De Wandel and Mathews: Artificial intelligence held artificial promise to yield health care equality

By Valerie De Wandel and Katherine Mathews

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As kids, we loved Saturday morning cartoons, and "The Jetsons" was a particular favorite. The original 1960s episodes portrayed a bright, shiny, hi-tech future centered on a white family of four with a robotic maid and a dog named Astro. There were flying cars, jet packs and the amazing video phone.

This Jetsonian future conveys a utopian view of the power of technology to improve life and solve society's problems. At its core is the assumption that technology is always a positive force for good, developed from objective science and engineering and free from human error, biases and prejudices.

Although hi-tech innovation affects many aspects of our lives, at the Bander Center for Medical Business Ethics at St. Louis University we focus on technology's role in human health and the U.S. health care system. Specifically, we are fascinated by how artificial intelligence, or AI, and machine learning are being developed to drive medical decision making. Briefly put, artificial intelligence can process huge amounts of personal information including visual images. AI then learns from that information and, through complex programing or algorithms, quickly identifies, diagnoses and implements decision-making for individual patient care.

The expectation is that high-powered technology can bring the right care to the right patient at the right time in a way that is free from human bias and error. That would be a great solution since a substantial body of research shows how bias among health care professionals contributes to poor health outcomes for minority populations.

But is the result such a great solution? Unfortunately, emerging research demonstrates the opposite effect. In certain situations, artificial intelligence does not correct for bias. Instead, it reinforces and compounds bias.

Perhaps the most striking example comes from an October 2019 publication in Science Magazine. This research showed that a widely used algorithm for patients with complex medical conditions withheld necessary care from a substantial percentage of Black patients. That's because the program focused on costs, not health.

Wait, what? Are we saying it costs more to treat Black patients? Actually, here is the point. One main legacy of structural racism is that we have systematically withheld investment from minority communities. As a society, we have underfunded basic infrastructure such as roads and sidewalks. We have failed to guarantee public safety in an effective and respectful way. We have sapped financial resources from minority communities through discriminatory and predatory mortgage and lending practices. We have allocated less money to schools and playgrounds. All these policies and practices take a toll on individual health. Collectively, they have a measurable impact that shows up as an increased burden of chronic disease and a higher likelihood of untimely death.

As the Jetson's dog, Astro, might say, "Ruh-roh!"

Although the scope of these issues and their solutions go well beyond the health care system, we as health care professionals are still morally obligated to resist these forces, not augment them. So, what are we to do? At a minimum, we need to maintain a balanced skepticism about the power of hi-tech innovation to cure all ills. As a society and as a research-focused community here in St. Louis, we also need to hold researchers, developers and innovators accountable for testing out the impact of their new hi-tech and artificial-intelligence solutions. Checking for bias should be a core component of technology development prior to rolling out these products.

Finally, despite inevitable human flaws and weaknesses, the relationship of one person with another, between health care professional and patient, between human and human, is

where the true power for positive change and healthy lives comes from. A future devoid of this human-to-human connection would be a dismal future indeed.

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