

Digital health education: imperfect to imperative

October 2019—Arlen Meyers, MD, MBA, is a passionate advocate for educating medical students and practicing physicians about digital health technologies and their role in patient care. Without increased emphasis on organized digital health education, the medical field cannot fully embrace such technologies, says Dr. Meyers, president and CEO of the Society of Physician Entrepreneurs and co-editor of *Digital Health Entrepreneurship*, released this year by Springer Books. Dr. Meyers is also professor emeritus of otolaryngology at the University of Colorado School of Medicine and a member of the faculty at the University of Colorado Denver Business School. CAP TODAY recently spoke with Dr. Meyers about digital health education.

Why should medical school curricula include required courses in digital health for all students?

In my view, the purpose of medical education is to graduate people who serve the interests of their communities in an equitable fashion, and I do not believe that is the present case. The world has changed into what we now describe as the “fourth industrial revolution,” which is driven by cyber intelligence. So if the physician of the future—or the present—is required to have the necessary knowledge, skills, attitudes, and competencies to thrive in the fourth industrial revolution, then digital health and digital health entrepreneurship need to be a required part of the curriculum.

How do you define digital health?

My view is that digital health is the application of information and communications technologies to exchange medical information for various uses. It could be prevention. It could be treatment. It could be rehab. It could be diagnosis. Digital health incorporates many different subcategories, including telemedicine, big data, analytics, patient portals, and smartphone apps.

How do you think medical schools should incorporate digital health into their curricula?

I think it starts with a mandatory digital health survey course, and then if people decide they want to get further into the weeds, they can. But, unfortunately, particularly at residency training, the notion of teaching digital health is how to remember your user name and password on five different EMR systems and the network. And how to look up data—what was the CBC on patient X yesterday? That’s not my notion of digital health.

I try to use terms that physicians are used to understanding, like anatomy and physiology. How are things built—anatomy. How do things work—physiology. To understand the cyberworld, you have to understand how it’s built: What are the routers and the switches and the Internet? How does Google work? You must have some data literacy. And there’s also embryology: How is this world developing and how is it evolving? What is the impact of 5G on digital health? Those kinds of questions.



Barriers to digital health dissemination and implementation “are not being satisfactorily addressed in medical school, in residency, in clinical practice, and at the level of medical specialty

societies,” says Dr. Arlen Meyers. (Photo courtesy of University of Colorado Denver)

Once you understand the basic science, you need to understand what I would call the clinical science. In other words, how are companies and doctors and patients using this stuff? What are the use cases? What are the business models? What works and what doesn't? What is the clinical evidence that a technology is safe and effective and does what it's supposed to do?

The third part is digital health innovation and entrepreneurship: How do you create this stuff? How are digital health products and services designed, developed, tested, validated, deployed, and transferred to human subjects?

Do you see more medical schools incorporating a digital health curriculum?

Are we seeing mandatory preclinical digital health courses in medical schools as the norm? No. But there are several examples of digital health education in other settings. The AMA, several years ago, created a website called the Physician Innovation Network. It was an attempt to create a space where people could collaborate, particularly by matching physicians who are interested in working with digital health startups with companies interested in working with physicians. That's an effort to not just educate physicians about digital health but also to give them nonclinical career development opportunities. The University of Colorado, where I work, offers business school courses in its digital health curriculum for students pursuing a master's of information sciences degree. There are many online courses on digital health that are free, through Coursera and Harvard's EdX, for example. And there are digital health accelerators and incubators popping up all over the country as part of the same initiative.

Why do you think medical schools have been slow to adopt digital health curricula?

One, resistance to change. Two, lack of time. Three, you're going to have to displace something in the curriculum to add digital health, and there's a lot of faculty with vested interests who don't want to see that happen. You need money to support the program. You need faculty who are experienced and know what they're talking about. You need leadership that sees the need to do it. You need to have the dean of the medical school say, “We're going to do this,” and then you have to have faculty champions who are going to execute it.

For practicing physicians, what are the biggest issues and concerns with regard to digital health technology?

To me, the biggest issue is making technology adoption decisions. The problem is there are so many digital health technologies that doctors are confused about which ones work, which ones are safe and effective, and what are the unintended consequences, the adverse events, the complications. That's the clinical issue. And then there's the business issue: How am I going to get paid to do this? What's in it for me? Why should I even bother with this? And then there are the ethical issues: What about bias in artificial intelligence? Suppose the computer tells me to do something and things go south—who gets sued? There is a whole list of barriers to digital health dissemination and implementation that need to be addressed. And in my view, they are not being satisfactorily addressed in medical school, in residency, in clinical practice, and at the level of medical specialty societies. Those are the issues that we have to deal with and those are the conversations that should be occurring with medical students, but they're not.

I think digital health is impacting pathologists more than some other specialties because pathology involves pattern recognition, as do dermatology and radiology. These specialties are starting to see lots of computer vision applications with artificial intelligence, machine learning, deep learning, automated diagnosis. The pattern-recognition specialties are focused on clinical decision support and must address all the issues that go with it, which is even more reason why pathologists should have this education early on.

In addition to enrolling in a class or taking a CME course, how can physicians educate themselves about digital health technologies?

It's the same model that doctors use to try to understand any new and evolving technology. They go to meetings. They talk to their colleagues. They experiment with different technologies to see the clinical response. Fortunately,

in most major cities there are a lot of accelerators and incubators that are holding conferences and seminars. But if you want to learn the latest advances in digital health, you don't go to your specialty society meeting every year in Florida. You go to the Consumer Electronics Show in Las Vegas. Because these technologies do not originate in medicine. They originate in media, telecom, aerospace, nanocomputer science, et cetera. Unless you get yourself to these places and talk to these people, you're not going to understand the future of digital health. —Jan Bowers

Xifin releases enhanced lab information system

Xifin has introduced its Xifin LIS 6 laboratory information system, a software-as-a-service-based solution that supports high-complexity, high-volume laboratories.

"The platform increases laboratory testing capacity, shortens turnaround time, and creates new revenue stream opportunities," according to a press release from the company. This latest iteration, which expands on the functionality in Xifin LIS 5, allows labs to review results in batches and sort by result type. It also provides universal plate-mapping management for molecular testing.

Xifin LIS 6 offers functionality incorporated through strategic partnerships with Proscia, Fabric Genomics, Glidian, and Medical Database. The LIS is integrated with Proscia's research-use-only Concentriq artificial intelligence-powered digital pathology platform, allowing laboratories to automatically sort and prioritize cases. It is also integrated with Fabric Genomics' AI-driven platform for analyzing complex genomic data and generating physician-ready clinical reports and Glidian's automated prior-authorization solution. LIS 6 provides test utilization decision support through Medical Database's LDS laboratory decision system.

[Xifin](https://www.xifin.com), 858-793-5700

Mayo and Google partner on digital health innovation

Mayo Clinic and Google have announced a 10-year strategic partnership that will combine Google's cloud computing and artificial intelligence capabilities with Mayo's clinical expertise to further the health system's digital health care innovation strategy.

"With the help of Google, Mayo Clinic will transform the way it advances virtual care with AI-enabled digital diagnostics," according to a press release from the health system. "Mayo also will leverage Google technology to boost its ability to conduct medical research. Through this partnership, Mayo Clinic will be able to develop and deploy new machine-learning models designed to improve treatment precision and clinical outcomes of diseases."

As part of the arrangement, Mayo will securely store data in Google Cloud but will control access to the information and its application. Mayo will use the data to create health care insights and solutions in conjunction with its innovation partners, including Google.

Google will open an office near Mayo Clinic's headquarters in Rochester, Minn., allowing its engineers to work side by side with experts from the health system.

CompuGroup Medical debuts latest version of LIS

CompuGroup Medical has released version 19.9 of its CGM LabDaq laboratory information system.

This latest version offers a more accurate turnaround time monitor and an expedited process for receiving samples. The streamlined sample workflow can automatically include the date a sample was received in the lab. LabDaq users can also customize the information displayed when viewing patient histories, such as showing the names of referring physicians.

The capabilities added to version 19.9 are based on feedback from LabDaq users nationwide.

[CompuGroup Medical](https://www.computgroupmedical.com), 800-359-0911

Quest Diagnostics and Hc1 announce collaboration

Quest Diagnostics and the bioinformatics company Hc1 have unveiled Quest Lab Stewardship, a service that uses machine learning to harmonize laboratory testing across health care systems in an effort to improve lab test utilization.

Quest Lab Stewardship “integrates in real-time with enterprise systems and leverages Hc1’s machine-learning capabilities to ingest, organize, and normalize lab data, alleviating the time and effort of manual data gathering and analysis,” according to a press announcement from Quest. “It also provides a framework for lab directors and hospital administrators to consult with medical staff to identify areas of concern and implement compendium updates and order prompting based on selected clinical guidelines.”

[Hc1](#), 317-219-4646

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