Doctors need retraining to keep up with technological change

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Rapid technological change will require retraining and rethinking the roles of clinicians, according to a technology review of the United Kingdom's National Health Service (NHS).

"While it's hard to predict the future, we know artificial intelligence, digital medicine and genomics will have an enormous impact on improving efficiency and precision in health care," says Dr. Eric Topol, executive vice-president of the Scripps Research Institute, in an interim report called "Preparing the health care workforce to deliver the digital future." These changes will also transform what it means to be a clinician, states the report.

Deep-learning technologies are already as good as human experts at screening for some breast cancers, skin cancers and eye diseases. Meanwhile, "the use of small mobile ultrasound devices means that some traditional skills, such as listening to heart and lung sounds, may be superseded." As these technologies continue to develop, "the impact will inevitably affect all specialties and every clinician from doctors to nurses, pharmacists to paramedics and beyond."

Both existing and future generations of clinicians will need training in digital literacy and patient engagement to refocus their roles on uniquely human aspects of care. Communication, compassion, empathy and caring will "retain a central role," according to the report. "Creativity, innovation, enterprise and an ability to embrace and lead change will need to be fostered."

Whether health professionals embrace these changes is another matter. The report cites a lack of trust in new technologies, negative experiences with electronic health records, and fear of the pace of change among "known barriers" to innovation in health care.

Some health staff may have reason to worry. An upcoming study by former UK health minister Dr. Ara Darzi proposes "full automation" of health and social services could save the NHS almost 10% of its annual running costs and take over 30% of the work done by humans.

Topol's report, however, cautions that "efficiency alone is not sufficient and may be traded off against effectiveness and equity." Instead, technology should be harnessed to bridge gaps in care.

The NHS is one of the five largest employers in the world, but growth in its workforce isn't keeping pace with patient demand, states the report. It's estimated that the UK will face a shortfall of 118 000 health staff by 2027. Meanwhile, health professionals spend up to 70% of their working time on administrative tasks.

One of the main goals of new technology should be freeing clinicians to spend more time with patients, says the report. Tasks such as ordering tests and compiling medical notes could soon be shifted to artificial intelligence systems. Automatic speech recognition technologies and other "machines in the team" could reduce the time doctors and nurses spend on data entry. And as more routine care shifts online, clinicians can spend more time in-person with complex patients.

Some health staff will likely need in-depth training to make this shift, while others will "probably only need to know general principles," the report says. Technological change and the need to manage increasing amounts of patient data may also give rise to new professional groups, such as clinical data scientists, medical software engineers and digital medicine scientists.

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As machines take over more clinical tasks, what it means to be a clinician will change.