

## Contents

Pages 1 and 4:

The Cornerstone  
Recognition Program: Two  
Years After Launch

Page 2 and 3:

VA Computer System  
Drug Interaction Pop-Up  
Boxes: Are They Critical or  
Significant?

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## The Cornerstone Recognition Program: Two Years After its Launch

By NCPS staff members Beth J. King, Scott McKnight, James R. Turner, Paula Allstetter, Aartee Ignaczak, and Joe Murphy

Positive reinforcement is always welcome – which is why NCPS launched the Cornerstone Recognition Program at the beginning of fiscal year 2008, having gained VISN patient safety officers support for it.

The Cornerstone program was created as an incentive to VA facilities to complete stronger Root Cause Analyses (RCAs). The recognition criteria focus on timeliness and strength of actions, as well as reporting back on the impact of actions taken. Facilities can earn gold, silver or bronze awards, based on the number of RCAs completed and the quality of the RCAs.

Significant improvements have been made, even though the number of RCAs completed nationally has remained fairly constant. For instance:

- 71 facilities received awards in fiscal year 2008, about 50 percent of all VA facilities
- 122 facilities received awards in 2009, indicating that nearly 80 percent of all VA facilities have improved their patient safety programs

Though NCPS purchases the awards and has them engraved, they are presented by VISN leadership, who value this opportunity to recognize the important work for patient safety done at their facilities.

Since the inception of the Cornerstone program, RCAs have dramatically improved in timeliness, strength of actions, and reporting of outcome measures at VA medical facilities. For instance, though RCAs are required to be completed in 45 days, that has not always been the case:

- RCA timeliness has improved dramatically: 95.7 percent were completed within 45 days in fiscal year 2009; as opposed to only 44.5 percent in fiscal year 2006
  - The average number of days to complete an RCA was 42 days in fiscal year 2009; as opposed to only 76 days in fiscal year 2006
- NCPS encourages RCA teams to work toward

implementing actions that are stronger, more robust, and less dependent upon human memory or roles. Typically, these actions are physical in nature – such as a physical plant or systemic fix – and can increase the likelihood a change can be sustained over time. NCPS defines actions as stronger, intermediate, or weaker; and, ranks them according to human factors engineering principles.

One of the best methods to determine whether or not an RCA action is sustainable – and has been based upon human factors principles – is through the concept of “strong strings.”

Strong strings are defined as any action with a stronger or intermediate strength, a quantifiable outcome measure, and management concurrence.

- RCAs with strong strings have improved dramatically: 74 percent in fiscal year 2009; up from 41.7 percent in fiscal year 2006
- Facilities with at least one strong string in every RCA have improved dramatically: up to 21.6 percent in fiscal year 2009 from just 6.5 percent in fiscal year 2006

When facilities report how well actions have been implemented, through outcome measures, much can be learned about effective patient safety practices. In fact, NCPS program analysts routinely review outcome measures posted in the Patient Safety Information System, commonly known as SPOT, in an effort find items that can benefit VA facilities nationwide.

The Cornerstone program has successfully promoted a renewed focus on outcome measures:

- 92 percent of outcome measures were reported in fiscal year 2009; up from approximately 50 to 60 percent in fiscal year 2006

In summary, NCPS is optimistic about the future of incentive programs, such as the Cornerstone Recognition Program. This fiscal year, NCPS will be seeking feedback from patient safety staff across the country to keep the program strong. The NCPS Web site provides current information and resources for all VA employees involved in this effort.

# VA Computer System Drug Interaction Pop-Up Boxes: Are They Critical or Significant?

By Keith W. Trettin R.Ph, MBA, NCPS program manager

## What You Need to Know

Medication administration continues to be a primary clinical intervention in the treatment of disease. With thousands of medications available, it is unreasonable to expect health care professionals to remember all doses, routes of administration, and drug-drug interactions. The U.S. Pharmacopeia reports that 22 percent of medication errors occur during the medication prescribing process and 10 percent are caused by a knowledge deficit.<sup>(1)</sup>

Of special concern are drugs considered high risk because of their increased propensity to cause patient harm when not used appropriately. Medications with the highest risk are known as high-alert medications. The Institute for Safe Medication Practices publishes a list of high-alert medications.<sup>(2)</sup> The top five high-alert medications are insulin, opiates and narcotics, concentrated potassium chloride, anticoagulants, and sodium chloride solutions above 0.9 percent.

VA data supports the high-risk nature of these drug categories. In a recent review of Adverse Drug Events (ADE) reported in the VA Adverse Drug Event Reporting System,<sup>(3)</sup> it was noted that warfarin, an anticoagulant, was one of the most frequently reported drugs. The 1,386 warfarin-related reports in FY 09 might not come as a surprise to clinicians because variability of individual patients' response to warfarin, the side-effect profile, and the narrow therapeutic index.

Surprisingly, ADE reporters indicated that 676 (49 percent) of these events were preventable. Of these preventable ADEs, 270 (40 percent) were caused by a known drug interaction.

Of the 270 preventable warfarin drug interactions, 206 (76 percent) caused a moderate or severe adverse drug event.

As VA clinicians are aware, the VA uses an electronic medical record known as the Computerized Patient Record System (CPRS). CPRS has the ability to provide order checks during the medication ordering process, including drug-drug interaction checks. These checks often appear as a "pop-up box." In summary, ignoring them can create a negative outcome for the Veteran.

Why then are drug interaction order checks not offering the protection they were intended to provide? There are at least three possibilities:

- "Pop-up fatigue"
- Use of vague definitions
- CPRS might not be providing all the information needed by the clinician

## Pop-Up Fatigue

Order check fatigue is a common complaint about Computerized Physician Order Entry (CPOE) systems, and order checks are overridden 49-96 percent of the time.

<sup>(4)</sup> Drug interaction order checks are just one of many notifications that clinicians receive in this format. Given the number and variety of notifications encountered in a given day, clinicians may become desensitized and not fully appreciate an order check's clinical significance.

Thousands of drug interactions can be found in the literature and reference books. The VA is aware that inclusion of trivial or minor drug order checks can desensitize clinicians. To assure only the most pertinent drug-drug interactions are presented in CPRS, a Pharmacy Benefit Management-sponsored team of VA experts meets monthly to review potential new drug interactions and update the National Drug File.<sup>(5)</sup>

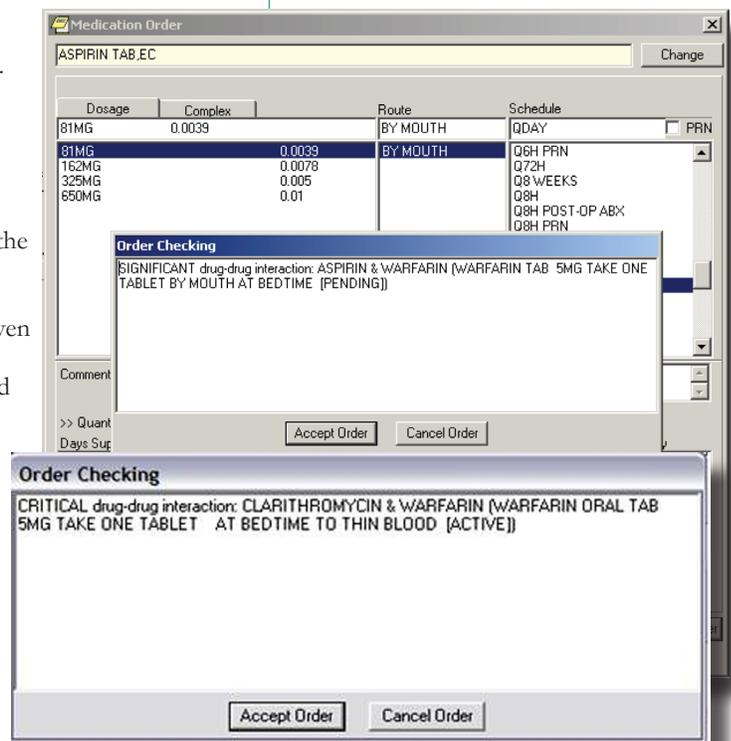
The team also reviews all drug interactions that have been newly entered into the drug file by local stations, as well as newly identified drug interactions published in national reference sources.

In addition, if one member of a large class of similar drugs (e.g., ACE-inhibitors) is identified as creating a

new drug interaction, the interaction is evaluated for all of the drugs in that class. The team determines from the evidence whether the interaction should be added to the National Drug File, as well as how it should be classified. Drug interactions can be classified as critical or significant.

## Critical or Significant Drug Interactions: It Does Make a Difference!

The second possible vulnerability is the use of vague terms within the pop-up boxes. Note the two warfarin pop-up boxes



above. What is the difference in these order check notifications and what does it mean to you, as a provider?

One difference is the drug interaction notification is classified as either "critical" or "significant." Do you know the clinical difference? To be classified as critical, the interaction must be identified in a manufacturer black box warning; or, it be well documented in the literature as a cause of significant harm or even death. To emphasize the importance, critical drug interactions require the clinician to document why the order check has been overridden.

Drug interactions that do not meet these criteria, but are still considered to be of substantial clinical importance, are classified as significant interactions. The definition of “critical” and “significant” are not found in the CPRS User Manual<sup>(6)</sup> and are not defined within the pop-up box.

Clinicians should know these definitions, and be aware when pertinent drug interactions mandate changes in drug therapy.

## CPRS Medication Views Might Not Tell You Everything You Need to Know

Clinicians can set the view in the CPRS medications tab to show only active medications and medications recently expired as defined by local CPRS settings; or, to show active medications and those discontinued in a user-defined time period. Similar settings are found in the view on the CPRS orders tab. Your local Clinical Applications Coordinator (CAC) or CPRS help desk can provide support in changing the view and default date range in the CPRS tabs.

Showing only active medication orders can be a safety vulnerability. In one reported case, a podiatrist prescribed an antibiotic that interacts with warfarin. Because the warfarin had automatically expired the day before the podiatry office visit, it did not display as an active medication order.

The podiatrist was unaware that the Veteran was taking warfarin because his default view was set to show only active medication orders and the order checks did not include expired medications.

The Veteran had ample supplies of warfarin at home and was scheduled to be seen in the anticoagulation clinic the following week to have his prescription updated. In addition to the newly prescribed antibiotic, the Veteran continued taking warfarin and a significant bleeding ADE occurred.

This case indicates that sole reliance on electronic order checks and default displays is not enough: Comprehensive medication reconciliation must occur before medications are prescribed or changed.

## Long-Term Solution

As a part of the VA Pharmacy Re-Engineering Project,<sup>(7)</sup> the drug-drug interaction order checks will be enhanced to include clinically-relevant information, such as the clinical evidence supporting the

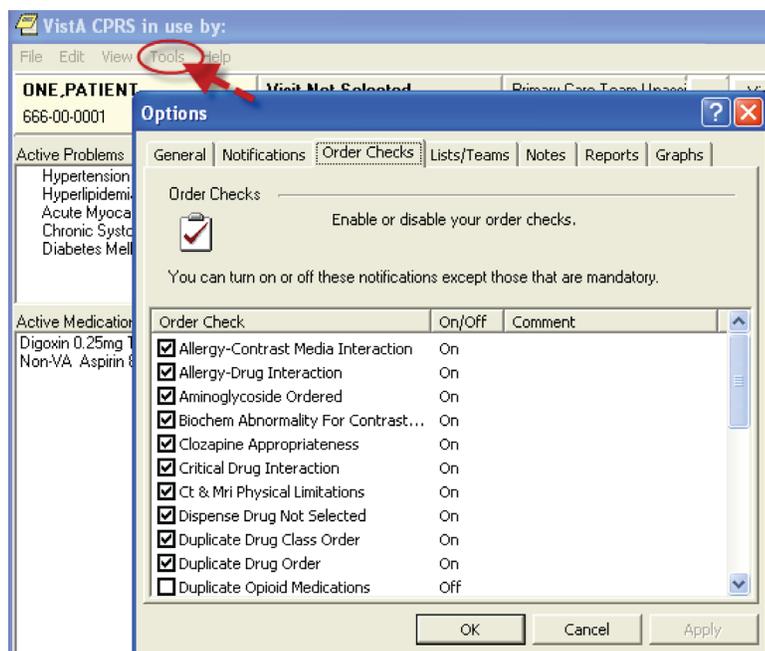
interaction, the level of risk, and suggested monitoring.

The VA Pharmacy Re-Engineering Project enhancements are currently in test environments.

Unfortunately, until the project is complete, clinicians individually bear the responsibility to minimize drug-drug interactions.

## What can You do Today?

- When confronted with a drug-drug interaction pop-up box, STOP! Take time to evaluate the rationale for a specific drug; and, weigh the clinical utility versus the high risk for an ADE. Consult with the pharmacy staff about alternative therapies, additional information about the type and consequences of the interaction, and recommended additional monitoring.
- When confronted with a request to document the rationale for overriding a critical drug-drug interaction, be aware that this is an interaction with a very high degree of risk. Again, consult with your pharmacy staff.
- Review your order check options and make sure your drug interaction options are turned on. These are found in CPRS (under Tools→Options→Order Checks).
- Set your view in the CPRS medications tab and CPRS orders tabs to show active medication orders and those which have been discontinued, based on your clinical need. Your local CAC or CPRS help desk can help with this setup.
- Use hand-held references, such as Epocrates Rx<sup>®(8)</sup> to provide quick and up-to-date information on drug interactions. Each VAMC should also have drug references, such as Micromedex<sup>®(9)</sup> (commonly available on the VAMC computer terminal;



or, contact a library staffer to learn how to access).

- Don't rely solely on electronic notifications of interactions: Always complete a thorough medication reconciliation with the Veteran when adding or adjusting the dose of medications. VA employees can visit the VA medication reconciliation SharePoint for further information<sup>(10)</sup>
- Follow your VAMC policy in reporting ADEs.
- Enter medications prescribed outside the VA, including over-the-counter drugs and supplements, as well as non-VA medication orders (not just in the clinical note). This will allow for relevant drug-drug interaction checks to occur.

Implementing these suggestions can help provide the best care in the safest possible environment.

## References

Available in the online edition of TIPS: <http://www.patientsafety.gov/TIPS/tips.html>

# The Cornerstone Recognition Program: Two Years After its Launch

*Continued from page 1*

## Developing Successful Strategies to Meet Cornerstone Goals

Below is a sample of responses NCPS received from four patient safety managers who were asked how they achieved success in meeting the Cornerstone goals.

### Meeting the 45-Day Deadline

Greg Wike, patient safety manager (PSM), Central California Health Care System, Fresno, Calif., advises the team closely and attends almost all team meetings. He asks the acting director to sign-off on an RCA if the director is on leave. Wike also recommends requiring an RCA be done one week before the 45-day limit.

Karen Iapoce, PSM, VA Medical Center, Albany, N.Y., runs the team meetings. "Having the patient safety manager with the team at all times helped keep everyone on track," she noted in an email. She does a great deal of research for the team prior to the first meeting, providing them with information to review. "I am held accountable to have the RCA completed, it is an expectation set by the director," she further noted. "If I am hitting any barriers, she would like to know. She helps support the process." Like Wike, she recommends requiring an RCA be done one week before the 45-day limit.

Sandy Hart, PSM, VA Illiana Health Care System, Danville, Ill., schedules the RCA presentation with the senior leadership (the director, associate director, chief of staff, and nurse executive) on the same day the RCA is chartered. This way, the team knows from day one when the RCA must be ready for senior management review. "Most importantly," Hart noted in an email, "we use a core group of RCA 'team leads.' These are high performers

who are looking for a challenge. They receive initial and annual training in the RCA process."

### Developing Strong Strings

Wike noted that he edits the actions to make sure they are worded correctly, using language from the Primary Analysis and Categorization Glossary, a classification system developed by NCPS to describe adverse events. He also ensures the action fits the root cause.

Iapoce believes that completing an RCA in a timely manner should not be an issue – as long as effective leadership is in place. This is one of the reasons she leads the team in the development of first the flow chart; and, during the process asks staff questions such as, "How do you think the system failed the staff member in this case?" She continued: "I also put up 'reminder' signs that state 'we are looking at where the system failed, not at the people,' or 'No blame'... It is our way to remind each other why we are here. I think that helps in building strong strings."

Pamela Bellino, PSM, VA Boston Healthcare System, Brockton, Mass., never writes an action without having the action strength table with her at a team meeting. When developing an action statement, she verifies that at least one of the actions is strong. If team members tell her they can't find a strong action, she provides the team with suggestions and assistance. Like Wike and Hart, she recommends requiring an RCA be done one week before the 45-day limit.

"We use the action category table when brainstorming prevention measures. We also research the literature for best practice ideas. Most importantly, we seek leadership support for the stronger actions, which commonly are not easy fixes," Hart noted.

## Successfully Having Outcome Measures Reported Back

Wike tracks the outcome measures weekly with a spreadsheet. Monthly reports are made to the senior leadership (the director, associate director, chief of staff, and nurse executive) on which actions are overdue, providing the name of the person responsible for follow-up.

"I review incidents to see if a new trend has emerged from the change or if the system change did not work," wrote Iapoce. "I follow up with the owners of the process to see what is working, what is not working, and what can we change to make the system better." She randomly reviews patient charts and new policies put into place due to an RCA. She also walks affected units to determine if what has been put in place is really working.

Bellino noted that she consistently has to be on top of all actions. "I rarely have had anyone send me their follow-up actions without asking for them," Bellino wrote. She makes a monthly Outlook appointment with herself to prompt her to send out a reminder for a "QA [quality assurance] review for RCA actions and outcomes." She also recommends that PSMs conduct a quality assurance review on their own to provide an independent way to verify that the actions implemented "are actually working as intended."

Actions and outcomes are tracked by Hart and posted on an internal drive so leadership can check the progress at any time. "We discuss RCA actions and outcomes at the patient safety committee and leadership council," she wrote. "I meet monthly with the facility director to review RCA actions and outcomes and monthly with the associate director for patient care services to review RCA actions and outcomes."

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