Leapfrog Standard: Computerized Prescriber Order Entry (CPOE) Systems

NQF#: Not NQF endorsed

Developer: The Leapfrog Group

Data Source: Leapfrog Hospital Survey

Secondary Data Source: AHA Annual Survey

Description: Hospital use and effectiveness of electronic decision support to ensure medication ordering safety. To fully meet Leapfrog's CPOE standard, hospitals must:

- Assure that physicians enter at least 75% of medication orders via a computer system that includes prescribing-error prevention software; and
- Demonstrate, via a test, that their inpatient CPOE system can alert physicians to at least 50% of common, serious prescribing errors.

Rationale: More than one million serious medication errors occur every year in U.S. Hospitals. Medication errors often have tragic consequences for patients. Many serious medication errors result in preventable adverse drug events (ADEs), approximately 20% of which are life-threatening. According to the 1999 Institute of Medicine report, *To Err is Human,* medication errors alone contribute to 7,000 deaths annually. CPOE systems can be remarkably effective in reducing the rate of serious medication errors. A study at Boston's Brigham and Women's Hospital, demonstrated that CPOE reduced error rates by 55%. A subsequent study showed rates of serious medication errors fell by 88%. The prevention of errors was attributed to the CPOE system's structured orders and medication checks. Another study conducted at LDS Hospital demonstrated a 70% reduction in antibiotic-related ADEs after implementation of decision support for these drugs.

Evidence for Rationale:

- Bates DW, Leape LL, Cullen DJ, Laird N, et al. Effect of computerized physician order entry and a team intervention on prevention of serious medication erros. JAMA. 1998; 280:1311-6.
- Bates DW, Teich JM, Lee J, Seger D, Kuperman GJ, Ma'Luf N, Boyle D, Leape L. The impact of computerized physician order entry on medication error prevention. JAMIA. 1999; 6:313-21.
- Birkmeyer JD, Dimick JB. Leapfrog safety standards: potential benefits of universal adoption. The Leapfrog Group. Washington, DC: 2004.
- Evans RS, Pestotnik SL, Classen DC et al. A computer assisted management program for antibiotics and other anti-infective agents. N Engl J Med. 1997; 338(4):232-8.
- Kohn LT, Corrigan JM, Donaldson MS (eds): To Err is Human: Building a Safer Health System: a report from the Committee on Quality of Healthcare in America, Institue of Medicine, National Academy of Sciences. National Academy Press, Washingotn DC, 1999.

Impact:

- Affects large numbers of patients
- More than 1 million serious medication errors occur every year in U.S. hospitals.
- Many serious medication errors result in preventable adverse drug events (ADEs), approximately 20% of which are life threatening.
- Research estimates that implementation of CPOE systems at all non-rural U.S. hospitals could prevent 3 million ADEs each year.

Evidence of High Impact:

- Bates DW, Leape LL, Cullen DJ, Laird N, et al. Effect of computerized physician order entry and a team intervention on prevention of serious medication erros. JAMA. 1998; 280:1311-6.
- Bates DW, Teich JM, Lee J, Seger D, Kuperman GJ, Ma'Luf N, Boyle D, Leape L. The impact of computerized physician order entry on medication error prevention. JAMIA. 1999; 6:313-21.
- Birkmeyer JD, Dimick JB. Leapfrog safety standards: potential benefits of universal adoption. The Leapfrog Group. Washington, DC: 2004.
- Evans RS, Pestotnik SL, Classen DC et al. A computer assisted management program for antibiotics and other anti-infective agents. N Engl J Med. 1997; 338(4):232-8.

Opportunity:

- Fewer than 2% of hospitals have fully implemented CPOE systems and 17% have CPOE in one inpatient unit.
- Opportunity for improvement exists, as demonstrated by the coefficient of variation for the measure.

Citations for Opportunity:

- Jha A, DesRoches C, Campbell E, Donelan K, Rao S, Ferris T, Shields A, Rosenbaum S, Blumenthal D. Use of Electronic Health Records in U.S. Hospitals. N Engl J Med 2009;360:1628-38.

Evidence:

- Randomized Controlled Trial, nonrandomized controlled trial, expert opinion

Citations for Evidence:

· Aspden P, Wolcott JA, Bootman JL, Cronenwett LR. Committee on Identifying and Preventing Medication Errors. *Prevention medication errors: Quality chasm series.* Washington (DC): The National Academies Press; 2007

http://www.nap.edu/openbook.php?record_id=11623&page=409
http://www.leapfroggroup.org/media/file/FactSheet_CPOE.pdf