

The effect of electronic health records on the use of clinical care guidelines for patients with medically complex conditions

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Dental care providers are treating patients with medically complex conditions with increasing frequency. This is due, in part, to the growing population of older adults; the increased prevalence of medical conditions such as heart disease, diabetes and lung disease; and an increased use of medications. Each of these has implications with regard to ensuring safe and effective care.¹⁻⁵

Patients with specific medical conditions may be at increased risk of developing periodontal disease, caries and medical complications (such as heart attack and stroke) during or after

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ABSTRACT

Background. The emergence of health information technology provides an opportunity for health care providers to improve the quality and safety of dental care, particularly for patients with medically complex conditions.

Methods. The authors randomized each of 15 dental clinics (HealthPartners, Bloomington, Minn.) to one of three groups to evaluate the impact of two clinical decision support (CDS) approaches during an 18-month study period. In the first approach—provider activation through electronic dental records (EDRs)—a flashing alert was generated at the dental visit to identify patients with medically complex conditions and to direct the dental care provider to Web-based personalized care guidelines. In the second approach—patient activation through personal health records—a secure e-mail was generated or a letter was mailed to patients before dental visits encouraging them to ask their dental care provider to review the care guidelines specific to their medical conditions.

Results. The authors evaluated the rate of reviewing care guidelines among 102 providers. Participants in the provider and patient activation groups increased their use of the system during the first six months, which had a generalized effect of increasing use of the guidelines for all patients, even if they were not part of the study ($P < .05$). The study results showed that provider activation was more effective than was patient activation. However, providers did not sustain their high level of use of the system, and by the end of the study, the rate of use had returned to baseline levels despite participants' continued receipt of electronic alerts.

Conclusions. The study results demonstrated that review of clinical care guidelines for patients with medically complex conditions can be improved with CDS systems that involve the use of electronic health records.

Clinical Implications. As the U.S. population ages, dentists must be vigilant in adapting care for patients with medically complex conditions to ensure therapeutic safety and effectiveness. Expanded use of CDS via EDRs can help dental care providers achieve this objective.

Key Words. Informatics; information dissemination; diagnostic errors; electronic dental records; electronic medical records; xerostomia; randomized controlled trials; respiratory tract diseases; care guidelines; quality of care.

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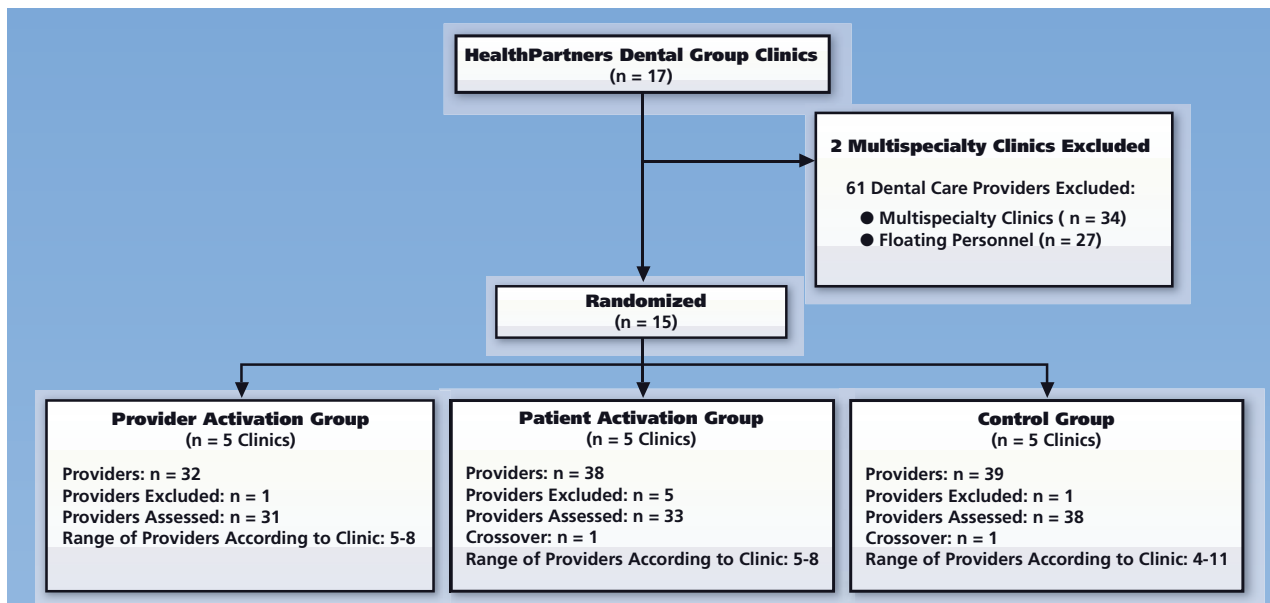


Figure 1. Flowchart showing clinic (HealthPartners Dental Group, Bloomington, Minn.) and dental care provider enrollment in the study. The authors excluded seven providers because they had temporary positions, were hired too late in the study, were inactive during the 18-month intervention, or crossed over between two groups.

dental treatment.⁴⁻⁷ The U.S. surgeon general's 2000 report on oral health in America highlights important interactions between oral disease and other medical conditions, as well as the need for dentists to recognize and follow evidence-based clinical guidelines when caring for patients.¹ Furthermore, the 1995 Institute of Medicine² report on dentistry calls for more links between dentistry and medicine and the need for better training of dentists in caring for patients with medical conditions. To facilitate improvements in the quality of care, organizations such as the American Academy of Oral Medicine, Edmonds, Wash., have developed clinical care guidelines for dental care providers in treating patients with medically complex conditions.⁸

Despite the availability of guidelines, the use of this information at the point of care can be limited for several reasons, including the inability to identify patients with medical conditions, the difficulty in implementing guidelines at the point of care, and the challenge of translating guidelines into specific changes in clinical protocols.⁹⁻¹² The emergence of health information technology systems such as electronic health records (EHRs) has the potential to improve the quality and safety of medical and dental care, particularly for patients with serious medical conditions. Clinical decision support (CDS) systems involve interactive computer software, designed to assist physicians and other health care professionals with decision-making tasks, such as determining a

diagnosis or treatment strategies. CDS modules can be designed to be embedded in EHRs to alert health care providers to suitable modifications in clinical care and patients' self-care.¹³⁻¹⁶ CDS also enhances communication between health care providers and patients and facilitates the exchange of patients' health information between and among the teams of health care providers involved in patient care.

The potential for CDS to improve health care will be enhanced if clinicians are given pertinent patient-specific information via electronic reminders activated at the point of care to encourage changes in clinical protocols when necessary. Several EHR systems, including electronic medical records (EMRs), electronic dental records (EDRs) and personal health records (PHRs) can contribute valuable information to CDS. When these diverse health information technology sources are integrated, a more complete picture of a patient's health care status emerges. Furthermore, CDS can assist the health care professional in developing specific and personalized treatment recommendations that take into account a patient's medical or dental conditions.

ABBREVIATION KEY. CDS: Clinical decision support. COPD: Chronic obstructive pulmonary disease. EDRs: Electronic dental records. EHRs: Electronic health records. EMRs: Electronic medical records. HPDG: HealthPartners Dental Group. PHRs: Personal health records.

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