



GLIDES Update

TEP Meeting, September 2010

GLIDES PROJECT

GuideLines Into DEcision Support

sponsored by
The Agency for Healthcare Research and Quality



Yale School of Medicine



GEISINGER



ECRI Institute

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™



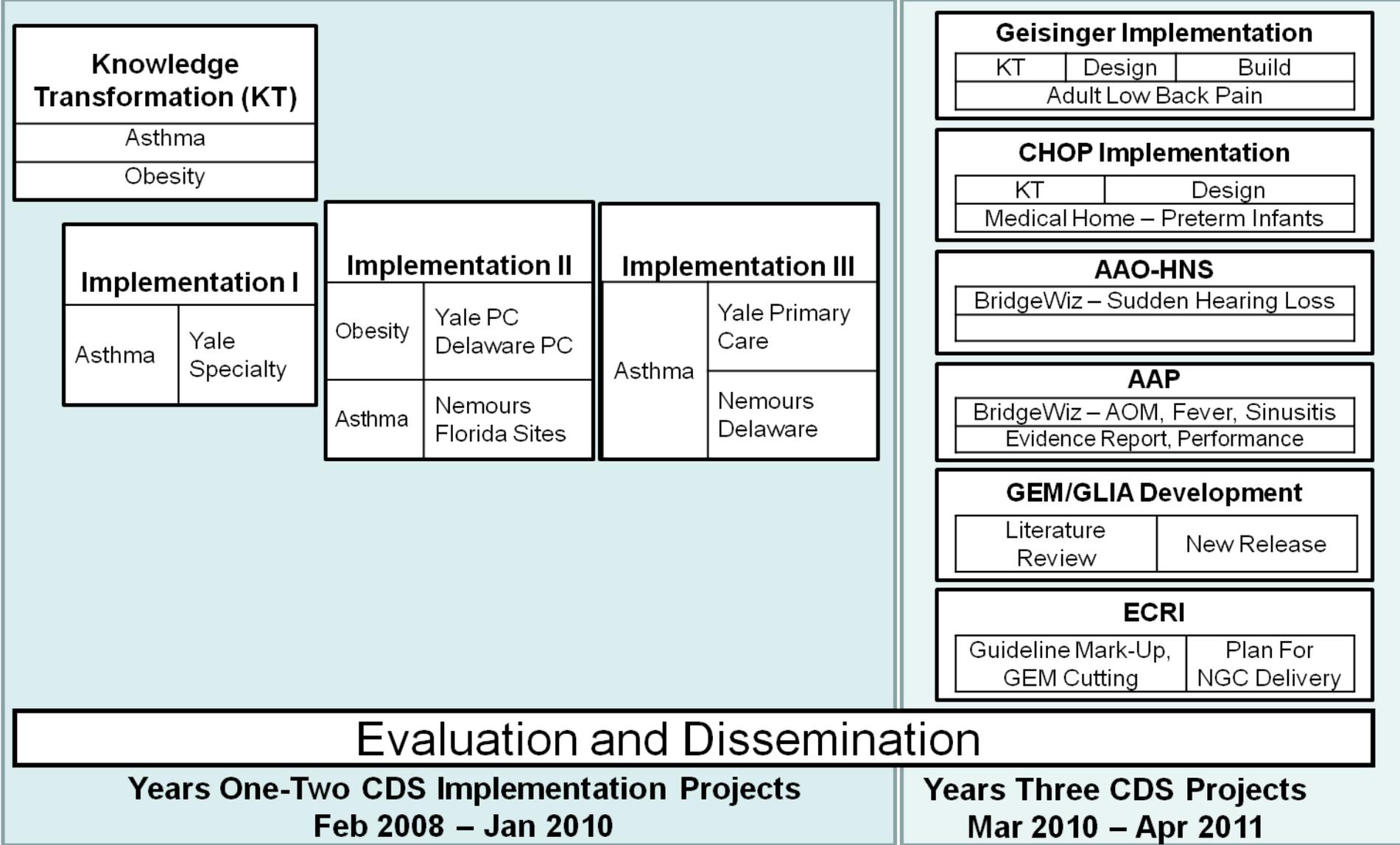
Contents

- Project Status
- New Implementations
- Guideline Development

Year 3 Goals

- Using systematic and replicable processes
 - Continue to design, develop, implement, and demonstrate guideline-based clinical decision support
 - Focus on new guidelines and implementation partnerships
 - Enhance and improve the CDS already produced at Yale and Nemours
- Recognizing the critical importance of transparently developed and clearly stated guideline recommendations for effective implementation, work closely with guideline developers to provide tools and guidance to improve guideline development and reporting processes
- Update the Guideline Elements Model and increase GEM adoption nationally and internationally
- Continue evaluation of both existing and newly developed CDS implementations
- Disseminate the findings and lessons learned via a variety of modalities

Project Timeline

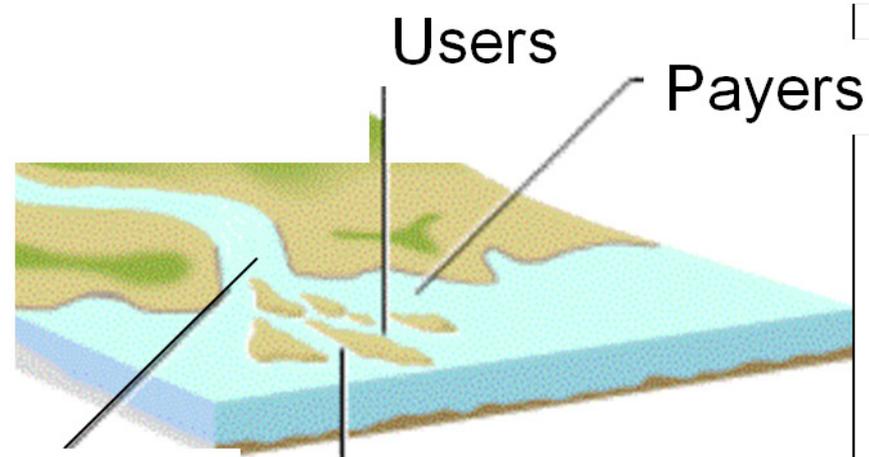


New Implementations: Geisinger

- Project Overview
 - Dr. Walter Stewart, Geisinger Ctr for Health Research
 - Extract knowledge from ICSI Adult Low Back Pain guidelines using GEM
 - Create rules that can operate on data reported by the patient or that is available from Geisinger's EHR
 - Commence deployment in early 2011
- Current Status
 - Project planning is complete
 - Guideline Knowledge Transformation is nearing completion
 - CDS intervention design will commence shortly

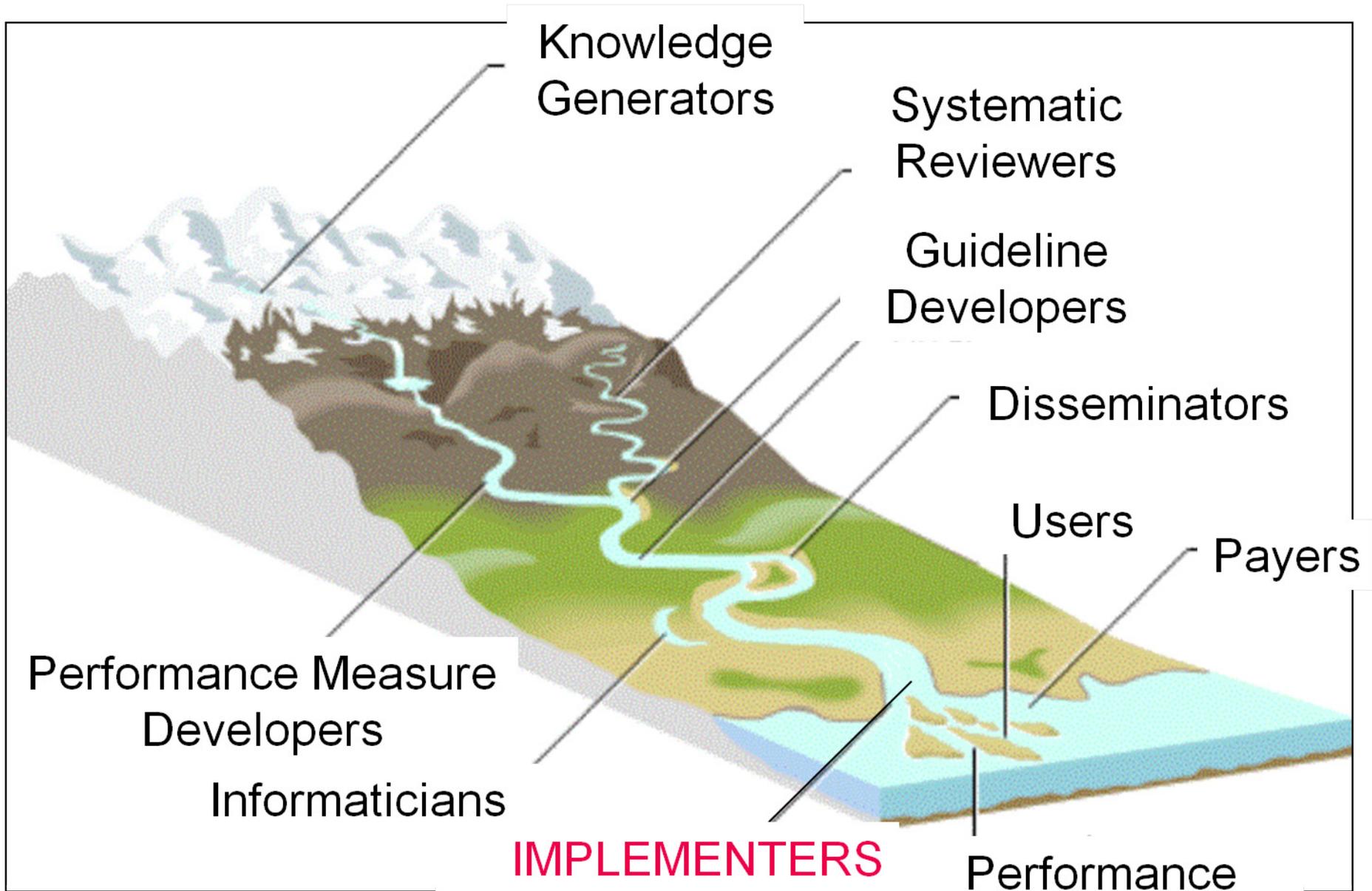
New Implementations: CHOP

- Project Overview
 - Dr. Robert Grundmeier, Children’s Hospital of Philadelphia
 - Improve primary care for preterm infants using CDS
 - Improve the medical home for vulnerable infants
 - Interactions between primary care and selected subspecialists
 - Focus on three guidelines
 - Retinopathy of Prematurity
 - Hearing loss detection and intervention
 - Palivizumab immunization (RSV)
 - Review potential use of a dedicated rules engine(PyKe) to manage the CDS intervention
 - PyKe will serve as a direct repository and implementation space for “GEMified” guideline rules
 - Focus on CDS intervention design in 2010
- Current Status
 - Project planning is complete
 - Guideline Knowledge Transformation is in progress



IMPLEMENTERS

Performance
Measurers



Guideline Development

- Project Overview
 - “Swim upstream”, to collaborate with guideline **developers**
 - AAP, AAO-HNS
 - ATS, ACEP, NHLBI, Kaiser
 - Develop methods and tools to improve quality, transparency, and “implementability” of guidelines
 - Pilot and evaluate BRIDGE-Wiz
 - Improve Guideline Implementability Appraisal (GLIA) and eGLIA; incorporate into GL development
- Current Status
 - BridgeWiz training and use for selected guidelines is in progress (3 guidelines completed)

GEM Improvement

Project Overview

- Systematic literature review of GEM use
 - Assess feedback (including CDSC) and refine long-term GEM vision
 - Develop and deploy new release of GEM and tools
 - Work with ECRI to markup a wide range of existing guidelines
 - Explore the feasibility of including “GEMified” guidelines on the NGC website
-
- **Current Status**
 - Identified 56 publications describing experience in using GEM
 - Analysis of feedback in progress
 - Planning for next GEM release

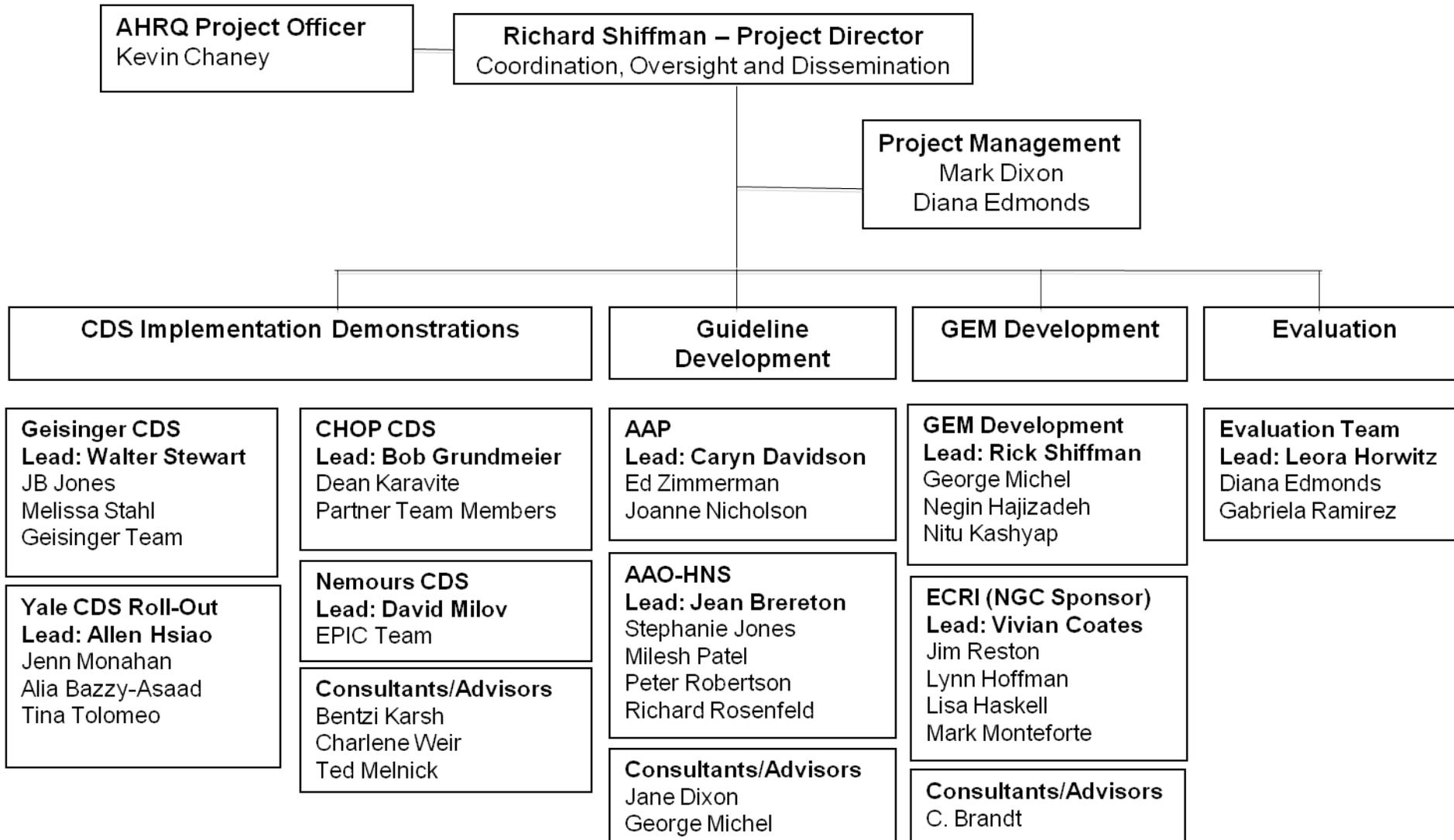
Yale CDS Improvement

- Examined with Bentzi Karsh the usability of Yale's Asthma CDS
 - Feedback has been provided to IT and clinical staff
 - Initiating “iPad kiosk” pilot to collect data directly from patients



GLIDES Project Organization

Year Three



Evaluation and Dissemination

- Evaluation at Yale and Nemours is ongoing
- Evaluation and Dissemination Plans submitted
- Papers in process/in press
 - Lomotan: deontics (in press, QSHC)
 - Lomotan: (qualitative evaluation of subspecialty use of CDS)
 - Horwitz: (evaluation of congruence of CDS and specialist decision-making)
 - Shiffman: BRIDGE-Wiz application
- HITSP Final recommendations
- Presentations
 - Institute of Medicine Panel
 - Guidelines International Network Annual Meeting
 - American Thoracic Society
 - AAP Acute Otitis Media Guideline Panel
 - AAP Sinusitis Guideline Panel

Unresolved Challenges

- The planned migration of Yale's Centricity EHR system to EPIC
- Modifying GLIA (GuideLine Implementability Appraisal) and eGLIA to make their use more efficient
- How to best present the results of knowledge transformation work to the CDS development team in a format that is comprehensive, consistent, and informative
- How to scale lessons learned to offer GEM-ified views of guidelines via the National Guidelines Clearinghouse
- Identifying and addressing local factors at our new *implementation partner* sites (clinical policies, workflow, physician preferences, EHR limitations, etc) that impact implementation design

Questions For The TEP

- How do we prioritize consideration of CDS in an enterprise-wide EHR “revolution”?
- What knowledge products and specifications should *guideline developers* provide to integrate with “downstream” CDS design work?
- How can performance measurement considerations best be embedded in the guideline authoring process?
- What is the right balance between centrally prescribed specification standards and knowledge (GLIDES) and local best practices for knowledge management (partners)?
- How to maintain system security while collecting data directly from patients?

Children's Hospital Of Philadelphia
Robert Grundmeier, MD
Dean Karavite, MS

Technical Expert Panel 2010

IMPLEMENTING IMPERFECT GUIDELINES: GEM MEETS WEB SERVICES

Conflicts of Interest

- Robert Grundmeier and Dean Karavite report no conflicts of interest
- Robert Grundmeier receives research support from AHRQ and NIH
- Dean Karavite receives research support from AHRQ and NIH

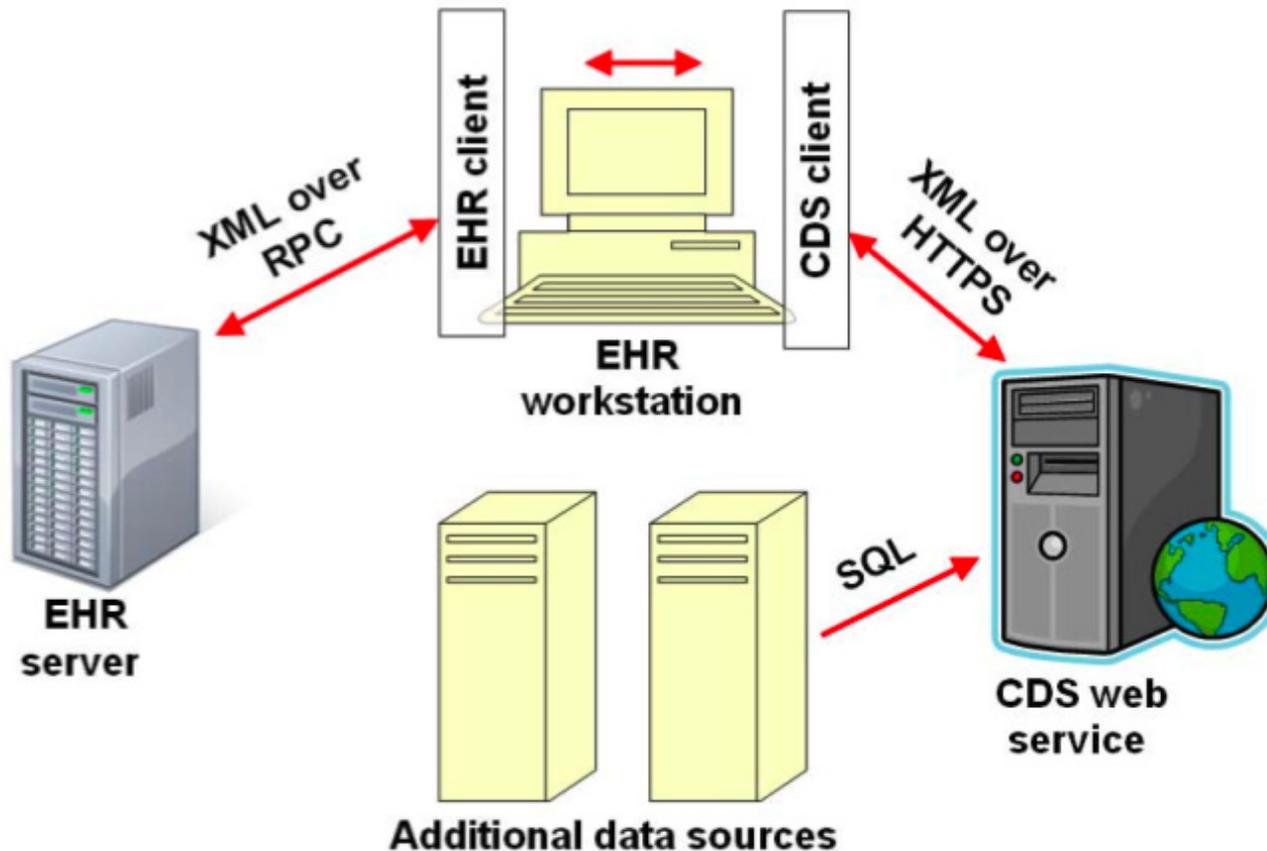
Objectives

- Describe an approach to using web-services to deliver guidelines in a vendor-supplied electronic health record
- Describe the experience using guidelines element markup (GEM) to implement guidelines
 - Case study: retinopathy of prematurity

Pediatric Research Consortium (PeRC) at CHOP

- System-wide EHR (Epic) to identify eligible participants, facilitate collection of data, and to allow implementation of decision support tools
- Over 638,000 total ambulatory visits in 2009 provided to about 200,000 patients
- 169 physicians and 22 nurse practitioners
- 39 active projects
- All practices currently participating in a minimum of 3 active research studies

Care Assistant: A Web-Service Framework



Web Service Components: EHR Server

- Process for registering the web services
 - URL of the service
 - Data “payload” to deliver
 - Specify data storage elements
- Data access methods
 - Billing and problem list diagnoses
 - Medications, orders, and immunizations
 - Flowsheet data, etc

Web Service Components: EHR Workstation

- Provides “Care Assistant” – a custom plug-in that can be inserted in the clinical workflow
 - In Epic terms: “Visit Navigator Section” and “Activity”
- Acts as a relay station to forward the “data payload” from the EHR server to the web service

Web Service Components: EHR Workstation

- Completely asynchronous – does not interrupt workflow
- Our style choice: no pop-ups – just prominent positioning
- Dynamic HTML methods are used to display the guideline content

Workstation Integration

- Care Assistant can provide links to launch
 - Order Sets
 - Standard reports
 - Data capture forms
 - Additional web services
- Our style choice: all data storage is provided by the EHR
 - The web-services are “stateless”

The Web Service Itself

- The Care Assistant framework as we have defined it is primarily a message protocol
- The web service itself:
 - Listens for “requests” to process data payloads (e.g. an immunization history)
 - Responds with HTML content, formatting, and JavaScript functionality to render the user interface (e.g. a forecast of upcoming immunizations)

Asthma Assistant



[Office Neb](#)

[Billing](#)

[Asthma PFE](#)

- ✔ **Control Tool:** [Filed today \(click to access form\)](#) Asthma Assessment:
previous asthma severity: **MILD-PERSISTENT**
symptoms indicate **MODERATE-PERSISTENT** severity based on:
asthma symptoms while asleep at night 1 OR 2 TIMES PER WEEK
- ✔ **Severity:** Mild-Persistent ([problem list noted 07/27/2010](#))
- ✔ **Tests:** [CXR: 11/20/2009](#)
- ✖ **Medication:** [On treatment step #1: SABA only \(click for CCI SmartSet\)](#)
- ✖ **Care Plan:** [not on file \(click to access form\)](#)

Immunization Assistant



Vaccines Due Now

Order Today

Next Doses: ★ Coming Soon! ★

 **DTaP**

 **IPV**

 **Hib (4-dose)**

 **Pneumococcal
Conjugate-13**

 **Hepatitis B**

 **MMR**

Some vaccines not indicated

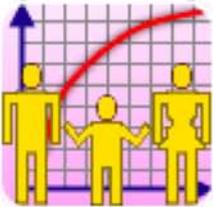
Diagnoses

VARICELLA not indicated due to **POSTVARICELLA ENCEPHALITIS**

Resources

[ACIP schedule](#) [Catch-up schedule](#) [VIS-multiple languages](#)

Growth and Development Assistants

		Height	%ile	My confidence in parent response			height not known
				very confident	close estimate	large guess	
	<input checked="" type="checkbox"/> Mother:	<input)"="" type="text" value="160 cm (5' 3"/>	= 30%	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input checked="" type="checkbox"/> Father:	<input)"="" type="text" value="173 cm (5' 8"/>	= 28%	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Mid-Parent:	173 cm (5' 8.1")	= 29%				
	Patient:	84 cm (2' 9")	= 17%				

	Study Arm:	TEDS PCP arm, developmental screening due:
<input checked="" type="checkbox"/>	ASQ:	filed today (click to access form) FAILED: Gross motor ; PASSED: Communication, Fine motor, Problem solving, Personal-social
<input type="checkbox"/>	MCHAT:	(click to file new form)

From Guideline to Executable Rules via GEM

- Retinopathy of prematurity guidelines
 - Section on Ophthalmology, American Academy of Pediatrics
 - American Academy of Ophthalmology
 - American Association for Pediatric Ophthalmology and Strabismus
 - Pediatrics 2006

Retinopathy of Prematurity

Infants with a birth weight of less than 1500 g or gestational age of 32 weeks or less (as defined by the attending neonatologist) and selected infants with a birth weight between 1500 and 2000 g or gestational age of more than 32 weeks with an unstable clinical course, including those requiring cardiorespiratory support and who are believed by their attending pediatrician or neonatologist to be at high risk, should have retinal screening examinations performed after pupillary dilation using binocular indirect ophthalmoscopy to detect ROP. One examination is sufficient only if it unequivocally shows the retina to be fully vascularized in each eye. Effort should be made to minimize the discomfort and systemic effect of this examination by pretreatment of the eyes with a topical anesthetic agent such as proparacaine; consideration also may be given to the use of pacifiers, oral sucrose, etc.

Part I: Not So Bad

Conditional: Infants with a birth weight of less than 1500 g or gestational age of 30 weeks or less (as defined by the attending neonatologist)

Decision Variable: birth weight

Value: less than 1500 g

Value: between 1500 and 2000 g

Decision Variable: gestational age

Value: 32 weeks or less

Value: more than 32 weeks

Action: should have retinal screening examinations performed

Reason: to detect ROP.

Logic: If birth weight \leq 1500 g AND gestational age \leq 30 weeks) Then should have retinal screening

Rules for Part I: Not So Bad! 😊

```
use recommend(rop_screen,$explain)
when
  birth_weight_gram($wt)
  check $wt < 1500
  $explain = "birth weight: " + str($wt) + "g"
```

```
use recommend(rop_screen,$explain)
when
  gestational_age_weeks($ga)
  check $ga < 33
  $explain = "gestational age: " + str($wt)
```

But Did You Notice? Gestation age 30 vs 32

- Guideline wording: “32 weeks or less”
 - We interpret as < 33 weeks (or $\leq 32 \frac{6}{7}$)
- Supporting table footnotes gestational age 31 and 32 weeks with the words
“[screen] if necessary”

Part II: Weasel Words

Conditional: birth weight between 1500 and 2000 g or gestational age of more than 30 weeks with an unstable clinical course, including those requiring cardiorespiratory support and who are believed by their attending pediatrician or neonatologist to be at high risk, should have retinal screening examinations performed after pupillary dilation using binocular indirect ophthalmoscopy to detect ROP.

Decision Variable: birth weight between 1500 and 2000 g

Decision Variable: gestational age of more than 30 weeks

Decision Variable: unstable clinical course

Decision Variable: requiring cardiorespiratory support

Decision Variable: who are believed by their attending pediatrician or neonatologist to be at high risk

Action: should have retinal screening examinations performed after pupillary dilation

Reason: To detect ROP

Logic: If ((birth weight > 1500 AND birth weight < 2000 g) AND gestational age > 30 weeks) AND unstable clinical course AND requiring cardiorespiratory support AND who are believed by their attending pediatrician or neonatologist to be at high risk Then should have retinal screening examinations performed after pupillary dilation

Rules for Part II: A Work in Progress

```
use recommend(rop_screen,$explain)
when
  birth_weight_gram($wt)
  check $wt >= 1500 and $wt <= 2000
  retinopathy_risk($risk)
  $explain = "birth weight: " + str($wt) + "g, and " + str($risk)

use retinopathy_risk("cardio respiratory support")
when
  ventilator_days($vent_time)
  check $vent_time > ???

use retinopathy_risk("unstable course")
when ???
```

Mutually Exclusive Criteria

- The guideline attempts to define two non-overlapping sets
 - $BW < 1500$ or $GA \leq 30$ or... 32 (depending on where you look in the guideline)
- vs.
- $BW 1500$ to 2000 or $GA > 30$
- They probably meant:
 - Cohort #1: $BW < 1500$ or $GA \leq 30$ 6/7
 - Cohort #2: $BW 1500$ to 2000 and not in cohort 1

AND vs. OR

- Normal humans use “AND” to imply the union of two sets
 - Infants with gestational age 30 or less **AND** infants with birth weight under 1500 grams are at risk
- Programmers use “OR” to imply union
 - If (GA < 31 **OR** BW < 1500)
then recommend(ROP_SCREEN)

THANK YOU!

- Questions?



Geisinger Health System
Center For Health Research
Walter “Buzz” Stewart

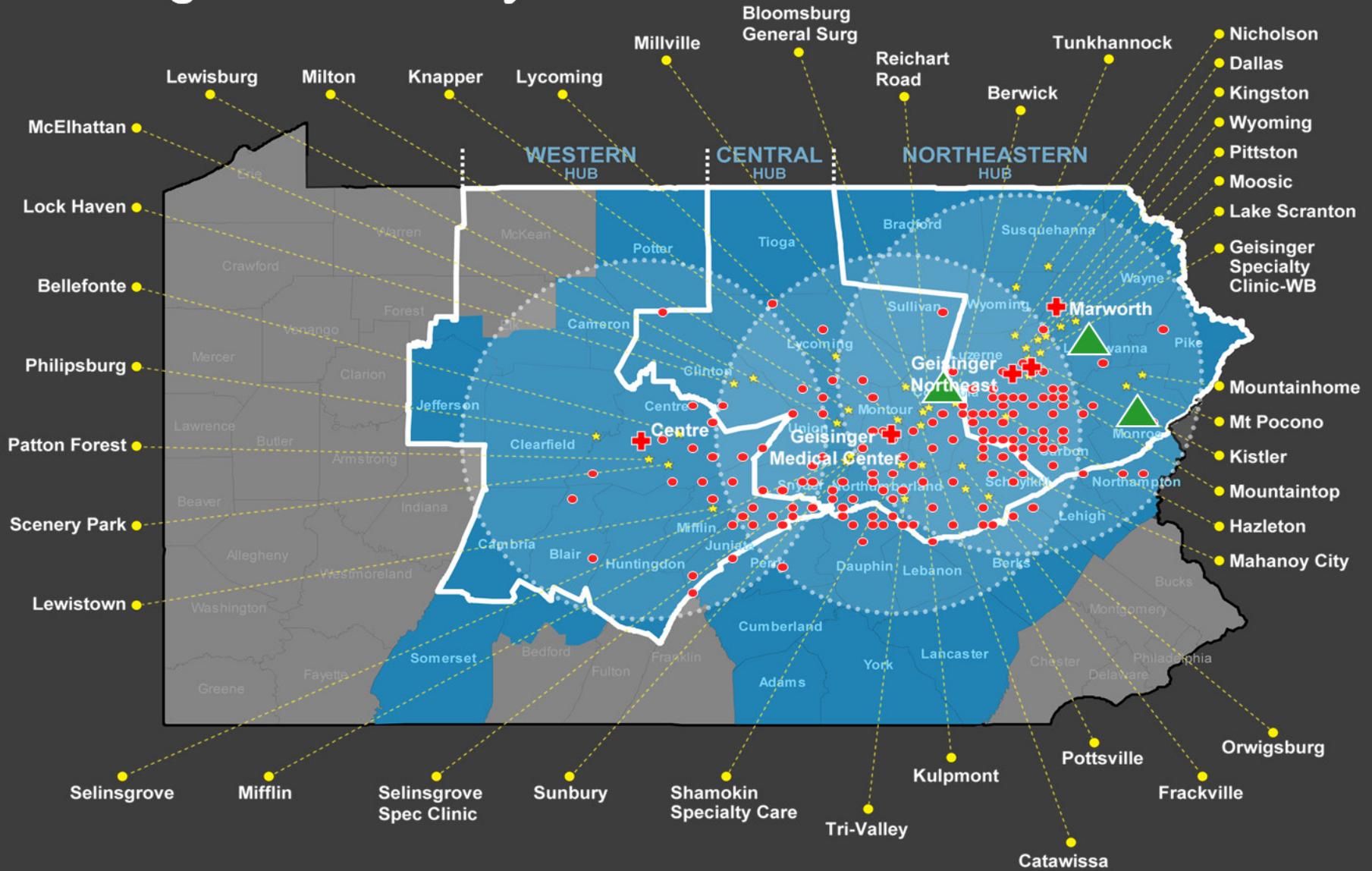
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LOW BACK PAIN GUIDELINES AND APPLICATION OF GEM CUTTER

Overview

- Back pain management experience at Geisinger
- Current back pain project
- Translation process including application of GEM Cutter

Geisinger Health System



Geisinger Clinic Context

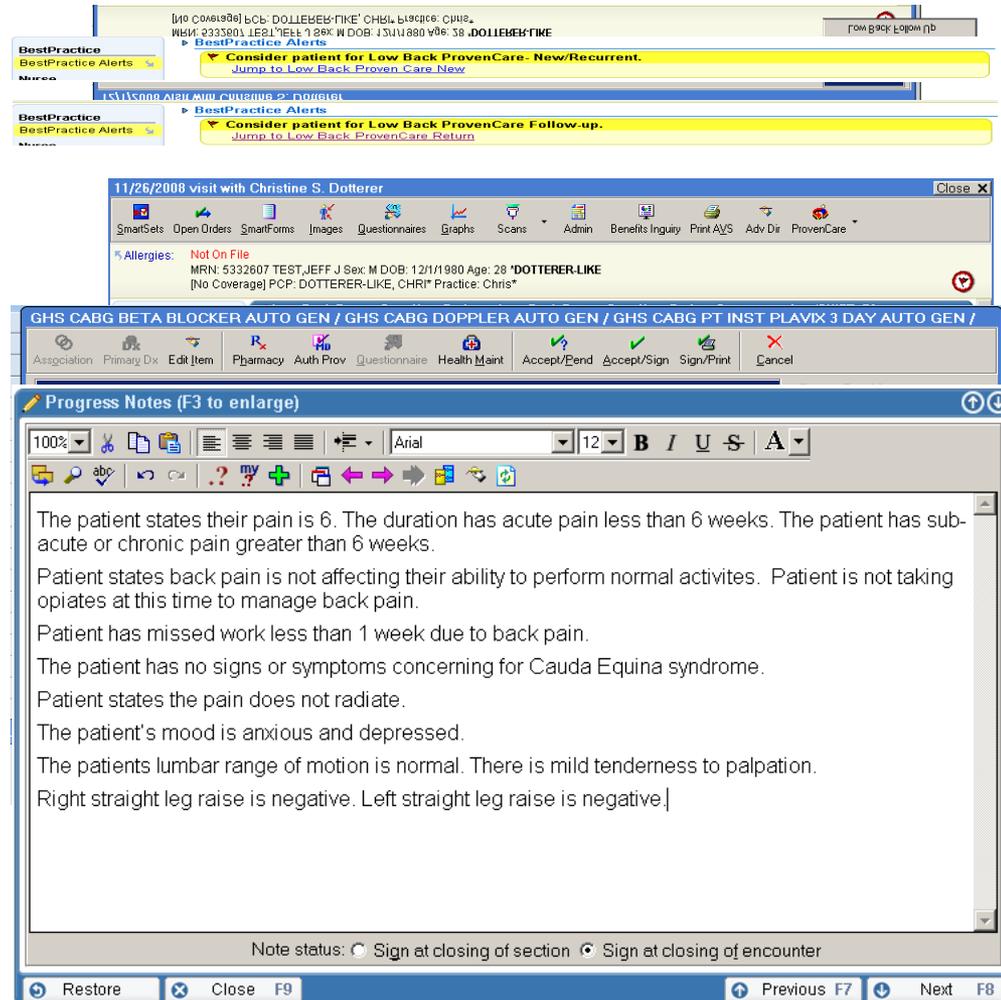
- 14,500 new low back visits (CY2007)
- 48,000 total low back visits in Primary Care (CY2007)
- More than 50% of low back referrals for surgical evaluation occurred within the first 6 weeks of pain.
 - Surgery is rarely indicated unless pts have failed 3 months of conservative therapy
 - 15% of referred actually had spinal surgery

Geisinger Clinic Context

- 5600 radiographs ordered (CY2007)
 - Vast majority obtained during acute phase with little clinical utility
- 8800 MRIs ordered per year (2007)
 - 70% obtained within the first 6 weeks
- **RESPONSE: ProvenCare Low Back**
 - System level protocol to improve primary care management of LBP

EPIC Tool Protocol For LBP

- An Epic button on the speed bar enabled the LBP workflow
- Navigator Flowsheets for new & returning patients
- Flowsheets integrate responses with automatic orders & SmartSet.
- The nurse/physician responses built the progress note for the visit
- Process failed to be used



Current LBP Project

- Current Project Objectives
 - Improve appropriate use of care (i.e., referrals, procedures, medications) for LBP patients
 - Improve patient satisfaction with care received during the visit
 - Improve patient outcomes related to pain and functionality

Current LBP Project

- Primary care based RCT
- Usual vs new protocol care
- Guideline Translation
 - Trigger
 - Input Data
 - Application of guideline to data
 - Output
- Range of options
 - Pre-coded chief complaint and randomization step
 - Patient reported & EHR data
 - GEM cutter applied to ICSI guidelines
 - Web-based application that interacts with the EHR

Defines the “space” for action

Translating Guidelines To Operational Rules

- ICSI Guidelines
 - Conditional & mandatory rules processed using GEM Cutter
- Vetting rule related decision variables & options for inputs & outputs
- Process is highly iterative
 - Rules define the “space” for action
 - The action dictates the input data needs
 - The options for action are very broad
 - The input data options are also very broad

RECOMMENDATION: 5. Home Self-Care Treatment Program

Conditional: If the patient has not been previously evaluated, attempt to differentiate between untreated acute pain and ongoing chronic pain.

Decision Variable: patient has not been previously evaluated,

Action: attempt to differentiate between untreated acute pain and ongoing chronic pain

Logic: If patient has not been previously evaluated Then attempt to differentiate between untreated acute pain and ongoing chronic pain

Conditional: If a patient's pain has persisted for six weeks (or longer than the anticipated healing time), a thorough evaluation for the cause of the chronic pain is warranted. See the ICSI Chronic Pain guideline for more information.

Decision Variable: pain has persisted for six weeks (or longer

Decision Variable: no improvement with home management

Decision Variable: Significant pain persists beyond a week

Decision Variable: Symptoms persist, worsen or progress

Action: Instruct the patient to call back in one to three weeks

Logic: If no improvement with home management OR Significant pain persists beyond a week OR Symptoms persist, worsen or progress Then instruct the patient to call back in one to three weeks

Imperative: Document the phone triage and home self-care treatment in the patient's medical record (e.g., no appointment is needed at this

• 1 to 13 decision “variables” per action

• A single decision “variable” is the product of one or more other variables

Translating Guidelines

Input Data: Largely Patient Reported

- Pain experience
- Treatments and response
- Depression and anxiety
- Fear avoidance
- Catastrophizing
- Care preferences and interest in treatments, imaging, etc
- EHR data from previous visits and orders

- Duration
- Location
- OTCs and Rx meds used
- Treatment response
- Side effects and overuse

Translating Guidelines

Home Self-Care Treatment Program

- Four conditional and three imperative rules
 - Example: If no previous evaluation
 - Distinguish untreated acute pain and ongoing chronic pain
- 16 patient completed questions (3 minutes)
- Now What?
 - What is it that actually helps the provider and patients get the job done?

RECOMMENDATION: 5. Home Self-Care Treatment Program

Conditional: If the patient has not been previously evaluated, attempt to differentiate between untreated acute pain and ongoing chronic pain.

Decision Variable: patient has not been previously evaluated,
Action: attempt to differentiate between untreated acute pain and ongoing chronic pain

Logic: If patient has not been previously evaluated Then attempt to differentiate between untreated acute pain and ongoing chronic pain

Conditional: If a patient's pain has persisted for six weeks (or longer than the anticipated healing time), a thorough evaluation for the cause of the chronic pain is warranted. See the ICSI Chronic Pain guideline for more information.

Decision Variable: pain has persisted for six weeks (or longer than the anticipated healing time)

- Duration
- Location
- Graded pain severity
- Numbness/tingling
- Radiating pain
- Neuropathic pain

Logic: If no improvement with home management OR Significant pain persists beyond a week OR Symptoms persist, worsen or progress Then instruct the patient to call back in one to three weeks

Imperative: Document the phone triage and home self-care treatment in the patient's medical record (e.g., no appointment is needed at this

Action Options

- Present recommendation
 - Not very useful and will not be used that often
- Add a display of the supporting data
 - A little better, but still not that useful
- Present the above in a format to be shared by provider and patient
 - Engages the patient and possibly the provider
- None of the above features focus on the needs of the provider
 - Improve productivity and simplify the delivery of high quality care

Action Options

- Voice the recommendations to account for patient factors (e.g., fear avoidance)
 - Helps provider get the job done; facilitates shared discussion
- Integrate order process with display
 - Improves getting the job done
- Make display interactive and automate manufacturing of progress notes
 - Make the best care the easiest care to deliver

Current Medications**Over-The-Counter Medications**

OTC meds:

Number of days Pt takes OTC(s):

Tablets or pills of OTC(s): ___/day

How often is the pain reduced:

Prescription Medications

Rx meds for back pain: *

Other Rx meds:

Pain Experience

Duration of Current Episode:

Duration in Past 6 Months:

Location:

Overall Experience:

Numbness or tingling:

Worse on some days than others:

Travels or radiates:

Chronicity Grade:

Work Impact

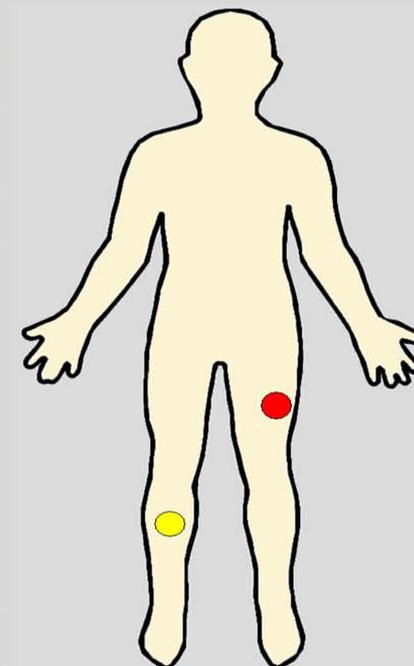
Current status:

Days missed in past week:

Return to work:

Worker's compensation:

Any restrictions in 6 months:

Psychosocial Concerns**Comments***Free Text to be included in progress note**Free Text to be included in progress note*

**only those that Pt says Yes to for back pain will appear*

RECOMMENDED CARE PLAN**Order*****Nuanced text based on Pt fear avoidance score*

Resuming activities/work/rehabilitation

- IMAGING RECOMMENDATIONS (**Discuss in more detail if conflict with what Pt wants*)



- REFERRAL RECOMMENDATIONS (**Discuss in more detail if conflict with what Pt wants*)



- MEDICATION RECOMMENDATIONS



GEM Cutter Next Generation

- Help users fully vet the guideline implementation process
- GEM Cutter accelerates understanding of guidelines
 - However, options for the decision variables and actions are very broad
- Next Generation GEM Cutter could advance implementation by:
 - Integrating documentation for decision variables, rules, and actions
 - Linking integration to judgments about the form of action to be taken

THANK YOU!

- Questions?



Jean Brereton, MBA

American Academy of Otolaryngology-
Head and Neck Surgery Foundation

Technical Expert Panel 2010

CLINICAL GUIDELINE DEVELOPMENT

AAO-HNS Background

- The American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) is the world's largest organization representing specialists who treat the ear, nose, throat, and related structures of the head and neck. The Academy represents more than 12,000 otolaryngologist—head and neck surgeons who diagnose and treat disorders of those areas. The medical disorders treated by our physicians are among the most common that afflict all Americans, young and old. They include chronic ear infection, sinusitis, snoring and sleep apnea, hearing loss, allergies and hay fever, swallowing disorders, nosebleeds, hoarseness, dizziness, and head and neck cancer.
- The AAO-HNS Foundation works to advance the art, science, and ethical practice of otolaryngology-head and neck surgery through education, research, and lifelong learning.

Guidelines

- AAO-HNS Clinical Practice Guidelines Web page
<http://www.entnet.org/Practice/clinicalPracticeguidelines.cfm>
- These evidence-based clinical practice guidelines were developed with input from a wide array of medical specialties, nurses, and other allied health professionals where appropriate.
- [Tonsillectomy](#): November 2010
- [Diagnoses and Management of Nasal Valve Compromise, a Clinical Consensus Statement](#): July 2010
- [Hoarseness \(Dysphonia\)](#): September 2009
- [Benign Paroxysmal Positional Vertigo \(BPPV\)](#) November 2008
- [Cerumen Impaction](#) September 2008
- [Adult Sinusitis](#) September 2007
- [Acute Otitis Externa Guidelines](#) April 2006
- Other Academy Endorsed Guidelines
- [Practice Advisory for the Prevention and Management of Operating Room fires](#) May 2008
- [Otitis Media with Effusion](#) May 2004

Governance

- Leadership
 - Panel Composition
 - Staffing
 - Systematic Review
 - Peer Review
 - Role of GDTF
-
- Recent Changes to AAO-HNS guidelines process:
 - Specialty society representation/engagement
 - Topic Selection
 - Scoping process
 - Peer Review

Challenges

- Financial
- Staffing
- Use of Systematic Reviews
- Leadership, developing expertise among volunteers
- Guideline Updating
- Meeting demand – volume and guideline topics

Challenges (Cont'd)

- Guideline panels and COI
- Evaluating Guidelines: design and field testing
 - Dysphonia study to test action statements
- Implementation activities - meeting quality improvement aspects of Healthcare Reform
 - Measure Development
 - Clinical Decision Support

GLIDES

- Improve guideline recommendations – clarity, transparency and effective implementation
- Recognize tools to improve guideline development and reporting processes - Evidence Profile Template and GuideLine ImplementatibilityAppraisal (GLIA) Tool
- Test BridgeWiz to develop action statements for the Sudden Hearing Loss and subsequent guidelines

GLIDES (Cont'd)

- Implementation considerations - implementing guidelines within an EHR
- Evaluate use of GLIA to identify potential obstacles to effective implementation
- Examine ways to improve Evidence Profile Template
- Examine ways to integrate performance measure development during guideline creation

THANK YOU!

- Questions?



American Academy of Pediatrics
Caryn Davidson, MA

Technical Expert Panel 2010

CLINICAL PRACTICE GUIDELINE DEVELOPMENT

AAP

- The American Academy of Pediatrics represents more than 60,000 pediatricians from primary care to a multitude of subspecialties.
- Information from Clinical Practice Guidelines and AAP Policy Statements was stated as the number 1 reason for membership by 25% of our members in a 2007 survey.
- The AAP has been a leader in Clinical Practice Guideline development for over 15 years.
- AAP Guidelines have a focus on implementability, making them an ideal participant in the GLIDES grant.

Guidelines

- AAP Clinical Practice Guidelines Web page
 - http://aappolicy.aappublications.org/practice_guidelines/index.dtl
- May 2000 Clinical Practice Guideline: Diagnosis and Evaluation of the Child With Attention-Deficit/Hyperactivity Disorder
- Apr 2002 Clinical Practice Guideline: Diagnosis and Management of Childhood Obstructive Sleep Apnea Syndrome
- Apr 2000 Clinical Practice Guideline: Early Detection of Developmental Dysplasia of the Hip
- Sep 2001 Clinical Practice Guideline: Management of Sinusitis
- Oct 2001 Clinical Practice Guideline: Treatment of the School-Aged Child With Attention-Deficit/Hyperactivity Disorder
- May 2004 Diagnosis and Management of Acute Otitis Media (with AAFP)
- Oct 2006 Diagnosis and Management of Bronchiolitis
- Jun 2008 Febrile Seizures: Clinical Practice Guideline for the Long-term Management of the Child With Simple Febrile Seizures
- Jul 2004 Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation
- May 2004 Otitis Media With Effusion (with AAO-HNS and AAFP)
- Apr 1999 Practice Parameter: The Diagnosis, Treatment, and Evaluation of the Initial Urinary Tract Infection in Febrile Infants and Young Children
- Dec 1999 The Management of Minor Closed Head Injury in Children

Guideline Development Process

- Guideline Subcommittees are multi-disciplinary
- No industry funding is used in their development
- CPGs are AAP's most evidence-based policies
- Revised every 5 years; a challenge to make sure evidence is current and revision is timely

Systematic Evidence Reviews

- Generally rely on AHRQ EPCs; can be challenging to make sure reviews address what is needed by the guidelines, and a supplemental review is often needed
- Sometimes done by a consultant, but we have little funding for this

Implementability

- Partnership for Policy Implementation (PPI)
 - A Medical Informatician participates on every Clinical Practice Guideline Subcommittee
 - Goal is to make sure recommendations are actionable and computable
- BRIDGE-wiz
 - Piloted at 3 CPG meetings now as part of GLIDES
 - Found to be very helpful in writing actionable recommendations, as well as for using the benefits/harms assessment and evidence level to determine the strength of recommendation

THANK YOU!

- Questions?



ECRI Institute
Vivian Coates

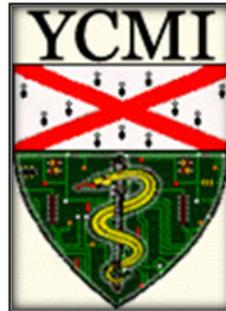
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**APPLYING THE GUIDELINE ELEMENTS MODEL (GEM) CUTTER II
TOOL TO GUIDELINES REPRESENTED IN THE NATIONAL
GUIDELINE CLEARINGHOUSE™ (WWW.GUIDELINE.GOV)**

Acknowledgements



- ▶ Jonathan White
- ▶ Jean Slutsky
- ▶ Mary Nix



Yale Center for Medical Informatics

- Richard Shiffman
- George Michel



- Vivian Coates
- Lisa Haskell
- Mark Monteforte



ECRI Experience Relevant to GLIDES

- Nonprofit research institute (since 1969) and Evidence-based Practice Center (since 1997)
- Also since 1997, contractor to AHRQ to create and maintain NGC
- Relationships in place with hundreds of guideline developers from many countries, also with guideline implementers
- Produced structured abstracts of thousands of guidelines
- Author guideline syntheses – in depth comparisons of agreement/differences across multiple guidelines on same topic
- Provide methodology support to guideline developers

Research Question...

- Could the GEM Cutter II tool be used to abstract the major recommendations from NGC's guidelines into XML format?
- Is this feasible? Practical? Reliable?
- If so,.....
- “GEM cut” recommendations could be offered as an additional output on the NGC Web site.

NGC Research Study (Funded by AHRQ)

Designed to Answer These Questions:

- Can the abstraction of recommendations into GEM be done outside of the current research environment at Yale?
- Is it scalable in a production environment such as NGC?
- How much time (cost) will this add to the NGC process?
- What are the challenges associated with this type of effort?

Overview of the Process: Abstraction

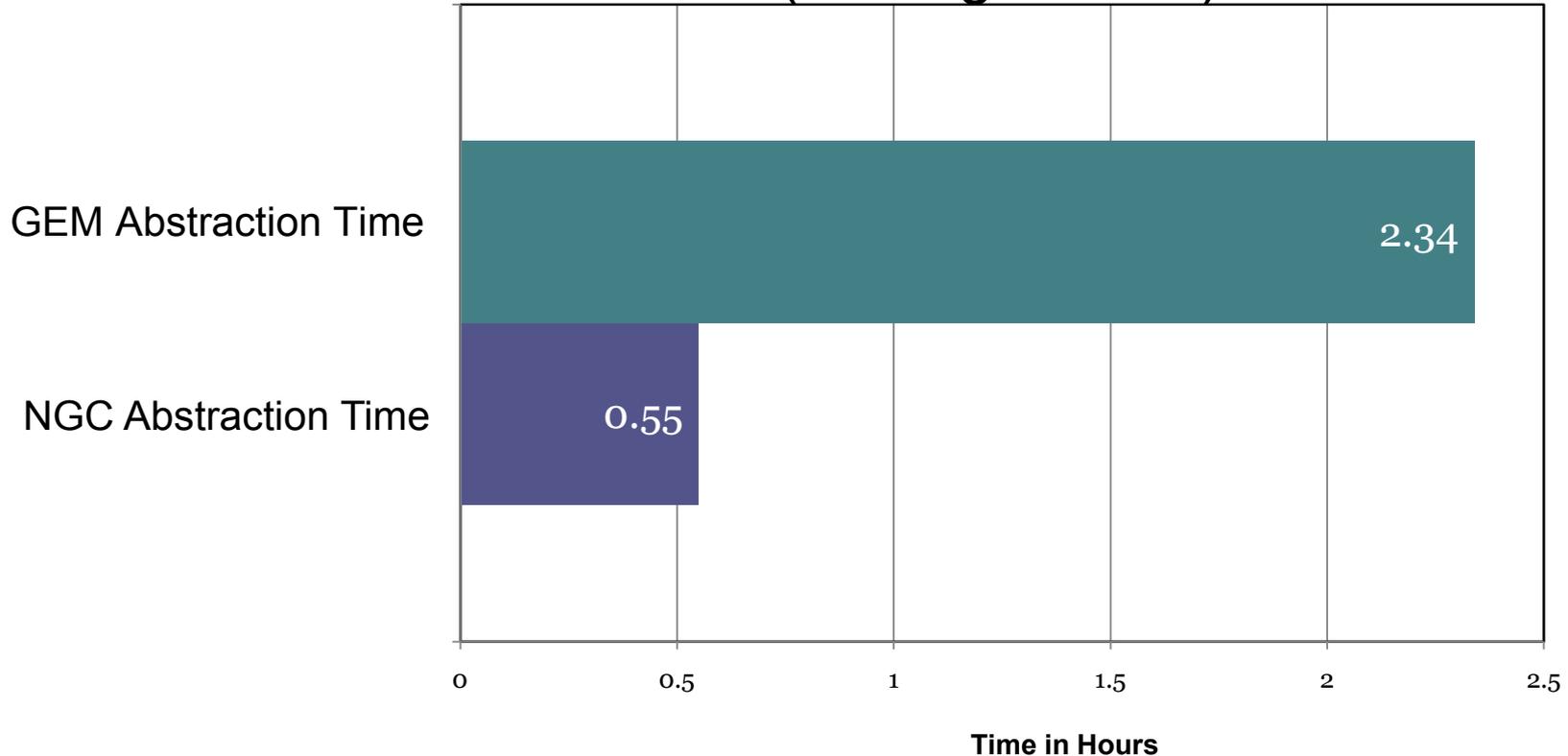
- A convenience sample of 20 guidelines “GEM cut” (parsed) in parallel by 3 NGC abstractors.
- Each abstractor first parsed major recommendations and other elements (title, target population, users, etc.) into a modified NGC template, then GEM cut this same content using the GEM Cutter II Tool.
- We examined how long it took them to complete the GEM-cut output as compared to the NGC, how often did they agree/disagree with each other on GEM abstraction, how often did they agree/disagree with the Yale team.

Inclusion Criteria:

- Guidelines must have been recently submitted and meet all NGC inclusion criteria.
- Guideline recommendations must be clearly identified rather than 'hidden' in narrative.
- Recommendations that are 'actionable' (decidable and executable) are preferred to statements of fact.
- Recommendations should not be presented as tables or algorithms.
- The number of recommendation statements should be manageable (<50).

Results?

Time Required for Abstraction (Average Mean)



**1.8 hours more, on average, to perform GEM
Abstraction of the same content**

Challenges Encountered:

- Locating guidelines that meet GEM-specific inclusion criteria
- Establishing consistent 'rules' for GEM abstraction
- Reducing inter-abtractor variability

Conclusions

- Can the abstraction of recommendations into GEM be done outside of the current research environment at Yale? Yes.
- Is it scalable in the NGC production environment at ECRI? Yes.
- How much time (cost) will this add to the NGC process?
- Additional time required is significant, but we can reduce time/cost through more efficient work process.

Suggestions for Operationalizing GEM in NGC...

- Reduce time/cost by having a team of NGC abstractors and reviewers dedicated to GEM.
- Educate guideline developers to understand and review GEM-cut output of their guidelines so that they can approve it for publication to NGC.
- Educate guideline developers who would like their guidelines GEM cut on the changes needed to make that happen, e.g., when possible, replacing statements of fact with actionable recommendations.

THANK YOU!

- Questions?

