Quality and safety

January Journal: Improvements to medication orders using machine learning system

A new study in the January issue of The Joint Commission Journal on Quality and Patient Safety used retrospective data to evaluate the ability of a machine learning system — a platform that applies and automates advanced machine learning algorithms — to identify and prevent medication prescribing errors not previously identified by and programmed into the existing clinical decision support (CDS) system.

Prescription drug errors are a leading source of harm in the U.S., resulting in outcomes that cost approximately $20 billion a year. And while CDS alerting tools — computerized alerts and reminders — are widely used to identify and reduce these medication errors, the systems have a variety of limitations.

In the study — “Using a Machine Learning System to Identify and Prevent Medication Prescribing Errors: A Clinical and Cost Analysis Evaluation,” by Ronen Rozenblum, PhD, MPH, and coauthors — alerts were generated retrospectively by a machine learning system using existing outpatient data from Brigham and Women’s Hospital and Massachusetts General Hospital in Boston from 2009-2013.

The study showed a total of 10,668 alerts during the five-year period and found:

- 68.2% of the alerts would not have been generated by the existing CDS system.
- 92% of a random sample of the chart-reviewed alerts were accurate based on structured data available in the record, and 80% were clinically valid.
- The estimated cost of adverse events potentially prevented in an outpatient setting was more than $60 per drug alert and $1.3 million when extrapolating the study’s findings to the full patient population.

“The authors of this study successfully provide a glimpse into a new world of safety for medication ordering augmented by machine learning,” said David M. Liebovitz, MD, associate professor of Medicine, Division of General Internal Medicine and Geriatrics, Feinberg School of Medicine, Northwestern University, Chicago, in an accompanying editorial. “Validation across different populations may reveal site-specific differences requiring unique models, and/or warrant identification and capture of new descriptive features.”

The January issue also includes:

- “Using Electronic Health Records to Measure Quality Improvement Efforts: Findings from a Large Practice Facilitation Initiative”
- “Associations Between a New Disruptive Behaviors Scale and Teamwork, Patient Safety, Work-Life Balance, Burnout, and Depression”
- “Medication Reconciliation Improvement Utilizing Process Redesign and Clinical Decision Support”
- “A Model for Improving Health Care Quality for Transgender and Gender Nonconforming Patients”
- “Closing the Loop with Ambulatory Staff on Safety Reports”
- “Progress and Promise in Supporting Learning Health Systems”
- “Time to Take Hearing Loss Seriously”

Access the Journal.
Accreditation

New R3 Report on enhanced substance use disorders standards for behavioral health

Starting July 1, eight standards with 14 new and revised elements of performance (EPs) will be applicable to Joint Commission-accredited behavioral health care organizations that treat substance use disorders. These enhanced requirements — in the Care, Treatment, and Services (CTS) and Leadership (LD) chapters of the accreditation manual — are designed to improve quality and safety of care for patients being treated for substance use disorders.

During the development process, The Joint Commission evaluated literature and national guidelines, and engaged stakeholders to determine how enhancing the standards would help improve the quality and safety of care. The Joint Commission concluded that enhancing standards applicable to addiction treatment providers was needed in the areas of:

- Treating individuals at the appropriate level of care.
- Transitions of care and follow up.
- Proper use of urine drug testing to ensure the standards reflect best practices.

A new R3 Report was developed to explain the rationale and research behind the new and revised requirements. Read the R3 Report.

Comment now on possible revised medication order requirement

The Joint Commission is seeking feedback on potential revisions to a requirement in the Medication Management (MM) chapter. The revisions are intended to further define the minimum required elements of a complete medication order. The proposed minimum required elements will include:

- Medication name
- Medication dose
- Medication route
- Medication frequency

The revised standard — MM.04.01.01, element of performance (EP) 2 — would be applicable for the following accreditation programs:

- Hospital
- Critical Access Hospital
- Ambulatory Health Care
- Behavioral Health Care
- Home Care
- Nursing Care Center

The Joint Commission also is adding requirements in the EP to define the elements of a medication titration order. This proposed enhancement to MM.04.01.01, EP 2, will apply to hospitals, critical access hospitals, ambulatory health care organizations, home health organizations and nursing care centers whose policies deem titration orders acceptable for use. The proposed requirements align with clinical practice guidelines for the prevention of medication errors.

Comment now. Feedback will be accepted through Feb. 3. (Contact: Elizabeth Cook, ecook@jointcommission.org)

Resources

New Year’s Resolution: Enjoy expanded access to Perspectives

Staff at Joint Commission-accredited and -certified organizations now can access Joint Commission Perspectives® without having to go through their organization’s Joint Commission Connect® extranet site. Newly expanded access rights also allow staff at such organizations to post full issues or articles from Perspectives.
on their own organization’s secure intranet sites, as well as to print or copy articles and issues internally, free of charge, without needing permission from Joint Commission Resources.

This expanded access enables all staff at accredited and certified organizations to easily access Perspectives to learn about changes to standards or policy updates, and then make the necessary changes to policies or procedures within their own organizations to ensure compliance.

To view current and past issues of Perspectives, simply sign up on The Joint Commission’s website for guest access. Have your organization’s health care organization (HCO) identification (ID) number ready, which can be found on Quality Check®. You will receive automatic access if you are using a work email address in a location with a valid domain that matches the HCO ID domain The Joint Commission has on file. For those using a computer without the HCO’s domain, a message will be sent to the organization’s primary accreditation contact for approval.

Request guest access to Perspectives.

Learn more about Joint Commission Resources’ offerings online or call 877-223-6866.