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Relationship Between Clerical Burden and Characteristics of the Electronic Environment With Physician Burnout and Professional Satisfaction

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Abstract

Objective: To evaluate associations between the electronic environment, clerical burden, and burnout in US physicians.

Participants and Methods: Physicians across all specialties in the United States were surveyed between August and October 2014. Physicians provided information regarding use of electronic health records (EHRs), computerized physician order entry (CPOE), and electronic patient portals. Burnout was measured using validated metrics.

Results: Of 6375 responding physicians in active practice, 5389 (84.5%) reported that they used EHRs. Of 5892 physicians who indicated that CPOE was relevant to their specialty, 4858 (82.5%) reported using CPOE. Physicians who used EHRs and CPOE had lower satisfaction with the amount of time spent on clerical tasks and higher rates of burnout on univariate analysis. On multivariable analysis, physicians who used EHRs (odds ratio [OR]=0.67; 95% CI, 0.57-0.79; $P<.001$) or CPOE (OR=0.72; 95% CI, 0.62-0.84; $P<.001$) were less likely to be satisfied with the amount of time spent on clerical tasks after adjusting for age, sex, specialty, practice setting, and hours worked per week. Use of CPOE was also associated with a higher risk of burnout after adjusting for these same factors (OR=1.29; 95% CI, 1.12-1.48; $P<.001$). Use of EHRs was not associated with burnout in adjusted models controlling for CPOE and other factors.

Conclusion: In this large national study, physicians' satisfaction with their EHRs and CPOE was generally low. Physicians who used EHRs and CPOE were less satisfied with the amount of time spent on clerical tasks and were at higher risk for professional burnout.

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These are challenging times for American physicians. The medical field is facing unprecedented changes; declining reimbursements, increased productivity expectations, consolidation of medical practices, and increased price competition have intensified the economic pressures on physicians and health care leaders. New legislation and associated regulations have resulted in pay-for-performance measures (eg, Meaningful Use and the Physician Quality Reporting System), development of new care delivery models that may not necessarily be patient focused, and greater consumerism in patient health care decision making. They have also added several new tasks to each patient encounter (eg, medication/device reconciliation) and created new approaches for traditional tasks (eg, e-prescribing).[1-3] Studies suggest that more than half of US physicians are now experiencing professional burnout and that burnout is dramatically more common in physicians than in US workers in other fields.[4,5]

The reasons for the increased rate of physician burnout are complex and include individual and organizational factors. Many physicians have speculated that the more widespread penetration of electronic health records (EHRs), electronic prescribing, electronic patient portals, and computerized physician order entry (CPOE) may lead to information overload, frequent interruptions/distractions, and a change in the content of professional work.[6-9] Although it is hoped that these technological advances may

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improve patient safety and quality of care,[10-16] the available evidence is inconclusive.[17-20] Electronic health records have increased the clerical burden on physicians,[1-3] altered the patient-physician interaction, and can distract from the more meaningful aspects of medical practice.[1-3,7,8,21,22] In many medical centers, EHRs have been paid for by the elimination of transcription services and the implementation of physician self-entry of notes by typing or voice recognition software. These changes appear to have increased the amount of time physicians spend on documentation and other clerical tasks.[23]

Despite the widespread recognition that the evolving electronic environment has dramatically altered the nature of physicians' work, few studies have directly evaluated the relationship between the electronic environment and physician burnout. One of the few studies to directly evaluate this assessed the relationship of satisfaction, stress, and burnout with the number of EHR functions used (eg, clinical notes, laboratory results, imaging reports, prevention reminders, drug interaction warnings, allergy warnings, prescription writing, electronic communications with other physicians, e-mail with patients, and test ordering) in a group of 379 primary care physicians. Statistically significant associations were observed between the number of EHR functions used and physicians' stress and job satisfaction.[24] Notably, this study evaluated physicians between 2001 and 2005 at a time when EHRs and CPOE had not penetrated most practices in the United States and before EHR and CPOE use was governed by federal incentive programs. To evaluate current associations between the electronic environment, clerical burden, and burnout, we conducted a national survey of US physicians in active practice in 2014.

METHODS

A description of the survey administration process, the participation rates, and the demographic characteristics of the overall survey population has been previously reported.[5] The physician sample for the survey was assembled using the American Medical Association Physician Masterfile, a nearly complete record of all US physicians independent of American Medical Association membership, and included physicians of all specialty disciplines. The survey was administered from August 1, 2014, through October 31, 2014. Participation was voluntary, and all responses were anonymous. As previously reported, 6880 of the 35,922 physicians (19.2%) who received an invitation to participate completed surveys.[5] The demographic characteristics of participants relative to all 835,451 US physicians in the Masterfile were generally similar, although participants were older (median age of 56.0 years vs 51.5 years). Of these 6880 responding physicians, the 6560 (95.3%) who were in active clinical practice at the time of the survey were included in the present analysis.

Demographic and Practice Characteristics

Responding physicians provided information regarding basic demographic characteristics (age, sex, and relationship status) and professional characteristics (specialty, practice setting, and hours worked per week). The survey included a mixture of standardized/validated instruments and items developed specifically for this study. Physician burnout was measured using the Maslach Burnout Inventory, a validated 22-item questionnaire considered the gold standard for measuring burnout.[25-28] Consistent with convention,[29-31] we considered physicians with a high score on the depersonalization or emotional exhaustion subscale of the Maslach Burnout Inventory as having at least 1 manifestation of professional burnout.[25] The prevalence of burnout in this sample and comparison with a contemporary population-based sample of US workers from other fields have been previously reported.[5]

Electronic Environment and Clerical Tasks

Physicians also provided information regarding characteristics of the electronic environment in which they practiced. This included questions assessing whether they used EHRs, CPOE, and a patient portal and what method they used to document their clinical work. Physicians who reported that they used EHRs and CPOE were asked to rate their level of satisfaction with these tools. Physicians who used EHRs and patient portals were also asked to indicate their impression of the effects of these tools on quality of care and their efficiency. Satisfaction with clerical tasks directly related to patient care was assessed by asking