

CASE STUDY: FDB AlertSpace® MEDITECH - Addressing Alert Fatigue Valley Health

Valley Health Finds the Medication Alert Sweet Spot

About one week after Valley Health System upgraded from MEDITECH Magic to the MEDITECH 6.14 electronic medical records (EMR) system in mid-2015, a surgeon crossed through the doors of the pharmacy department to express his frustration. He was receiving alerts on every antibiotic order and he became desensitized to all the warnings. So, he ignored an alert for a penicillin allergy with a Cephalosporin order – an oversight that could have led to unfortunate consequences. He was exasperated with himself and with the alert checking system he wanted to rely upon as a busy caregiver.

“We chose AlertSpace with the FDB MedKnowledge® solutions, and it was a tool that, once we understood what it could do, we realized that we could actually make improvements and assist the physicians in their requests to lighten the alert fatigue burden.”

Therein lies the crux of the medication alert challenge. For many healthcare providers, it turns into a darned-if-you-do, darned-if-you-don't situation. Provider organizations want to warn clinicians of every potential danger to prevent medication errors because they do not know which are most relevant to a given patient. When they do, however, the alerts fire fast and furiously and “if you overburden the physicians, they begin to become numb to it, and they disregard all the alerts,” said John Heeren, RPh, MS, pharmacy application analyst in the IS department at Valley Health.

On the other hand, though, if healthcare organizations whittle the alerts down to a small number, they will potentially take valuable alerts out of the mix. In fact, some providers avoid eliminating alerts to steer clear of

litigation reasoning that if the alerts are being delivered they will be less liable for any medication errors that occur.

According to an analysis published in *Health Affairs*, however, “designers and vendors that sharply limit the ability to modify alert systems because they fear being exposed to liability if they permit removal of a warning that could have prevented a harmful prescribing error, are likely to be operating under an erroneous assumption. The study found, through an analysis of product liability principles and existing research into the use of clinical decision support systems, that more finely tailored or parsimonious warnings could ease alert fatigue without imparting a high risk of litigation for vendors, purchasers and users.”

Bottom Line

- Valley Health deployed FDB AlertSpace as part of their MEDITECH 6.14 EMR upgrade. The aim was to address the alert fatigue their clinicians were experiencing as 96% of alerts were being overridden
- Valley Health uses three AlertSpace domains— drug-drug interactions, dose range checking and drug allergies—and is considered an expert in enabling FDB's dose range checking functionality
- Pharmacy staff utilized the Office of the National Coordinator for Health IT (ONC) subsets provided within AlertSpace which helped give credence to which alerts to flag and which ones could be downgraded without liability issues
- FDB AlertSpace enabled the Valley Health team to customize alerts that are more meaningful to clinicians, while lifting much of the alert management maintenance burden from hospital staff (the system keeps an audit trail that illustrates the modifications made)

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A considerable challenge

Getting that “just right” ratio of alerts, however, is a significant undertaking that is far more difficult than it looks. To start, healthcare organizations need to consider that not all clinicians have the same needs. “A specialist, however, would probably not want some of the alerts because they’ve already accounted for the potential interactions in their thought process, and the alert is just an annoyance that slows them down. At the same time, the general physician may want the reminder. It’s hard to put everybody into one bucket where it works for everyone,” Heeren said.

In addition, clinicians have varying preferences as to when they want to receive the alerts. “Some would rather have all the alerts fire at the end of the ordering process and others would rather be prompted as they are initiating the order. Again, it’s hard to find that balance that works for everyone,” Heeren said.

The challenge for Valley Health was to get the alerts down to a level where clinicians receive meaningful messages they would act upon, while still providing helpful alerts at a time in the process when clinicians are open to receiving them.

Addressing Alert Fatigue at Valley Health

In order to address this challenge, the hospital put together a pharmacy team to determine how to reduce alert fatigue.

The team started with what John Heeren refers to as an “inelegant approach” — which was to let all the alerts fire for a one month period to establish a baseline of alerting data. In a one month period between June 20 – July 20, 2015, a total of 105,788 alerts fired — 56,573 duplicate therapy, 38,945 drug-drug interactions, 4,635 dose/dose set¹, 3,585 food (pharmacy only), 1,720 allergy, 237 adverse reaction, 54 errors (vaccine duplicates), and 20 instances of site-specific monitoring rule for Proton Pump Inhibitors (PPI). Understandably frustrated, Valley Health clinicians only heeded 4% of these alerts from what could be measured, as the other 96% were overridden.

¹ These alerts were managed through the MEDITECH dictionary. The FDB Duplicate Therapy module (DPT) replaces American Hospital Formulary Service (AHFS) classes, generic name, and drug ingredients when an organization is on the 6.16 version. The module is built using specific duplicate therapy classes and contains allowance thresholds to alert when duplication of therapy exceeds reasonable limits.

Customizing alerts – a tall order

The pharmacy team at Valley Health now had their work cut out for themselves as they set out to establish an aggressive alert reduction program that would provide a manageable number of meaningful alerts. The team faced an intimidating list of medication alert management tasks as they did their analyses—identify high frequency alerts; research and provide evidence of each alert’s clinical significance; and bring change recommendations to the hospital’s Physician Advisory Committee (PAC) for approval.

The hospital opted for the ability to access FDB AlertSpace®, a tool that is used to adjust the standard alert settings to better fit with local practice and for CPOE use. AlertSpace offers an online platform to modify and track alerts while supporting an efficient workflow. With AlertSpace, Valley Health is able to turn off individual medication alerts; track all medication alert customizations and create an auditable change history record; compare localized alerts to FDB standard updates; and upload alert customizations into the MEDITECH system.

The system, in fact, has empowered Valley Health to efficiently work toward the balance that the hospital needed: The sometimes elusive, just right level of alerts to ensure patient safety and enhance clinical care outcomes without turning physicians and pharmacists off because of an abundance of alert noise.

Behind the curtain

AlertSpace provided the insight to understand the drug information within FDB and to make it possible to adjust severities and apply modifications without needing to manipulate information within the MEDITECH system. One of the main benefits is the fact the hospital could approach the alert management process from a position of confidence. The system offered insight into which alerts were most serious (e.g. contraindicated) in most patients and which could be assessed and potentially eliminated.

Armed with their baseline of alert override data, the pharmacy team first looked at all of the high frequency alerts to assess if they were actually significant for their local medical practices or if they were simply annoyances or duplicates.

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“We looked at each drug, at where and how it was used and tried to think clinically in terms of ‘is this useful or is it not useful?’ A classic example: we were getting a lot of interactions on aspirin and the system didn’t know if the patients were taking 81 milligrams or 800 milligrams. So, we looked it up and determined that it doesn’t really matter. So, it wasn’t that difficult to convince people that we could eliminate that alert,” said David Troiano, RPh, MSIA, CPPS, Principal at Cumberland Consulting Group, who worked with Valley Health while at Dearborn Advisors.

It was also possible to eliminate some alerts by determining exactly how they were used within the hospital. “So, we went through each alert on a case-by-case basis trying to figure out does this make sense given what’s going on in our hospital?” Heeren said.

For example, alerts for Propofol could be reduced, because, even though the drug presents some potential interaction dangers, it is only used in surgery – which is a controlled setting where cardiac monitoring occurs continuously.

“We determined that we didn’t have to worry about a drug interaction in surgery since the anesthesiologists and surgeons are well familiar with this, and they are monitoring that patient right there and will respond if, by some coincidence, there should be a problem. Because the medication is being ordered by a specific group of specialists and patients are in a clinical area that is fully monitored, the interaction alerts are not as critical,” Heeren said.

Alert Fatigue Addressed in a Phased Approach

While the hospital eliminated many of the warnings during this first phase of alert management, physicians were still experiencing alert fatigue.

“Although we made great strides in reducing the number of alerts, many providers still felt there were too many alerts. Having the tools and the manpower to evaluate further changes was an issue,” Heeren said.

“To start, in FDB AlertSpace, we could see the Office of the National Coordinator for Health IT (ONC) subsets in the background. So, that helped give credence to which alerts we shouldn’t really touch. If ONC says we should be flagging something then we need to flag it. And, it helped us determine which other ones with a severe

rating we could potentially downgrade without creating liability issues,” Heeren said. “As we began to understand the data structure within FDB, to see the severity rankings and ONC statuses, we felt better about using the tool to modify the database without having to create our own alerting system.”

By immediately identifying what was off limits, the Valley Health team could more expediently start addressing potential changes. “If something is absolutely contraindicated, we really should not be changing anything as far as an alert to a physician. If it’s a severity level warning that we can evaluate how it would apply to our basic patient population, those are the ones that we can downgrade to alleviate the alerts to the physicians,” Heeren said.

This improved understanding of the drug information also resulted in pharmacy leaders and the PAC gaining greater confidence in making any medication alert changes. With this process in place, the Valley Health team reviewed about 1,600 alerts and downgraded 180 from severity level two to severity level three. As such, these alerts would no longer be presented to physicians, although they would still be seen by the pharmacists.

Tackling Dose Range Checking Alerts

Valley Health is leveraging three AlertSpace domains: drug-drug interactions, dose range checking and drug allergies. The team at Valley Health has also demonstrated an expertise in enabling FDB’s dose range checking functionality. The team identified items in the drug dictionary that were built in a manner that did not match the dose ranges in MEDITECH. When the doses don’t match, the system might generate an alert that says “no dose checking was possible.” Frequently, such alerts are ignored because they don’t provide any specific context to the clinicians, as well as unnecessarily add to the overall alert burden.

“One of the common ones was iron tablets, where they could contain 325 milligrams of the iron sulfate, but it’s only 65 milligrams of elemental iron. So if you adjust the base/salt units setting In AlertSpace, you could easily avoid problems with dose checking,” Heeren said.

“Before using AlertSpace, we would have to customize our alerts and then make sure we maintained an internal record. Now the hospital no longer carries the burden of “owning” the customization—as any changes in drug information will immediately map to the alert customizations.”

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Drilling down to this level of specificity is helping to improve alert management at Valley Health. **“When I first heard about AlertSpace, I was almost skeptical. I wondered why I would want to go in and change FDB drug data? Why would I ever want to get in there and micromanage to that level? And when I realized that some of the micromanagement is correcting drug dosage forms or readjusting levels to actually mesh properly with the data available in our MEDITECH EHR, I realized that AlertSpace was a bridge that helped make that gap between the data in our EHR and the FDB drug knowledge smaller,”** Heeren said.

An easier route

In addition to providing the insight that makes it possible to develop alerts that are more meaningful to clinicians, AlertSpace has lifted much of this burden from hospital staff. For example, the system keeps an audit trail that illustrates the modifications made, eliminating this time-consuming task from the alert management team’s responsibilities.

“Before using AlertSpace, we would have to customize our alerts and then make sure we maintained an internal record. So, then if any drug data was ever updated or changed, we could go back and revise those items,” Heeren said. With AlertSpace, the hospital no longer carries the burden of “owning” the customization—as any changes in drug information will immediately map to the alert customizations.

The FDB tool has made it possible to more expediently identify and eliminate unnecessary alerts, without placing an unnecessary burden on staff. In the first few months of using AlertSpace, Valley Health has been able to review and resolve over 500 alert issues across the FDB domains of Drug-Drug Interactions, Drug Allergy, and Dose Range check.

Another action taken, specific to Dose Range Check module within AlertSpace, is Valley Health has been able to correct for Salt vs Base for many drug products and identified products where Dose Range Check units of measure did not match the local MEDITECH Drug File.

Perhaps most importantly, Valley Health has created an environment that supports monitoring alert reports, modulating the alert settings and where physician input is an integral part of the alert refinement process. This has empowered its clinicians to make the best clinical decisions. Instead of being frustrated by alerts, clinicians are relying appropriately on the CPOE system to ensure proper medications are delivered to patients in a timely and effective manner.

Valley Health System

Valley Health System is comprised of The Valley Hospital, Valley Home Care and Valley Medical Group. Committed to excellence in clinical care and service delivery, Valley Health System exists to meet the changing healthcare needs of the region and to promote all aspects of good health in its communities. The Valley Hospital is a fully accredited, acute care, not-for-profit community hospital serving more than 440,000 people in 32 towns in Bergen County, New Jersey and adjoining communities. Valley’s current licensed capacity is 451 beds. In 2016, 46,717 individuals were admitted to Valley, 73,133 people were treated in the Emergency Department and 3,366 babies were born.

For more information, contact Sales today at 800.633.3453 or visit fdbhealth.com

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