

This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: The Economics of Artificial Intelligence: Health Care Challenges

Volume Authors/Editors: Ajay Agrawal, Joshua Gans, Avi Goldfarb, and Catherine Tucker, editors

Volume Publisher: University of Chicago Press

Volume ISBNs: 978-0-226-83311-8 (cloth); 978-0-226-83312-5 (electronic)

Volume URL: <https://www.nber.org/books-and-chapters/economics-artificial-intelligence-health-care-challenges>

Conference Date: September 22–23, 2022

Publication Date: March 2024

Chapter Title: Comment on “Artificial Intelligence, the Evolution of the Health Care Value Chain, and the Future of the Physician”

Chapter Author(s): Dawn Bell

Chapter URL: <https://www.nber.org/books-and-chapters/economics-artificial-intelligence-health-care-challenges/comment-artificial-intelligence-evolution-health-care-value-chain-and-future-physician-bell>

Chapter pages in book: p. 46 – 47

Comment Dawn Bell

Dranove and Garthwaite hypothesize that artificial intelligence can either be a substitute or a complement for medical decision making. They provide a useful history of efforts to improve medical decision making over the past 60+ years, focusing on resource utilization management schemes including mandatory second opinions, utilization review, and clinical practice guidelines (all of which have had varying success). What has remained unchanged is the central and persistent role of physicians in medical decision making and the continuing desire to improve the quality of their decisions while controlling costs of healthcare utilization.

The past decades have seen a “protocolization” of many areas of health care as evidence-based medicine has gained momentum and large-scale randomized clinical trials have become standard for the adoption and approval of important medical interventions. This phenomenon is revealed in the increasing prevalence of clinical practice guidelines, a codified standard of practice for various conditions ranging from diabetes mellitus to cardiovascular disease to diagnosis and management of common cancers. While adherence to clinical practice guideline recommendations is uneven, this is largely believed to be an issue of poor implementation rather than disagreement of the medical standards codified in the documents themselves. So, while physicians remain resistant to some forms of influence over their decision-making autonomy, there are areas where they adapt their behaviors to an agreed standard. This is good news for the adoption of AI, as clinical practice guidelines are an analogue analog to AI algorithms. But for reasons clearly pointed out in the paper, there are many barriers to AI adoption and progress is likely to be slow, fragmented, and inefficient. Nevertheless, adoption of AI in healthcare is increasing and will continue to increase. It is unlikely to replace physicians, but will replace many routine activities and may replace some high-value activities currently performed by some physicians.

The adoption of AI in healthcare can be likened to the evolution of autonomous vehicles. As drivers, we first gave up our maps and adopted GPS. The first step in codifying clinical decision making—clinical practice guidelines—can be compared to early GPS devices (think of the Garmin). It wasn’t integrated into driving workflows, and was clunky and not all that easy to use. But GPS improved and has been widely adopted. It was integrated into most new cars and evolved to be adaptive (e.g., Waze). Health

Dawn Bell is global head of strategic partnerships in the Research and Development Division of Novartis.

For acknowledgments, sources of research support, and disclosure of the author’s material financial relationships, if any, please see <https://www.nber.org/books-and-chapters/economics-artificial-intelligence-health-care-challenges/impact-artificial-intelligence-cost-and-quality-medical-decision-making-bell>.

systems are integrating AI-enabled decision support systems into their EHRs and workflows in a similar way.

Then cars started getting better at helping drivers drive safely—sensors and cameras to help you park, alert you when you are about to swerve out of your lane, or give a signal if you are getting too close to the car in front of you or an object behind you. And then cars got even better. They can now parallel park for you, do lane corrections to prevent drift or swerving, and apply the brakes if you are getting too close—these features are accepted and welcome additions to “safe driving.” The modern automobile helps today’s drivers much like AI decision support products can assist physicians and other medical professionals with higher-quality decision making. And while we know some cars can drive you home already, as a society we just aren’t quite ready to take our hands off the wheel.

The same is true of AI in healthcare. Products viewed by physicians as helping them make better decisions and allowing them to delegate “routine” care to midlevel providers will mostly be welcomed (and have been implemented in some situations). As AI becomes more reliable and the medical community becomes more comfortable with it, what is specialized care today will become the routine care of tomorrow, improving the quality of medical decision making in the process. This is all good news for patients who suffer most from errors in physician judgement and under- and overutilization of medical resources. We don’t need to concern ourselves with replacing physicians just yet—let’s just work on getting all of them to play at the top of their game.