

CLINICAL COMMENTARY

“Burdens” of the Electronic Health Records System on Physicians

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Introduction

Electronic health records (EHR) systems were introduced in the 1970's but have significantly developed since then and accelerated with the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009.¹ This federal mandate pushed the medical community to adopt electronic health records as a tool for promoting health information technology, protecting patient safety, avoiding regulatory duplication, improving health care delivery and quality through engagement while maintaining privacy and security.² Despite these intended goals, the impact of EHR systems has created a significant administrative burden on physicians and increasing concern as a major contributing factor to physician burnout. A systematic review of available studies identified the three most cited EHR factors contributing to physician burnout were insufficient time for documentation, high volume of patient inbox or call messages, and negative perceptions of the EHR system.³ Despite ongoing recognition of the malalignment of the goals of the EHR and those of physicians to deliver efficient and high quality patient care, there is a lack of effective strategies to optimize the strengths of the EHR while decreasing physician burden.

The “Financial Burden” of the HER

Over time the cost of implementing EHR systems within individual practices and health systems have progressively increased. By 2015 the HITECH act distributed approximately \$30.4 billion dollars to Medicare and Medicaid providers. Older studies estimate cost of implementation ranging from \$15,000 to \$70,000 per provide. A Texas study analyzing 26 primary care practices estimated total first year costs for a five-physician practice at \$233,297 with an average per physician cost of \$46,659. This included hardware (computers, servers, laptops, printers, and scanners and scheduled upgrades), software (EHR application, subscription services, and updates to program), and system maintenance (IT assistance, network/data maintenance costs, cybersecurity management, training programs).^{4,5} Early provider reimbursement models estimated 89% of monetary benefits from EHR systems actually went to health care payers rather than to those who actually financed the system.⁶ Unfortunately both direct and indirect costs of implementation

and maintenance of EHR systems do not remain static and continue to rise as the complexity and functionality adapt to changing document requirements for legal and billing purposes, regulation compliance, and interface requirements between hospitals, clinics, and pharmacies.

The “Administrative Burden” of the EHR

EHR systems have attempted to enhance data management, facilitate continuity of care, reduce redundant tasks, and improve billing processes. The consequence of achieving these goals has increased clinical documentation time and clerical workload along with disruption of the traditional physician-patient encounter. Despite the recognition of the administrative burden that EHR systems have imposed on physicians, there is a lack of standardized research identifying specific metrics to objectively quantify this burden. It can be overwhelming just to list some of the additional daily tasks that have been added to physicians' work days since introduction of EHR systems. These range from simple tasks as number of logins, mouse clicks, or keyboard strokes to more complex tasks of note composition to meet billing and legal requirements, billing charges, placement of orders, in-basket patient and staff messages, telephone call documentation, prescription refills, filtering through unorganized EHR data, and keeping up with constant changes to EHR software through training modules. A prior review summarizing studies quantifying the clinical documentation burden among physicians concluded the lack of proper studies quantifying burden measures indicating only limited efforts were dedicated to objectively quantify and measure burden despite increasing references in public policy and lay literature to this ongoing issue.⁷ EHR systems continue to develop a more complex interface as they progress without proportional improvement in the efficiency and workload burden for physicians. This leads to a paradoxical increase in interaction between the physician and EHR.

The “Efficiency Burden” of the EHR

The administrative tasks created by EHR systems significantly increased clinical documentation time, extension of physician

work hours, and decrease in time for personal interaction with patients, staff, and nurses. Studies clearly demonstrated that physicians spend almost twice as much time on electronic documentation and clerical tasks compared to providing direct patient care.⁸⁻¹⁰ A systematic review of time efficiency studies, noted physicians implementing EHR systems had early slight reduction in documentation time but soon were spending more documentation time possibly due to inefficient use of functionalities of systems. Physicians became more familiar with the interface along with less continuing support and training.¹¹ A study using eye-tracking glasses in ICU physicians correlated physician fatigue with pupillometry and EHR efficiency. Mouse clicks and number of screens visited correlated with developing physiologic fatigue in 80% of participants which was negatively associated with EHR efficiency.¹² The EHR systems also led to physician information overload and concerns that could compromise patient safety and quality of care.¹³

The “Mental Burden” of the EHR

Even before the introduction of EHR systems, physicians were at increased risk of mental health issues due to a stressful work environment: including an ongoing decline in autonomy, increasing time constraints despite more patient demands, decreasing financial reimbursement coupled with rising operating costs; never-ending threat of malpractice, and limited resources for individual social support.¹⁴ Improved efficiency of delivering messages through EHR systems may contribute to physician anxiety due to an incessant stream of messages from patients, colleagues, staff, pharmacies, insurances, and hospitals. Despite the decline in use of pagers, the number of alerts is increasing, affecting both personal computers at home, and cellphones and smart watches making it harder to separate the work environment from personal life. A three-institute survey identified specific EHR factors contributing to high clinician stress and burnout. These included information overload, slow system response times, excessive data entry, inability to navigate system quickly, note bloat, fear of missing something, interference with the patient-clinician relationships, and notes geared towards billing.¹⁵

Discussion

Awareness of the importance of physician wellness has increased as burnout reached levels labeled as a national public health crisis. The EHR was initially introduced as a tool to improve efficiency of health care delivery but has negatively impacted physician wellness and has been a major factor in burnout. Recently efforts to target issues contributing to physician burnout. Organizations including the American Medical Association have developed online tools to guide changes on individual practice and institutional levels, advocating for policy change, and additional research.¹⁶ Very few health systems and organizations have implemented effective strategies to address these issues. Strategies should be directed to help individual physicians and also involve organizational changes. A meta-analysis of controlled interven-

tions to reduce physician burnout concluded that physician-directed interventions were associated with small but significant reductions in burnout with organization-directed interventions with more significant results.¹⁷ Organization-directed interventions need to address EHR optimization in regards to usability around the physician. Policy changes to reduce documentation burden for billing and legal requirements and progress towards patient centered documentation will be critical. This is already present in health systems outside the US. Setting clear boundaries of EHR use and physicians personal time outside of work needs to be enforced. Redefining the scope of staff assistance with EHR tasks needs systematic implementation. Physician-directed interventions including coaching programs, sustainability blocks, individualized EHR efficiency training, reductions in inappropriately allocated clerical work, and progression towards a collaborative team-based model system are strategies that could potentially reduce physician burnout. If these issues remain unaddressed quality of patient care could further decline, health care costs will continue to rise, with decreases in the healthcare workforce.

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