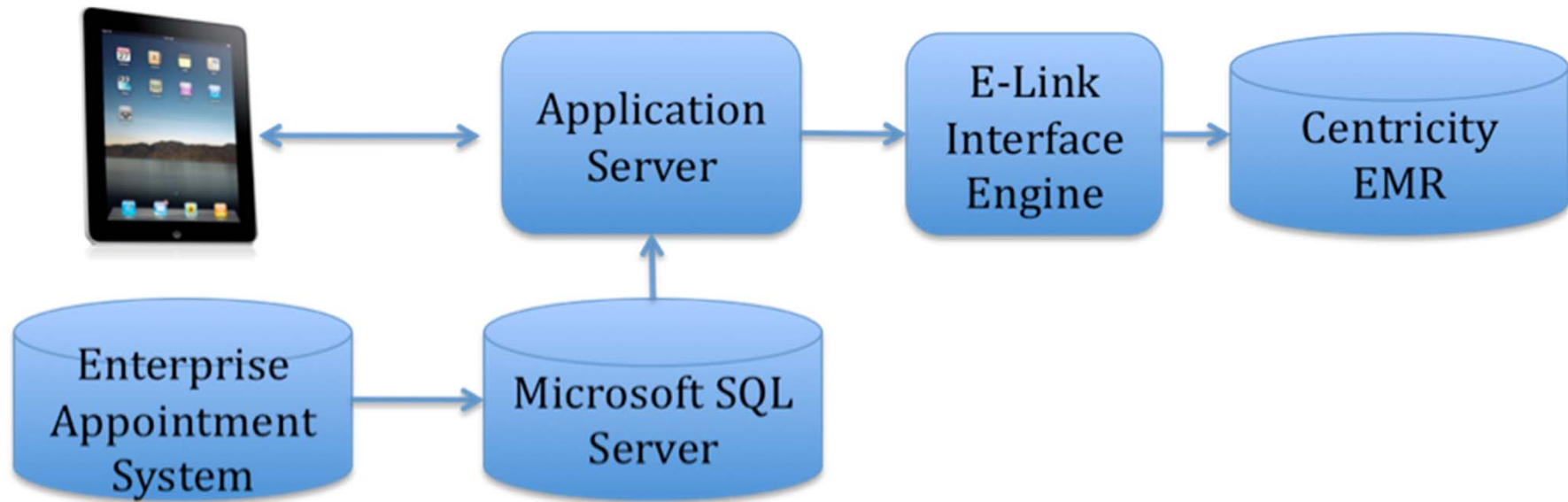
Reasons

- Specialty: Experts don't need DS, patients more complex
- Workflow: Habit
- Social: Adverse effect on clinician-patient relationship
- Technical: Warm-up time, noisy fans
- ...

Facilitation of Decision Support Avoidance

- Patient's interim history collected on paper form completed by patients in waiting room
- Physicians jotted notes on form in exam room
- Transcribed data into EHR at end of session

Architecture



Registrar selects patient, language

iPad 9:25 AM 95%

Today's Patients - 4/14/11

Select Patient

Jim Jones

Language to use:

English

Spanish

Go To History

Parent/patient completes interim history

In the Past Month...

How often has your child had cough due to asthma?

- None **2 days per week or less** More than 2 days per week Daily Not Sure

How often has your child had wheezing?

- None** 2 days per week or less More than 2 days per week Daily Not Sure

How often has your child had chest tightness or chest pain?

- None **2 days per week or less** More than 2 days per week Daily Not Sure

How often has your child had shortness of breath or trouble breathing?

- None **2 days per week or less** More than 2 days per week Daily Not Sure



In the Past Month...

How often does your child wake up at night coughing or wheezing?

- None** 2 times a month or less 1 - 3 times a week 4 times a week or more Not Sure

How often has your child's play or school attendance been limited by asthma?

- None **Some limitation** Extremely limited Not Sure

How often did your child need/use albuterol to relieve symptoms?

(Note: Don't count using albuterol before exercise to prevent problems.)

- None **2 days a week or less** More than 2 days a week Several times a day Not Sure



In the Last Year...

How many times has your child had an emergency room visit due to asthma?

- 0 1 2 3 4 or more

How many times has your child had a hospitalization due to asthma?

- 0 1 2 3 4 or more

How many times has your child required prednisone/prelone/orapred?

- 0 1 2 or more



Since your child's last visit, has your child had...

Had an admission to the intensive care unit due to asthma?

Yes No

Missed school because of breathing problems?

Yes No

Ear infections?

Yes No

Sinus infections?

Yes No

Stuffy nose for weeks/runny nose?

Yes No

Loud snoring?

Yes No

Heartburn or wet burps?

Yes No

Rash or eczema?

Yes No



Does your child have...

Allergy to medications?

Yes No

Allergy to foods?

Yes No

How many times a week does your child miss his/her medications?

0 1 2 3 times or more

Has there been any change to your home environment?

Yes No



FINISH

HL7 message created, flows to CEMR

**Thank you for completing the form!
Your answers have been saved for the
doctor to review.
Please return the iPad to the
receptionist.**

CLASSIFYING COMPONENTS OF ASTHMA SEVERITY AND INITIATING TREATMENT

Visit Type
 Well Child
 Asthma

Is patient currently on controller medication? yes no
 Has this patients severity been classified? yes no

Assessment for: Control Severity

----- Persistent -----

Impairment	----- Intermittent -----	Mild	Moderate	Severe
<input checked="" type="checkbox"/> HPI	<input type="radio"/> None	<input type="radio"/> <=2 days/wk	<input type="radio"/> >2 days/wk	<input checked="" type="radio"/> Daily
<input checked="" type="checkbox"/> Cntrl/Sev	<input type="radio"/> None	<input type="radio"/> <=2 days/wk	<input checked="" type="radio"/> >2 days/wk	<input type="radio"/> Daily
<input checked="" type="checkbox"/> Inhaler/Env	<input type="radio"/> None	<input checked="" type="radio"/> <=2 days/wk	<input type="radio"/> >2 days/wk	<input type="radio"/> Daily
<input checked="" type="checkbox"/> PE	<input type="radio"/> None	<input checked="" type="radio"/> <=2 days/wk	<input type="radio"/> >2 days/wk	<input type="radio"/> Daily
<input checked="" type="checkbox"/> Asmt	<input checked="" type="radio"/> None	<input type="radio"/> <=2x/month	<input type="radio"/> 3-4x/month	<input type="radio"/> >1x/wk
<input checked="" type="checkbox"/> Tx Plan	<input type="radio"/> None	<input type="radio"/> <-----	<input type="radio"/> Mild	<input checked="" type="radio"/> Moderate
<input checked="" type="checkbox"/> Action Plan	<input checked="" type="radio"/> None	<input type="radio"/> <=2 days/wk	<input type="radio"/> >2 days/wk but not	<input type="radio"/> Daily
<input checked="" type="checkbox"/> Asmt/Plan	<input type="radio"/> FEV>80% predicted	<input type="radio"/> <-----	<input type="radio"/> <-----	<input checked="" type="radio"/> FEV=60-80% predicted
Lung Function	<input type="radio"/> >85%	<input type="radio"/> <-----	<input checked="" type="radio"/> >80%	<input type="radio"/> =75-80%
FEV1 or peak flow				<input type="radio"/> FEV<60% predicted
FEV1/FVC				<input type="radio"/> <75%

Impairment Classification: **Moderate**

Risk	0	1 in last year	2 in last year	3 in last year	>=4 in last year
Acute/ ER visit(s) due to asthma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hospitalizations due to asthma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exacerbations requiring oral systemic corticosteroids	<input checked="" type="radio"/> 0-1/year			<input type="radio"/> >=2/year	

AND for persistent asthma

Treatment-related adverse effects	Medication Adverse Effect	Comments
	<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	

Risk Classification: **Low**
 Asthma Severity Classification: **Moderate Persistent**

Asthma Assessment: Katherine Flanagan

Visit Type <input type="checkbox"/> Well Child <input checked="" type="checkbox"/> Asthma	Decision Support - Today Severity Class: Moderate Persistent Impairment: Moderate Risk: Low	Control Classification Control Class: Impairment: Risk: Previous Step:	Severity Classification Severity Class:
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<input checked="" type="checkbox"/> HPI <input checked="" type="checkbox"/> Cntrl/Sev <input checked="" type="checkbox"/> Inhaler/Env <input checked="" type="checkbox"/> PE <input checked="" type="checkbox"/> Asmt <input checked="" type="checkbox"/> Tx Plan <input checked="" type="checkbox"/> Action Plan <input checked="" type="checkbox"/> Asmt/Plan	Provider Assessment - Today Current level of control is: <input checked="" type="radio"/> Well Controlled <input type="radio"/> Not Well Controlled <input type="radio"/> Very Poorly Controlled Inhaler Technique: <input checked="" type="radio"/> Correct <input type="radio"/> Incorrect <input checked="" type="radio"/> N/A Adherence: <input checked="" type="radio"/> N/A <input type="radio"/> Good <input type="radio"/> Fair <input type="radio"/> Poor Environmental Control: <input checked="" type="radio"/> Adequate <input type="radio"/> Inadequate <input type="radio"/> N/A
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Advice

Severity Classification: Moderate Persistent Recommended therapy is Step 3 or 4

--- Regular follow up every 1 - 6 months ---

Intermittent Asthma <input type="radio"/> Step 1 <input type="radio"/> Step 2 <input checked="" type="radio"/> Step 3 <input type="radio"/> Step 4 <input type="radio"/> Step 5 <input type="radio"/> Step 6	Persistent Asthma: Daily Medication <input type="radio"/> Step 1 <input type="radio"/> Step 2 <input checked="" type="radio"/> Step 3 <input type="radio"/> Step 4 <input type="radio"/> Step 5 <input type="radio"/> Step 6
Step Comments/Reason for Step Change:	

Preferred: SABA PRN	Preferred: Low-dose ICS Alternative: Cromolyn,LTRA, Nedocromil Consider consultation	Preferred: Low-dose ICS+ either LABA, LTRA, or COMBO OR Medium-dose ICS Consult Asthma Specialist	Preferred: Medium-dose ICS+LABA, or COMBO Alternative: Medium-dose ICS+LTRA Consult Asthma Specialist	Preferred: High-dose ICS+LABA, or COMBO Alternative: High-dose ICS+LTRA Consult Asthma Specialist	Preferred: High-dose ICS+LABA, or COMBO+ oral systemic corticosteroid Alternative: High-dose ICS+ LTRA + oral systemic corticosteroid Consult Asthma Specialist
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Prev Form (Ctrl+PgUp) Next Form (Ctrl+PgDn) Close

Spanish version

iPad

9:42 AM

45%

En el último mes...

¿Con qué frecuencia su hijo/a ha tenido tos causada por asma?

- Nunca 2 días por semana o menos Más de 2 días por semana Diariamente No Sé

¿Con qué frecuencia a su hijo/a un pito en el pecho?

- Nunca 2 días por semana o menos Más de 2 días por semana Diariamente No Sé

¿Con qué frecuencia su hijo/a ha tenido presión/dolor en el pecho?

- Nunca 2 días por semana o menos Más de 2 días por semana Diariamente No Sé

¿Con qué frecuencia su hijo/a ha tenido falta de aliento o dificultad respiratoria?

- Nunca 2 días por semana o menos Más de 2 días por semana Diariamente No Sé

