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A New Core Competency for Academic General Internists

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Mastering a set of basic core competencies in informatics, along with health information technology, will be essential as academic general internists seek to survive, thrive and innovate in this new healthcare delivery environment.

Dr. Gallagher (left). Dr. Payne (right).

When faced with a difficult-to-use electronic health record, a complex physician order entry system, or an endless stream of email queries from patients, it is easy for physicians to long for a not-so-distant past when patient care seemed much simpler, and revolved around a physical, paper chart with thoughtful notes written with fountain pens. No change in medicine over the last 30 years has been as dramatic as the computerization of health care, or, as one commentator wrote, the evolution from "bedside" to "desktop" medicine.[1] As physicians, our relationship with computers is complex. Yet, amidst the complaining, we missed the fact that a new core competency has emerged for academic general internists, one that will be the theme for the 2018 Annual Meeting. Mastering a set of basic core competencies in the field of informatics, along with related knowledge in health information technology, will be essential as academic general internists seek not only to survive but also to thrive and innovate in this new healthcare delivery environment, especially as we try to improve the value of care.

Biomedical informatics (BMI) is the interdisciplinary field that studies and pursues the effective uses of biomedical data, information, and knowledge for scientific inquiry, problem solving, and decision making, motivated by efforts to improve human health.[2] Biomedical informatics, along with the health information technology that provides much of these data and related information, seeks to address a fundamental problem. For much of the history of medicine, the amount of information physicians needed to collect and consider when making a patient care decision was limited to what could be gleaned from the patient's history, physical exam, and simple testing. However, today's clinicians are faced with an avalanche of available facts and other information surrounding their clinical decisions, which far exceeds human cognitive capacity.[3] While a relatively modest number of physicians will seek specialized training in biomedical informatics and subspecialty certification,[4] every SGIM member would benefit from acquiring some basic informatics fundamentals to support their clinical care, research, and educational activities.

A publication earlier this year in the *Journal of the American Medical Informatics Association* paints a compelling picture of a typical patient, provider, and researcher experience "in the not too distant future."[5] The patient schedules an appointment with her primary care provider online and easily accesses and transfers records from her previous provider prior to the scheduled visit. The patient electronically updates her medication list and other pertinent past information and completes an online health risk assessment that flags the issues she wants to discuss with the provider. Immediately after the visit, the patient meets with the patient navigator who, among other things, seeks permission from the patient to store her health information and residual blood for researchers.

Prior to the visit, the physician accesses critical test results and reports, relevant biomedical literature, and all patient information provided by the patient and previous providers in the EHR. During the visit, the physician consults an online phenotyping algorithm, which returns a predictive analytics result indicating the patient's risk for disease and her eligibility for a local clinical trial. On finishing the physical exam, the provider completes the note before leaving the exam room, including a template that is pre-populated based on the patient profile. A researcher within the health system receives an alert that a patient met the criteria for the clinical study, which the patient consents to participate in. Information that accumulates over the course of the patient's care, such as development of a new condition that might dis-

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qualify her from the study, is seamlessly communicated to the research team. Additionally, clinician-educators have high-quality, interactive curricula and just-in-time teaching tools to prepare their learners for this new environment.

Academic general internists will play a critical role in achieving this vision, which is why SGIM's 2018 Annual Meeting in Denver, Colorado, is focusing on health information technology as its theme. The Annual Meeting will be an outstanding opportunity for SGIM members to learn about (and help shape) how innovations in informatics and Health IT are affecting the way we deliver patient care, conduct research, and teach our learners. But, beyond this meeting, SGIM members should recognize that mastering a basic set of core competencies in this space is essential to their future careers. Core curricula have been developed and validated for those interested in fellowship training in informatics, and informatics electives exist at most medical schools. But, to our knowledge, no one has yet identified what informatics topics should be familiar to a competent academic general internist. As a starting point, we offer the following Top Five List:[6]

1. Decision science: decision analysis, probability theory, Bayes theorem, evaluation;
2. Clinical data types and tools: encoded, constrained vocabularies, narrative text, natural language processing, imaging data, precision medicine;
3. Clinical decision support: types, strategies, implementation, knowledge representation, acquisition, and management;
4. Information technology systems: architecture (networks, integration versus interfaced), security, HIPAA Security Rule, encryption, mobile health; and
5. Health information regulation: Federal (HIPAA), state (retention laws), local.

There will be multiple opportunities at the Annual Meeting for SGIM members to learn some of this critical content. In addition, while planning for the 2018 Annual Meeting is still in its early stages, we anticipate several other aspects of the meeting will feel new to longtime SGIM members:

- **Participation of patient advocates/expert patients.** Increased involvement of thoughtful, articulate patients in the Annual Meeting will help us understand how our research, clinical care, and education can better meet the needs of the patients we aim to serve. Informatics and health information technology are impacting patients as much as physicians. Forming closer alliances with patients could strengthen SGIM's ability to promote constructive change in this domain.
- **Collaboration with the American Medical Informatics Association (AMIA).** AMIA is a thriving, multi-disciplinary organization with 5,400 members who are experts in the science and practice of informatics as it relates to clinical care, research, education, and policy. AMIA represents a natural partner for SGIM in this Annual Meeting and beyond. SGIM has strengths in clinical practice, health care delivery, and research methodology. AMIA's strengths lie in clinical informatics, technical expertise, and partnerships with industry.
- **Carefully considered engagement with industry.** SGIM's relationship with industry is a complex issue that will be the topic of a subsequent *Forum* article. Nonetheless, the Annual Meeting content will be significantly more robust if we thoughtfully engage industry as active participants in the exchange of ideas, identification of shortcomings and barriers to reaching HIT's full potential, and a search for innovation. There will be multiple and substantive opportunities in the 2018 Annual Meeting planning for dialog and feedback from the SGIM membership about how best to approach industry engagement while strictly adhering to the spirit and procedures outlined in our policy related to Acceptance and Disclosure of External Funds.[7]

I look forward to working with each of you on developing an outstanding 2018 Annual Meeting, and encourage all our members to embrace the role that this new core competency around informatics and health information technology will play in our careers going forward.

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