

Data security

The majority of [literature](#) describing the use of [machine learning](#) (ML) in clinical medicine is [retrospective](#) in nature and often outlines proof-of-concept approaches to impact [patient care](#). Ben-Israel postulated that identifying and overcoming key translational barriers, including real-time access to [clinical data](#), [data](#) security, physician approval of “black box” generated results, and performance evaluation will allow for a fundamental shift in medical [practice](#), where specialized tools will aid the healthcare team in providing better patient care ¹⁾.

[Ethical](#) discussions around [health care reform](#) typically focus on problems of social justice and [health care](#) equity.

A review, in contrast, focuses on ethical issues of particular importance to neurosurgeons, especially with respect to potential changes in the physician-patient relationship that may occur in the context of health care reform.

The Patient Protection and Affordable Care Act (ACA) of 2010 (H.R. 3590) was not the first attempt at health care reform in the United States but it is the one currently in force. Its ambitions include universal access to health care, a focus on population health, payment reform, and cost control. Each of these aims is complicated by a number of ethical challenges, of which 7 stand out because of their potential influence on patient care: the accountability of physicians and surgeons to individual patients; the effects of financial incentives on clinical judgment; the definition and management of conflicting interests; the duty to preserve patient autonomy in the face of protocolized care; problems in information exchange and communication; issues related to [electronic health records](#) and [data security](#); and the appropriate use of “Big Data.” Systematic social and economic reforms inevitably raise ethical concerns. While the ACA may have driven these 7 to particular prominence, they are actually generic. Nevertheless, they are immediately relevant to the practice of neurosurgery and likely to reflect the realities the profession will be obliged to confront in the pursuit of more efficient and more effective health care ²⁾.

¹⁾

Ben-Israel D, Jacobs WB, Casha S, Lang S, Ryu WHA, de Lotbiniere-Bassett M, Cadotte DW. The impact of machine learning on patient care: A systematic review. *Artif Intell Med*. 2020 Mar;103:101785. doi: 10.1016/j.artmed.2019.101785. Epub 2019 Dec 31. PMID: 32143792.

²⁾

Dagi TF. Seven Ethical Issues Affecting Neurosurgeons in the Context of Health Care Reform. *Neurosurgery*. 2017 Apr 1;80(4S):S83-S91. doi: 10.1093/neuros/nyx017. PubMed PMID: 28375501.

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