# EHR Alerts

## Case Study: Developing the Case for an EHR Alert

This case study presents a prototypical EHR alert design opportunity by Pat, a clinical unit manager in a midsize hospital, GetWell Community Hospital.

Pat recently attended a presentation at a national conference about hospital-associated infections (HAIs). In his role as a clinical unit manager, Pat is aware of GetWell's catheter-associated urinary tract infection (CAUTI) rates, and he is concerned they are higher than those reported by other midsize hospitals. The conference focused on the use of well-designed alerts within the EHR to improve clinical decision making by providing timely information and education at the point of care. Pat wondered how receptive the hospital leadership and clinical staff would be to developing a new alert for CAUTI prevention.

GetWell implemented a new EHR system four years ago. The system change caused significant disruptions to many processes, but the nursing workflows were the most affected by the changes. It took two years for staff members to understand all the clinical repercussions and to create new work practices. Understandably, the clinical staff might be hesitant to create another alert that would require additional process changes.

In preparation for discussions, Pat spent several days obtaining baseline information by talking to nursing leaders, bedside nurses, and other frontline staff about their current Foley catheter processes. He also talked to the infection preventionist to understand more about the hospital CAUTI rates. Pat shared his notes from the national conference, the information from the facility experts, and his recommendation of creating a new alert.

Pat: "At the national conference, I was surprised to learn that our CAUTI rates are higher than other hospitals of similar size. One of the presentations focused on the ways in which well-designed EHR alerts can improve medical decision making. I know building another alert in our EHR system might be stressful as another change to current processes, but I have done some research that demonstrates the importance of reducing our CAUTI rates to improve patient safety."

Leslie: "Another EHR alert? Do you know how long it took us to implement new processes after we changed EHR systems? And some of those new processes don't match actual workflows."

Morgan: "We still have other alerts that don't work as intended. Some staff have created workarounds so that they can complete necessary tasks. The clinical staff in the Intensive Care Units are still trying to deal with alert fatigue."

Pat: "The presenters at the conference talked about the importance of good design. There are **Five Rights of Clinical Decision Support (Five Rights)**, which outline one way of ensuring the alert adds value to the workflows. The alert needs to present the **right information** to the **right person** in the **right format** through the **right channel** at the **right time**. If we design this alert well, maybe we can start tackling some of the other alerts that don't work well.

Including the clinical end users in all phases of the alert development will help staff with the process changes to make sure the correct workflows are captured."

**Box 1: The Five Rights of Clinical Decision Support**

- **The right information**
- **To the right person**
- **In the right intervention format**
- **Through the right channel**
- **At the right time in the workflow**

Pat volunteered to take the lead for the project; several other clinical unit managers (Leslie, Morgan, and Frank) offered to be part of the team. Additionally, they requested representatives from other services including Infection Prevention, Patient Safety, Nursing, Medicine, Supply Chain, Informatics, and Education/Staff Development.

---

### 1. Review the Five Rights (Box 1).

From the discussion above, Leslie and Morgan mention issues with some of the current alerts. How do these issues apply to the **Five Rights**?

What are some suggestions for resolving these issues?

Using the **Five Rights** as their model to evaluate a well-designed EHR alert, the team reached out to colleagues at other hospitals for examples of CAUTI alerts that could be modified for the EHR system at GetWell. They identified subject matter experts in clinical decision support (CDS) tools and infectious diseases who might provide additional information. The team also reviewed the most current literature on evidence-based practices for urinary tract infections and indwelling catheters.

Pat and the team found that in addition to the **Five Rights, the alert would need to incorporate evidence-based practices and the clinical expertise of staff**. When an alert functions well as a quality reminder for supporting clinical activities and decision making, additional benefits include providing information on appropriate interventions, giving alternative actions for improving patient safety, enhancing the quality of communication and documentation, and highlighting important facility performance measures. The alert can notify staff when a clinical activity is due, for example, daily, weekly, monthly, or yearly; after a procedure requiring an intervention for a specified time; at a time when a review for clinical necessity might be required, such as when a patient is transitioning to another level of care; or at other designated times that are determined by the clinical staff.

---

### 2. Review the information Pat and the team learned from their research.

The new CAUTI alert should be established on the **Five Rights** as well as what other important criteria?

What are the additional benefits of the alert functioning as a tool for quality care?

Importantly, the team learned that **EHR alerts should not be expected to replace clinical decision making at the point of care. They are tools to support clinicians in making evidence-informed decisions by combining their own clinical expertise with the "logic" coded into the alert by informaticists.** There could be situations in which alert information does not align with the best clinical care. For example, an appropriate reason for keeping a Foley catheter in place might be if a patient experiences a bladder outlet obstruction or when an incontinent patient develops a sacral wound. Depending on the situation, it might be important to provide feedback to clinical leadership, Patient Safety, and the informaticists to update or modify the alert logic to continue to improve clinical care.

At the next clinical unit manager meeting, the team presented the information on what they had learned about CDS tools for CAUTI prevention.

Pat: "From talking to subject matter experts and doing our research, the team has learned that a well-designed alert should be based on evidence-based practices and the clinical knowledge of staff. There might be times when staff need to use their clinical judgment rather than follow the alert logic. In these situations, the clinical staff should share their concerns so the alert can be improved, resulting in better patient care."

Frank: "Yes, the clinical staff told us it is important that we create the CAUTI alert to ensure staff are reviewing the clinical need for the catheter on a daily basis, when a patient moves from one medical or surgical area to another, after the patient has certain procedures in which the catheter might only be necessary for a short period, and as a clinical education tool to remind staff about appropriate and inappropriate uses as well as alternatives."

Leslie: "Collaboration with clinical and non-clinical subject matter experts is important to the initial design and continued effectiveness of the alerts. CDS tools can make a significant impact on improving the quality of patient care at GetWell."

---

### 3. Using an EHR Alert as a CDS tool can improve patient care.

Should an alert replace clinical decision making at the point of care?

Should the alert be updated to reflect accurate workflows and/or evidence-based practices?