# Preservation of Clinical Decision Support during a Conversion to Vendor EHR: Performing a Gap Analysis

**Ana Delgado,PharmD[1], Shirley Fei, Pharm D[1], Teal Aroy, RPh, MBA[1,] Irina Kofman, RN[1], Ronelle Stevens, PharmD[1] Karen Bavuso, RN, MSN[1], Eileen Yoshida, RPh, MBA[1], Saverio Maviglia, MD, MS[1,2,3], Roberto Rocha, MD, PhD[1]**

*[1] Clinical Informatics, Partners eCare, Partners Healthcare Systems, Boston, MA, [2] Department of General Internal Medicine, Brigham and Women's Hospital, Boston, MA, [3]Harvard Medical School, Boston, MA,*

## Introduction/Background
In an effort to preserve extensive current state Clinical Decision Support (CDS) at a large academic healthcare system during a major conversion to a vendor EHR, the Knowledge Management (KM) team, a subgroup of Clinical Informatics, was tasked with performing an evaluation of several of its key CDS knowledgebases. The purpose of this evaluation was to identify content and functionality gaps between the CDS knowledgebases in the homegrown EHR system and vendor EHR. Based on the result of each gap analysis, CDS build options for the vendor EHR system were presented to the voting committee.

## Methods
Members of the Knowledge Management team identified key CDS knowledgebases to be analyzed, which included renal and geriatric medication dosing decision support, drug-drug interactions (DDIs), duplicate therapy alerts and drug pregnancy alerts. Knowledge Engineers who are intimately familiar with these CDS knowledgebases worked with vendor EHR experts and consultants to perform gap analyses of the legacy CDS tools in comparison with CDS of the vendor EHR. Content and functionality gaps of each CDS knowledgebase were carefully identified and analyzed in terms of content creation, vetting, deployment and maintenance; as well as how these clinical contents are leveraged by CDS functionalities. Size and characteristics of each gap were described in terms of clinical relevance. Options to preserve current state CDS along with estimated work effort and time were summarized and presented to an enterprise clinical decision support voting committee.

## Results
For each CDS knowledgebase evaluated, a summary of important content and functionality gaps along with all available options to preserve legacy CDS were presented to the voting committee. The advantages and disadvantages of each of these options, along with customization work effort in the new EHR system were also presented to the CDS Committee for voting. The result of this gap analysis served as a prioritization tool for planning and resource allocation in our systematic effort of preserving significant current state CDS.

## Discussion/Conclusion
For a large academic hospital system with a longstanding history of CDS research and well known practices for developing CDS within a homegrown EHR system, preservation of its CDS becomes very important during a conversion to a vendor EHR. Many lessons were learned during this challenging process. It is essential that enterprise subject matter experts (SMEs) and Clinical Decision Support committees be informed of significant functionality differences to prioritize work efforts for preservation of valued clinical decision support. Doing so required the engagement of SMEs, voting committees, KM, and consultants from the vendor EHR.

## References
1. Sittig et al. Comparison of clinical knowledge management capabilities of commercially-available and leading internally-developed electronic health records *BMC Medical Informatics and Decision Making* 2011, 11**:**13.