

Automation will Accelerate Development of Standardized Order Sets, Advance the Practice of Evidence-based Medicine and Achieve Meaningful Use of EHRs

The standardized order set has emerged as a powerful clinical decision support tool that is shaping patient care and plays a critical role in advancing evidence-based medicine.

Order sets are also crucial to health care providers who wish to qualify for incentive funds under the HITECH Act, which will offer payments to hospitals and medical practices that use electronic health record (EHR) technology in meaningful ways. As currently defined, "meaningful use" requires provider organizations to achieve specific goals tied to the practice of evidence-based medicine, including the use of evidence-based order sets.

HITECH calls for the use of evidence-based order sets by 2013. Unless a health care organization already has a substantial library of order sets in place, however, it will be difficult to develop a quantity sufficient to achieve meaningful use by then. Industry standards call for a minimum of 200 to 300 standardized order sets accessible through a computerized physician order entry (CPOE) or EHR system. Yet many hospitals are discovering the need for hundreds – in some cases, thousands – more, based on diagnosis-related groups and clinician demand.

Because of the time it takes to review, edit and achieve consensus, hospitals are under pressure to expand their use of order sets now. Depending upon the complexity and availability of resources, a single order set can take months – and in some cases, more than a year – to finalize. Once created, it must then be integrated into the CPOE or EHR system, a mapping process that carries its own set of challenges.

That is why provider organizations cannot procrastinate when it comes to building their libraries and why a growing number are looking to automated order set solutions to streamline and accelerate the development process.

EVIDENCE-BASED ORDER SETS: BENEFITS & CHALLENGES

Standardized order sets are central to the practice of evidence-based medicine, which integrates established medical research, clinical protocols and proven best practices into the diagnosis and care process.

A standardized, scientifically sound approach to the overall care process, evidence-based medicine offers the surest and most objective way to determine and maintain consistently high quality and safety standards. It can also accelerate the process of transferring clinical research findings into practice and has the potential to reduce health care costs significantly.ⁱ

Standardized order sets advance the practice of evidence-based medicine by improving compliance with recommended care processes, resulting in improved patient outcomes. They can also reduce overall length of stay, postoperative length of stay and total charges for multiple surgical procedures.ⁱⁱ

A growing body of research also suggests that the use of automated clinical decision support tools like order sets results in fewer complications, lower mortality rates and lower costs.ⁱⁱⁱ This is particularly true when order sets are linked to trusted clinical resources, which significantly increases clinician adoption rates.

These factors, coupled with the promise of HITECH financial incentives, heightened regulatory oversight and increased pressure to increase quality and safety, have prompted a growing number of hospitals to begin creating expansive order set libraries.

But the development process can be challenging. According to an independent survey of hospital personnel involved with order sets, the primary authoring and review obstacles are:

- The time and resources associated with the process (28%)
- The logistics involved in bringing together all necessary decision makers (14%)
- Achieving final consensus (14%)

Exacerbating the process' complexity is the difficulty many facilities have in providing reviewers with easy and convenient access to the literature and medical evidence supporting the proposed order set's directives – an issue that can also hamper physician adoption once the order set is approved.^{iv}

AUTOMATING FOR SPEED, ACCURACY & ACCEPTANCE

Health care organizations can overcome many of the most significant roadblocks associated with building and deploying clinical decision support tools by automating the authoring, review and maintenance of evidence-based order sets. Automation also eliminates the primary obstacles that prevent facilities from realizing the benefits of standardized order sets, including lower costs, improved clinical performance and greater compliance with recommended care processes and patient outcomes.

By streamlining the authoring, review and maintenance processes and providing easy, one-click access to supporting literature and medical evidence, automated order set solutions enable physicians and other decision makers to reach consensus more efficiently. They also encourage a higher level of clinician adoption, without which it is impossible to achieve even the most limited outcomes.

To simplify the authoring process, automation solutions usually offer both "starter" order sets, with built-in links to supporting evidence, as well as customizable templates. Typically, an assigned "owner" develops the draft order set; links it to existing standards, best practices and supporting literature; and then releases it to the appropriate reviewers.

Reviewers receive an email alerting them that an order set is ready for review. By clicking a link within that email, reviewers can open the draft in a web browser, add comments, review supporting literature, make any necessary changes or comments, and notify the owner when they are finished. Once approved, the owner releases it for use by clinicians.

Automated solutions also streamline the integration of order sets into a CPOE or EHR system. Once an order set is approved, the application typically facilitates mapping to the facility's order catalogue and pushes it directly into the system, eliminating the need to re-create the order set to enable point-of-care access.

Automated order set solutions also resolve the single greatest long-term challenge hospitals face with these tools: long-term maintenance. Medical content is automatically and continuously monitored for new evidence, guidelines or other changes, and users are alerted when an existing order set may require updating.

When an update takes place, the application will usually maintain a verifiable audit of changes, including who made them, when and why. Earlier versions are also archived in case they are needed for future audits or comparisons.

MAXIMIZING AUTOMATION'S BENEFITS

Though automated order set solutions are relatively new, users are already recognizing their benefits. The majority of respondents to one survey reported being "very satisfied" with the authoring (53%), reviewing (60%) and approval (60%) functions of their application.^v

The key to achieving high satisfaction and adoption rates, and realizing a maximum return on investment is to evaluate an automated order set solution based on the features users consider most important. In the independent survey cited previously, these features were identified as:

- The ability to link into disease, lab, drug and patient education information and ensure that everyone on the order set committee has access to the same information (93%)
- Auditable history logs to track order set changes (87%)
- Customizable library of evidence-based order sets (67%)
- The ability to track review comments on draft versions (60%)
- Integrated access to a comprehensive underlying repository of evidence and primary literature (53%)

- Intuitive structure based on the facility's review and approval process workflow (33%)
- Innovative and unique data security controls (33%)

When properly selected and implemented, automated order set solutions can deliver benefits that go far beyond the streamlining of their development and maintenance. By providing access to comprehensive clinical evidence at the point-of-care, order set applications can improve patient care and, through built-in standardization, increase patient safety and reduce costs related to length of hospital stay, medication errors and other adverse events.

By integrating standardized order sets with existing clinical decision support systems, hospitals are also better able to establish and maintain standards of care and put evidence-based health care into practice. Because they simplify the review and approval process, order set applications provide a solid return on investment.

ProVation® Order Sets is an innovative, customizable order set authoring and management solution that streamlines the delivery of standardized care. Powered by UpToDate® Decision Support, ProVation Order Sets help clinicians, institutions and EHR vendors improve patient safety, outcomes, clinician performance and regulatory compliance with a solution that:

- *Includes hundreds of predefined order sets that span emergency, inpatient and outpatient settings for both adult and pediatric patients across many medical specialties;*
- *Contains sophisticated, easily customizable tools for managing the entire order set library, while coordinating and simplifying the review and approval process;*
- *Makes it easy for clinicians to write and sign orders electronically and to create data reports for regulatory and core measure tracking;*
- *Arms caregivers with the actionable evidence they need to drive documentation, enhance practice, improve patient safety and demonstrate compliance with credentialing and regulatory standards; and*
- *Makes available interdisciplinary Care Plans built on content created by the renowned Lippincott Williams & Wilkins nursing team.*

Built on ProVation Medical's award-winning technology platform, ProVation Order Sets simplify the order set development process with supporting links to UpToDate® and Clin-eGuide™ evidence and decision support. These links help drive consensus among clinicians, allow users to define the review process and create a centralized electronic library and archive for activity related to each order set.

UpToDate, the resource of choice for more than 360,000 physicians, covers more than 7,700 topics in 14 medical specialties. It includes more than 79,000 pages of text, graphics and links to Medline abstracts, as well as more than 260,000 references and a drug database. Content is continuously reviewed and updated by physician editors and authors.

Depending on a user's needs and preferences, ProVation Order Sets have the flexibility to link to additional clinical resources as well. To help facilities achieve the greatest degree of automation, ProVation Order Sets also feature vendor-neutral mapping and export capabilities that allow for easy integration into any facility or vendor EHR or CPOE system.

ⁱ Open Clinical. "Evidence-Based Medicine." Available at <http://www.openclinical.org/ebm.html>.

ⁱⁱ Ballard, D.J., Ogola, G., Fleming, N.S., Heck, D., Gunderson, J., Mehta, R., et al. (2008, August). The Impact of Standardized Order Sets on Quality and Financial Outcomes. *Advances in Patient Safety: New Directions and Alternative Approaches*. Rockville, Maryland, United States of America: Agency for Healthcare Research and Quality.

ⁱⁱⁱ Amarasingham, R., Plantinga, L., Diener-West, M., Darrell, G., & Powe, N. (2009). Clinical information technologies and inpatient outcomes: A multiple hospital study. *Archives of Internal Medicine*, 169(2), 108-114.

^{iv} Renaissance Research. (2008). *ProVation Order Sets Research: Report of Findings*. Edwardsville: Renaissance Research and Wolters Kluwer Health.

^v Renaissance Research, 2008.