California Health Care Foundation

Examining AI and Health Care:
Implications for Equity and California's Health Care Safety Net

The New AI Landscape

Artificial intelligence (AI) is at an inflection point. The emergence of generative AI, along with the development of sophisticated large language models, has greatly enhanced the analytical and predictive capabilities of computer systems, allowing for remarkable insights to be drawn from vast data sources. For a number of reasons, this may lead to greater development and adoption of AI applications in health care.

As a result of freely available generative AI tools like ChatGPT, health care professionals and patients alike are encountering AI with increased frequency in their everyday lives. That familiarity may lead to a greater receptiveness to AI tools in health care, especially when it comes to interactive interfaces like messaging systems and chatbots. At the same time, we can and should expect many people to have concerns. A recent CHCF survey of Californians found that more than half of Californians were uncomfortable with the use of AI in health care — the biggest concerns being about

possible medical errors and discomfort with interacting with AI instead of human health professionals.[1]

"I get that there's a lot of hype about AI. It's an incredibly shiny object, and I am normally very skeptical of shiny objects. Even so, I honestly believe the potential of AI to transform health care is very real — and a very big deal."

— Kara Carter, MBA, MSc, senior vice president for strategy and programs, California Health Care Foundation

The advent of large language models means that AI tools are able to process larger volumes of data at incredible speed. This has the potential to be particularly impactful for health care systems, which already generate vast amounts of data through electronic health records (EHRs), telehealth, and other digital

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innovations. These data quantities often go beyond what human beings are capable of processing. As such, AI capabilities might offer tools for health care professionals to produce insights that were previously unreachable and that have the potential to improve patient health and save lives.

The health care sector is currently in the early stages of implementing AI solutions to clinical diagnostics, community and population health, hospital operations, and other areas. The tools that are circulating in the delivery system primarily use machine learning and predictive analytics in an effort to enhance how health care is managed, delivered, and received.

Important details must be proactively addressed to ensure AI has a positive impact on the delivery of equitable care. Maintaining data privacy, avoiding racial and ethnic algorithmic bias, and ensuring that AI tools are accessible to all population groups are notable considerations that remain top of mind.

This fact sheet outlines major opportunities for AI to bolster the health care safety net by expanding access to underserved groups, reducing racial and ethnic disparities in quality of care, and advancing the cause of health equity. It also raises some key considerations and challenges that may determine how these opportunities play out.

Artificial Intelligence Key Terms

Algorithms:
Basic instructions with specific input and output parameters.

Natural Language Processing:
The ability of computers to understand and interpret human language.

Predictive Analytics:
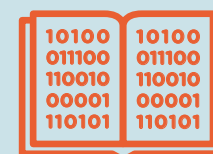Using current data to forecast future events or outcomes.

Generative AI:
Machines generating new, original content from analyzing extensive source material.

Machine Learning:
Computers learning to recognize patterns and make decisions from large datasets.

Large Language Models:
A specialized form of Generative AI focused on processing and generating text-based data.

What Can AI Offer Medi-Cal?

To better understand how AI might improve quality of care, reduce barriers to access, and advance health equity, especially in health care systems (like Medi-Cal) that serve California's lowest-income residents, we have categorized possible use cases into four top themes: back-office operations, clinical support, population health, and health workforce solutions.

1. Back-Office Operations

Back-office operations are the nuts and bolts of health care delivery. They include corporate concerns, such as marketing and workflow; legal and legislative affairs; insurance considerations, such as enrollment, claims, billing, and pre-authorization; and administrative tasks, like note-taking during patient visits — all of which AI is poised to streamline.

These back-office functions may be less visible to patients, but patients are profoundly impacted by them. They are critical to ensuring delivery systems operate smoothly by maximizing efficiencies and reducing costs. By automating, facilitating, and simplifying administrative tasks, health care organizations may save time and money, simplify access for patients, and maximize the time clinicians can devote to patient care.

AI in Action: Prioritizing Patients over Paperwork

Last year, UCSF Health announced that it had contracted with Ambience Healthcare to deploy generative AI to help physicians with documentation tasks, such as note-taking during and after patient visits. This "AI scribe service" is now being piloted by 100 physicians in Oakland and San Francisco with an eye toward minimizing administrative burden and maximizing time spent with patients.[2]

> *"Once you're in the hospital … it's going to cost the entire system 10 times more than if you were actually treated in primary care."*
>
> — Steven Lin, MD, Stanford Healthcare AI Applied Research Team (HEA3RT)

AI in Action: Predictive Models Can Prevent Claim Denials

Community Medical Centers, a Federally Qualified Health Center (FQHC) serving San Joaquin, Solano, and Yolo Counties, uses AI Advantage — a tool developed by analytics company Experian to streamline claims processing — to reduce insurance claim denials.[3] The platform uses machine learning to find patterns in payer denials, as well as predictive analytics and natural language processing that triage patients based on perceived risk and suggest alternate treatment solutions. Denied claims disproportionately impact high utilizers of health services who have complex needs.

2. Clinical Support

When it comes to caring for individuals, AI is beginning to help physicians and other patient-facing health professionals engage more effectively with patients and patient care. Natural language processing and generative AI are helping to lower barriers to communication between patients and providers through translation technologies and specialized chatbots. AI is also enabling providers to extend care capabilities through remote patient monitoring, patient education, and culturally concordant care.

What's more, clinicians are beginning to use machine learning as an assistive decisionmaking tool when it comes to diagnostics and treatment options. These technologies may be especially useful for systems with larger patient volumes and fewer available specialists. Because of their capacity to interpret vast quantities of data quickly, providers may generate insights and identify necessary follow-up protocols for more individual patients. And as more data sets become available — especially those that include social data, such as housing status and income level — these innovations may further enhance the whole-person capabilities of clinical care.

AI in Action: Diagnosing Glaucoma in Underserved Groups

Right now, staff at Keck Medicine of USC manually sift through thousands of retinal scans of patients with diabetes, looking for signs of severe eye disease. Due to the volume of images that are sent in, patients — many of whom come from LA's Black and Latino/x communities — can wait as long as six months for a diagnosis or referral. USC's Michael Pazzani, PhD, an information sciences expert, hopes to shrink that wait time by using machine learning to rapidly sort through images and identify high-risk cases that need to be reviewed by an expert right away. The image-sorting process, which is 95% accurate, may help shrink disparities by connecting members of the community to accessible, swift, high-quality care for chronic disease.[4]

AI in Action: Culturally Concordant Transplant Nutrition

Abigail Horn, PhD, a professor of industrial systems engineering at USC, is developing a platform that uses machine learning to recommend menus for organ donors and transplant recipients that are tailored to their unique medical needs while also being culturally concordant. With AI, Horn is able to develop meal plans based on doctor-prescribed nutritional demands (such as protein, fat, or iron requirements) as well as variables that are specific to the patient (such as dietary preferences, economic constraints, and cultural compatibility).

AI in Action: Developing Treatment Plans for Cancer Patients

Silicon Valley–based El Camino Health, a nonprofit hospital with sites in Mountain View and Los Gatos, is using AI to develop personalized cancer treatment plans for patients. With Ethos, a machine learning and generative AI system developed by Varian, providers can offer patients adaptive therapy plans that respond to ongoing changes in the anatomy of a tumor with speed and precision. The process saves the provider time and money, while also offering the patient personalized care and less exposure to toxic radiation.[5]

> *"We need to use data more effectively for caring for patients."*
>
> — Jeffrey Golden, MD, UCSF Health

3. Population Health

Clinicians can utilize AI to manage population health in ways that mitigate health disparities. Machine learning, for instance, is beginning to help health care professionals swiftly make sense of data that would otherwise take extensive time and resources to process, enabling them to more accurately identify and address the needs of entire patient communities. Furthermore, predictive analytics and generative AI can aid in triaging populations by using a combination of health and social data to develop more equitable risk stratification models.

In public health settings, AI can be seen as a tool for responding to crises, such as pandemics, with speed and accuracy. Machine learning can help government agencies survey and deploy safety measures within complex and dynamic population groups, while generative AI might assist with the rapid building and deployment of public health campaigns that can reach people who speak different languages and have different literacy levels.

AI in Action: Using Population Data to Prevent Sepsis

At the Kaiser Permanente Northern California Division of Research, critical care specialist Vincent Liu, MD, MS, is employing AI to predict patients' risk of sepsis — a severe form of infection. He uses machine learning to quickly sift through troves of complex medical and social data from electronic health records. The data are fed into an algorithm that looks for patterns in patients' backgrounds and outcomes, which helps Liu identify patients who may be predisposed to sepsis before they even set foot in a hospital. Then he and his colleagues can deploy preventive strategies to keep these patients — many of whom have complex needs and co-occurring conditions — out of risky hospital settings.[6]

AI in Action: Avoiding ED Visits with Predictive Analytics

Steven Lin, MD, and his colleagues at the Stanford Healthcare AI Applied Research Team (HEA3RT) are developing a predictive analytics program that uses EHR data to anticipate which patients are likely to visit an emergency department (ED) in the near future. The aim is to preemptively connect these individuals to the primary or specialty care teams they need to keep them from having to go to the hospital. The tool improves patient health, lowers total costs of care, and reduces care disparities, since most of the patients identified have low incomes and come from underserved communities, making them least likely to have a regular source of primary care.[7]

> "AI is really going to be a major piece of how you set thresholds, how you make the data speak to each other, and then how you take action to address what is revealed."
>
> — Daniel Wolfe, MPH, MPhil, executive director of the UC Berkeley–UCSF Joint Program in Computational Precision Health

4. Health Workforce Solutions

AI offers new opportunities for mitigating health workforce challenges. For instance, AI tools might optimize workforce deployment and help fill labor shortages by pairing job candidates with open positions, intelligently deploying specialists in ways that maximize the potential of primary care providers to fill gaps, or improving capacity and cultural competency by better integrating community health workers and other peer professionals into care teams. Generative AI and predictive analytics can also help to grow and develop the workforce by creating training materials and identifying training gaps in areas like diversity, equity, and inclusion, whereas natural language processing tools may improve distance learning solutions through chatbots or advanced simulations. Finally, by reducing administrator burden and assisting support staff, AI can decrease burnout, lessen turnover rates, and allow clinicians to practice at the top of their license.

AI in Action: Maximizing Nurse Retention and Impact

Mercy, a Missouri-based hospital system that serves over 2.6 million active patients, has adopted an AI solution to address labor shortages across more than 40 sites. It uses Works, a nurse staffing platform developed by San Francisco–based Trusted Health, to identify solutions that fulfill hospital needs and workforce priorities. Works uses machine learning to recruit employees, fill shifts, manage schedules, and coordinate contracts in ways that both reduce cost inefficiencies and improve staff retention.

AI in Action: Broadening SUD Treatment Through Virtual Peer Support

Addressing California's behavioral health workforce shortage is an important step toward shrinking health disparities. Marigold, a social networking app developed by Marigold Health, makes treatment more accessible by offering AI-augmented virtual peer support to people with mental health needs and substance use disorders (SUDs) around the country. While discussions are guided by certified peer specialists, the platform is enhanced by natural language processing tools that help identify when a patient is in distress, in need of additional support, or demonstrating signs of co-occurring conditions. AI is used not only to flag when conversations may require immediate provider attention, but also to maintain appropriate conduct among group members, as well as to minimize the exchange of misleading or false information among participants — both of which are risks inherent to other digital platforms.

What Concerns Remain Top of Mind?

"If we're not taking into account community, we're likely to miss the keys to success in developing models that can better represent our patients' stories."

— Reshma Gupta, MD, MSHPM, chief of population health and accountable care at UC Davis Health

AI does carry risk. Specifically, AI has been known to perpetuate bias and inequity in the past, especially when algorithms have interpreted data that are themselves biased or unrepresentative. In 2023, for instance, UnitedHealth Group was found to have erroneously used an algorithm to deny rehabilitation coverage to older and disabled patients.[8] And an algorithm previously used by health systems to triage follow-up care wrongly classified White patients as sicker — and therefore in greater need of monitoring — than Black patients.[9]

Other risks include data breaches, employment cuts, and inequitable access to AI's proposed benefits. Thus, the following concerns should be considered carefully as the health care safety net increasingly adopts AI tools and solutions:

► **Data privacy**. In our increasingly digital world, Californians want to know that their health data are not at risk. As data are shared across platforms, how will patients know that their personal information is being kept secure? And how will we ensure that those who have historically faced the greatest barriers to care — and who may be more likely to use services like free chatbots — are not placed at a greater risk of data breaches than others?[10]

► **Informed consent.** Responsible data exchange systems improve the health of individual patients and communities. What information do patients need so that they can make informed decisions about data sharing? How do we ensure that such information is presented equitably to different patient groups, including those who speak languages other than English and those with lower rates of health literacy?

► **Algorithmic bias.** Historically, not all Californians have been fairly represented in health care data. Since these data are used to "train" algorithms, AI tools can then produce skewed results that favor certain populations. There are particular concerns about racial and ethnic bias. How do we ensure that data from underserved communities are collected so that we can avoid transferring existing biases to AI systems?

► **Responsible oversight.** AI technology is developing at warp speed. How will governing bodies keep pace to ensure that regulations are kept up to date with rapid advancements? At the same time, how will we avoid creating regulations that inhibit new technologies from getting to the communities that need them most?

► **Equitable access.** As new AI tools are rolled out, it is important that the benefits reach all levels of the population, including people with low incomes. Adopting these tools — especially those that are expensive, have high processing needs, or require a certain degree of technological literacy — may be easier for private health systems than for FQHCs and public hospitals. Will California ensure that safety-net systems have the computing power and training they need to access AI-powered solutions? Or will AI simply exacerbate existing structural inequities in the health care system?

Spotlight: Eliminating Racial and Ethnic Bias in AI

The California Primary Care Association, Sutter Health, and the California Black Health Network have formed a coalition to advocate for policies that will enforce the fair representation of racial and ethnic minorities in health care data.

At UC Davis, system leaders are working to build a framework for how to address bias in AI that is grounded in filling information gaps by partnering with underrepresented communities.

> *"We have these incredible technologies coming out. But if there are barriers to their application, they aren't going to be used to their full potential."*
>
> — Steven Lin, MD, Stanford Medicine

Responsibly embracing the transformative potential of AI means keeping these questions of privacy, equity, and governance at top of mind. Doing so will enable the field to wield AI as a powerful tool to help with filling knowledge gaps, reducing burnout, improving access to care, minimizing patient risks, and more.

About the Author

Robin Buller is a freelance writer, researcher, and editor. She holds a doctorate in history from UNC Chapel Hill and has written a book about immigrants in 1920s Paris. Originally from Canada, she has lived in the East Bay since 2018.

About the Foundation

The California Health Care Foundation (CHCF) is dedicated to advancing meaningful, measurable improvements in the way the health care delivery system provides care to the people of California, particularly those with low incomes and those whose needs are not well served by the status quo. We work to ensure that people have access to the care they need, when they need it, at a price they can afford.

CHCF informs policymakers and industry leaders, invests in ideas and innovations, and connects with changemakers to create a more responsive, patient-centered health care system.

Further Reading

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