



Update

Technical Expert Panel Meeting, December 2011

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™



American
Urological
Association



ALLIANCE OF CHICAGO
Community Health Services, L3C



American Society of Clinical Oncology

Today

- Current project status
 - Progress and accomplishments
 - Questions for TEP

- From demonstrations to standard practice: developing sustainable tools and processes for CDS

Work is in progress for all work streams

Q4 2011

- Deployment/evaluation of CDS applications
 - CHOP (ROP and Synagis)
 - Geisinger (eLowBackPain)
 - Yale (patient-centered data collection)
 - Alliance of Chicago (Asthma, new implementation partner)
- Guideline development
 - AAP and AAO-HNS continue to integrate BridgeWiz/GLIA
 - AUA and ASCO are now also on board to pilot BridgeWiz
- Tools and infrastructure
 - New releases of BridgeWiz, eGLIA and GEM in progress
 - ECRI is preparing designs for changes to NGC web-site to accommodate GEM-cut content
 - “Four Diamonds” dissemination model

Status Highlights

Deployment/Evaluation of CDS

- By end of OY2, GLIDES will have completed another four CDS demonstration projects
- CHOP is focused on optimizing usability and user interface design
 - New release for RSV and Synagis CDS was implemented on schedule in October
 - This is the main premature assistant application with RSV, growth, nutrition, development and blood pressure support
 - So far, user feedback is positive
 - CHOP have made various enhancements and adjustments
 - An update is now ready for ROP and hearing screening rules, to be implemented in December

Status Highlights

Deployment/Evaluation of CDS

- Geisinger is focused on integrating findings from encounter recordings into CDS
 - eLowBackPain CDS on track for go-live in early December
 - Recording system will be implemented in early January
- Yale Patient Centered Data Collection pilot completed
- New implementation partnership with Alliance of Chicago
 - Reuse and roll-out Asthma CDS first deployed at Yale
 - Alliance is customizing and implementing the CDS and will implement in Q1 2012

Status Highlights

Guideline Development

- AAO
 - Engaged public successfully in commenting on BridgeWiz-processed guideline
 - Will use BridgeWiz/eGLIA for new guideline development work
- AUA
 - AUA is working on the urodynamics guideline, using BridgeWiz
 - Plan to move on to the uro-trauma guideline next
- ASCO
 - Will use BridgeWiz to develop action statements for the upcoming Adjuvant Hormone Therapy Guideline

Status Highlights

Tools and Infrastructure

- New release of GEM nearing completion
 - New elements, new codes and codesets
 - Integration with BRIDGE-Wiz
 - Challenge: How do we accommodate implementation metadata in GEM III?
- Design for NGC Web-site changes continues to raise interesting challenges
 - Developers and implementers are interested in different levels of detail
- Working with Yale University counsel on a longer-term licensing agreement for these tools

Status Highlights

Tools and Infrastructure

- ECRI defining factors/criteria for selecting suitable guidelines for GEM-ification (and potential posting of content to NGC)
 - knowledge sources
 - implementability
 - trustworthiness
 - ease of transformation
 - weightiness/importance
 - presence of guideline champion
- ECRI is surveying stakeholders to gather input/opinion on NGC user needs

Dissemination

- Four Diamonds Dissemination model prototype
- Presentations since last TEP meeting
 - Guidelines International (GIN) Conference, August 29, 2011, Seoul, Korea: A software assistant to promote guideline development
 - GIN Plenary, August 31, 2011, Seoul, Korea: Can the new IOM standards for guideline development improve guideline quality?
 - NHS Evidence Satellite Meeting, August 31, 2011: Harmonization of guideline development standards
 - Webinars with ASCO and AUA were held to demonstrate BridgeWiz, as part of partnership planning
 - ECRI hosted webinars with Geisinger and CHOP, as part of our efforts to identify effective practices and design templates/artifacts that can be reused by other implementers

Dissemination

- Presentations (continued)
 - Evaluating Guideline Quality, Chinese Medical Doctors Association in Beijing, September 2, 2011
 - Assessing The Impact of IOM Report on Future of NGC, AHRQ Annual Meeting, September 15, 2011
 - Acronyms, Shmacronyms: An Introduction to The Mystifying World of YCMI Abbreviations, for ASCO, September 7, 2011
 - GEM at 10: A Decade's Experience With the Guideline Elements Model. AMIA Annual Meeting, Washington, DC; October 24, 2011
 - We presented a discussion of transparency to the Steering Committee on Quality Improvement and Management at the American Academy of Pediatrics, on November 19, 2011
- Publications
 - International Journal of Medical Informatics: *Evaluating the use of a computerized clinical decision support system for Asthma by pediatric pulmonologists.*

**From Demonstrations To
Standard Practice:
Developing Sustainable
Tools and Processes
for CDS**

- **Sustainability** is the capacity to endure.

Threats to Business Sustainability

Applicable to CDS?

- 1. **Imitation:** When your product or service is copied or replicated in any form it reduces the value of the original.
- 2. **Substitution:** When another product or service replaces the need for the one you currently provide. The old dial up modem is a good example.
- 3. **Hold up:** Delays in delivering your service or product at the specified price and time.
- 4. **Slack:** The silent killer of small business, theft, absenteeism, non engagement, waste, or ineffective use of current resources

Entrepreneur Incubator



GEM at 10: A Decade's Experience With the Guideline Elements Model

Model Formulation ■

GEM: A Proposal for a More
Comprehensive | Guideline
Document Model Using XML

JAMIA 2000;7:488-98.

RICHARD N. SHIFFMAN, MD, MCIS, BRYANT T. KARRAS, MD, ABHA AGRAWAL, MD,
ROLAND CHEN, MD, LUIS MARENCO, MD, SUJAI NATH, MD

Arden Syntax has been sustained
for more than 2 decades

Non-YCMI Use of GEM

		Subject of Manuscript			
		Ontology/Modeling	Knowledge extraction/retrieval/NLP/data mining	Clinical decision support/guideline application	Guideline generation
Use of GEM	Articles in which Guideline Elements Model was applied	13 (5,9,15,16,23-31)	4 (14,25,32,33)	2 (6,34)	0
	Articles in which tool was used.	1 (35)	2 (10,36)	0	2 (37,38)
	Articles in which GEM was rejected	10 (11,13,17-19,39-43)	3 (17,42,44)	1 (45)	0
	Articles in which GEM was only referenced.	7 (4,12,46-50)	2 (47)(51)	5 (52-56)	2 (8,57)

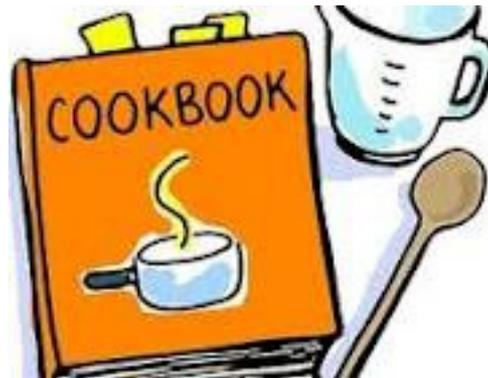
What GLIDES capabilities could be sustained?

	Experience (results, artifacts, lessons-learned)	Tools (enhancement and deployment)
For Guideline Developers	Experience from 4 developers using structured tools for guideline authoring and implementation appraisal	Knowledge Generation <ul style="list-style-type: none">• BridgeWiz• GLIA/eGLIA
For Guideline Implementers	Experience from 8 separate CDS demonstration systems implemented to date, with GEM as a core enabling tool	Knowledge Transformation <ul style="list-style-type: none">• GEM• GEM Cutter• Extractor

Models For Standard Practice Implementation



Pre-packaged knowledge, there when you need it?
(CDSC)



Detailed step by step instructions for inexperienced implementers to follow?

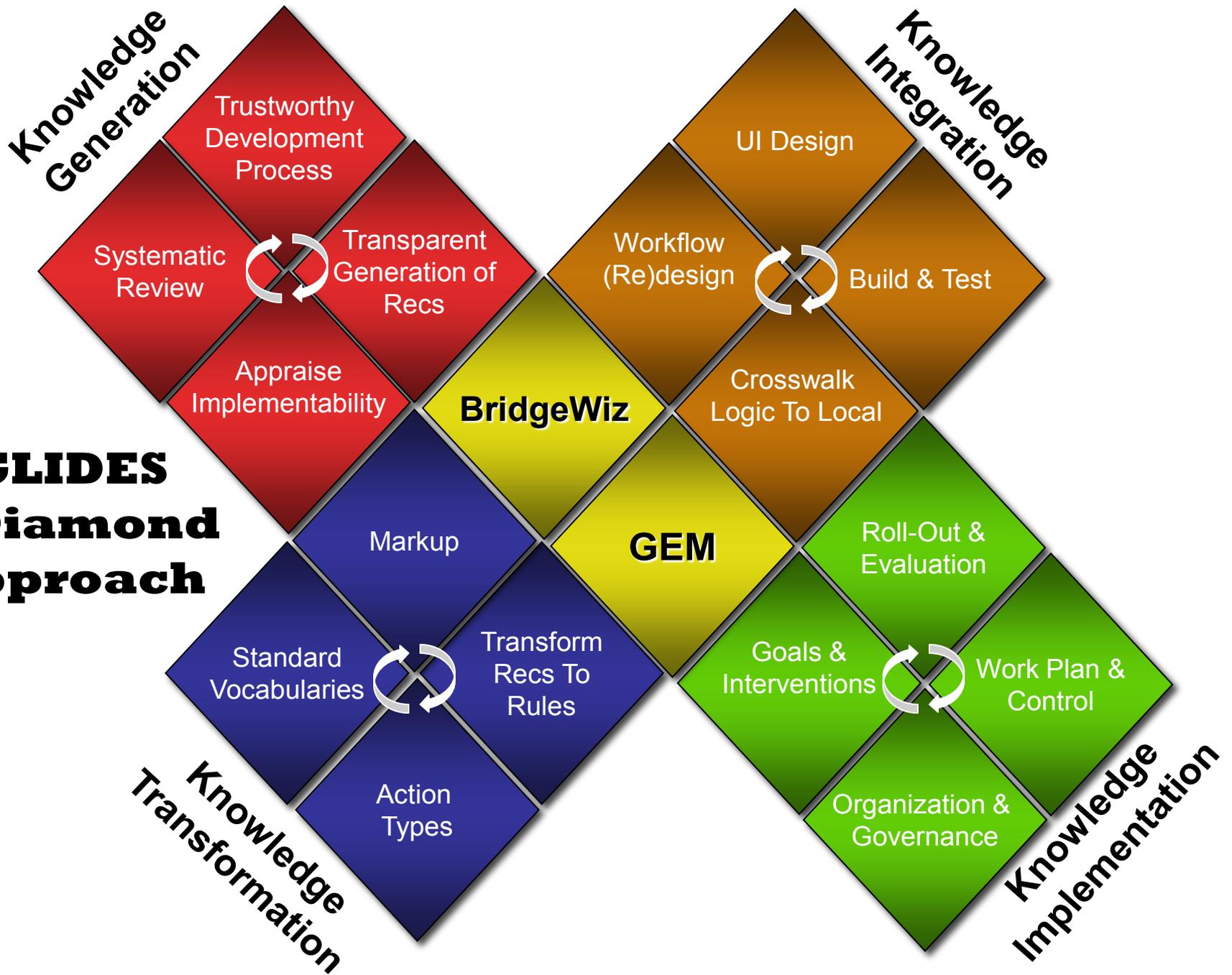


Tools and productivity aids for experienced implementers?

GLIDES Approach

- GLIDES experience has reinforced our belief that the best approach for sustainability is to develop and deploy tools and productivity aids for expert guideline developers and implementers
 - These need to be flexible, for integration into local methods and practices
 - There are “better” ways of implementing CDS, but no single “best” way

GLIDES 4 Diamond Approach



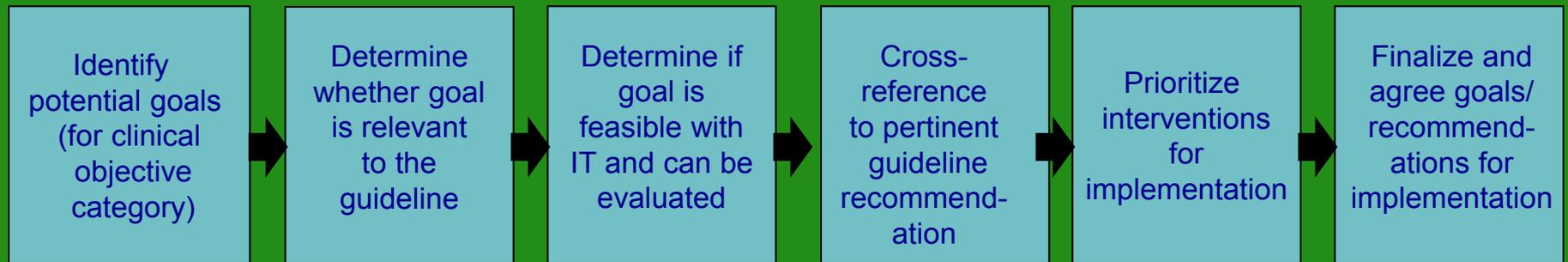
Tools and Productivity Aids

- As part of our dissemination work, we are designing a toolkit for guideline developers and implementers
- This includes several components
 - Focus on GLIDES tools that can be re-used (GEM, GLIA, BRIDGEWIZ)
 - Advice and guidance on key concepts
 - Forms and templates that have proven effective for GLIDES
 - Screenshots of CDS applications
- Some examples...

Goals and Interventions

Establishing clear clinical goals for the CDS implementation project is a critical foundation for success. Ideally, the CDS project will be part of a specific quality improvement project, where goals are shaped by the QI priorities. Once goals are agreed, the project team will then select specific guideline recommendations for implementation. This can be practically performed in parallel with the knowledge transformation process, to minimize effort in marking-up and transforming recommendations which are not likely to be implemented. Finally, interventions should be chosen and prioritized for each recommendation. These activities shape the high-level design for the CDS initiative, and will also help shape the implementation plan and determine which stakeholders should be engaged in the project.

Activities and Work Steps



Example Tools and Resources

Intervention Types

Clinical Objectives Worksheet

Example of Clinical Objectives For Asthma CDS

Example of Clinical Objectives For Obesity CDS

Prioritization Example For Selecting Interventions

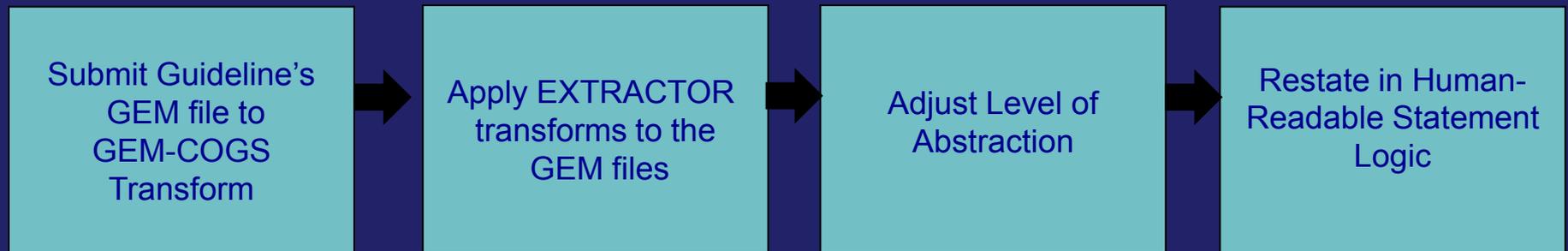
Asthma Clinical Objectives

	Relevant to Asthma Guideline	Feasible with IT	Evaluable	Cross-Reference To Pertinent Guideline Recommendation		Clinical Objectives Category					
				EPR3 page	GEM Knowledge Component	Improve patient education and	Improve patient satisfaction with	Optimize decision making	Prevent errors of omission/commiss	Optimize treatment of	Improve documentation of
ASTHMA CLINICAL GOALS											
Asthma related quality of life	Y	Y	Y	55, 61-64		X	X				
How are things going?	Y	Y	Y								
Are you satisfied with asthma control?	Y	Y	Y								
Are you satisfied with clinicians	Y	Y	Y								
Asthma control measured in a formalized manner (impairment & risk)	Y	Y	Y	50, 51, 55, 56, 57, 61, 63, 288				X			X
Symptom frequency	Y	Y	Y								
Nighttime awakenings	Y	Y	Y								
Interference with normal activities	Y	Y	Y								
Frequency of use of SABA	Y	Y	Y								
Pulmonary function (Spirometry, FEV1/FVC, PEFr)	Y	Y	Y	43,44,58	Asthma Control						

Transform Recommendations To Rules

GEM provides a series of work steps and tools that work with the GEM XML file to iteratively refine the information, isolating conditional logic, decision variables and actions. Through these steps, guideline implementers create structured logic specification with which to implement the recommendations in the implementer's EMR systems. To facilitate an appraisal of the guideline's quality, a GEM-COGS transform report shows each of the 18 criteria defined by the Conference on Guideline Standardization followed by relevant text extracted from the guideline. To automate the process of extracting the implementation-critical information from marked up guidelines, web-based XSLT EXTRACTOR transforms are applied. The EXTRACTOR transforms create a list of decision variables and actions for each recommendation. When "extracted" from context, it often becomes clearer which decision variables are vague, underspecified, or ambiguous. Each recommendation is then restated in human-readable statement logic that can be translated readily into computable statements.

Activities and Work Steps



Example Tools and Resources

Key Transformation Concepts

Example GEM COGS File For Asthma

Example GEM COGS File For Obesity

Example Knowledge Components Report

Example Decision Variables Report

Example Recommendations Report

Example Rules Report

Managing Asthma Long Term

TARGET POPULATION

Eligibility

Inclusion Criterion

Exclusion Criterion

KNOWLEDGE COMPONENTS

DEFINITIONS

RECOMMENDATION: FIGURE 4 – 2 a . CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 0–4 YEARS OF AGE (Assessing severity and initiating therapy in children who are not currently taking long-term control medication)

Conditional:	Classification of Asthma Severity (0–4 years of age) {Rec_1: Cond_1 }
	Decision Variable: Impairment: Symptoms
	Value: 2 days/week
	Value: >2 days/week but not daily
	Value: Daily
	Value: Throughout the day
	Decision Variable: Impairment: Nighttime awakenings
	Value: 0
	Value: 1–2x/month
	Value: 3–4x/month
	Value: >1x/week

Key Sustainability Factors

- Continuity of champion
- Continuity of funding
- Product maintenance
 - Corrective
 - Perfective
 - Adaptive
- Customers
- +..... (input from TEP)

Next Steps For GLIDES

- Create a conceptual design/prototype for a repository and web access by end of OY2
- Continue gathering “content” (templates, experience, examples, etc) from GLIDES partners
- Create a sustainable repository/web-site to cap GLIDES’ experience in OY3