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Do family physicians electronic health records support meaningful use?

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ABSTRACT

Background: Spurred by government incentives, the use of electronic health records (EHRs) in the United States has increased; however, whether these EHRs have the functionality necessary to meet meaningful use (MU) criteria remains unknown. Our objective was to characterize family physician access to MU functionality when using a MU-certified EHR.
Methods: Data were obtained from a convenience survey of family physicians accessing their American Board of Family Medicine online portfolio in 2011. A brief survey queried MU functionality. We used descriptive statistics to characterize the responses and bivariate statistics to test associations between MU and patient communication functions by presence of a MU-certified EHR.
Results: Out of 3855 respondents, 60% reported having an EHR that supports MU. Physicians with MU-certified EHRs were more likely than physicians without MU-certified EHRs to report patient registry activities (49.7% vs. 32.3%, p-value < 0.01), tracking quality measures (74.1% vs. 56.4%, p-value < 0.01), access to labs or consultation notes, and electronic prescribing; but electronic communication abilities were low regardless of EHR capabilities.
Conclusions: Family physicians with MU-certified EHRs are more likely to report MU functionality; however, a sizeable minority does not report MU functions.
Implications: Many family physicians with MU-certified EHRs may not successfully meet the successively stringent MU criteria and may face significant upgrade costs to do so.
Level of evidence: Cross sectional survey.

1. Introduction

The adoption of electronic health record (EHR) technology by primary care practices has increased in recent years,[1,2] in conjunction with incentives from the Centers for Medicare and Medicaid Services (CMS) for the "meaningful use" of certified health information technology (HIT) products.[3,4] However, success in meeting the policy priorities of "meaningful use" and realization of the projected cost savings from EHR technology have remained elusive.[5,6] The federal meaningful use (MU) program was born of the Health Information Technology for Economic and Clinical Health (HITECH) Act, with the goal of promoting "*the spread of electronic health records to improve health care in the United States*".[7] Incentive programs for MU for eligible professionals, and standards and certification criteria for EHR vendors and their products increased adoption of certified EHR technology (CEHRT).

The MU program claims that the benefits will be complete and accurate information, better access to information, and patient empowerment. The implementation plan for MU was conceived as three progressive stages that focus on (1) data capture and sharing, including initial quality reporting and sharing data for care coordination, (2) advanced clinical processes, including comprehensive information exchange across settings, and (3) improved outcomes, including measuring and improving quality for patients and populations and patient access to self-management tools. Though vendors may incorporate specific, required MU functionality in their products, the implementation of the system by a practice or a third-party implementation team can potentially block access to or render unusable these functions during the clinical workflow. Alternately, such additional functions may be packaged as "add-ons" with additional fees to purchase and implement. Thus,

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it is unclear how many certified EHRs currently in use actually deliver expected MU functions.

From 2005 to 2011 the percentage of U.S. family physicians using an EHR in ambulatory practice nearly doubled from 37% to 68%.[1] However, previous national surveys during this time found that only one-third of physicians had an EHR that met MU criteria.[8,9] There is real concern that broad adoption of EHRs by family physicians prior to MU certification may leave practices at risk for having EHRs that are not capable of supporting the advancing functions required in MU Stage 2 and MU Stage 3. As such, these practices may be required to make significant investments in EHR upgrades or even purchase and implement entirely new systems that results in substantial cost, effort, and disruptions to practice and patient care. Currently, it remains unclear if the previously reported trends in the adoption of EHR technology by family physicians have been accompanied by MU functionality. The objective of our study was to characterize family physician access to MU functions when MU Stage 1 criteria were just starting in 2011.

2. Materials and methods

2.1. Data and sample

We used data from a two-week survey conducted by the American Board of Family Medicine (ABFM) in fall 2011. Any physician who accessed their secure online portfolio during this time was redirected to a brief survey before entering their portfolio, yielding a 100% response rate. For this analysis our inclusion criteria included residence in the United States and having practice demographic and characteristics data available. These data were obtained from the ABFM demographic data which are routinely collected during the application for the Maintenance of Certification for Family Physicians (MC-FP) examination. Physicians first take the MC-FP examination 7 or 10 years after residency graduation and thus physicians just out of residency are excluded. County-level data were obtained from the 2011 Area Resource File.

2.2. Variables

Physician demographic variables from the ABFM data included age, international medical graduate (IMG) status, degree type (MD or DO), practice organization and practice composition. Physician addresses were geocoded to classify practice location in a metropolitan, non-metropolitan, or rural county and to determine the county-level Health Professional Shortage Area (HPSA) designation.

Survey questions concerning MU were adapted from the National Ambulatory Medical Care Survey (NAMCS).[10] The primary outcome was determined using the question "*Do you have a Certified EHR that supports meaningful use?*" Functionality of a respondent's EHR was determined using the questions: (1) "*Does your EHR give you electronic access to most lab tests done in your local hospital/lab company?*"; (2) "*Does your EHR give you electronic access to most consultation and diagnostic procedural information?*"; (3) "*In the last year, have you reviewed measured quality of care for your patients with a chronic disease (for example, diabetes)?*"; and (4) "*In the last year, have you reviewed the records of all patients with a specific condition, such as diabetes, in order to plan care for the population and/or contact patients to invite them in for care?*" How the practice transmits prescriptions was determined by the question "*In your primary clinical site, do you routinely prescribe electronically?*" Table 1 details the links between each question and MU criteria.

An additional survey question was used to assess the ability of respondents to communicate electronically with patients. We created a summary score from 0 to 5 reflecting the number of positive responses to five queried features of electronic communication: patients can routinely access lab results directly; patients can request appointments from staff; patients can routinely directly schedule appointments; patients can ask questions of their provider or other practice personnel; and patients can access health information, practice protocols, and similar health education information.

2.3. Analytic strategy

Descriptive statistics were used to characterize the demographics and survey question responses of the sample and bivariate associations between demographics and survey responses were tested using Chi-Square and *t*-tests. We also tested bivariate associations between responding positively to having an EHR that supports MU and reported MU functions. SAS Version 9.3 (Cary, NC) was used for all analyses. The use of these data secondarily was approved as exempt research by the American Academy of Family Physicians Institutional Review Board.

3. Results

Of the 5818 physicians who completed the survey, 3855 (66%) had demographic data available and were located within the 50 United States. Compared to other physicians in the ABFM database likely to access their portfolio during the survey period, survey respondents were slightly younger and were more likely to be female (data not shown). The majority of respondents were 40–60 years old (less than 5% were <40 years old), 35.5% were female, and 14.5% were IMGs (Table 2). Nearly half of respondents worked in a single-specialty group practice, 15.9% worked in a solo practice, 3.7% worked in a Health Maintenance Organization (HMO), and 34.5% worked in a multi-specialty group practice. A majority of respondents resided in counties that were a full or a partial HPSA (84.0%) or that were metropolitan (83.1%).

60% of respondents reported having CEHRT that supports MU, another 7.4% responded "don't know" and 8.1% responded "not applicable" (Table 3). Additionally, 37% of respondents reported having reviewed records for all patients with a specific disease to plan care and 58.3% had measured the quality of care for patients with a chronic disease in the past year. A majority of respondents (60.4%) reported that their EHR provided them access to most lab test results and slightly less than half (49.3%) reported that their EHR granted electronic access to most consultation and diagnostic procedural information. Most respondents (69.6%) reported that their EHR allowed them routine electronic prescribing either via fax or electronic transmission. Only one-quarter of respondents reported secure or encrypted electronic communication with patients and fewer than 20% of respondents reported that their EHR allowed patients routine access to labs or health information.

When responses were limited to respondents answering only "yes" or "no" to functionality questions, having CEHRT was associated with greater performance of MU functionality (Table 4). For example, those with EHRs that support MU were more likely to measure quality of care (74.1% vs. 56.4%, $p<0.01$), plan care for a patient panel (49.7% vs. 32.3%, $p<0.01$), have access to labs and consultation notes, and prescribe electronically.

More than half of respondents reported no patient communication capabilities (55%); 14.1% reported having only one function and only 6.5% reported having all five patient communication capabilities. Respondents who reported using an EHR that supports MU had a higher mean summary score [1.4 (standard