



## **Clinical Decision Support (CDS) & Meaningful Use Frequently Asked Questions**

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*Developed by the HIMSS CDS Task Force with specific contributions from Paul Kleeberg, MD, Don Levick, MD, Jerome Osherooff, MD, Jacob Reider, MD, Jonathan Teich, MD, PhD.*

The HIMSS Clinical Decision Support (CDS) Task force has written this “Frequently Asked Questions” document to provide information about how to select, construct, and successfully implement a CDS rule as an eligible professional (EP) or as an eligible hospital in order to meet the requirements of meaningful use. This document provides the following:

- The definition of the meaningful use "CDS Rule" and an understanding of the practical implications of the rule;
- What is required to implement one or more rules, and pragmatic tips for accomplishing this in the most effective way;
- Potential CDS Rule targets drawn from the Meaningful Use (MU) quality measures (for EPs and hospitals); and
- Samples / examples from the provider setting.

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### **Q: The meaningful use incentive rule requires that we implement one CDS rule. What is the meaningful use CDS rule requirement for Stage 1 meaningful use?**

**A:** The requirement is, “Implement one clinical decision support rule relevant to specialty or high clinical priority along with the ability to track compliance to that rule.”

### **Q: What is Clinical Decision Support (CDS)?**

**A: Clinical Decision Support, or CDS,** is described by CMS as “HIT functionality that builds upon the foundation of an EHR to provide persons involved in care processes with general and person-specific information, intelligently filtered and organized, at appropriate times, to enhance health and health care.” In addition, CMS states that “We purposefully used a description that would allow a provider significant leeway in determining the clinical decision support rules that are more relevant to their scope of practice.”

CDS provides the right information to the right person at the right time to assist in the process of delivering quality and safe care. Aside from alerts and reminders, CDS may include templates, order sets, data display that highlights important information, reference information, and other tools to support optimal care within the clinical workflow. CDS interventions can:

- Gather and present clinical and other relevant data needed for clinical decision making;
- Detect potential safety and quality problems and help prevent them;
- Foster the greater use of evidence-based medicine principles and guidelines;
- Safeguard against inappropriate utilization of services, medications, and supplies;
- Organize, optimize and help operationalize the details of a plan of care;

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- Help keep track of the simple things that we sometimes forget, such as adjusting medication doses for altered renal function, or remembering to complete Advanced Directives for an admitted patient; and
- Ensure that the best clinical knowledge and recommendations are utilized to improve health management decisions by clinicians and patients.

## **CDS and Meaningful Use**

### **Q: What are the important aspects that qualify a CDS rule for Stage 1 Meaningful Use?**

**A:** First, the key component of CDS under meaningful use is that the decision support logic needs to use patient-specific information to offer diagnostic or treatment options to the provider within its logic. Second, it must be conditional; that is, the rule will produce a different action or different information, based on the patient-specific information.

For example, for pneumococcal vaccine (Pneumovax):

- This would *not* count: A simple alert presented on all patient encounters reminding the provider to ask the patient if they have had their pneumovax.
- This would count: An alert reminding the provider to ask the patient if he/she has had his/her pneumovax, driven by individual patient immunization status and patient demographics (such as age or problem list information).

### **Q: Does drug-drug or drug-allergy checking count as the CDS rule?**

**A: No.** Although this is considered to be a type of clinical decision support, these are required as part of other criteria in the final rule and therefore do not fulfill this particular criterion.

### **Q: Do order sets or pick lists count as the CDS rule?**

**A: In general, no.** A key element of a CDS rule needed to fill this criterion is that it must be conditional. By themselves, order sets and pick lists are not conditional. However, if the order set has been triggered or modified by a lab, a problem, or a medication, then it could be considered decision support since it is a type of notification.

For example: Pediatric dosing guidelines—if the EHR has information about the child’s weight, then weight-based dosing guidance could be an example of clinical decision support.

### **Q: Is there a specific clinical decision support rule that must be implemented to meet the meaningful use requirement?**

**A: No.** CMS has purposefully written the rule to allow for flexible definitions or implementations of CDS. You are allowed to use whatever rule that would be useful to you. If you are just starting out, we recommend that you create one that is simple, will be accepted by the end-users, and is easy to modify if needed.

- The CDS rule is to be focused on a high-clinical priority area. One way to achieve this is to use a rule that is aligned with one of the quality metrics defined for hospitals and professionals in the [final rule](#).<sup>\*</sup> Since there are requirements to report on quality measures, we advise (but CMS does not require) that you select a CDS rule that aligns with the quality measures you choose to report on.

- \*The Eligible Hospital clinical measures can be found in Table 10 (page 106 of [the final rule](#)).
- \*The Eligible Professional clinical measures can be found in Table 6 (pages 86 – 96 of [the final rule](#)).

**Q: How do I decide what rule to implement?**

**A:** When implementing your first rule:

- Determine what aligns with your organization’s current EHR system and the strategic and quality priorities. These priorities should already be driving the IT strategic goals of your organization.
- Focus on areas where you would like to see quality and process improvements and are able to measure any change.
- Selection of the first CDS rule should be simple to implement and accepted by the user community.
- While an alert is not the only effective method of CDS (in many cases, it is not the most effective), if your organization is relatively new to CDS this may be a more recognizable and simple CDS method. For more sophisticated users, other rule-based devices such as dosing advisors, order sets or smart documentation forms that are triggered or modified by a rule can be very effective.
- Ensure that there is data in the EHR system against which the CDS rule will be built. For instance, if the CDS rule is a reminder for pneumovax, be certain that the EHR captures administration of previously given pneumovax, and that the immunization history is present in the chart. If these are not present, the number of false alerts could hinder as opposed to improve care.

**Q: How can I help ensure that, once deployed, this rule does more good than harm?**

- Consider whether the rule is accurate and specific enough to avoid excessive unnecessary alerting (alert fatigue) – a major pitfall for some kinds of rule-based CDS.
- Consider whether the rule could cause any unintended consequences due to over- or under-alerting, misleading information or disruption of other practice activities.
- Track the results: It is important to assess whether the CDS rule(s) is working by examining the override rate for the rule, and the effect on the quality measure the rule was intended to target.
- Consider how these rules will integrate with other quality improvement/reporting activities already underway.
- Consider using the HIMSS CDS Guide Book series ([www.himss.org/cdsguide](http://www.himss.org/cdsguide)) – an in-depth discussion of CDS and ways to implement it successfully.

**Q. What are some examples of valid meaningful use CDS rules for eligible professionals (physician practice setting)?**

- For diabetic patients, an alert which allows the physician to order a hemoglobin A1c test if there is no hemoglobin A1c result in the past six months.
- For a patient with a history of ischemic vascular disease without contraindications for aspirin use, and who does not have aspirin on his medication list, an alert which asks the provider if the patient is currently taking aspirin and if not, allows the provider to order it.
- For women age 40-69 with no mammogram in the past year, an alert and/or an order set to facilitate ordering of this diagnostic study.

*(See additional rule examples in Appendix A.)*

**Q. What are examples of meaningful use CDS rules for eligible hospitals (inpatient setting)?**

- For patients admitted for ischemic stroke who do not have an anticoagulant on the medication list at the start of day two, a rule that suggests to the responsible provider that one should be ordered, and that facilitates the order through an order set or other direct action item .
- For patients admitted with intracranial hemorrhage – an alert if a discharge order is placed AND there is no existing order for stroke education.
- For all adult admitted patients – an alert if no orders for VTE prophylaxis (or reason given for no VTE prophylaxis) are included with admission orders.

*(See additional rule examples in Appendix B.)*

**Q: What are some suggestions that will allow me to implement decision support successfully?**

**A: Keep it simple and workflow-friendly.**

- Make it easy for the provider to understand the situation and to take action.
- Avoid stopping a process after it is well underway – provide alerts and corrections as soon as possible, so providers don't have to unwind multiple actions.
- It is best to incorporate CDS into the provider's workflow – rather than interrupt them. For example, a CDS rule that suggests that an inpatient is in need of a pneumococcal vaccine might be incorporated into the regular admission or discharge ordering process; in that setting, it is supporting something the provider is doing anyway, rather than interrupting their train of thought.

**For Further Reading**

**What else should I know about CDS?**

- Bates, Kuperman and Wang's 10 Commandments\* are a wonderful summary of some lessons learned in clinical decision support:
  1. Speed is everything.
  2. Simple interventions work best.
  3. Anticipate needs and deliver in real time.
  4. Fit into the user's workflow.
  5. Recognize that individuals strongly resist stopping.
  6. Changing direction is easier than stopping.
  7. Little things can make a big difference (usability matters).
  8. Ask for additional information only when you really need it.
  9. Monitor impact, get feedback, and respond.
  10. Manage and maintain your knowledge-based systems.

\*Bates DW, Kuperman GJ, Wang S, et al. Ten commandments for effective clinical decision support: Making the practice of evidence-based medicine a reality. *J Am Med Inform Assoc.* 2003; 10:523-530.

- It is best when CDS provides a specific recommendation: "Patient is at high risk of coronary artery disease; recommend initiation of beta-blocker therapy," is more likely to succeed, than systems that provide only an assessment of the patient : "Patient is at high-risk of coronary artery disease."\*\*

**\*\*Kawamoto K, Houlihan CA, Balas EA, Lobach DF. Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. *BMJ*. 2005; 330(7494:765).**

- HIMSS CDS Guidebook Series ([www.himss.org/cdsguide](http://www.himss.org/cdsguide))
  - 2009 - *Improving Medication Use and Outcomes with Clinical Decision Support: A Step-by-Step Guide*
  - 2005 - *Improving Outcomes with Clinical Decision Support: An Implementer's Guide, First Edition*
  - 2011 – Coming Summer, 2011: *Improving Outcomes with Clinical Decision Support: An Implementer's Guide, Second Edition*.

#### **Appendix A- Additional CDS Rule Examples: Eligible Professional (physician practice setting)**

1. A best practice alert (BPA), triggered by evidence-based practice guidelines, alerting physicians that a pneumococcal vaccination is recommended for their patients. [Note, Institute for Family Health, 2006 HIMSS Davies Public Health Award winner demonstrated an 18-fold increase in the rate of pneumococcal vaccines, and a BPA for at-risk diabetic patients resulted in a 55% increase in the rates of referrals for ophthalmology appointments. Visit [www.himss.org/content/files/davies/2007/ph/InstituteFamilyHealth.pdf](http://www.himss.org/content/files/davies/2007/ph/InstituteFamilyHealth.pdf) for additional information.]
2. For diabetes patients – alert, when the patient arrives in the office, if the most recent HbA1c > 9.0% – in a timely way to facilitate patient education and intervention.
3. For CHF patients, alert if LVEF <40% AND no documentation of ARB or ACE in active med list and facilitates the ordering of it or the documentation of why it is not on the list.
4. In an office visit, when the reason for visit is depression, it makes available a depression diagnosis guideline and a PHQ-9.
5. For diabetes patients – alert if no LDL has been drawn in past 6 months; and if one has been drawn, alert if LDL > 100 mg/dl and facilitating the ordering of the lab.
6. For patients with CAD – alert if no anti-platelet therapy in active medication list.
7. For patients 18 and older – alert if have NOT received smoking cessation counseling.
8. For adults – automatic calculation of BMI – and if it is outside or range, alert reminding clinician to arrange for follow-up.
9. For patients with A Fib as diagnosis – alert if warfarin is NOT on active medication list and that there is no contraindication.
10. For children – alert reminding clinician of immunizations that are due at that visit.
11. A template that is loaded for patients with cardiovascular disease that guides the provider to order aspirin – if no contraindications to aspirin exist.
12. If a patient is being seen by a provider for depression, a depression management guideline, PHQ-9, and/or management guidance can be provided as components of templates/forms or order sets that are triggered by the patient's diagnosis.

## **Appendix B- Additional CDS Rule Examples Eligible Hospital (inpatient setting)**

1. The time of discharge for patients who have been admitted for ischemic stroke and who have atrial fibrillation or flutter, is without contraindications for anti-coagulation, and who does not have anticoagulation medication prescribed on the discharge med list, the provider is presented with the ability to order it or explain why it is contraindicated.
2. When ordering a medication that is “renal-ly” cleared, an alert that calculates CrCl and warns that dosing may need to be adjusted.
3. Weight-based dosing for pediatric and neonatal medications.
4. For specified tests that do not acutely change (TSH, BNP, etc.) – alert if ordered during a hospital stay and there is a result either from that hospital stay or within a given period of time (i.e., 60 days).
5. Alert when ordering digoxin that displays most recent serum potassium level.
6. Alert when ordering warfarin that displays more recent PT/INR.