Trustee Insights

Artificial Intelligence and the Trustee

What trustees should know about the impact of AI in health care

The following is the second of a two-part series on artificial intelligence (AI) for the trustee. The first article discussed the definition of AI, provided a practical AI working model and covered general concepts and controversies that the trustee would encounter. In this article, we discuss the establishment of an organizational partnership with AI, as well as specific health care applications in the clinical arena and operations support.

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Every new technology has the potential to cause change, typically in an unpredictable and disruptive manner. Over the next several years, AI is on course to drastically change the practice and operations of health care. How can hospitals embrace this new technology and manage these changes, and what is the role of the trustee in providing leadership and guidance during this transition?

Developing a culture of partnership with AI

There are numerous reports that discuss the future effects of AI on the job market. Typically, they forecast jobs that will be in greater demand, and those which will incur less demand. Jobs which could be negatively affected by AI include accountants, writers, financial advisors, customer service agents, educators and even soldiers. Those which could have increased demand include AI training, machine managers and other AI technologically related functions. As this technology is implemented, some positions will do better, and some will do worse. In theory, one could apply this approach to health care.

But simply looking at the health care workforce in terms of "winners and losers" is short-sighted and counterproductive. The following example from the banking industry demonstrates the preferred approach:

When ATMs were introduced in the 1980s, there was a concern that bank tellers would become obsolete. Not surprisingly, immediately post-implementation, the number of tellers per bank decreased by almost 40%. But that decrease created operational efficiencies with the new technology. Customers wanted the convenience of local branches. By leveraging the cost-efficiencies created by ATMs, banks were able to respond to this demand, and increased the number of banks in the USA by almost 40%, creating a new demand for tellers (partially compensating for those who were

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let go). Additionally, it was realized that if the teller's job was only to "cash checks," they could be readily replaced by technology. Their job descriptions were expanded to include such functions as customer service and loan transacting, leading to a new and enhanced role for the teller. Rather than eliminating the position, the job responsibilities were enhanced by the new technology, and the bank teller has prospered.

Applying this example to health care, the goal is to develop a partnership with AI that would enhance and augment human workers, not replace them. Let the computer do what it does best, such as repetitive and mundane activities, and allow the human employee to do what he or she does best — bring a human touch to the task at hand.

It is best not to think of AI as a competitor or replacement for any human job. Rather, the human's competitor will not be AI, but another human who uses AI to outperform. This new AI partnership will be charged with three fundamental tasks, and the trustee will be involved in all three:

1. Include AI as an integral component of the strategic planning and educational process.

There are a tremendous number of AI products currently on the market and many more proposed or in development. The strategic planning process must look at these products and vendors and determine the critical few AI applications that are most needed by the hospital, given precious financial resources. To address this concern, many hospitals are creating a

multidisciplinary AI Council which reports to senior management or the board. Some hospitals have created a Chief AI Officer.

The organization must develop an ongoing educational program for all stakeholders: providers, managers and trustees. As AI applications will rapidly change and evolve, updates and in-services will be necessary on a regular basis to stay current and maintain top competitive advantage. AI performance metrics must be incorporated into the existing strategic dashboard to assess the impact of this technology on daily operations and clinical performance.

2. Promote the AI culture: Augment the human and leverage what each does best.

The impact of AI will be manifest throughout the organization. Partnering with AI will require reworking job descriptions and workflows, which will affect every employee. New competencies and skill sets will emerge that have to be identified and mastered throughout the hospital.

The goal is to use AI in concert with humans to improve total organizational performance. AI can do many of the tedious tasks and free up the human to do other things (such as focus on direct patient care!). This should improve the efficiency of the workflow as well as improve employee engagement and satisfaction. The organization's human resource department will be important in managing this change and cultural evolution.

3. Continuously monitor and improve.

AI technology is not static; it will

continue to expand exponentially. One will see constant enhancements and new applications. The organization must utilize the same performance improvement techniques in the AI arena as it does for all other operations. Implementing AI is far from a "one and done;" it must be constantly reassessed.

To wit, the plight of the bank tellers developed a new twist. Today, many customers do their banking remotely or via cell phone, without the need to visit a bank or talk to a person. And once again, banking executives are forecasting future reductions in tellers. The cycle repeats. Similarly in health care, there will always be the need for reassessment and redesign as new technologies and efficiencies emerge. Leadership must facilitate this process.

Applications of Artificial Intelligence in Health Care

Presently hospitals are faced with dozens of AI applications, hundreds of vendors and even more products. The following is a brief summary of some of the most important applications in the areas of clinical improvement and operations support. Many of these applications are not quite ready for "prime time" in 2024 but will rapidly become mainstream. The trustee should have a fundamental understanding of these basic AI capabilities.

CLINICAL IMPROVEMENT

Clinical decision support (CDS): This is the process whereby AI provides the caregiver with critical data to drive better-informed medical

decisions, particularly in the areas of earlier disease detection and real-time disease monitoring. Here are a few examples:

Studies have now shown that AI can detect lesions on chest X-rays and mammograms at an earlier stage. Working in concert with radiologists, smaller and theoretically more treatable tumors can now be discovered.

AI can detect potentially pre-cancerous cells by noting changes imperceptible to the human eye. A partnership with AI and the pathologists could lead to earlier detection of cancer.

Digital stethoscopes can detect heart murmurs which may be inaudible to humans allowing earlier detection of cardiac valvular disease.

AI can detect subtle abnormal speech patterns which could be precursors to the diagnoses of depression or dementia.

The science of genomics, which has previously been hampered by lack of computing power, can now take advantage of super-fast computers to formulate a patient's lifelong risk profile for future diseases. This could lead to proactive lifestyle changes and illness prevention.

Real-time disease monitoring will be available for patients with diabetes, atrial fibrillation, early stroke detection and many other clinical conditions. Early clinical changes could immediately be transmitted to the care providers for appropriate management.

Adverse drug reactions could be better predicted with new technology that could use large databases to detect or even prevent subtle drug interactions not previously known.

Wearable devices in the commu-nity setting could monitor patient progress and instantly notify the patient and caregiver at the onset of a problem.

AI can facilitate faster development of potentially lifesaving drugs by more efficiently monitoring and enhancing the complicated pipeline of new drug identification, product development and clinical efficiency and safety trials.

Medical documentation using ambient clinical intelligence: Most providers agree that the burden of documentation is one of the biggest dissatisfiers in health care today. Electronic record entry is cumbersome and time-consuming for the provider and is a distraction to the patient. A recent study showed that the average provider spends more than six hours per day on the computer, much of that time occurring after-hours. Ambient clinical intelligence merges generative AI (GPT) with voice technology allowing a device such as a cell phone to monitor the doctor-patient encounter and compose a comprehensive document for the physician to review immediately after the visit. Other pertinent information gained from the medical record could be automatically added to the note. This technology significantly reduces physician computer time (especially after-hour time) and increases provider satisfaction. Multiple vendors are now pursuing this technology and it promises to be a true enhancer — improving both quality of care and provider satisfaction.

Personalized health care: AI can assist clinicians in developing specific guidelines for individual patients. Currently, most hospitals have disease protocols in place for conditions such as heart failure, respiratory failure, sepsis detection, etc. These pathways have improved clinical outcomes by standardizing treatment and decreasing variance. However, these protocols are based upon a single disease and very few patients have just one disease. Just because two patients may have heart failure, it does not mean that they should be treated the same. They may take different medications, or have other comorbidities, which would require different management and treatment.

AI will be a catalyst for the era of personalized medicine. Analyzing vast databases, AI could determine a unique patient care plan for each patient at time of admission. It would generate a unique set of orders for care based upon that patient's genomics, past medical history, medications, etc. Within a few years, such personal medical protocols should become a reality in both inpatient and outpatient.

Health equity: Despite huge medical advances over the years, there are still large and completely unacceptable differences in patient outcomes based upon societal factors. It is necessary to analyze vast databases to better understand these differences and provide individualized pathways to improve care. With high-speed computers, AI has the ability to analyze millions of records and multiple variables to determine the best course of action for the individual patient. Additionally, AI can serve as a patient "communicator" through GPT or cell phone to achieve better patient access, buy-in, understanding and compliance.

OPERATIONS SUPPORT

Revenue cycle management: As cost pressures mount in health care, improved revenue cycle management can significantly improve financial performance. Think of AI as an "airport traffic control system" that instantaneously monitors every facet of the revenue cycle pre-authorization, coding, payor denials, etc., and optimizes the performance of each component resulting in more rapid claim submission and reimbursement. When this is combined with ambient clinical intelligence (documentation), one could imagine a scenario where not only is the medical note available immediately after the patient encounter, but also, billing codes would be automatically entered onto a superbill generating an "instantaneous" clean claim for payor submission.

Supply chain management: As with revenue cycle, AI could monitor every product and vendor currently used in the hospital. It could forecast future demands, monitor product supply routes and anticipate and manage bottlenecks in real-time, thus minimizing the chance of a supply crisis.

Work force optimization/ scheduling: Hospital staffing is extremely complex with complicated regulatory constraints. AI could continuously monitor the patient census throughout the hospital and forecast future demand, optimize staffing ratios, and offer real time alternatives. It could even contact employees through their cell phones to fill unexpected vacancies or urgent staffing needs.

Finally, Vinod Khosla from Microsystems announced in May 2023 that "Within 5-6 years, the FDA will approve a primary care app qualified to practice medicine like your primary care physician." Predictions in AI historically tend to come true and tend to come true faster than anticipated. Such an app, in partnership with the existing medical infrastructure, has the potential to vastly improve patient care, helping to lighten the load of already overworked providers. Imagine a partnership between a physician and this app. Although the concept of a physician as a hologram sounds daunting, coordinated care between the physician and an app such as this could help the current provider shortage and deliver more care to more patients.

Overall, there are tremendous opportunities that AI implementation can bring to both patient care and operations support. This article has outlined some of these. As the technology evolves, there will be many future applications that have not even been thought of yet.

As a trustee, you will be involved in this process. Understanding AI, both in your field and in health care, will provide significant value to your hospital. It will be an extremely rewarding time to contribute to your hospital and community as the field continues its exponential growth.

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