

Chapter 7

Organizational Factors Influencing the Use of Clinical Decision Support for Improving Cancer Screening Within Community Health Centers

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ABSTRACT

Adoption of clinical decision support (CDS) systems leads to improved clinical performance through improved clinician decision making, adherence to evidence-based guidelines, medical error reduction, and more efficient information transfer and to reduction in health care disparities in under-resourced settings. However, little information on CDS use in the community health care (CHC) setting exists. This study examines if organizational, provider, or patient level factors can successfully predict the level of CDS use in the CHC setting with regard to breast, cervical, and colorectal cancer screening. This study relied upon 37 summary measures obtained from the 2005 Cancer Health Disparities Collaborative (HDCC) national survey of 44 randomly selected community health centers.

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Organizational Factors Influencing the Use of Clinical Decision Support

A multi-level framework was designed that employed an all-subsets linear regression to discover relationships between organizational/practice setting, provider, and patient characteristics and the outcome variable, a composite measure of community health center CDS intensity-of-use. Several organizational and provider level factors from our conceptual model were identified to be positively associated with CDS level of use in community health centers. The level of CDS use (e.g., computerized reminders, provider prompts at point-of-care) in support of breast, cervical, and colorectal cancer screening rate improvement in vulnerable populations is determined by both organizational/practice setting and provider factors. Such insights can better facilitate the increased uptake of CDS in CHCs that allows for improved patient tracking, disease management, and early detection in cancer prevention and control within vulnerable populations.

BACKGROUND

Organizational issues are frequently encountered barriers to the implementation and adoption of clinical decision support (CDS) systems in health care settings. According to the Agency for Healthcare Research and Quality (AHRQ), failure to understand organizational and cultural issues may affect the adoption and use of CDS systems (HHS, 2009). Implicit in the AHRQ statement is that CDS adoption and use can significantly impact the quality and performance of health care through the influence of select organizational factors. Recent research suggests that structural differences in the health care organization may explain greater performance variance than patient factors alone (Soban & Yano, 2005). In particular, organizational factors can serve as inhibitors or facilitators in the adoption and implementation of any new technology, such as a clinical decision support system or the conceptually similar clinical information system (CIS) (Weiner, Savitz, Bernard, & Pucci, 2004).

The Chronic Care Model (CCM) describes *clinical decision support* as a practice to promote clinical care that is consistent with scientific evidence and patient preferences, and it involves efforts to embed evidence-based guidelines into daily clinical practice, share evidence-based guidelines, and enhance provider decision making through proven provider education methods (Haggstrom, 2010; Sperl-Hillen et al., 2004). CCM defines a

clinical information system as a set of tools and processes enabling the organization of patient and population data in order to facilitate efficient and effective care. CIS tools include encounter reminders, flowcharts, tracking lists of high-risk patients due to lack of screening adherence, follow-up, or other recommendations (Haggstrom, 2010; Sperl-Hillen et al., 2004). Henceforth, the authors will use the composite term CDS/IS or simply CDS as indicative of a combined concept of comprehensive capability in this area.

A close examination of CDS use in community health centers reveals that approximately 40% (or 3,160) of all 7,900 CHCs in the United States have some form of Electronic Health Record (EHR) in use today (Lardiere, 2010). The EHR will be an essential component in the eventual deployment of specialized clinical decision support systems supporting disease-specific target areas. Seventy percent of the community health centers with EHRs (2,212) also use some form of clinical decision support such as electronic dashboards, data repositories, tele-health technologies, kiosks, or other technologies (Lardiere, 2010). However, less than 28% of all 7,900 CHCs use some form of clinical decision support for practices such as cancer screening. These statistics are reinforced by the 2009 Commonwealth Fund National Survey of Federally Qualified Health Centers (Abrams et al., 2010). The survey of 1000 community health centers found that despite 40% of the community health centers having electronic medical record

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