

**Project Title:** Guidelines Into Decision Support (GLIDES)  
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**Organization:** Yale University  
**Contract Number:** 290-08-10011  
**Project Period:** 03/08 – 02/10  
**AHRQ Funding Amount:** \$5,000,000  
**Summary Status as of:** December 2008

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

**Business Goal:** Knowledge Creation

**Summary:** The Guidelines Into Decision Support (GLIDES) project supports the development, implementation, and evaluation of demonstrations that advance understanding of how best to incorporate computerized clinical decision support (CDS) into health care delivery at ambulatory care sites. The project’s main focus is knowledge management and implementation. Its principal goals are to define a systematic and replicable approach to transforming knowledge derived from clinical practice guidelines into actionable decision support systems; identify and implement preferred methods for integrating CDS tools into electronic health records (EHR) systems; improve CDS tools for measuring and improving quality of care and providing performance feedback; and evaluate the benefits and weaknesses of creating, storing, and replicating CDS across multiple clinical sites.

The GLIDES Project is led by staff from the Yale School of Medicine’s Department of Pediatrics and the Center for Medical Informatics, and is assisted by clinical and information technology (IT) staff from Nemours and Yale New Haven Hospital. The project is approximately 60 percent complete, and is now beginning to capture, categorize, and disseminate lessons learned and recommendations.

GLIDES CDS demonstration tools have been integrated into two Certification Commission for Healthcare Information Technology (CCHIT) compliant EHR systems: GE’s Centricity at Yale and Epic Systems’ EpicCare at Nemours. A combination of quantitative and qualitative evaluation methods are being used to determine the project’s results and major findings. The overall outcome of the contract is to recommend methods to assist clinical organizations with the efficient and effective implementation of CDS across the country.

For 2009, we are focusing on these activities:

Phase II requires implementation of CDS systems for two guidelines (asthma and obesity prevention) in five locations operated by Yale and Nemours, using two leading EHR systems. The intent of this more complex implementation is to identify and propose solutions to the challenges of implementing common guidelines in varied practice locations. Development work started in January 2009, and roll-out is now beginning at the following locations:

<i>Guideline</i>	<i>Site</i>	<i>EHR System</i>
Obesity	Yale Primary Care	GE Centricity
	Nemours Delaware PC	EpicCare
Asthma	Nemours Orlando	EpicCare
	Nemours Jacksonville	EpicCare
	Nemours Pensacola	EpicCare

A thorough and rigorous evaluation program is underway, addressing:

- Transformation of text guidelines into decision support
- Clinical decision support development and evaluation
- Clinician use and usability of CDS
- Effect of CDS on guideline-directed care
- Patient outcomes

### Specific Aims

- Implement evidence-based guideline recommendations that address prevention of pediatric obesity and chronic management of asthma. **(Ongoing)**
- Apply the Guideline Elements Model (GEM) and associated tools to systematically and replicably transform the knowledge contained in these guidelines into a computable format. **(Ongoing)**
- Deliver the knowledge via CDS at ambulatory sites that employ Centricity EMR at Yale and EpicCare at Nemours. **(Ongoing)**
- Evaluate the fulfillment of these goals and the effectiveness of the decision support tools in improving the quality of health care. **(Ongoing)**
- Disseminate the findings. **(Upcoming)**

**2008 Activities:** In 2008, GLIDES completed three of seven main phases of work:

1. A comprehensive project plan and timeline were prepared and reviewed with AHRQ, specifying the required tactics, staffing, and organizational arrangements necessary to accomplish the project's goals and aims. GLIDES also organized project staff and partners to proceed with the demonstration.
2. Narrative guidelines for asthma and obesity prevention were thoroughly analyzed and converted into structured information that can be computerized for delivery at the various practice sites. A key focus of this phase involved transforming this information from narrative language to structured logic at a central location (Yale) and into a format that could be used effectively by all practice sites as a foundation for subsequent implementation. The GLIDES team selected guidelines and recommendations, marked up selected guidelines using GEM Cutter II, performed guideline quality appraisal with GEM-COGS, applied EXTRACTOR to GEM files, restated recommendations in human-readable statement logic, categorized action-types, mapped concepts in recommendations to SNOMED codes, added critical terms to recommendation glossary, classified recommendations by clinical objective, and identified obstacles to implementation with GuideLine Implementability (GLIA).
3. In July 2008, GLIDES began Phase I implementation of the National Heart, Lung, and Blood Institute (NHLBI) asthma guideline in the Yale Specialty Clinic. During this phase, clinical workflow design for the asthma specialty clinic was completed, and integration of the new guideline's decision support with existing clinical workflow and systems began. A baseline survey was also started to assess specialist/primary care physician attitudes to current asthma support systems. In addition, GLIDES identified and addressed several potential barriers, including limitations of local workflow, Centricity system capabilities, and differences in the needs of primary vs. specialty physicians. Delivery of CDS systems for asthma was completed in 2008, and support and assessment of the systems and their results are continuing into 2009.

**Preliminary Impact and Findings:** Preliminary findings are not available yet.

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### **Selected Outputs**

CCHIT recommendations for certification of information systems in support of CDS.

Interim and final recommendations to the general guideline development community, and to the developers of the specific guidelines used by the project, on best practices in guideline development regarding CDS translation and implementation.

Available at: Yale Center for Medical Informatics. GLIDES Project.  
<http://gem.med.yale.edu/glides/default.htm>. Accessed 11 May 2009.