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In the past decade, the use of artificial intelligence (AI) has grown to the point where there are now few areas of our lives that it does not touch. The potential of digital transformation is particularly far-reaching in medicine.

One of the bedrocks of modern medicine, the clinical trial, is a prime target for a digital makeover. By improving their design and matching people with trials in need of volunteers, machine-learning techniques could help to reduce the startlingly high failure rate of clinical trials (see page S100).

Digital therapeutics, including apps that reduce the risk of diabetes, and virtual-reality systems to treat psychological conditions, are growing in number — and forcing regulators to evolve (S106). Computer vision enables systems to spot people in urgent need of medical attention, and in some cases even offer a diagnosis (S98).

In most areas of medicine, complete automation remains out of reach. But the direction of travel is clear. Researchers are exploring ways to give surgical robots greater autonomy (S110). And several companies are aiming to automate the biology lab, to reduce the tedium of some tasks and to improve the reliability of medical testing (S112).

Many implementations of AI in health care make use of information contained in electronic health records. In the United States, such systems are now commonplace, but administrators and developers are still trying to make them simpler to use and ease the strain that they place on clinicians (S114). There are also concerns that AI tools could entrench existing biases in the world's health-care systems. For AI systems to deliver similar benefits regardless of socio-economic status, developers might need to consider equality in their designs right from the start (S103).

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Richard Hodson
Supplements editor

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