

ConnectedHealth

Why AI? Considerations for Use of Artificial Intelligence in States' Medicaid and CHIP Programs

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I. Executive Summary

Artificial/augmented intelligence (AI) has the potential to transform the healthcare system and the radically improve the experiences of patients and healthcare providers throughout America's healthcare ecosystem. Experts believe that the responsible use of AI will enhance the quality of care, prevent hospitalizations, reduce complications, and improve patient engagement while also lowering costs. At the same time, AI healthcare applications will also give rise to a variety of potential challenges for policymakers to consider including concerns about privacy, bias, inclusion, and transparency.

As administrators of two of the largest healthcare providers in America, Medicaid programs and the Children's Health Insurance Program (CHIP), state governments have an important role in defining the future of AI in American healthcare. They have an opportunity to not only leverage AI in service of their states most vulnerable citizens, but also ensure AI is adopted in the most responsible, transparent and equitable way possible.

Responsible use of AI has the potential to dramatically reduce administrative burdens and free up Medicaid and CHIP programs resources to focus on improving care for patients and permitting resource redeployment to better serve the most vulnerable populations and to mitigate and eliminate disparities in healthcare at all levels. Furthermore, AI has also demonstrated an ability to help manage public health emergencies (e.g., COVID-19) at the state level and to aid in related recovery efforts.

To help state policymakers navigate the opportunities and challenges of adopting Al-based technologies, the Connected Health Initiative convened a multidisciplinary group of experts to to develop a robust set of Al Policy Principles and produce the following analysis of the key considerations state policymakers should keep in mind as they consider Al's proper role in their state's Medicaid and CHIP programs.

At the core of our recommendations is the use of AI tools to advance the "Quadruple Aim," a widely accepted compass for optimizing the performance of health systems based on the work of the Institute for Healthcare Improvement. These goals include:

- 1. enhancing population health;
- 2. improving patient experience, satisfaction, and health outcomes;
- 3. better clinician and healthcare team experience and satisfaction;
- 4. lowering overall costs of healthcare.

CHI recommends that states develop an integrated and robust state health IT strategy to maximize the effectiveness of these technologies for their citizens. This strategy should be developed in partnership with a wide range of stakeholders from within healthcare industry, advocacy organizations, academia, patient organizations and beyond. Some of the core areas this strategy should address are: research and development, quality assurance and oversight, human-centered design, access and affordability, ethics, privacy and security, interoperability, workforce development, and education.

II. Introduction/About the CHI Health Al Task Force

A. About CHI and its Health AI Task Force

The Connected Health Initiative (CHI) is the leading multistakeholder advocacy organization for the responsible deployment and use of innovative connected technologies in the delivery of healthcare. We represent a broad and diverse consensus of healthcare stakeholders from physician groups to technology companies. CHI seeks policy and legal changes that will allow all Americans to realize the benefits of an information and communications technology-enabled American healthcare system. CHI is committed to advancing technology use across healthcare use cases that will improve outcomes for all patients as well as mitigate and eliminate disparities in healthcare at all levels. For more information, see www.connectedhi.com.

Artificial/augmented intelligence (AI) has the potential to positively transform the healthcare system and the experiences of patients and healthcare providers throughout the healthcare ecosystem. All has incredible potential to improve healthcare, prevent hospitalizations, reduce complications, and improve patient engagement. Along with this promise, CHI recognizes that AI healthcare applications also give rise to a variety of potential challenges for policymakers to consider, including notice/consent, bias, inclusion, and transparency, among others.

As healthcare Al innovations advance and begin navigating the regulatory processes on the way to market, policymakers at both the legislative and regulatory levels are considering whether there is a need for accompanying policy changes.

Recognizing the significant role that states play through their administration of Medicaid programs and the Children's Health Insurance Program (CHIP), CHI has prepared this whitepaper to aide policymakers in their policymaking processes. CHI's Health AI Task Force—consisting of a range of subject matter expert stakeholders from throughout the healthcare continuum—developed a robust set of AI Policy Principlesⁱ which provide a foundation our analysis of considerations that state policymakers should keep in mind as they consider AI's role in their state's Medicaid and CHIP programs.

B. Overview of Al

Although Al has various definitions based on context and sector-specific qualifiers, most individuals in the field would agree that Al includes systems or machines that mimic human intelligence to perform tasks. Al is an evolving constellation of technologies that enables computers to simulate elements of human thinking – learning and reasoning among them. Furthermore, Al is a multidimensional term that encompasses a range of approaches and technologies, such as machine learning (ML) and deep learning, where an algorithm can

adapt by "learning" when exposed to new inputs, allowing for independent or assisted decision making.

Al-driven algorithmic decision tools and predictive analytics are having, and will continue to have, substantial direct and indirect effects on Americans. Some forms of Al are already in use to improve American consumers' lives today. For example, Al can augment efforts to detect financial and identity theft and to protect the communications networks upon which Americans rely against cybersecurity threats.

Breakthroughs are expected to create a \$126 billion AI marketplace by 2025 with the opportunity for far-reaching benefits. If policymakers navigate the challenges and opportunities effectively, AI will improve American consumers' lives through faster and better-informed decision making enabled by cutting-edge distributed cloud computing. AI will also provide for more effective governance through its ability to enhance infrastructure foresight and support efficient budgeting decisions. AI will beneficially impact every aspect of Americans' lives if we encourage ethical innovation at AI's beginning stages.

Today, Americans encounter AI in their lives incrementally through improvements in computer-based services in the form of streamlined processes, image analysis, and voice recognition. It is evident today that this "narrow" AI approach is already providing significant societal benefits. For example, AI-driven software products and services enabled countless disabled Americans to experience sensations that people without a disability can perceive on a day-to-day basis, revolutionizing and improving their day-to-day lives.^{IV}

Along with these transformative benefits, Al raises a variety of unique considerations for societal concerns that policymakers must address to realize the promise of Al. Policymakers must find a balanced approach to the implementation of Al innovation with necessary safeguards to protect consumers and society. It is important that policymakers consider the variety of stakeholders that Al may influence. This is especially true in the healthcare context when making statutory and regulatory changes impacting Al. Such changes must be based on risk of harm and benefit accounting for a host of factors, including evidence of safety, efficacy and equity including addressing bias; Al system methods, level of automation, transparency and conditions of deployment. Given the demonstrated benefits of Al across numerous consumer and enterprise use cases, state policymakers should strive to support Al systems that advance the quadruple aim and make these benefits available to their citizens across the healthcare spectrum, particularly for Medicaid and CHIP beneficiaries.

III. Why Do Medicaid and CHIP Need AI?

Medicaid provides health coverage to millions of low-income Americans and is one of the largest payers for healthcare within the United States. ^v Currently, 63.9 million people are enrolled for Medicaid services including low-income adults, children, pregnant women, elderly adults, and individuals with disabilities. ^{vi}

CHIP programs provide health coverage to eligible children, through both Medicaid and separate CHIP programs, and is administered by states, according to federal requirements.^{vii} Approximately 9.6 million children are enrolled in CHIP.^{viii}

States administer Medicaid and CHIP funds, according to federal requirements, and both state and the federal governments contribute funding to Medicaid and CHIP programs on an annual basis. While these funds serve millions of Americans, state policymakers need to think about the future and how their state can continue to serve each state's most vulnerable populations despite limited budgets and resources. Therefore, it is important that states consider responsibly incorporating new and innovative technologies such as Al into their everyday work. Al can dramatically reduce administrative burdens, improve physicians' ability to care for their patients, and permit resource redeployment within Medicaid systems and CHIP programs to better serve the most vulnerable populations.

Furthermore, Al has also demonstrated an ability to help manage public health emergencies at the state level. In addressing the COVID-19 pandemic, health authorities found that Al greatly assists in population health management (infection trends, resource management, etc.), as well as in diagnosis and treatment of individuals. Additionally, Al has played a role in tracking helpful research that will contribute to a potential vaccine for the COVID-19 virus.

We urge state policymakers, when considering the value of AI in healthcare, to view the proposition through the lens of the "quadruple aim" framework. Built on the Institute for Healthcare Improvement's "triple aim," a widely accepted compass to optimize health system performance, the quadruple aim focuses on four key metrics for optimizing health systems to meet the needs a wide range of key stakeholders and communities. The four areas are (1) enhancing population health; (2) improving patient experience, satisfaction, and health outcomes; (3) better clinician and healthcare team experience and satisfaction; and (4) lowered overall costs of healthcare.

Further, across the country, disparities in healthcare are sizable and growing, caused by barriers that exist at all levels, exacerbated by the ongoing COVID-19 public health emergency.** To address these disparities and achieve health equity, state policymakers should identify potential bias in data collection and responsibly utilize AI tools. Great strides can be taken to achieve health equity (and aid in a lasting recovery) through, for example, the collection and use of health and/or SDOH data disaggregated by race, ethnicity,

gender, disability, and other characteristics, consistent with the reocmmendations below.

A. Improving population health management

Population health^{xiv} management is an essential ingredient to improve overall health outcomes and arrest rising health care costs. Population health management involves aggregation and analysis of huge amounts of data from divergent sources, something that can be potentially streamlined through robust and powerful AI systems. AI-powered tools can responsibly collect patient generated health data and deliver clinically-backed interventions to treat patients where they are.

Al-enabled tools offer great promise in overcoming the challenges faced by clinicians, health systems, health plans, and public health officials working to advance population health management and public health. Social determinants of health (SDOH) – social factors as diverse as income, access to transportation and healthy food, and education – can also provide key indicators of health and well-being, helping providers and health plans manage population health. This can provide public health officials, healthcare systems, and providers near real time access to essential and actionable data to assist with more timely and accurate population level disease surveillance and assessments of disparities and health care resource distribution.

As more systems are created and deployed, the opportunity for AI to help improve healthcare outcomes across communities is significant, with estimates suggesting outcomes could be improved by 30-40 percent.**

B. Improving patient experience, satisfaction, and outcomes

One of the more significant critiques of healthcare systems around the world is that they fail in many respects to meet patients' expectations around access to care, ease of use, and care continuity and coordination.

All too often, patients must make multiple visits, shuffling between a general practitioner and a specialist. Al-enabled tools can reduce paperwork burdens, center care around the location of the patient and enhance the ability to manage and understand how to sustain health or manage a disease. Al systems can also provide patients and their health care teams with timely, essential information, and ongoing support that is not currently available.

Given the unique and diverse needs of Medicaid and CHIP beneficiaries, the vast majority of whom lack access to other affordable health insurance and have limited ability to pay out-of-pocket costs for acute or long-term care, Al systems will be essential for human caregivers and clinicians to extend their reach and coverage (e.g., creating efficiencies, highlighting relevant information, and presenting gaps in care that beneficiaries receive) of this vulnerable population of patients efficiently and in as tailored a fashion as possible.

C. Improving clinician and healthcare team experience and satisfaction

Clinicians and extended healthcare teams are experiencing record levels of burn-out and dissatisfaction which is largely attributable to growing demands of administrative paperwork coupled with compounding rates of new medical knowledge and data generation. Deployment of Al-enabled tools can drastically improve clinician and healthcare team satisfaction using tools that help them more efficiently screen, diagnose, treat, and monitor patients and remove and/or reduce time-consuming (and often mundane) tasks.

D. Reducing healthcare costs

States continue to struggle with both rising and absolute costs of providing healthcare to their citizens. Nationally, health spending is projected to grow at an average rate of 5.5 percent per year for 2018-27, reaching nearly \$6 trillion by 2027.* Further, according to the Association of American Medical Colleges (AAMC), there will be a deficit of skilled healthcare professionals to serve our population with a rising average age and life expectancy. AAMC's report indicates that by 2032, the United States will face a shortage of 46,900 to 121,900 physicians leaving the United States with an unsustainable healthcare shortage unless something is done.*

Al is a critical component to resolving these rapidly approaching healthcare concerns. Implementation of Al healthcare tools can not only reduce overall healthcare costs directly, but also contribute to increased efficiencies that address challenges such as lack of care coordination, overtreatment, low value of care, burdensome administrative processes, and identification of fraud and abuse within medical systems. These efficiencies will enable professional medical staff to spend more time with patients by utilizing tools that rely on Al to analyze large datasets, facilitating more informed patient care.

Healthcare experts see enormous promise in Al's ability to more accurately capture and leverage the range of health data available. Estimates suggest successful use of Al applications will create \$150 billion in annual savings for the United States healthcare economy alone by 2026.* We note that this savings estimate should be considered conservative, as it only includes a "top 10" of Al scenarios, such as assisted surgery, virtual nursing assistants, and administrative workflow assistance. More efficient and timely use of health data will provide many further benefits across a range of further scenarios and use cases. Because improved patient outcomes for Medicaid and CHIP beneficiaries will entail allotting resources to services other than those addressing acute and chronic illnesses, Al can help Medicaid bring the right resources to the right areas to support additional services such as therapy, tailored case management, habilitative services, and transport and translation costs.

Further, healthcare administrative costs (e.g., billing) are a continuing challenge that cannot be understated. The administrative costs of the U. S. healthcare system are estimated to

be 31 percent of total healthcare expenditures.xix Administrative Al's potential to help address spiraling costs in healthcare is already being realized today.

IV. Responsibly Implementing AI in Medicaid and CHIP Programs

Not only do state governments play a critical role in the regulation, delivery, and payment of healthcare, but they are also stewards of significant amounts of patient data. State policymakers have a responsibility to ensure that AI systems are effectively and responsibly implemented within Medicaid and CHIP programs and address specific issues in coordination with key stakeholders. To aid in this process, CHI has developed this framework for action:

State Health AI Strategy: State governments need a coordinated strategy to deliver on the full promise of AI to the healthcare sector and the patients it serves. For example, navigating the cultural, workforce training and education, data access, and technology-related changes will require strong guidance and coordination. Implementing AI within the healthcare industry also will impact a wide range of stakeholders, and it is critical that policymakers collaborate with provider organizations, other civil society organizations, and private sector stakeholders in the development of such strategies.

Research: State policy frameworks should support and facilitate research and development of AI in healthcare by prioritizing and providing sufficient funding while also ensuring adequate incentives (e.g., streamlined availability of data to developers, tax credits) are in place to encourage private and non-profit sector research. Clinical validation and transparency research should be prioritized and involve collaboration among all affected stakeholders who must responsibly address the ethical, social, economic, and legal implications that may result from AI applications in healthcare. Further, public funding and incentives should be conditioned on promoting the medical commons in order to advance shared knowledge, access, and innovation.

Quality Assurance and Oversight: Policy frameworks, within states' authorities, should utilize risk-based approaches to ensure that the use of Al aligns with recognized standards of safety, efficacy, and equity. CHI recommends state policymakers ensure that:

- Al in healthcare is safe, efficacious, and equitable. Al should utilize risk-based security practices to ensure health data privacy at all points in the care continuum.
- Algorithms, datasets, and decisions are auditable and when applied to medical care (such as screening, diagnosis, or treatment) are clinically validated and reasonably understood/explained.
- All developers should consistently utilize rigorous procedures for development, testing, and validation and must be able to document their methods and results.
- Those developing, offering, or testing healthcare AI systems should be required
 to provide truthful and easy to understand representations regarding intended
 use and risks that would be reasonably understood by those intended to use
 the AI solution.
- Adverse events should be reported in a timely manner to relevant oversight bodies for appropriate investigation and action.

In addition, policymakers should explore using AI tools to improve overruse and fraud detection in the context of Medicaid and CHIP patient care and reimbursement through identification of anomalies and trends.

Distribution of Liability: Providers, technology developers and vendors, health systems, insurers, and other stakeholders all benefit from understanding the distribution of risk and liability in building, testing, and using healthcare Al tools. Policy frameworks addressing liability should ensure the appropriate distribution and mitigation of risk and liability. Specifically, those in the value chain with the ability to minimize risks based on their knowledge and ability to mitigate should have appropriate incentives to do so.

Human-Centered Design: Policy frameworks should require AI systems adopted in healthcare systems to be developed and tested using human-centered design and usability principles. This should include examination of real-world workflow and beneficiary needs – particularly those with disabilities and others with unique needs specific to certain Medicaid and CHIP beneficiary populations. The design and development of AI in healthcare should also leverage collaboration and dialogue between caregivers, AI technology developers, and other healthcare stakeholders in order to have all perspectives reflected in AI solutions. Effectively designed AI systems can help patients, providers, and other care team members overcome the current fragmentation and dysfunctions of the healthcare system and facilitate changes in care delivery that advance the quadruple aim.

Access and Affordability: Policy frameworks should ensure the us of AI systems in healthcare results in more accessible and affordable care. Significant resources may be required to scale systems in health care and policymakers must take steps to remedy the uneven distribution of resources and access. There are varied applications of AI systems in health care such as research, health administration and operations, population health, practice delivery improvement, and direct clinical care. Payment and incentive policies must be in place to invest in building infrastructure, preparing personnel and training, as well as developing, validating, and maintaining AI systems with an eye toward ensuring value. While AI systems should help transition to value-based delivery models by providing essential population health tools and enhanced scalability and patient support, in the interim payment policies must incentivize a pathway for the voluntary adoption and integration of AI systems into clinical practice as well as other applications under existing payment models.

For example, when considering Medicaid and CHIP payment policy changes to improve access to Al-driven solutions in healthcare, CHI urges states to note that the American Medical Association's (AMA) Current Procedural Terminology (CPT) Editorial Panel has accepted a new Category 1 CPT® code for automated point-of-care retinal imaging (9925X) based on the recommendation of the American Academy of Ophthalmology. CHI submits that this development is a bellwether for the future of healthcare payments in light of increasing challenges in healthcare delivery and the benefits of AI and may serve as a model for Medicaid systems and CHIP seeking to responsibly enable AI tools to better serve their beneficiaries.

CHI further recommends that state Medicaid and CHIP policymakers evaluate whether their systems' administrative activities that utilize AI solutions using standardized and interoperable data formats may be eligible for enhanced federal payement match rates,** and pursue such funding matches to enable more efficient and rapid adoption of AI.

Ethics: Policymakers should embrace the many of ethical norms emerging out of the medical and biomedical ethics community, and promote broader adherence of these norms by technologists, innovators, computer scientists, and those who use such systems. Healthcare Al will only succeed if protects patients and consumers. Policy frameworks should:

- Ensure that healthcare Al solutions align with all relevant ethical obligations, from design to development to use.
- Encourage the development of new ethical guidelines to address emerging issues with the use of AI in healthcare, as needed.
- Ensure consistency with international conventions on human rights.
- Ensure that AI for health is responsive to the sizable and growing systemic disparities in healthcare at all levels, and inclusive such that AI solutions beneficial to patients are developed across race, color, national origin, sex, age, disability, and other groupings.

Reflect that AI for health tools may reveal extremely sensitive and private
information about a patient or may reflect an ultimately inaccurate prediction of
future risk (due to a mistake by the system or through targeted intervention in
response to the prediction). States should ensure that laws protect and ensure
that laws protect such information from being used to discriminate against
patients.

Modernized Privacy and Security Frameworks: New uses and ways of analyzing healthcare data also raise new privacy questions and create new opportunities for more powerful and granular access controls for patients. Accordingly, any policy framework should address the topics of privacy, consent, and modern technological capabilities as a part of the policy development process. Privacy frameworks for healthcare Al should be scalable and assure that an individual's health information is properly protected, while also allowing the responsible and secure flow of health information to provide and promote high-quality healthcare and to protect the public's health and well-being. There are specific uses of data that require additional policy safeguards, i.e., genomic information. Given that one individual's DNA includes potentially identifying information about even distant relatives of that individual, a separate and more detailed approach may be necessary for genomic privacy. Further, enhanced protection from discrimination based on pre-existing conditions or genomic information may be needed for patients. Finally, with proper protections in place, policy frameworks should also promote data access, including open access to appropriate machine-readable public data, development of a culture of securely sharing data with external partners, and explicit communication of allowable use with periodic review of informed consent.

Collaboration and Interoperability: Policy frameworks should create a culture of cooperation, trust, and openness around health data that brings together policymakers, health AI technology developers and users, and the public. State policymakers should seek to leverage both the health datasets they collect, as well as SDOH, particularly with respect to ongoing public health crises (e.g., the COVID-19 public health crisis). We also recommend that states develop best practices to enable sharing of patient information within, and between, states in a safe and effective manner. Further, patients should be able to share and attain their own health data seamlessly, consistent with their expectations of data portability.

Workforce Issues and AI in Healthcare: All states face significant demands on the healthcare system and safety net programs due to an aging population and a wave of retirements among practicing care workers, with 'relatively fewer young people entering the workforce. Successful creation and deployment of AI-enabled technologies that help care providers meet the needs of all patients will be essential in addressing this projected shortage of care workers. Policymakers and stakeholders will need to work together to create the appropriate balance between human care and decision-making and augmented capabilities from AI-enabled technologies and tools.

Bias: Data biases exist when the Al's model or statistics are unrepresentative of a population, when data elements themselves are biased (e.g., physician-recorded levels of pain), or when labels reflect underlying bias. The bias inherent in all data as well as errors will remain one of the more pressing issues with Al systems that utilize machine learning techniques, and must be mitigated in all ways possible to address increasingly obvious disparities in healthcare. In developing and using healthcare Al solutions, these data provenance and bias issues must be addressed. Policy frameworks should (1) require the identification, disclosure, and mitigation of bias while encouraging access to databases and promoting inclusion and diversity, and (2) ensure that data bias does not cause harm to patients or consumers.

Lower income, minority, disabled, and other disadvantaged populations are often underrepresented in data sets, yet represent significant parts of Medicaid and CHIP populations, which should be addressed when crafting AI solutions for any Medicaid and/or CHIP system. For example, AI-enabled clinical decision support tools used for the Medicaid population may need an underlying data set, improved through transparency measures, that accounts for the unique populations it is intended to serve.

Education: Policy frameworks should support expanding AI educational opportunities for the healthcare community and the patients they serve. Patients and consumers should be educated as to the use of AI in the care they are receiving and their rights and privacy options.

Academic/medical education should include curriculum that will advance healthcare providers' understanding of and ability to use health Al solutions. Ongoing continuing education should also advance understanding of the safe and effective use of Al in healthcare delivery.

V. Conclusion

CHI encourages all states to take meaningful steps to responsibly phase in new AI innovations into their health systems across contexts, consistent with the principles and recommendations above.

End Notes

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- For example, the Centers for Disease Control and Prevention has noted inadequate reporting on racial disparities in coronavirus patients, which experts believe has hampered the public health response in communities of color. See https://appropriations.house.gov/events/hearings/covid-19-response-0.
- xiv Defined as "an approach [that] focuses on interrelated conditions and factors that influence the health of populations over the life course, identifies systematic variations in their patterns of occurrence, and applies the resulting knowledge to develop and implement policies and actions to improve the health and well-being of those populations." Kindig, D. and Stoddart, G. What Is Population Health? American Journal of Public Health, 93, 380-383 (2003).
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xix Woolhandler et al, Costs of Health Care Administrationin the United States and Canada, N Engl J Med 2003; 349:768-75.

^{**} See https://www.macpac.gov/federal-match-rates-for-medicaid-administrative-activities/.