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Leveraging AI to Support Improvement

Important considerations for quality leaders.

Since ChatGPT burst onto the scene with great fanfare in November 2022, industries worldwide have been assessing the impact of a widespread uptake of generative AI technologies. These tools not only answer questions but also generate new content, including text, images, data visualizations and more, with relatively modest human prompting.

In healthcare, generative AI is showing tremendous potential in helping providers save time on documentation, patient education, communication and note taking. But what effect might these technologies have on healthcare quality improvement activities? To answer this question, the Institute for Healthcare Improvement scanned the literature and consulted dozens of experts. The findings indicate that generative AI will likely change how quality improvement teams distribute their time, approach education and manage routine data analysis.

We suggest that quality leaders think of AI as an assistant and facilitator that enables their talent to spend more time on activities that they want to do, but for which they may lack adequate resources, especially time. Examples include deeply exploring clinicians' challenges and brainstorming

solutions, engaging with patients and families to understand their needs and pain points, and co-producing improvements with multiple stakeholders. The great potential for AI, however, does not override the importance of proceeding with caution and identifying, acknowledging and proactively attempting to mitigate the attendant risks.

Using AI to Support Quality Improvement

IHI's research identified several powerful use cases for generative AI in healthcare:

- **Data Visualization and Analysis:** ChatGPT Plus and similarly powered tools can create classic quality improvement data visualizations like run charts, control charts, Pareto analyses and histograms. In addition, some AI tools can analyze data to help identify statistically significant variation.
- **Quality Improvement Education:** AI tools provide largely accurate responses to basic questions posed in a conversational tone such as "What is a Plan-Do-Study-Act cycle?" or "Why is it important to look at change over time?"

- **Change Preparation:** The tools can help improvement teams identify and iterate on change ideas, build driver diagrams and devise measurement strategies. Because AI tools rely on existing information, they are most suited for topic areas in which best practices are well known, such as reducing patient falls, infections and discharge delays.
- **Consultation:** The tools do a reasonable job of brainstorming options when implementation barriers arise, such as resistance to change from peers. They can help users take a step back, consider alternatives and identify a first step.

Considerations for Leaders

Healthcare leaders may be tempted to leverage efficiencies afforded by AI to scale back on staffing. Research suggests that quality-related job roles may be disproportionately impacted by AI, given the knowledge and work required of quality specialists, which AI can facilitate in many ways. We strongly suggest that quality leaders avoid this line of thinking because AI tools can make factual errors, invent facts and perform basic calculations inaccurately. Regarding patient safety, healthcare

organizations cannot afford to rely on generative AI for anything other than assistive support.

Perhaps the best way to leverage efficiencies introduced by generative AI is to free up quality professionals for activities best performed by humans, such as overseeing automated tools' outputs to ensure they are factually accurate and fine-tuned to the local culture.

Another way to leverage generative AI is to help organizations implement a quality management system, such as IHI Whole System Quality, which emphasizes a holistic approach comprising three interrelated components: quality planning, quality improvement and quality control. Linking these components and building the attendant data collection and management systems can prove daunting to quality managers overstretched with meeting the needs of regulators, accreditors, risk managers, patients, clinicians and others. Generative AI may be able to help by analyzing large troves of qualitative and quantitative information and even facilitating activities like patient-facing interviews to better understand service user needs via specially designed chatbots.

Expanding the use of AI tools to these types of activities provides quality leaders with the opportunity to enable managers and staff to focus on other aspects needed to bring Whole System Quality to life: co-design, facilitation and skill-building.

Further Implications

Many healthcare organizations are in the early stages of considering how

best to harness the power of AI. Some forbid the use of existing generative AI solutions, given that they are not HIPAA-compliant. Others may choose to build a homegrown solution using an open-source model, thus ensuring that no data leave the institution, or use an enterprise version of a "closed-source" model, such as Microsoft Copilot. Still others may want to work with OpenAI or a similar vendor to adopt the privacy practices that best fit their business.

Whichever path is chosen to operationalize their organization's vision for incorporating generative AI, it is important for quality leaders to consider the following:

- **Seek multidisciplinary input and oversight:** Ensure that an existing or new multidisciplinary committee with representation from clinicians, executives, IT leaders, risk and legal analysis experts, researchers, quality managers and operations leaders is closely examining use cases and policies pertaining to generative AI. For example, Duke Health, Durham, N.C., and UC Davis Health, Sacramento, Calif., are building such structures.
- **Identify training required for staff:** The foundational skill for generative AI is "prompt engineering," or the art and science of knowing how to ask generative AI chat tools questions in a way that will offer the most useful, informative, accurate and relevant results. Prompt engineering requires no background in computer coding or programming to master, and numerous free offerings are already in place.

Generative AI is primed to reshape knowledge work—including quality improvement work—for years to come. We don't yet fully understand all the workforce implications, and research questions on the tools' overall accuracy and reliability across diverse use cases still require careful study. Additional tools will become available that offer AI-powered quality management through continuous monitoring, ambient listening, real-time transcription and even AI-enabled visual tracking to identify deviations from standard processes and prevent problems. At the same time, these technologies could jeopardize workforce well-being by heightening surveillance and reducing autonomy.

Leaders need to proceed cautiously and consider AI tools that improve both care quality and workforce well-being, assessing such technology adoption together with point-of-care clinicians and staff, and building guardrails around their uses (for example, the primary user of such data should be the clinician working with patients, not the clinician's manager). Seeking feedback from patient and family representatives is also important to the development and implementation process.

Healthcare quality leaders are well-poised to begin understanding the implications of AI for their work—finding that the essential quality improvement principles of test, learn, test, learn and adapt still apply. ▲

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