

Computerized Physician Order Entry (CPOE)

NQF#: N/A

Developer: The Leapfrog Group

Data Source: Leapfrog Hospital Survey

Description: Computerized physician order entry (CPOE) systems are electronic prescribing systems that intercept errors when they most commonly occur — at the time medications are ordered. To achieve Leapfrog's CPOE standard, hospitals must:

- Assure that prescribers enter at least 85% of medication orders via a computer system that includes decision support software to reduce prescribing errors and
- Demonstrate, via a test, that their inpatient CPOE system can alert physicians to at least 60% 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.

Citations 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 errors. *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*, Institute of Medicine, National Academy of Sciences. National Academy Press, Washington DC, 1999.

Impact:

- Affects most hospitalized 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.

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Opportunity:

- Opportunity for improvement exists, as demonstrated by the coefficient of variation for the measure.

Evidence of Opportunity for Improvement:

- Supported by suggestive clinical evidence

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