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# Regenstrief Institute puts clinicians in charge of computer-based decision support

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Electronic medical record systems and computerized physician order entry systems provide clinicians with decision support in the form of warnings or reminders about possible drug interactions, recommended immunizations, need for specific follow-up and other information important and potentially critical to patient care.

To date, most clinicians must go through a lengthy process to get specific warnings or reminders added to the electronic medical record. But, what if electronic medical users could conveniently write decision support rules based on personal experience with the patients they serve?

That's possible now with RAVE, a powerful new distributed approach to clinician decision support rule authoring "personalized" to patient population, location and time, developed by the Regenstrief Institute and tested at Eskenazi Health, one of the nation's largest safety net hospital systems.

RAVE, short for Rule Authoring and Validation Environment, will be presented by Titus Schleyer, DMD, Ph.D., director of the Regenstrief Institute's Center for Biomedical Informatics and the Clem McDonald Professor of Biomedical Informatics at Indiana University School of Medicine, and Lisa Harris, M.D., CEO of Eskenazi Health, associate dean for Eskenazi Health Affairs at the IU School of Medicine and a Regenstrief Institute affiliated scientist, in an e-presentation at the 2015 Healthcare Information and Management Systems Society's Conference and Exhibition from April 12 to 16.

"With the introduction of RAVE's distributed approach to clinician decision support rule writing we are incentivizing creativity from the bottom up—something which isn't typically done in health care," Dr. Schleyer said. "We have developed an organizational and technical approach to put rule authoring capability directly into the hands of motivated clinicians - partially turning the typical balance of power regarding how EMRs function upside down.

"With RAVE any physician, nurses, pharmacist or other clinician with authorized access to an electronic medical record system can write clinical decision support rules that embed knowledge—part of his or her own thinking—into the system so the computer passes it along automatically to other system users. And this happens much faster than via the top-down system typically used to introduce new rules."

RAVE is an intuitive tool that can be used without computer programming experience. Clinicians may suggest a high priority reminder that interrupts and displays a pop-up reminder or a lower priority non-interruptive item that appears on the side of the computer screen. As with all rules, RAVE rules can be narrow (patients taking a specific drug or with a specific diagnosis) or broad (all patients in a certain age range or general symptoms).

Built in checks and balances ensure the positive effects of putting rule authority in the hands of users. Clinician-suggested rules created through RAVE must meet specified criteria, are initially restricted to their creator, and are evaluated and tested prior to wide deployment. RAVE takes into account who will be reading the alert (primary care physician versus cardiologist, for example) ensuring that the clinician sees only alerts appropriate for him or her. To fight alert fatigue, the overall value of each alert is also evaluated.

According to its creators, RAVE could further important institutional

efforts to enhance the delivery of preventive care, support quality management activities, respond to national drug shortages, and increase patient access to research protocols.

"RAVE is interoperable and eventually could work with various commercial electronic medical record systems," said Regenstrief Institute investigator Paul Dexter, M.D., associate clinical professor of medicine at IU School of Medicine, who serves as Eskenazi Health chief medical information officer. "Results of our initial RAVE trial are very positive. More clinician engagement could greatly enhance computer systems' increasing use in health care delivery and improve patient safety."

Provided by Indiana University

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