![fdb logo](First Databank)

Sentara Healthcare Moves to the Front of the Alert Management Class – and Stays There with FDB AlertSpace®

Effectively managing medication alerts can be a "make it or break it" factor when it comes to the success of electronic health records (EHR). The truism weighed heavily on leaders at Sentara Healthcare as they strove to get the most out of their Epic EHR.

"We didn't want our electronic health records system to be a burden for our providers. We wanted the providers to embrace the system to move clinical care forward."

"We didn't want our electronic health records system to be a burden for our providers. We wanted the providers to embrace the system to move clinical care forward," said Raymond Chan, PharmD, Pharmacy IS Specialist at the 12 hospital, Norfolk, VA.-based system.

Chan and other leaders, however, realized that the more than 4,000-plus providers they serve would quickly disengage from the EHR if they were bothered by a large number of alerts they deemed unnecessary. Yet, at the same time, they understood that these providers would lose faith in the system if they didn't receive meaningful notifications when patients were in harm's way.

In an effort to get the "just right" mix of alerts, Sentara put a continuous alert optimization process in place. The program, which was spearheaded by Chan and Kathie Scott, MT (ASCP), Sr. Clinical Analyst, aimed to increase the number of medication alerts acted upon (positive response rate) to greater than 20% of all medication alerts; improve safety; reduce alert fatigue; and decrease preventable adverse drug events (ADEs).

"We had a process in place [where] our pharmacy and therapeutics committee as well as our clinical administration, clinical specialists and drug information pharmacist would work together to evaluate new drugs that came out and what interactions [we] wanted to program into Epic. So even though a new drug might have 20 interactions, the committee may only implement seven out of those 20. That way we would catch the alert fatigue before it went into the system," Chan said.

Bottom Line

- Sentara is far ahead of their peers in creating and managing drug-alert customizations within the Epic EHR

- As Sentara added ambulatory clinics, further expanding the number of drugs and dose forms needing alert management, the team turned to FDB AlertSpace to keep their alert optimization program in check

- FDB AlertSpace enabled Sentara to save hundreds of hours of staff time

- FDB AlertSpace enabled Sentara to meet the Meaningful Use requirements that would result in their receiving EHR adoption incentive funds.

"We liked having the ability to make the customizations directly in Epic. However, we realized that we just couldn't keep up with the maintenance of all the custom drug alerts."

RAYMOND CHAN, PharmD Pharmacy IS Specialist

Before FDB AlertSpace: Creating Alert Customizations in Epic Kept Override Rates Down

With this effort in place, the Sentara team created 1,963 custom drug-drug interaction (DDI) alerts, built 150 additional custom renal dosing alerts that enabled continuous monitoring, modified 77 duplicate therapy class alerts and developed 100 percent of the system's custom pregnancy (117 medications) and lactation (119 medications) alerts – an undertaking that took approximately 2,000 person-hours.

All of this hard work placed the health system ahead of the curve in terms of alert management. Simply consider the following: To keep alert fatigue to a minimum, organizations need to keep the number or alerts per medication order down while also minimizing the override rates. When it came to drug-drug interactions (DDIs), Sentara was able to keep the number of alerts per medication order to around 2 in 100, and reduce their DDI override rate from between 93% and 94% per DDI alert to less than 88% (and well below the 95.1% DDI override rate that has been reported in recent studies.)[1]

The Problem: Being Able to Vigilantly Monitor and Keep Up With All the New Drug Information Changes

Regardless of how many hours they logged, the team eventually realized that their work would never be done. The simple fact that drug information continually evolves and changes means that they would need to vigilantly monitor all their customizations – over and over again.

"We liked having the ability to make the customizations directly in Epic. However, we realized that we just couldn't keep up with the maintenance of all the custom drug alerts as new information and new drugs were constantly being introduced," Chan said. "The maintenance burden had just become too much for us to handle."

The team realized that creating alerts for DDIs had become an unwieldly task. "We had to include each electronic prescribing record for each medication in the pair and not just the generic dose form. We had to include every med that [a physician] could conceivably write an order against. We found a number of times where we had drugs missing from the pair because we hadn't included specific brands," Scott recalled.

For example, keeping up with the evolution of dexamethasone dosing changes was next to impossible. "Every time we performed an FDB update, there would be new dose forms and we got to a point where we didn't have enough time to keep up with that," Scott said.

In addition, when FDB introduced new drug information, the organization would have "mismatches" in its system.

"One of the biggest ones that took a lot of clean up was narcotics. When FDB introduced new categories [of narcotics], because we had customized our alerts, we wouldn't get any of those updates," Scott said. As such, care providers were not likely to get needed alerts based on new drug information that was being disseminated by FDB.

Incorporating drugs commonly used in the ambulatory setting presented yet another challenge. With Sentara adding ambulatory services at a quick clip, the staff struggled to create customized alerts with respect to prescriptions that are likely to be used in outpatient settings.

"As we kept adding more ambulatory clinics, we had to account for the fact that providers could prescribe any medications they wanted," Chan pointed out. "The problem was that we didn't have enough people or enough time to review all of the emerging drug information from FDB."

What's more, the health system needed to implement a variety of drug alerts to comply with various government regulations, specifically to meet the Meaningful Use requirements that would result in Sentara receiving EHR adoption incentive funds.

[1] Bryant, A.D., G.S. Fletcher, and T.H. Payne. "Drug Interaction Alert Override Rates in the Meaningful Use Era: No Evidence of Progress." Applied Clinical Informatics 5.3 (2014): 802–813. PMC. Web. 14 Oct. 2016.

"With AlertSpace freeing pharmacist time, we customized Epic warfarin CDS and reduced the number of warfarin-related reactions in half, from firing about ninety thousand alerts for warfarin per year to approximately forty-five thousand."

RAYMOND CHAN, PharmD Pharmacy IS Specialist

The Solution: A Better Way to Efficiently Manage Alerts While Securing All Previous Customizations

While the health system had put in place an exemplary alert fatigue management process that brought great results, leaders realized that keeping this uber-program up and running was becoming impractical.

"We basically were able to [manage alert fatigue] the first couple of years and maintain the knowledge base behind the alerts on our own, but we got to a point where we were unable to do it with our current resources," Chan said.

So, with challenges mounting, Sentara finally waived the proverbial white flag and started to seek a better way to more efficiently manage alerts to streamline the alert management functionality in the Epic EHR. Leaders, however, wanted to move forward without taking two steps back. That is, they needed to find a way to continue to manage alert fatigue without losing all of the stellar work that had already been done.

> "We basically were able to [manage alert fatigue] the first couple of years and maintain the knowledge base behind the alerts on our own, but we got to a point where we were unable to do it with our current resources."

After considering their options, Sentara decided to implement FDB AlertSpace®. AlertSpace offers a convenient online platform to customize and track alerts while supporting an efficient workflow. With AlertSpace, Sentara is able to effectively fine-tune individual medication alerts; track all medication alert customizations and create an auditable change history record; compare updates to FDB updates; and seamlessly upload alert customizations into the Epic system.

While Sentara's pharmacists knew that this would help reduce the burden associated with managing alerts, they still wanted to maintain all of the work that they had already done. So, the team worked collaboratively with both FDB and Epic to ensure their work would be preserved using the AlertSpace platform. To start, FDB worked with Sentara to compare DDI alerts in the FDB database to those that were custom created by Sentara.

"Then we identified the gaps. There were a few things that we had that FDB didn't have. We asked them about it and in some cases FDB added them to their database, and in other cases, FDB felt our customizations would not necessary apply globally to all of their customers," Chan said.

Similarly, Sentara examined FDB's alerts to determine additional drug knowledge they should include. "We took the information to our pharmacy clinical director and said if we turn on all of FDB's contraindicated and severe [alerts], we'll have a certain number of additional alerts compared to what we currently have. And, here are the alerts that FDB did not think were globally applicable. We can either leave these alerts in place as custom DDIs or we can have them go away," Chan said. "It was a very collaborative process, a lot of back and forth. It was definitely helpful to have a party on both sides to work through and look through all of the differences."

AlertSpace Helps Sentara Manage Alert Fatigue in the Ambulatory Setting

AlertSpace also is helping with ongoing challenges such as keeping up with medication alerts in ambulatory practices. Instead of spending time in face-to-face meetings with providers to keep these drug alerts current, the ambulatory drug updates are processed automatically.

"Previously [when we were performing manual updates], if it was something that [ambulatory providers] started prescribing as soon [as the drug was released] then they wouldn't be receiving any drug-drug interaction alerts that may be critical. If a new dose form of the drug or a new generic of the drug came out and we didn't get all the changes in our load files, then the alerts wouldn't be updated. With AlertSpace, at least we are able to provide valid information [to the ambulatory care providers]," Scott said.

> "Using AlertSpace has helped us... to prevent safety events because the information is all current."

<div align="right">

RAYMOND CHAN, PharmD **Pharmacy IS Specialist**

</div>

• •

This collaborative approach is also leading Sentara to more efficiently manage alerts due to drug-disease contraindications and duplicate therapies. As such, the two organizations have worked together to eliminate redundant alerts. Because of this collaboration, it is now possible to "go through and turn off all the pregnancy and lactation alerts that are contained in the drug-disease program. You can customize your alerts within FDB's drug-disease data or you can do it with the actual pregnancy and lactation data because you have both options open to you," Chan said.

Sentara Healthcare

Sentara Healthcare is a 128-year old not-for-profit health care organization serving Virginia and northeastern North Carolina and employs nearly 30,000 employees. It is headquartered in Norfolk, Virginia, and is comprised of 12 hospitals with more than 300 sites of care all throughout Virginia and northeastern North Carolina. In addition, Sentara extends health insurance to 445,000 people through Optima Health, an award-winning health plan.

Reaping Results

The streamlined alert fatigue management process is resulting in a variety of benefits for Sentara.

First, by leveraging FDB knowledge, Sentara now is able to move beyond the status quo. Instead of spending an inordinate amount of staff time simply maintaining drug alerts, staff members can more strategically focus on making medication alerts more meaningful for their clinicians.

"Having AlertSpace to manage the knowledge base and help us keep up to date with the primary literature and the new studies and drug information is so helpful to us," Chan said. "Because we got rid of a lot of this maintenance burden, we can now focus more on those additional customizations that we are controlling within Epic."

Second, because alerts are kept up to date in a more timely manner, Sentara can ensure improved patient safety. "Using AlertSpace has helped us to reduce some of the safety gaps in terms of us lagging behind. So, we are able to prevent safety events because the information is all current," Chan said.

Last, and perhaps most importantly, AlertSpace is freeing up time to focus on other alert customization projects.

"We cut the number of warfarin-related reactions in half and that, in turn, reduced the alert burden on the pharmacists. So, we went from firing about ninety thousand alerts for warfarin per year to approximately forty-five thousand a year by transitioning low value alerts to passive CDS," Chan said.

And, with industry studies indicating that it takes about eight seconds to review each alert, the health system saved about 100 staff hours per year on reviewing warfarin alerts alone."

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

• •