HOD ACTION: Council on Medical Education Report 8 adopted as amended and the remainder of the report filed.

REPORT 8 OF THE COUNCIL ON MEDICAL EDUCATION (A-15)
Meaningful Access to Electronic Health Records (EHR) for Undergraduate Medical Education Students
(Resolutions 907-I-14 and 914-I-14)
(Reference Committee C)

EXECUTIVE SUMMARY

In 2011, the American Medical Association (AMA) began to assess medical student access to electronic health records (EHRs). CME Report 1-I-11, Medical Student Access to Electronic Health Records, described the barriers and limitations that, in many cases, have resulted in students assuming a mainly passive role as observers of the record. The report also analyzed the concerns that had been expressed about the effects of EHR use on student learning. This report provides an update on the current level of student involvement with EHRs in undergraduate medical education (UME) and explores best practices and opportunities to assure that students have ample opportunities to have access to and meaningful experiential clinical learning with EHRs.

This report also addresses Resolution 907-I-14, which calls for our AMA to support efforts to incorporate electronic health records training into UME, and Resolution 914-I-14, which asks that our AMA work with the Liaison Committee on Medical Education and the Accreditation Council for Graduate Medical Education to encourage the nation’s medical schools and residency and fellowship training programs to teach trainees in those programs effective methods of utilizing electronic devices in the exam room and at the bedside, so that they enhance rather than impede the physician-patient relationship, so as to have a positive impact on said relationship and health care for the patient.

The movement to EHRs provides opportunities to improve patient care as well as increase the accuracy of communications. The implementation of EHRs, however, presents significant challenges regarding patient communication, safety and privacy, controls for authorship and authentication, compliance and liability. As a first step toward residency and beyond, medical students need to acquire the necessary hands-on experience to enter and discuss orders and prescriptions and document a clinical encounter in the medical record without direct supervision, without compromising patient care or safety. Learning to use the EHR in a way to enhance patient interviewing is also critical.

Some academic institutions are developing innovative teaching EHR systems, but software innovation and standardization is limited, since most academic EHR (AEHR) systems are custom built and information on AEHR selection and resources to identify EHR systems for educational settings are not readily available. As a result, integrating an AEHR into the curriculum can be complex, expensive and time consuming.

The AMA’s Accelerating Change in Medical Education (ACE) Consortium, comprising 11 medical schools nationwide, is developing innovative models that can be adapted at other US medical schools (www.changemaded.org). The Consortium’s recent work includes investigating the tools necessary to create a robust virtual health care learning system, including teaching EHRs. Currently, each of the Consortium schools has an EHR system in place at the students’ primary clinical sites with some ability for students to write notes. Examples of some of the innovative teaching EHR models are described in this report.
HOD ACTION: Council on Medical Education Report 8 adopted as amended and the remainder of the report filed.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION

CME Report 8-A-15

Subject: Meaningful Access to Electronic Health Records (EHR) for Undergraduate Medical Education Students (Resolutions 907-I-14 and 914-I-14)

Presented by: William A. McDade, MD, Chair

Referred to: Reference Committee C (Daniel B. Kimball, Jr., MD, Chair)

Resolution 907-I-14, Promoting Education of Electronic Health Records in Undergraduate Medical Education, introduced by the Medical Student Section and referred by the House of Delegates (HOD), asked that our American Medical Association (AMA) support efforts to incorporate electronic health records (EHR) training into undergraduate medical education (UME).

Resolution 914-I-14, Excessive Computer Time for Medical Students, Residents and Fellows, introduced by the Wisconsin Delegation and referred by the HOD, asked that our AMA work with the Liaison Committee on Medical Education (LCME) and Accreditation Council for Graduate Medical Education (ACGME) to encourage the nation’s medical schools and residency and fellowship training programs to teach trainees in those programs effective methods of utilizing electronic devices in the exam room and at the bedside, so that they enhance rather than impede the physician-patient relationship so as to have a positive impact on said relationship and health care for the patient.

In 2011, the AMA Council on Medical Education began to assess medical student access to EHRs. With the transition from paper records to EHRs, students in many institutions are no longer able to write notes and orders (under supervision) in the actual patient chart. This change is a step backwards in the education of medical students. Council on Medical Education Report 1-I-11, Medical Student Access to Electronic Health Records, described the barriers and limitations that, in many cases, have resulted in students assuming a mainly passive role as observers of the record. The report also analyzed the concerns that had been expressed about the effects of EHR use on student learning. This report provides an update on the current level of student involvement with EHRs in UME and explores best practices and opportunities to assure that students have ample opportunities to have access to and meaningful experiential clinical learning with EHRs. This report will also address Resolutions 907-I-14 and 914-I-14.

STUDENT ACCESS TO THE EHR

EHRs have become important tools in patient care; many medical schools have incorporated the use of EHRs into their curricula. A survey by the LCME during the 2013-2014 academic year showed that almost all (98 percent) of LCME-accredited medical schools allowed student access to EHRs, although access to the EHR varied across institutions and hospital types (school- or university-owned hospitals, affiliated hospitals, non-hospital ambulatory training sites, and VA hospitals).
A 2012 survey of clerkship directors showed that permitted levels of use varied. The survey indicated that 32 percent allowed students to only view the record; 41 percent allowed them to view and write notes; and 27 percent allowed them to view the record, write notes, and enter orders to be cosigned.

BARRIERS AND LIMITATIONS

Legal and Regulatory Requirements

Students are denied full access to EHRs or have significantly restricted access due to hospital and/or medical staff requirements, the structure of the EHR system (e.g., no place for student notes), liability concerns, legal requirements, and payer requirements/regulations. Guidelines issued by the Centers for Medicare & Medicaid Services (CMS) for documenting evaluation and management services under Medicare explicitly state that “students may document services in the medical record in certain circumstances.” Services provided by medical students are not reimbursable, and CMS has strict rules about which student documentation can be used to support billable service.

In a 2014 Compliance Advisory, the Association of American Medical Colleges (AAMC) recommended that “the EHR should allow for real-time identification of the author of a note (medical student, resident, non-physician provider or teaching physician) so that the author/history of authorship and review is readily apparent to all users in the final note.” Although CMS does not address documentation in the EHR, the AAMC also notes that meeting this requirement will mean that teaching physicians cannot copy and paste or refer to students’ documentation of physical examination findings or medical decision making in their personal notes. Inappropriate use of medical student documentation to support a bill to Medicare may be considered fraudulent by the federal government and may lead to allegations of violating the False Claims Act.

Other factors impeding medical students’ use of EHRs are concerns about security, patient privacy, and confidentiality. Access to health information, including data in the EHR systems at hospitals, ambulatory care centers, and other health care institutions, is highly regulated by laws, including the Health Insurance Portability and Accountability Act (HIPAA). These laws carry civil and, for some forms of violation, criminal penalties for individuals who break them, as well as sanctions and penalties for institutions that fail to protect health and personal information.

Institutions also tend to restrict medical student access to EHRs because of issues related to potential legal liability. The risk of medical errors due to the ability to copy and paste notes, input incorrect information, and misuse clinical decision support systems can present wide-ranging consequences for medical student education.

Educational Issues

Some medical educators have expressed concern that students’ overreliance on clinical decision support systems, which allow for easy access to relevant and up-to-date medical literature for developing diagnosis and management plans, may lead to complacency in evaluating their own decisions. For example, if trainees rely on the EHR system to alert them of potential serious side effects or drug interactions, they may be less likely to research these possibilities before ordering a medication. EHRs may also affect the development of oral presentation and communication skills and impair the ability to translate and synthesize clinical information before and during rounds.
Further, some have argued that the EHR can hinder patient-physician communication\textsuperscript{9,10,11} and might be a barrier for relationship building tasks (talking to, looking at, and building rapport with patients) during clinical encounters.\textsuperscript{12} A study by Margalit et al. showed that physicians spent an average of 24 percent to 55 percent of the patient visit time gazing at the screen, and this time was inversely related to the physician’s direct engagement with the patient through asking questions and listening to the patient.\textsuperscript{13} It can be challenging for the clinician to effectively communicate while accessing the EHR with the patient present; minimize diversion of attention from a patient, which can alter the patient’s narrative; and avoid the diminishment of dialogue, particularly in the psychosocial and emotion realm.\textsuperscript{14}

Training and experience with the EHR system are important components for getting faculty adjusted to teaching health IT. However, the steep learning curve for faculty may be a barrier.\textsuperscript{2}

\textit{Copying and Editing Student Notes for Educational Purposes}

EHRs have the potential either to enhance or impair the development of effective written communication skills, which medical students are expected to begin exhibiting during UME.\textsuperscript{7} Medical students have reported that their documentation was better or more complete with the EHR.\textsuperscript{12,15} In a national survey of clerkship directors, however, more than half of respondents (57 percent) stated that they use the student note to help document a resident or attending note, and some (24 percent) indicated that there have been issues with an individual copying a provider’s note and using it as their own without the proper attribution.\textsuperscript{2} The survey respondents also felt that the “copy and paste” ability stifled a student’s thinking, especially in obtaining and synthesizing information, because students could and did “document” information that they didn’t obtain themselves.\textsuperscript{2} Although a limited educational framework exists for teaching students proper EHR documentation, the Alliance for Clinical Education has recommended that medical schools develop competencies in EHR documentation for all students and that medical education leaders must ensure that their students become skillful and ethical users of EHRs.\textsuperscript{15,16}

\textit{Logistical and Structural Issues}

In a recent study of medical student use of EHRs, more than 80 different EHR systems were reported as used by various institutions.\textsuperscript{2} Thus, it is likely that medical students will not be using the same EHR software systems at each of their assigned hospitals or practices. Furthermore, although the use of clinical simulation EHR curricula are increasing,\textsuperscript{17} not all training sites have teaching EHR systems in place. It can also be costly and time consuming for institutions to establish licenses/permissions and log-in IDs as well as provide appropriate training for students rotating through clinical clerkships.\textsuperscript{18}

\textit{EHR CHARACTERISTICS THAT WOULD MITIGATE COMPLIANCE AND OTHER CONCERNS}

\textit{The Advantages and Disadvantages of Scribing Notes for Educational Purposes}

Scribing by medical students is an activity that is distinct from allowing medical students to write notes as part of their educational experience. If possible, the EHR should allow for clear and automatic identification regarding whether a note is scribed as verbally instructed by the provider or written by a student as part of the educational experience. If this is not possible, then students should be required to clearly indicate when they are acting as scribes rather than students.\textsuperscript{4}
Scribing allows students to obtain a firsthand view of a broad spectrum of clinical medicine. It also strengthens the student’s medical knowledge, clinical decision making, and patient interaction and bedside manner. The process of capturing medical information with an EHR system also puts them ahead of their peers. Physicians and nurses who have scribes enter and retrieve EHR data for them are able to attend to patients more efficiently, especially in the emergency department. The Joint Commission does not endorse or prohibit the use of scribes.

The University of Toledo established a successful scribe program in which it recruits first- and second-year medical students on a volunteer basis to assist in the medical center’s emergency department by transcribing patient information for their records. Working six-hour shifts, the scribes document the patient’s chief complaint and medical history and take notes on pertinent findings in the physical exam. The scribes review written information with physicians after the exam, and then transcribe the data into the patient’s EHR. They also alert physicians when lab results and imaging studies are available and document all procedures performed, consultations ordered, and changes in a patient’s course of care or response to treatment.

Clinical Decision Support Systems

While concerns have been raised, as noted above, clinical decision support systems available within EHRs have the potential to enhance medical students’ knowledge and guide learning. Examples of decision support systems include reference materials, diagnostic assistance, clinical alert systems, drug dosing assistance, and preventive care or chronic disease management reminders. In a survey of clerkship directors, respondents cited clinical alert systems that inform users of drug allergies or drug-drug interactions as being most frequently used and valued. A well-planned EHR can facilitate education and allow physicians to apply evidence-based medicine in the clinical context and provide opportunities to teach best practices.

Learning to Use the EHR in a Way to Enhance Patient Interviewing

Many health care experts have emphasized the promising capabilities of the EHR to involve patients in their own health care management and have reported that patients feel more in control of their care after viewing their visit notes.

Medical schools are recognizing the need to teach students how to maximize the EHR in patient interactions. Students at the University of Arizona College of Medicine-Phoenix began receiving a 20-minute training session on how to use the EHR in a “relationship-enhancing way” after the college’s observational studies showed that today’s computer-savvy students make the same missteps as older generations when using an EHR in an exam room. The college developed a training intervention that teaches students to begin an office visit by explaining to patients why the computer is important to the visit, reassuring patients about confidentiality, and positioning the computer screen so the patient can see the screen to review information such as medication lists, laboratory values, and x-rays. Students are also taught to recognize cues to close their laptops and focus solely on the patient.

ACADEMIC EHR (AEHR) SYSTEMS AND VENDORS

Resources to Identify AEHR Systems Available for Educational Settings

An academic EHR (AEHR) is an adapted version of a clinical information system used in acute care and ambulatory facilities with modifications that customize the product for the needs of academic institutions. Since most AEHR systems are custom built, information on AEHR selection
and resources to identify EHR systems for educational settings are not readily available. Integrating an AEHR into the curriculum can be complex; many faculty lack the expertise to identify technical specifications and components of an EHR, including vendor selection, implementation, training, and support. Other factors that need to be considered in the selection of an AEHR system include clinical requirements, the financial resources of the medical center and high cost of technology, the geographic setting, the need for outreach into the community, and an analysis of the existing and predicted flow of information and work within the clinical systems.

There are several different options for academic institutions to consider. Products range from fully functional AEHR systems similar to those used in the hospital setting to textbooks with accompanying activities on a software disc. Educational publishing houses are also developing simulated charting programs that allow students to document in a computerized format. Fully functional programs that allow for a large degree of customization vary by vendor and are more expensive than textbooks with accompanying software. To support the use of EHR products used by medical students and residents, some vendors offer customized templates that track author or source information and the date and time of origin as well as information being moved through the patient record.

INNOVATIVE TRAINING MODELS

The AMA’s Accelerating Change in Medical Education (ACE) Consortium, comprising 11 medical schools nationwide, is developing innovative models that can be adapted at other US medical schools (www.changemeded.org). The Consortium’s recent work includes investigating the tools necessary to create a robust virtual health care learning system, including teaching EHRs. Currently, each of the Consortium schools has an EHR system in place at the students’ primary clinical sites with some ability for students to write notes.

At Vanderbilt University School of Medicine, for example, students are allowed to write notes about their patients that are displayed in the patients’ medical records. The entire patient note gets copied automatically to a different secure server that houses the student’s personal electronic portfolio. Students can also write orders that are saved as draft. Notes are evaluated to assess students’ documentation and reasoning skills.

The technology-enabled curriculum at New York University School of Medicine includes a virtual patient panel with de-identified patient data. Third-year students are allowed to write notes and have mobile access to the EHR system; fourth-year students can write notes, write orders to be co-signed, and have mobile access.

At Indiana University School of Medicine, a virtual health care system (vHS) and a teaching electronic medical record (tEMR) have been developed to teach clinical decision making and ensure competencies in system, team, and population-based health care skills. The tEMR provides a safe computer program for learners to become familiar with EHRs. Students are able to see de-identified patient data to practice making entries and creating a plan of care using the EHR resources. The program also includes resources to help students learn the costs of different tests, the effectiveness of those tests in discriminating between two diseases, and the advantages of using one test over another. Faculty are also being trained as quality and systems coaches in current health systems practice to be prepared to expertly use the tEMR. The vHS learning experiences will incorporate interprofessional team care and be taught by faculty from various health professions. The project runs sequentially over each year of medical school across all phases of the curriculum for all students across nine statewide campuses. This model is focused on a web
application; users need only Internet access, the correct permissions, and a web browser to access
the system.

Meanwhile, third-year students at Oregon Health & Science University interact with virtual
patients created in a simulated EHR (sim-EHR) in two manners. Simple EHRs and standardized
patients are combined to teach the art of maintaining patient rapport while using an EHR. Students
also use a sim-EHR case to demonstrate their skills in medication reconciliation, order entry, chart
maintenance, and evidence-based chronic disease management.  

Warren Alpert Medical School of Brown University developed a longitudinal UME EHR
curriculum within a series of its clinical “Doctoring” courses. The six-course, non-specialty-
specific program was designed to teach knowledge, skills, attitudes, and behaviors of the
competent, ethical and humane physician, and combined instruction and assessment in medical
interviewing, physical examination, cultural competency, medical ethics, and professional
development. This program uses an educational paradigm that models interdisciplinary teaching
and collaboration. An initial training session in EHR use during the third-year clinical skills
clerkship was also implemented to formally introduce the computer into the physician-patient
relationship. The program uses mock data with which students can practice. A second advanced
EHR training module occurs late within the final Doctoring course.  

AMA POLICY

Policy H-315.969, Medical Student Access to Electronic Health Records, states that our AMA (1)
recognizes the educational benefits of medical student access to electronic health record (EHR)
systems as part of their clinical training; (2) encourages medical schools, teaching hospitals, and
physicians practices used for clinical education to utilize clinical information systems that permit
students to both read and enter information into the EHR, as an important part of the patient care
team contributing clinically relevant information; and (3) encourages research on and the
dissemination of available information about ways to overcome barriers and facilitate appropriate
medical student access to EHRs and advocate to the Electronic Health Record Vendors Association
that all Electronic Health Record vendors incorporate appropriate medical student access to EHRs.

SUMMARY AND RECOMMENDATIONS

The movement to EHRs provides opportunities to improve patient care as well as increase the
accuracy of communications. With the transition from paper records to EHRs, students in many
institutions are no longer able to write notes and orders (under supervision) in the actual patient
chart. This change is a step backward in the education of medical students. The implementation of
EHRs also presents significant challenges regarding patient communication, safety and privacy,
controls for authorship and authentication, and compliance and liability. As a first step toward
residency and beyond, medical students need to acquire the necessary hands-on experience,
without compromising patient care or safety, to enter and discuss orders and prescriptions and
document a clinical encounter in the medical record without direct supervision.  

Learning to use the
EHR in a way to enhance patient interviewing is also critical. Some academic institutions are
developing innovative teaching EHR systems, but software innovation and standardization is
limited. Integrating an AEHR into the curriculum can be complex, expensive, and time consuming.
The Council on Medical Education recommends that the following recommendations be adopted in lieu of Resolutions 907-I-14 and 914-I-14, and that the remainder of the report be filed.

1. That our American Medical Association (AMA) reaffirm Policy H-315.969, Medical Student Access to Electronic Health Records, which recognizes the benefits of medical students’ access to electronic health record systems as part of their clinical training. (Reaffirm HOD Policy)

2. That our AMA support medical student acquisition of hands-on experience in documenting patient encounters and entering clinical orders into patients’ electronic health records (EHRs), with appropriate supervision, as was the case with paper charting. (New HOD Policy)

3. That our AMA: (1) research the key elements recommended for an educational Electronic Health Record (EHR) platform; and (2) based on the research—including the outcomes from the Accelerating Change in Medical Education initiatives to integrate EHR-based instruction and assessment into undergraduate medical education—determine the characteristics of an ideal software system that should be incorporated for use in clinical settings at medical schools and teaching hospitals that offer EHR educational programs. (Directive to Take Action)

4. That our AMA encourage efforts to incorporate EHR training into undergraduate medical education, including the technical and ethical aspects of their use, under the appropriate level of supervision. (New HOD Policy)

5. That our AMA work with the Liaison Committee on Medical Education (LCME), American Osteopathic Association (AOA) Commission on Osteopathic College Accreditation (COCA) and the Accreditation Council for Graduate Medical Education (ACGME) to encourage the nation’s medical schools and residency and fellowship training programs to teach students and trainees effective methods of utilizing electronic devices in the exam room and at the bedside to enhance rather than impede the physician-patient relationship and improve patient care. (Directive to Take Action)

Fiscal Note: $5,000
REFERENCES

1. Liaison Committee on Medical Education Annual Medical School Questionnaire Part II for Academic Year 2013-2014.


30. Accelerating Change in Medical Education. American Medical Association. Available at: [www.changemeded.org](http://www.changemeded.org) (accessed 1-20-15)