

Keeping Up with Technology and the Changing Role of Medicine

While medical educators have recognized the importance of teaching informatics for at least a decade,¹ the increasing role of information technology in the life and work of physicians is putting renewed pressure on medical schools to update their medical informatics curriculum.²

Medical educators that are looking to better align curriculum with the changing role of technology in medicine can seek guidance from AAMC's Medical School Objectives Project (MSOP).³ Specifically, the MSOP outlines five roles relating to medical informatics that graduating medical students should be able to take on before entering medical practice: clinician, educator-communicator, manager, lifelong learner, and researcher.

In this issue, data from the AAMC Medical School Graduation Questionnaire (GQ) are used to determine if medical school graduates feel that they have acquired the appropriate medical informatics knowledge and skills.

The 1999 GQ asked graduates to indicate whether they were confident that they had the appropriate knowledge and skills in 18 separate informatics topics. Graduates rated each item on a five-point Likert scale ranging from strongly agree to strongly disagree. The results of this survey are shown in Figure 1, organized by the five roles defined in MSOP Report II.⁴

- Almost 86% of 1999 medical school graduates feel confident using the Web to locate and acquire information.
- Over half of 1999 medical school graduates do not feel confident using statistical packages such as SAS and SPSS.
- Almost three-quarters of 1999 medical school graduates felt confident in using a computer-based clinical record keeping program for both finding and recording patient specific information.

Clinician

Medical school graduates appear to be prepared to use medical informatics in their role as clinician. The vast majority felt that they have the knowledge and skills to use electronic mail (96%) and to integrate verbal and statistical information with specific clinical cases (85%). Approximately two-thirds felt that they can protect confidentiality when information is stored on a computer (67%) and use a variety of decision support tools (65%). Less than half of medical school graduates (43%), however, reported that they understand how information technology can be used for patient care protocols.

Educator-Communicator

Medical school graduates had mixed views concerning their knowledge and skills in using medical information in their role as educator-communicator. While over three-quarters reported that they were confident about the use of instructional technologies (79%) and self assessment tools (78%) for medical education, smaller numbers were confident about their skills in using presentation software (59%) and listserves (42%).

Manager

The use of medical informatics for their role as manager also got mixed results. Most graduates (72%) were confident in using computer-based clinical record keeping programs. However, fewer than half felt that they had the knowledge and skills to create simple medical information databases (47%) or to use computerized clinical scheduling systems (48%).

Lifelong Learner

The overwhelming majority of graduates reported that they were prepared to use information technologies for their role as lifelong learners. Graduates felt that they could conduct searches of medical information databases (92%) and use the Web to locate consumer health, patient education, medical research, and health care policy information (85%).

Researcher

Graduating students were less sanguine about their role as researcher. Although 72% of respondents felt confident in critically reviewing a published research report, less than 40% felt that they understood how technology supports automation of laboratory experiments (39%) or how to interpret copyright issues (36%). In addition, only 28% felt they had the appropriate knowledge and skills to use statistical software to analyze medical data.

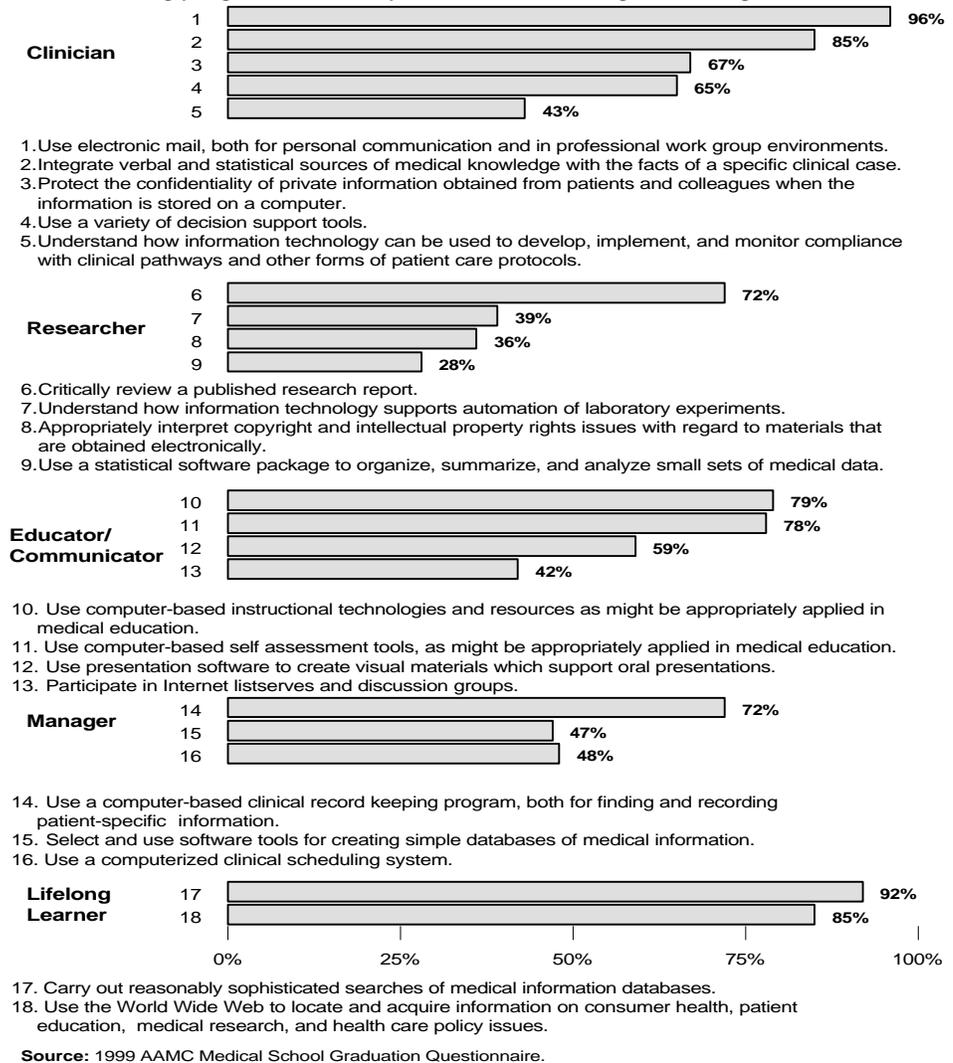
Conclusion

Data from the 1999 GQ suggest that medical schools are doing a good job in creating technologically savvy graduates in line with the MSOP recommendations. Although there are areas within the discipline of medical informatics that are being taught exceedingly well by medical schools, there are topics, particularly in the area of research, that may require more attention. Areas of low confidence by graduates may also represent an opportunity for graduate medical educators and their work with medical informatics.

As growing numbers of physicians are using medical informatics in a variety of fields including: dermatology, oncology, radiology, surgery, cardiology, psychiatry, and home health care, the role of medical informatics in the life and work of physicians will continue to evolve. Feedback from sources such as the GQ can help medical educators to track how well they are preparing their students to keep up with the changing role of medical information technology.

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Figure 1. Percentages of 1999 Medical Schools Graduates who Agreed or Strongly Agreed that They Have the Following Knowledge and Skills



Source: 1999 AAMC Medical School Graduation Questionnaire.

References

1. R.A. Greenes and E. H. Shortliffe, "Medical Informatics: An Emerging Discipline with Academic and Institutional Perspectives." *Journal of the American Medical Association* (1990) 263(8): 1114-1120.
2. From the Website of the Telemedicine Information Exchange (TIE) <<http://tie.telemed.org/WhatIsTelemedicine.asp>>.
3. Contemporary Issues in Medicine - Medical Informatics and Population Health: Report II of the Medical School Objectives Project. *Academic Medicine* (February 1999) 74(2): 130-141.
4. The figure draws from preliminary data for the 1999 AAMC Medical School Graduation Questionnaire, N=12,247.