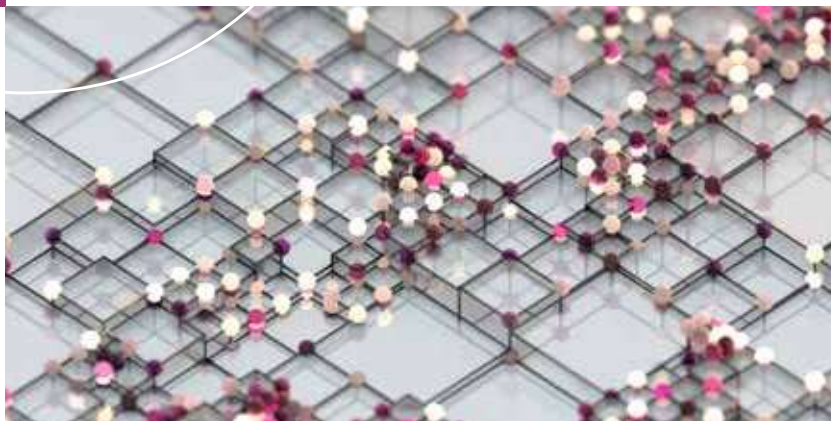




Closing the Gap in California's Health Data Exchange: Necessary Investments and Funding Opportunities

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About the Foundation

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Introduction

Electronic data exchange within health care and across sectors is an essential component of effective care delivery and critical to address health and social needs, reduce health disparities, and improve outcomes. This year California is implementing multiple major initiatives that will necessitate robust cross-sector data sharing, including the Data Exchange Framework.

Electronic data exchange within health care and across sectors is an essential component of effective care delivery and critical to address health and social needs, reduce health disparities, and improve outcomes.

In July of 2021, Governor Newsom signed into law AB 133 (Chapter 143, enacted Health and Safety Code § 130290), the Omnibus Health Trailer bill, which among other things, calls for development and implementation of a statewide Health and Human Services Data Exchange Framework.¹ The law envisions a state in which “every Californian, and the health and human service providers and organizations that care for them, will have timely and secure access to usable electronic information that is needed to address their health and social needs and enable the effective and equitable delivery of services to improve their lives and wellbeing.”²

The 2021–22 state budget allocated \$2.5 million for health information exchange leadership in the state.³ In addition, the May Revision adds two important grant and technical assistance programs to the 2022–23 budget:

- ▶ **Technical assistance grants.** A \$50 million two-year grant program “to provide technical assistance to small or underresourced providers, particularly small physician practices, rural hospitals, and community-based organizations, as well as education and technical assistance for entities new to health information exchange.”
- ▶ **Equity and practice transformation payments.** Two hundred million dollars for “grants and technical assistance to allow small physician practices to upgrade their clinical infrastructure, such as electronic health record systems, data collection and reporting capabilities, implementation of care management systems, and other activities that will allow the adoption of value-based and other payment models that improve health care quality while reducing costs.”⁴

Hospitals, physician organizations, medical groups, clinical labs, skilled nursing facilities (SNFs), health service plans, and acute psychiatric hospitals must execute the data sharing agreement framework by January 31, 2023, with real-time data sharing phased in from January 31, 2024, through January 31, 2026. The state must also engage counties, including health, public health, and social services agencies, to encourage participation by January 31, 2023. See Appendix A for a complete implementation timeline.

California has a local and decentralized approach to governance with distributed authority at the county level, so regions, counties, and communities have developed and procured systems and tools to meet their specific needs without a coordinated state-level approach.⁵ As a result, different regions of the state have variable levels of health

and social services information exchange infrastructure, though public health is largely excluded from most clinical health information exchange.

The goal of this paper is to outline the technological capacity and funding needs of delivery system providers who must comply with AB 133. The authors identified four categories of investments necessary to achieve robust interoperability based on stakeholder engagement:

- ▶ Onetime technical system and infrastructure investment
- ▶ Technical system and infrastructure maintenance and operations
- ▶ Policy and implementation support
- ▶ Staffing/workforce

The paper also outlines existing federal funding streams that, if leveraged, could support interoperable data exchange, as well as anticipated remaining funding needs that will require targeted investments to close the gap in data exchange capabilities.

Methodology and Scope

This report was produced by conducting a literature review of funding sources and investments at the federal and state levels and through interviews with association and county level representatives from organizations identified in AB 133 as well as consultants and vendors serving associations and counties. Aurrera Health Group and Amelia Mayme Consulting conducted interviews with 36 staff across 24 organizations. A complete list of those interviewed is included in Appendix B. Of note, interviews were conducted before the May Revision of the 2022–23 budget was released. Therefore, needs identified did not take into consideration the potential availability of \$250 million in grant and

technical assistance for small and underresourced providers.

The report focuses on functional and funding needs to support interoperable data exchange for entities named in AB 133. Research on funding sources was limited to federal resources and not private sector contributions. Also, the paper focuses on funding sources available on an ongoing basis rather than short-term or onetime funding. Consideration of specific technological architecture solutions or the merits of different approaches and potential needs of vendors and organizations that might implement such solutions are outside the scope of the paper. Further, the paper does not address the extent to which certain potentially shared technology services such as consent management and identity management might be implemented or financed.

Federal funding announcements known as Notifications of Funding Opportunities can be found at www.grants.gov.⁶ Specific regulatory and program requirements including allowable uses of funds can be found in the Federal Register and Federal Policy Guidance resources, such as the State Medicaid Director letters.⁷

Key Findings

Across delivery system providers, there are a range of technical service and support needs to facilitate interoperable data exchange. Delivery system providers who historically received funding and implementation support have the fewest needs, while those historically excluded from such programs will require the greatest resources to meet the expectations of the Data Exchange Framework. Table 1 shows a summary of four categories of need identified by interviewed stakeholders to promote adoption and maintenance of systems that support interoperable data exchange.

Table 1. Categories of Functional Need by Delivery System Stakeholders to Support Information Exchange

Onetime Technical Capabilities and Infrastructure

- ▶ Electronic data capture
- ▶ Electronic data standards
- ▶ Data systems interoperability
- ▶ Adapting single use and legacy systems
- ▶ Data aggregation and analytics

Maintaining New Technical Capabilities and Infrastructure

- ▶ Ongoing operations and sustainability
- ▶ Scale and extended functionality

Policy and Implementation Support

- ▶ Initial and ongoing outreach and education
- ▶ Privacy and security
- ▶ Informed data analysis and decisionmaking

Staffing and Workforce

- ▶ Technical, operational, and strategic roles

Below is more detail on these categories of functional need for delivery system providers.

Onetime Technical Capabilities and Infrastructure

Electronic Data Capture

At the most basic level, to engage in electronic data exchange, information must be digitized. Most clinical health care providers outside of public health in California use an electronic health record (EHR) system, with larger and more sophisticated providers using certified EHR technology. Some also have care coordination systems, screening tools, customer relationship management platforms, and referral tools that may be integrated with an EHR platform. However, some health care providers and many public health and social service providers use paper-based systems or tools like Excel databases to capture patient/client information, make referrals

via phone or fax, and fax information like lab results between providers.

Electronic Data Standards

Many organizations without certified EHRs have rudimentary systems that support electronic data entry but do not adhere to a common data model such as the United States Core Data for Interoperability (USCDI) to capture information.⁸ They may use systems that allow entry of narrative text, notes fields, or scanned documentation. While these practices can work within an organization or system, not using common discrete data elements precludes meaningful cross-sector data sharing and more sophisticated functionality like data aggregation for population health analysis.

Adhering to the same data standard allows health care stakeholders to exchange health information, including nonclinical data like claims and encounters, across organizations. This increased data flow allows stakeholders to track admission and discharge information, coordinate care, and identify health patterns and opportunities for quality improvement. Additionally, reporting clinical data to public health in a standardized format improves data quality and administrative efficiency for care teams in public health departments.

Of note, the standards used in one sector do not always translate to standards used in another. Therefore, it is critical to invest up-front time identifying shared data definitions and agreeing on semantic and transport standards, especially for common use cases within and across sectors. Further, while all health care providers benefit from robust and interoperable EHRs, social service providers, such as organizations that support people experiencing homelessness or that facilitate access to food, may have different information technology priorities.⁹ Staff time and effort is required to reconcile all these differences, meet the needs of multiple data users,

and maximize the benefits of data exchange (see Staffing and Workforce on page 8).

Data Systems Interoperability

Beyond the ability to capture data in a standardized way, systems must be able to both send and receive data through bidirectional data exchange. In a mature environment, unique data systems are interoperable. This means that data flow seamlessly between EHRs and other data platforms; users remain in their workflow rather than using multiple systems and integrating data across each unique system.

Unfortunately, interoperability is still absent in certain parts of the health care system. For instance, health systems are required to report notifiable conditions for infectious disease surveillance, but public health systems have inconsistent capacity to receive the data electronically or to report back individual information.

Similarly, Homeless Management Information Systems (HMIS) used by counties and community-based organizations (CBOs) support limited data reporting to the US Department of Housing and Urban Development (HUD) on performance measures but often lack functionality to ingest information or customize information sharing with partners outside the homeless system of care. This can stymie efforts toward bidirectional cross-sector data sharing.

Within health care, admission, discharge, and transfer (ADT) feeds represent an example of the standard alerts and notifications to make providers aware of their patients' status. In addition, adherence to widely recognized data exchange standards, such as Health Language 7 (HL7) transport standards and Fast Healthcare Interoperability Resources (FHIR), can facilitate connections across systems to reduce duplicative data entry, which is time-consuming and contributes to inconsistencies and errors.

To accomplish meaningful bidirectional information exchange, organizational leaders must make early concerted effort across sectors and with vendors to articulate system requirements. If the health care sector works independently on technical and policy solutions without collaborating with other sectors, the technical and policy approaches likely will not meet the needs of all stakeholders. At a minimum, some level of data mapping and data normalizing must occur to facilitate data translation and harmonization.

In some instances, providers procure the same technology platforms with their desired data sharing partners, such as a specific EHR, care coordination, or referral platform. However, unless organizations collaborate with one another and the vendor or align standards early in the process, use of the same platform does not automatically result in interoperability across users of the same system.

Absent interoperability, some organizations interviewed allow external users customized access (e.g., read-only vs. edit functionality) to one another's systems. This does not allow sharing across platforms, but it provides insights about individual client information. Alternatively, technical systems can be connected to one another for directed and pulled data transfer through point-to-point connections, though these are difficult and costly to maintain.

Adapting Single Use and Legacy Systems

Many existing systems used by public health programs, homeless systems of care, jails, and smaller physician offices were built or procured with narrowly defined functionality in mind. Systems built with limited scope often lack the capacity to adapt in functionality and reuse systems architecture for new purposes. Performing one-to-one systems integrations to incorporate new features or partnerships in less agile systems can be complex, time intensive, and costly, as is ongoing maintenance to sustain these connections. Even within seemingly

similar sectors such as housing and homelessness, systems vary widely and do not support data sharing with one another.

In some cases, delivery systems may be able to leverage application programming interfaces (APIs) to support data sharing. However, some legacy systems are too antiquated to support upgrades or enhancements, and organizations are faced with determining whether investments in more sophisticated scalable infrastructure built with integration and data harmonization in mind is necessary. In the short term, migrating data and procuring reusable architecture solutions will be time intensive and complicated, but if funding is available to support the upgrade, it can reduce manual labor, workarounds, and duplicative data entry.

Data Aggregation and Analytics

To engage in population health management, data analysts require a platform for storing and integrating data and tools that support analytics and reporting. As one 2019 CHCF publication stated, “Many providers use capabilities native to their EHRs to exchange individual patient information with other health systems. These are important functions that can support episodic care coordination but are insufficient to manage population health, which requires analytics and the ability to aggregate data across providers, payers, and human services organizations.”¹⁰

Maintaining New Technical Capabilities and Infrastructure

Ongoing Operations and Sustainability

Every technology investment requires maintenance to sustain high levels of performance and relevance over time. Assuming the state adheres to federal and industry standards (e.g., USCDI, FHIR, and HL7), needs of health care delivery system providers who received prior funds will likely be limited to minor

systems updates and maintenance as technology evolves to add new features and capabilities. Organizations newer to interoperable technology may need to more time and resources to maintain their systems and train staff on infrastructure enhancements. Organizations may also have to pay ongoing fees for subscription services for vendor-owned and vendor-operated technology services, like referral platforms or membership for information sharing networks.

Scale and Extended Functionality

As networks of data sharing partners grow within sectors (e.g., new hospitals or health systems), organizations will need resources to integrate with new partners and data systems and maintain those integrations. This scalability requires staffing or vendor support to complete the technical updates, integration, and testing. Similarly, as networks expand to new types of partners, such as data sharing with new sectors, additional resources may be necessary to develop data sharing agreements, establish new privacy controls, and align processes.

Policy and Implementation Support

Initial and Ongoing Outreach and Education

When new state policies and program requirements are released, state, association, and community leaders need resources to develop “call to action” messaging and educational materials so that stakeholders understand who is impacted, how to comply, what the timelines are, how policies deviate from historical regulations, and how to align with federal regulations. This information can help facilitate a coordinated rollout and inform delivery system providers before they make technology procurement decisions.

Ongoing federal and state policies changes may necessitate additional stakeholder work on technical systems, organizational policies, staff training,

and clinical and administrative workflows at the local level. Establishing a forum and cadence for information sharing and practical guidance related to new legislation and regulations can facilitate meaningful adoption and compliance. Proactive and early stakeholder engagement enables these organizations to build in the means to measure and evaluate their new capabilities over time. All these efforts require additional funding and resources to deliver.

Privacy and Security

The most-identified need addressed by interviewees for this report was help with the practical application of privacy laws related to cross-sector information sharing. Smaller providers or communities often lack dedicated in-house staff or access to consultants with expertise in how to organize and operate to exchange data while also protecting privacy and complying with state and federal law. Without a strong understanding and buy-in for policy objectives, fear and lack of knowledge may trump policy goals, and some organizations may interpret data sharing permissions narrowly to reduce risk. This is a particularly acute issue when considering the new terrain of cross-sector data sharing and different rules that apply across sectors. Both robust state-level resources that provide practical and accessible guidance and customized individual policy support can help facilitate adoption.

Informed Data Analysis and Decisionmaking

Participants in data exchange networks need to understand how to interpret and use the data they receive. Training users about the right information to share, the meaning of specific data elements, and how to look at information holistically across service providers and over time is essential to ensuring effective decisionmaking at the individual and population levels. Without relevant training, providers could easily misinterpret or misuse information, creating more harm than benefit for patients and clients.

Staffing and Workforce

A wide range of staff is necessary to support health information exchange infrastructure, including technical, operational, and strategic roles. Most organizations use vendors to procure interoperable technology systems. Large organizations typically have the most financial resource to support staffing for technical implementations, compliance, and ongoing operations. Small to midsized entities, like counties, often lack consistent funding to meet human resource needs and use consultants to supplement internal staff. Small CBOs dependent on grant funding, which can be unpredictable, often face challenges sustaining staff positions and may struggle to support technical services procurement. Activities that support data exchange and may require new in-house staff or contract resources include:

- ▶ Implementing processes that previously did not exist or were underdeveloped.
- ▶ Entering and validating data that facilitate changing business and clinical operations.
- ▶ Maintaining technical infrastructure and supporting advanced data and analytics capabilities.
- ▶ Building and coordinating relationships across organizations to establish contracts, memoranda of understanding, or other legal agreements that facilitate exchange.
- ▶ Monitoring and complying with federal and state privacy and data security laws.
- ▶ Researching, applying for, and managing federal and state funding opportunities that may support expanded data exchange activities. Nearly all the delivery system providers interviewed for this report indicated that their organizations lack sufficient capacity to secure funding necessary to delivery on AB 133's promise and potential.

IT Needs by Delivery System

Tables 2–4 outline the historical investments and anticipated funding needs of delivery system providers subject to AB 133. Funding needs are characterized by current level of technical sophistication as well as the ability of an entity to pay the costs to become compliant with anticipated requirements and expectations.

General acute care hospitals, physician organizations and medical groups, SNFs, clinical laboratories, and acute psychiatric hospitals. Until recently, acute care and critical access providers and hospitals serving Medicare enrollees, Medicaid enrollees, or both were the primary recipients of federal and state funds that supported electronic data documentation and exchange. The federal Medicare and Medicaid EHR Incentive Program (formerly known as “Meaningful Use,” now known as “Promoting Interoperability”) supported the adoption, implementation, and demonstration of meaningful use of certified EHR technology.¹¹ Almost all acute care hospitals now have EHRs.

Rehabilitation hospitals, inpatient psychiatric hospitals, long-term care hospitals, correctional health facilities, most mental health providers, and public health were ineligible for the early programs that financed health information technology and exchange. In addition, small independent physician practices have historically lacked the resources and technical expertise to adopt more advanced technologies. Further, delivery system stakeholders who do not participate in Medicaid or Medicare, including some pediatricians and mental health providers, have been excluded from many incentive programs. These disparities have resulted in significant variation in implementation of technologies that support advanced electronic data collection and interoperability across the health care sector, with those entities that have had the least historical investments requiring the greatest support.

Table 2. Current Funding Needs, by Level of Need

	ONETIME TECHNOLOGY	ONGOING TECHNICAL INFRASTRUCTURE	POLICY AND IMPLEMENTATION SUPPORT	STAFFING AND WORKFORCE
Acute Care Hospitals	● Minimal	● Average	● Average	● Minimal
Physician Organizations and Medical Groups ¹²	● Significant	● Significant	● Significant	● Significant
SNFs ¹³	● Average	● Significant	● Significant	● Significant
Clinical Laboratories ¹⁴	Unknown	Unknown	Unknown	Unknown
Acute Psychiatric Hospitals	● Average	● Average	● Significant	● Significant

Health service plans and disability insurers, Medi-Cal managed care plans (MCPs). Health plan associations indicated sufficient capacity among their members to comply with AB 133. For health plans exclusively offering commercial products, competition and market forces have provided adequate incentives to adopt advanced technology and to leverage provider participation in data collection, reporting, and exchange. Therefore, if the state adheres to commonly recognized standards, and plans do not have to reinvest resources, mature health plans will not have issues with compliance. Further, CalAIM (California Advancing and Innovating Medi-Cal) is providing incentive payments through MCPs as well as other supports. See Appendix F.

In addition to the AB 133 requirements, qualified health plans must meet the CMS Patient Access and Interoperability Final Rule requirements for payer-to-payer exchange, patient access through APIs, and other data interoperability requirements.

Greatest concerns raised by health plan associations were the capacity for health care providers operating on legacy health information technology systems.

Counties. Throughout California, counties¹⁵ vary widely in how they organize their agency structures and service delivery systems. For example, some counties house health care, public health, and social services under one umbrella agency, some separate the functions across different departments, and others leverage CBOs to perform key roles. Initiatives like the Whole Person Care pilots and Health Homes supported technology investments to facilitate cross-sector data sharing and referrals, but these pilots were implemented in silos — some through counties, others through health care partners or nonprofit organizations — each of which structured its service delivery differently.¹⁶

The structural variations and diverse approaches to technology adoption have led to a proliferation of fragmented approaches to data sharing. Some communities built strong health or community information exchange systems while others have limited if any electronic infrastructure or data. CalAIM presents a potential source of funding to support technology adoption for data exchange, but without centralized coordination at the state level, a panoply of approaches may continue without statewide interoperability. For more information about how CalAIM could potentially serve as a funding source to support AB 133 objectives, see Appendix F.

Table 3. Current Funding Gaps, by Level of Need

	ONETIME TECHNOLOGY	ONGOING TECHNICAL INFRASTRUCTURE	POLICY AND IMPLEMENTATION SUPPORT	STAFFING AND WORKFORCE
Health Service Plans	● Minimal	● Minimal	● Significant	● Minimal
Disability Insurers	● Average	● Average	● Significant	● Minimal
Medi-Cal Managed Care Plans	● Minimal	● Minimal	● Significant	● Minimal

► **Homelessness.** Homelessness data are typically managed at the county level by CBOs, or by cities on behalf of the county, through the local HMIS. HMIS provides functionality for data management and reporting to HUD, which funds basic IT functionality systems maintenance. Service providers must adhere to HMIS data reporting requirements, which change annually. In many instances, HMIS cannot support significant technological platform enhancements or modifications beyond HUD requirements, as the funding to support HMIS is limited to the key data elements necessary to meet HUD reporting requirements (e.g., point-in-time count, housing inventory count, and system performance measures). Often HMIS users are asked to share their data, which is easier to do than ingesting information, though it limits bidirectional program impact. As one expert described it, HMIS is more like a dirt road than an information highway as a mode to share data.

► **Public health.** Public health data systems largely lack technical maturity. In many counties, public health relies on faxes and paper documentation or maintains very basic systems that do not support interoperability. Most public health departments do not have access to EHR systems or health plan data about information like

vaccinations. All public health departments participate in centralized reporting to state registries (e.g., immunization and reportable conditions registries). According to the executive director for the County Health Executives of California, a significant opportunity exists to think holistically about the needs of public health data modernization at the state and county level and to work collaboratively to develop a comprehensive strategy that will address data collection, exchange, reporting, and population health management.

► **Jails.** Most health care services in the jail system in California are provided by entities contracted through counties, though some counties provide mental health services directly. Jails maintain EHR platforms for physical and behavioral health data. In most counties, there is no data exchange with external partners, electronic discharge planning, or referrals. In some cases, non-jail employees are given access to the EHR for auditing or for documentation, particularly in cases where mental health is provided outside of the jail setting. Jails also maintain Jail Management Information Systems, which are the source of release information, but the jail system, probation, and EHR systems are not interoperable. Any information sharing that happens is based on manual reporting or direct systems access.

Table 4. Current Funding Gaps in County Services, by Level of Need

	ONETIME TECHNOLOGY	ONGOING TECHNICAL INFRASTRUCTURE	POLICY AND IMPLEMENTATION SUPPORT	STAFFING AND WORKFORCE
Jails	●	●	●	●
Homelessness	●	●	●	●
Public Health	●	●	●	●

● Minimal ● Average ● Significant

Federal Funding That Supports Information Technology Investments

This report focuses primarily on federal funding sources that typically fund the stakeholders required to comply with AB 133, focusing on the Department of Health and Human Services agencies. This report also identifies non-HHS agencies, such as HUD and the Bureau of Justice Administration to align with California's cross-sector priorities. States can coordinate data infrastructure and exchange efforts to maximize federal funds. If goals for data exchange align across state agencies and delivery system providers with centralized coordination in pursuit of funding, it is easier to apply for resources that can advance objectives across sectors. By collaborating toward shared priorities, entities can braid and blend funding to build systems with reusable architecture and adaptability.

By investing in reusable technical architecture components, such as provider and resource directories or technical services, delivery systems can lower implementation costs and reduce use of one-off solutions. This approach also aligns with CMS's federal funding requirements for enhanced Medicaid matching to "promote sharing, leveraging, and reuse of Medicaid technology systems."¹⁷ Sharing business or technical services and software, limiting use of proprietary solutions, and adapting current technology with minimal customization can also strengthen networks and reduce silos. See Appendix C for constraints on federal funding sources and Appendix D for types of federal funding available to states and a funding flow for IT investments available to states.

Table 5 summarizes funding needs for the Data Exchange Framework and where federal funding sources may support these needs.

Tables 6–9 provide more detail on the HHS funding sources listed above for technical services, infrastructure, policy and implementation assistance, and workforce development.

Table 5. Potential Federal Funding Sources for Data Exchange Framework Needs

AGENCY	PROGRAM	\$ Allowable funding		\$ Allowable funding with restrictions	
		ONETIME TECHNOLOGY	ONGOING TECHNICAL INFRASTRUCTURE	POLICY AND IMPLEMENTATION SUPPORT	STAFFING AND WORKFORCE
DIRECT TO STATE AGENCY FUNDING					
CMS Center for Medicaid CHIP Services	Medicaid Enterprise System (MES)	\$	\$		\$
	Managed care and provider payment incentives through 1115 and 1915 waivers	\$			
	State-Developed EHR Incentive Program	\$			
Innovation Center	Federal Behavioral Health Incentive Program	\$			
Centers for Disease Control and Prevention	Public Health and Health Services Scientific Services Block Grant	\$	\$	\$	\$
	Epidemiologic and Laboratory Capacity Cooperative Agreement	\$	\$	\$	\$
	Section 317 Vaccine Program	\$	\$	\$	\$
	Strengthening US Public Health Infrastructure, Workforce, and Data ¹⁸	\$		\$	\$
Substance Abuse and Mental Health Administration	Mental Health Block Grant	\$	\$		
DIRECT TO DELIVERY SYSTEM FUNDING					
Health Resources and Services Administration	Public Health Services Act for Community Health Centers	\$		\$	
Federal Communications Commission	Healthcare Connect Fund Program	\$	\$	\$	
	Rural Health Care Program	\$	\$	\$	
Department of Housing and Urban Development	Homeless systems of care / Continuums of Care		\$		
Administration for Community Living	Aging and disability networks	\$		\$	
Bureau of Justice Administration (BJA)	Harold Rogers Prescription Drug Monitoring Program (PDMP) grant	\$		\$	\$

CMS Center for Medicaid CHIP Services

State Medicaid agencies can submit waivers and funding requests for enhanced Federal Funding Participation (FFP) for health data, technology, and infrastructure investments supporting Medicaid programs, providers, and administrative functions. Table 6 outlines the available authorities for federal funding. See Appendix E for more information about strategies for leveraging Medicaid dollars.

Table 6. CMS Center for Medicaid CHIP Services, Available Authorities for Federal Funding

FUNDING SOURCE	ELIGIBLE ENTITIES	ESTIMATED AMOUNTS	FREQUENCY	ALLOWABLE USES
<p>Medicaid Enterprise Systems Section 1903(a)(3) of the Social Security Act allows states to receive enhanced federal funding for activities related to their Mechanized Claims Processing and Information Retrieval Systems, as well as other technical modules, such as health information exchange services and reusable infrastructure.¹⁹</p>	<p>California Department of Health Care Services (DHCS) with passthrough funding available to:</p> <ul style="list-style-type: none"> ▶ Other state agencies ▶ Delivery system providers (health, social, behavioral) and contracted technical service organizations and vendors (e.g., HIOs, vendor) 	<p>State proposed amount based on allowable FFP and required matching funds:</p> <ul style="list-style-type: none"> ▶ 90-10 FFP — design, development, and implementation, including planning ▶ 75-25 FFP — operations²⁰ ▶ 50-50 FFP — administrative costs and technology 	<p>Annual advanced planning document updates</p>	<p>Agency staff costs supporting the services or critical infrastructure receiving funding</p> <p>Technology costs, including vendors, upgrades, and connections to technology hubs for interoperability (e.g., national networks, EHR interoperability hubs)</p> <p>Technical support and help desk support, including personnel time implementing new technology, data feeds, or both; assisting with technical steps required of participants (e.g., pulling a patient roster to get notifications); troubleshooting; etc.</p> <p>Privacy and security costs directly related to services</p> <p>State example: Maryland leverages MES 75-25 operations funds for statewide health information exchange (HIE) technical services to support care coordination, population health, and critical support infrastructure. The HIE services include core, reusable infrastructure with master patient index (MPI), PDMP, image exchange, and encounter notification service.²¹</p>
INCENTIVE PAYMENTS				
<p>Managed care provider payment incentives through 1115 and 1915 waivers²²</p>	<p>DHCS</p>	<p>Up to 5% of the annual managed care plan capitation payments²³</p>	<p>No timeline, up to state's discretion</p>	<p>Up to state's discretion</p>
<p>State-Developed Electronic Health Record (EHR) Incentive Program²⁴</p>	<p>DHCS Medicaid providers</p>	<p>Up to state's Medicaid Federal Medical Assistance Percentage (FMAP)</p>	<p>No timeline, up to state's discretion</p>	<p>Up to state's discretion</p>

CMS Centers for Medicare & Medicaid Innovation

Section 6001 of the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities (SUPPORT) Act authorizes the testing of incentive payments for behavioral health providers for adoption and use of certified EHR technology to improve care quality and coordination through the electronic documentation and exchange of health information.²⁵ Although the legislation passed in 2018, program details have not been released.

Table 7. CMS Centers for Medicare & Medicaid Innovation, Authority for Federal Funding

ELIGIBLE ENTITIES	
Federal Behavioral Health Incentive Program²⁶	<p>The legislation amends Section 1115A(b)(2)(B) of the Social Security Act (42 U.S.C. 1315a[b] [2][B]). Several entities are eligible to participate in the program:</p> <ul style="list-style-type: none">▶ Psychiatric hospitals, as defined in Section 1861(f)▶ Community mental health centers, as defined in Section 1861(ff)(3)(B)▶ Hospitals that participate in a state plan under Title XIX or a waiver of such plan▶ Treatment facilities that participate in such a state plan or such a waiver▶ Mental health or substance use disorder providers that participate in such a state plan or such a waiver▶ Clinical psychologists, as defined in Section 1861(ii)▶ Nurse practitioners, as defined in Section 1861(aa)(5) with respect to the provision of psychiatric services▶ Clinical social workers, as defined in Section 1861(hh)(1)

Centers for Disease Control and Prevention

The CDC funds cooperative agreements and grants related to the 10 essential public health services. Although data, technical infrastructure, and technical assistance may be supported, funds are authorized under Public Health Services Act (Title 42 of U.S.C.). The CDC utilizes grants and cooperative agreements to assist other health-related and research organizations that contribute to the CDC's mission and to accomplish public health goals. The programs outlined in Table 8 provide technical funding directed to states to support public health preparedness and response.

CDC funding awards can be made directly to health departments (at all levels), nonprofits, academia, businesses, and community organizations. State-level entities may share awards with local entities, benefit the entire state, or both. Other awards to national organizations may include subawards to other entities.²⁷

Typically, CDC funding does not fund statewide system infrastructure modernization to advance data documentation and exchange for transactional data exchange. Rather, CDC funds individual programs with specific eligible entities and program priorities. Therefore, when contemplating pursuing these funding streams as a potential mechanism to support interoperable HIE, it is important to recognize that these resources will fund a portion of a vision. This requires close coordination across entities to ensure alignment.

Table 8. Centers for Disease Control and Prevention, Available Authorities for Federal Funding

	ELIGIBLE ENTITIES IN CALIFORNIA	ALLOWABLE USES	FREQUENCY	ESTIMATED AMOUNTS
Public Health Services Act (PHSA)²⁸ Public Health and Health Services Scientific Services Block Grant	California Department of Public Health (CDPH)	Recipients set their own goals and program objectives and implement local strategies to address national health priorities.	Annual	Formula
Epidemiologic and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases Cooperative Agreement	CDPH Los Angeles County ²⁹	Financial support and technical assistance to public health agencies Flexible funding to eligible recipients to meet state and community needs Disease-specific projects Leadership and management for strategic planning Cross-cutting projects and programs to enhance collaboration between state epidemiology, lab, and local public health agencies Implementation and maintenance to support activities such as vector-borne disease surveillance, including data reporting	Annual	2021 funding awards totaling approximately \$247 million to 64 recipients
Section 317 immunization grants³⁰ Vaccine for Children program Vaccines for Adults (VFA)³¹	CDPH	Immunization Information Systems (IIS) data exchange, security standards, and enhanced interfaces with EHRs.* IIS program support to assess technology and data infrastructure gaps; enroll providers in IIS; improve data collection, exchange, maintenance, and analysis; and improve reporting by health care providers. Technical and financial support of children, adolescents, and adult immunization programs; provider and public education; and evaluation and research	Annual, discretionary funding	CDC releases annual guidance based on current CDC priorities
Data Modernization Initiative³²	CDPH Local or county public health jurisdiction above certain population	\$500 million to support efforts to continue to modernize public health surveillance and data collection nationwide and to forecast emerging biological threats. These efforts build on ongoing investments in public health data modernization to support availability and use of real-time data at the federal, state, and local levels.		Formula Up to \$500 million, with \$200 million distributed to state, tribal, local, or territorial public health departments

* Less than 50% of jurisdictions use local or state funding for IIS maintenance, operations, and enhancements, according to the American Immunization Registry Association.

In addition to the funding mentioned above, the CDC has seven categories of discretionary spending authority organized by mission for different priority programs with varying funding levels each year. As an example, in its 2021 annual report, the CDC reported spending \$7.8 billion through its discretionary funding authority, which included significant resources for state, city, and county governments.³³ While funding is provided for a wide range of purposes and specific eligible entities, there is opportunity to align statewide data exchange goals with allowable funding uses to support interoperability.

Substance Abuse and Mental Health Services Administration

SAMHSA funds noncompetitive Community Mental Health Services Block Grants (MHBG) to all 50 states and territories to provide community health services authorized under the Public Health Services Act (Title XIX, Part B, Subpart II).³⁴ Table 9 summarizes the funding opportunity. SAMHSA uses a weighted population-at-risk index formula calculation to fund priority treatment and support services, prevention activities, and data collection for performance and outcomes measurement.³⁵

The block grant funding goes directly to each state’s agency responsible for administering MHBG, which can distribute funds to local governmental agencies and nongovernmental organizations, such as intermediaries (e.g., administrative service organizations).³⁶ Typically, SAMHSA funding does not fund statewide system infrastructure.

In 2021, the American Rescue Plan (ARP) authorized an enhanced FMAP up to 85% for three years to expand funding to cover “community-based mobile crisis intervention services” providing rapid response, individual assessment, and crisis resolution by trained mental health and substance abuse treatment professionals and paraprofessionals.³⁷ The crisis intervention services mobile teams need access to relevant health information and technical infrastructure for system integration. States can request MES 75-25 FFP for ongoing operations of CMS-approved technical systems.

Additionally, the Federal Communications Commission (FCC) adopted rules to establish a national 988 three-digit phone number for people in crisis to connect with suicide prevention and mental health counselors. Medicaid matching funds can support technical infrastructure, integration, and planning and operationalization of 988. The ARP also allows a 5% set aside for the MHBG, allowing states to establish core crisis care elements.³⁸ Allowable costs in the 5% set aside also include technical infrastructure, such as EHRs and bed availability technology.³⁹

Direct to Delivery System Funding

Several agencies including HRSA, HUD, the Administration for Community Living (ACL), and BJA have funding to support technology and data for specific community services for targeted settings and populations. These funding sources can support electronic data capture and technology uses. All funding requires data reporting for program

Table 9. Substance Abuse and Mental Health Services Administration, Authority for Federal Funding

	ELIGIBLE ENTITIES IN CALIFORNIA	ALLOWABLE USES	FREQUENCY	ESTIMATED AMOUNTS
MHBG	DHCS	Community Mental Health Services Crisis stabilization systems information technology implementation, EHRs for behavioral health providers, telehealth, electronic bed registries, and system integration	Annual 5% set aside available for three years (2022–25)	5% set aside California supplemental award — \$108 million ⁴⁰

documentation and measurement. Most funding opportunities provide training and technical assistance to program awardees.

Health Resources and Services Administration

funds discretionary grant programs for research, training, and technical investments to enhance the delivery and improve access to high-quality care. Typically, HRSA funding is limited to specific, narrowly defined delivery system providers. The Public Health Services Act created and authorized the health center program authorizing HRSA grants to health centers.⁴¹ Section 33 provides supplemental grants to expand capacity to previously unserved communities, to expand access to addiction treatment, and to enhance health IT (HIT) capabilities and integrations.⁴² This funding also provides training and technical assistance to the community health centers through the State and Regional Primary Care Associations and HRSA's HIT National Training and Technical Assistance Partners.

Federal Communications Commission provides funding directly to providers and communities for broadband funding and telehealth services for health care. Broadband is a critical foundation for interoperable, cross-sector information sharing. To bridge the broadband digital divide, the FCC's Healthcare Connect Fund Program provides funding through the Universal Services Administrative Company to eligible providers through an application process for broadband services and network equipment with a discounted rate at 65% on eligible expenses.⁴³ The Rural Health Care Program provides funding to eligible health care providers for telecommunications and broadband services necessary for the provision of health care.⁴⁴

Department of Housing and Urban Development

provides annual discretionary funding directly to homeless systems of care (known as "Continuums of Care," or CoCs) promoting community-wide planning and strategic use of resources to address

homelessness.⁴⁵ The funds require data reporting for program components, but funding for technical investments is limited to development and maintenance of HMIS for program measurement, documentation, and reporting to HUD.⁴⁶ These funds cannot be applied to CoC program components or technical investments.

Administration for Community Living provides funding for multiple programs that strengthen networks of CBOs. One example is the aging and disability networks, which includes national, state, and local organizations that support community living options for older adults and people with disabilities.⁴⁷ ACL funds programs through mandatory formula grants, such as through the Older Americans Act, and discretionary funding to awardees through a competitive grant process. Funding passes through state designated State Units on Aging and may be distributed in subgrants to Area Agencies on Aging responsible for city, single county, or multi-county districts to provide care and community services to older adults.

Bureau of Justice Assistance (BJA) provides discretionary funds and formula grants to eligible recipients supporting behavioral health and community-based criminal initiatives. Examples include the Harold Rogers PDMP grant to support state and local governments in PDMP implementation and enhancement activities. Another example is the Justice and Mental Health Collaboration supporting cross-system collaboration to improve responses and outcomes for people with mental illness or co-occurring mental health and substance use disorder who come in contact with the justice system.⁴⁸ Anticipated BJA funding streams include training, technical assistance, and technology with cross-sector collaboration objectives.

Examples of Other States Pursuing Similar Goals

Many states throughout the nation are pursuing similar objectives to California, both to align with federal requirements and to advance state-specific objectives. Table 10 presents objectives set forth by California’s Data Exchange Framework legislative requirements and the stakeholder advisory group in the column on the left alongside priorities and funding sources established by the states of Washington, Maryland, and Nebraska on the right. Note that this is not an exhaustive list of all state HIT priorities.

Table 10. Examples of HIT/E Priorities and Funding Sources in Other States

CALIFORNIA HIT/E OBJECTIVES	HIT PRIORITIES	FUNDING SOURCE
WASHINGTON⁴⁹		
Interoperability/Statewide HIE with Requirements for Participating	Department of Health public health core services, integration engine, analytics, data visualization Prescription Monitoring Program HIE services and integration	CDC Data Modernization funds CMS MES 90-10 FFP — planning public health CMS MES 75-25 FFP — operations <i>awaiting certification</i>
HIT/E Technical Assistance Program	Health Care Authority behavioral health and crisis stabilization services Behavioral health, rural, and long-term care providers EHR-as-a-service	Washington State 988 Tax (E2SHB 1477) ⁵⁰
Shared Identity Management Solution	MPI across five HHS Coalition agencies ⁵¹	CMS MES 90-10 FFP
MARYLAND		
Interoperability/Statewide HIE with Requirements for Participating	Data exchange and integration PDMP Public health reporting Multi-state event notifications ⁵² Reporting and analytics Social determinants of health tools (e.g., eReferral)	Annual subscription fees vary by HIE participant type BJA Harold Rogers PDMP funding ⁵³ CDC Overdose to Action funds ⁵⁴ CMS MES 75-25 FFP — operations Hospital assessment as part of the global budget model ⁵⁵ State PDMP funds
HIT/E Technical Assistance Program	Health Equity Pathways Technical Assistance ⁵⁶	Hospital Community Benefit Program (Health Service Cost Review Commission) (HSCRC)
Shared Identity Management Solution	Included in HIE core services	CMS MES 75-25 FFP — operations
Provider/Resource Directory	Provider directory	CMS MES 75-25 FFP — operations

Table 10. Examples of HIT/E Priorities and Funding Sources in Other States, *continued*

CALIFORNIA HIT/E OBJECTIVES	HIT PRIORITIES	FUNDING SOURCE
NEBRASKA ⁵⁷		
Interoperability/Statewide HIE with Requirements for Participating	Prescription Monitoring Program	CDC PDMP Infrastructure funding and Opioid Crisis Response ⁵⁹
	Statewide integrator ⁵⁸	CMS MES 75-25 FFP — operations <i>awaiting certification</i>
	Single sign-on	CDC 1815 — Chronic Disease
	Direct secure messaging	CDC Data Modernization Funding COVID-19 public health funding
	Public health reporting	
	Multistate ADT alerting	
	Social data exchange	
Shared Identity Management Solution	Patient identity management across health and social sectors	CMS MES 75-25 — operations <i>awaiting certification</i>
Provider/Resource Directory	Included in core HIE services	CMS SUPPORT Act enhanced FMAP
	Included in social data exchange vendor services	CMS MES 75-25 — operations <i>awaiting certification</i>
Other Investments?	Workforce development	CyncHealth Foundation
	Data-driven research and decisionmaking	State appropriations, utilizing MLR and reinvestment funds to offset state match difference
	Population health and health care disparities	
	Improving clinical quality and outcomes	

Conclusion

The Data Exchange Framework, as set forth in AB 133, presents an opportunity for the state of California to establish statewide standardized health information exchange and to create a level playing field for participation across delivery system providers. Because delivery system providers have different levels of technical maturity, necessary investments across industry will vary.

Small health care providers who did not participate in the Meaningful Use Program or Cal-HOP, smaller SNFs, inpatient rehabilitation facilities, and most county health, public health, and homelessness systems of care lack infrastructure that supports interoperability and will need the greatest investments in technology adoption, technology maintenance, policy and program support, and staffing. Because some funding sources and the systems they support lack flexibility (e.g., HMIS and county public health), those limitations may thwart meaningful data exchange unless new investments are made.

Hospitals and larger provider networks that received historical investments and maintain certified EHRs will require the least support assuming the state adheres to commonly accepted data sharing standards. Health plans also indicated a high level of readiness consistent with messaging of the hospitals and larger provider networks regarding adherence to standards and data exchange capabilities.

To effectively regulate, monitor, and enforce any new requirements, state government will require staffing or contracted resources. Assuming new funds are available to support compliance by delivery system providers, there may also be grants or technical assistance administration responsibilities for the state.

The state and delivery system providers may be able to leverage an array of federal and state funding vehicles to advance AB 133 priorities. However, it will be necessary to braid and blend federal and state funding streams to achieve interoperability across programs and sectors. Apart from Medicaid investments, there is no enterprise funding source with the flexibility to drive statewide technical assistance and technical infrastructure. Federal funding sources directed to delivery system providers and partners typically rely on competitive discretionary funds that require resources to apply for and include program requirements that may differ from delivery system strategic priorities. State agencies, counties, and other delivery system providers can, by aligning strategies and coordinating across government, pursue funding streams that will help close the gap between technically mature providers and those lacking interoperable infrastructure.

Establishing a technology funding czar and a coordinated funding strategy across agencies and counties can address technology gaps, increase awareness, and facilitate coordination of funding requests. In addition, by coordinating across organizations and sectors and leveraging data standards, providers can direct future investments in scalable infrastructure that can support modularity and interoperability, which will increase reusability. For more sophisticated organizations, a smaller investment to support reconfiguration and integration with new types of partners and enhanced functionality may be possible.

Because funding that supports technology often competes with other operational and program costs, for this process to be successful, investments must be made for operational, programmatic, and technology needs.

Appendix A. Data Exchange Framework Timeline

DATE (no later than)	ACTIVITY
September 1, 2021	CalHHS Data Exchange Framework stakeholder advisory group begins convening
April 1, 2022	CHHS submits written update to the legislature based on input from the stakeholder advisory group
July 1, 2022	Establishment of Data Exchange Framework
July 31, 2022	CalHHS publishes a strategy for digital identities to support master patient indices
January 31, 2023	Execution of data sharing agreement by statutorily named entities CalHHS works with the California State Association of Counties to encourage the inclusion of county health, public health, and social services agencies in the California Health and Human Services Data Exchange Framework
January 31, 2024	General acute care hospitals, physician organizations and medical groups, SNFs (that currently maintain EHRs), health plans, clinical laboratories, and acute psychiatric hospitals must begin exchanging health information in real time
January 31, 2026	Physician practices of fewer than 25 physicians, rehabilitation hospitals, long-term acute care hospitals, acute psychiatric hospitals, critical access hospitals, rural general acute care hospitals with fewer than 100 acute care beds, state-run acute psychiatric hospitals, and any nonprofit clinic with fewer than 10 health care providers must begin exchanging health information in real time

Appendix B. Interviewees

ORGANIZATION	INTERVIEWEES
Alameda County Health Care Service Agency	Aneeka Chaudhry, Assistant Agency Director, Health Care Services Agency Cristi Iannuzzi, Interim Technology Strategy Director Kimia Pakdaman, Program Specialist, CalAIM Daphne Robert, Technical Services Director, Information Technology
California Association of Health Facilities	Joe Diaz, Regional Director
California Association of Health Plans	Charles Bacchi, Chief Executive Officer Anete Millers, Director of Regulatory Affairs
California Association of Public Hospitals and Health Systems	Amanda Clarke, Director, Programs
California Department of Corrections and Rehabilitation	Brenda Grealish, Executive Officer, California Council on Criminal Justice and Behavioral Health
California Emergency Management Systems Authority	Leslie Witten-Rood, Chief, Office of Health Information Exchange
California Hospital Association	Trina Gonzalez, Vice President, Policy
California Medical Association	David Ford, Vice President, Health Information Technology
California Mental Health Services Authority	Amie Miller, Executive Director Jeremy Wilson, Program Director and Public Information Officer
California Primary Care Association	DeeAnne McCallin, Director, Health Information Technology
California State Sheriff Association	Usha Mutschler, Legislative Representative
Council of State Governments Justice Center	Hallie Fader-Towe, Program Director, Behavioral Health Kevin O'Connell, Project Director, Data Driven Recovery Project
County Health Executives Association of California	Michelle Gibbons, Executive Director
CRISP	Lindsey Ferris, Senior Advisor
CyncHealth	Jaime Bland, CEO
Homebase	Julie Silas, Directing Attorney
Local Health Plans of California	Linnea Koopmans, Chief Executive Officer
Marin County	Charis Baz, Senior Department Analyst, Whole Person Care
Monterey Coalition of Homeless Services Providers	Roxanne Wilson, Executive Officer
Orange County Health Care Agency	Nicole LeMarie, Whole Person Care Program Manager

ORGANIZATION	INTERVIEWEES
San Diego Regional Task Force on Homelessness	Tamera Kohler, Chief Executive Officer Lahela Mattox, Chief Operating Officer
San Francisco Department of Public Health	Eric Raffin, Chief Information Officer
Santa Clara County Probation	Holly Child, Director, Research and Development
Santa Cruz County	Tiffany Cantrell-Warren, Assistant Director Lynn Lauridsen, Whole Person Care Program Coordinator
State of Washington	Chris Baumgartner, Senior Data Exchange Manager, Department of Health; Jennifer Harvell, Senior Federal Project Consultant, Health Care Authority; Bryant Karras, Child Informatics Officer and Senior Epidemiologist, Department of Health; Kelly McPherson, HIT Program Manager, Health Care Authority; Christine Nolan, Deputy CIO, Health Care Authority; Shawn Roberts, Program Manager Medicaid Investments, Department of Health
UCSF Center for Clinical Informatics and Improvement Research	Julia Adler-Milstein, Project Manager Grace Krueger, Research Assistant
Wellpath Health	Bonnie Bernard, IT Director of Telehealth Carin Kottraba, Vice President, Mental Health Anthony Lopez, Director, IT Delivery Danielle Pierce, EHR Systems Administrator

Appendix C. Constraints on Federal Funding

While federal funding can contribute significantly toward development and enhancements of health information exchange infrastructure, funding comes with constraints and requirements that can take significant resources to navigate and address. In addition, silos within the federal government funding streams can reinforce the fragmented investments that occur at the state level, thereby requiring significant coordination across state agencies to align resources.

Program scope and goals. Federal funding streams are appropriated to specific agencies and programs and must meet specific requirements. These requirements do not necessarily preclude support of data exchange, but it can take strategic and creative coordination across delivery systems and sectors to support it. For instance, public health long-term data modernization and infrastructure investments would ideally include a public-private strategy for improving data reporting between public health and health systems (e.g., vaccine administration data to health system or payers for closing immunization schedule gaps). CDC's Section 317 of the Public Health Services Act provides money in immunization program staff and technology to support vaccine management and administration data reporting for children, adolescents, and adults. Investments can be used to improve connections to the health care delivery system, but state public health immunization programs must delegate funding for external connections.

As another example, Federal Emergency Management Administration funding can be used only for emergency preparedness, response, and recovery, which includes partnerships with the health and local sectors. By connecting community and statewide emergency preparedness and response with health and hospital partners, California can potentially enable access to electronic health

infrastructure supporting emergency response across hospital and emergency service providers to support acute emergency situations and disaster response (e.g., acute care services, COVID-19 alternate care facilities, fire evacuations).

Lead agencies. Certain federal funds may only be accessed by specific state agencies. Thus, the state agency must approve and administer the funding request on behalf of other state agencies and partners. Sharing a coordinated vision and continuous coordination is important.

Identification and reuse. To ensure states are not duplicating investments, many federal funding sources require identification of other federal funding used to build or enhance technical capabilities. Federal agencies may request documentation demonstrating that the investment is not duplicative.

Matching funds. Many federal funding sources require a state matching fund contribution to offset the costs of programs, technical investments, staff, and nonstaff costs. Matching funds cannot be leveraged from other federal funding sources (e.g., a public health grant awarded to the California Department of Public Health cannot serve as matching funds for CMS Federal Funding Participation requests).

Appendix D. Type of Federal Funding Available to States

Medicaid Financing

CMS has multiple vehicles to support technology investments in the Medicaid program.

- ▶ **State Medicaid plans or State Plan Amendments** specify the types of services Medicaid covers in the state. States can apply for waivers to certain federal requirements under sections 1115 and 1915 of the Social Security Act to add flexibility in use of federal funds.⁶⁰ Through these waivers, states can propose strategic investments, and incentive payment programs to support the agency, program, and population goals.
- ▶ **Medicaid Federal Medical Assistance Percentage (FMAP)** represents the federal contribution toward Medicaid expenditures in each state using a statutory formula based on a state per capita income. FMAPs vary from a floor of 50% to a high of 74%.⁶¹ CMS has made temporarily enhanced FMAP adjustments for specific state events (e.g., Louisiana following Hurricane Katrina) or declared public health emergencies (e.g., COVID-19). In 2018, the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities (SUPPORT) Act §§ 5041–42 allowed states to receive 100% FMAP for fiscal years 2019 and 2020 for PDMP implementations.⁶²
- ▶ **Medicaid FFP** is federal funding provided to states for their share of expenditures for providing Medicaid services and administering the Medicaid program and certain other human services programs. FFP sets the percentages for federal and state contributions known as “state matching funds” from nonfederal dollars. State Medicaid agencies can submit planning, implementation, and operations advanced planning documents (APDs) to describe the funding needs, funding sources, programs, and investments

needed to plan and implement the program. FFP has requirements for allowable matching funds (i.e., not using other federal funds), cost allocation formulas calculating Medicaid’s fair share of the investments, and allowable program costs. Examples for FFP are detailed in Table 6.

- ▶ **Incentive payment programs**, such as the Medicare and Medicaid Meaningful Use EHR Incentive Program provided 100% FFP to adopt, implement, and meaningfully use certified EHR technology. Federal Medicaid provides 90% FFP for state administrative expenses related to the program with 10% state matching funds.⁶³ States have flexibility to establish incentive payment programs for technical investments that may be up to FMAP or at a set FFP rate. Additional available FFP options can be found in Table 6. As one example, New Jersey’s Substance Use Disorder Promoting Interoperability Program is funded by state dollars and pays substance use disorder providers to adopt EHRs.⁶⁴

Grants

Several federal agencies award grants to states and delivery system providers. Grants can serve as a mechanism to pursue opportunities that might not otherwise be funded. Formula grants are awarded to predetermined entities, based on a distribution formula. Formula grants are noncompetitive (e.g., block grants) and typically fund continuing activities without constraints to a specific project.⁶⁵ Common formula elements include population, proportion of population below the poverty line, and other demographic information.

Mandatory grants are awarded under a program where the authorizing statute requires an agency or designees to make an award to each eligible entity under the conditions and amount (or based on a formula) specified in the statute.

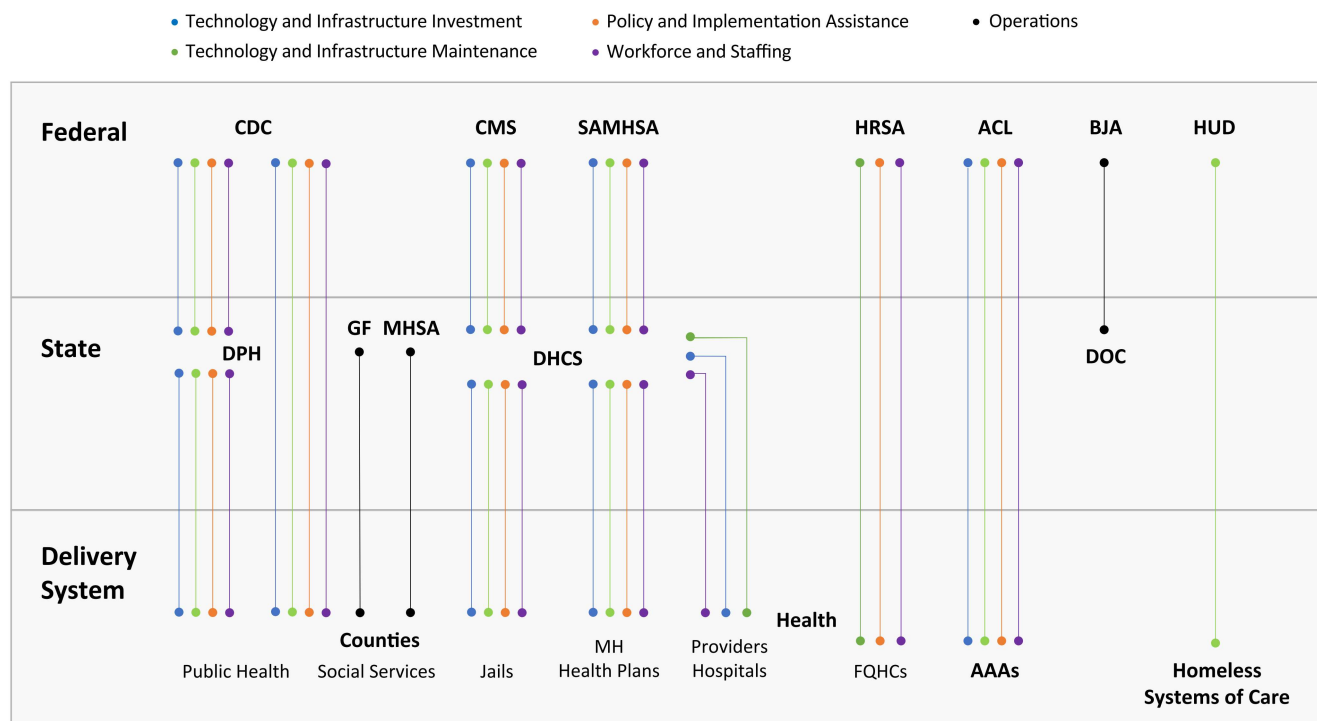
Discretionary grants are often funded from federal agencies based on merit and eligibility through a competitive application process. Agencies determine the awarded amounts.

Passthrough funding may be issued by federal agencies to a state agency or institution, where funds are transferred to other state agencies, units of local government, or other eligible groups per the award eligibility terms.⁶⁶ States have the option to distribute funds as competitive or noncompetitive grants, based on terms and legislation authorizing of the primary award. This gives state governments flexibility and autonomy over the use of federal grant funds.⁶⁷

Cooperative agreements are similar to competitive, discretionary grants in the award process, but are used where there is substantial agency involvement in the direction of the work beyond normal oversight and monitoring activities.⁶⁸ Other factors influencing federal funding flow include congressional authorizations and directed appropriation with eligibility varying by funding opportunity, and limited numbers of recipients for competitive or merit-based processes. Also, some funding is allocated according to a preset formula, which may be specified in law.⁶⁹

Figure D1 outlines federal agency funding sources that typically support HIT-related activities and examples of pathways to distribute funds.

Figure D1. Funding Flow for Health Information Technology Investments



Note: AAA is Area Agencies on Aging; ACL is Administration for Community Living; BJA is Bureau of Justice Assistance; CBO is community-based organization; CDC is Centers for Disease Control and Prevention; CMS is Centers for Medicare & Medicaid Services; DHCS is California Department of Health Care Services; DOC is Department of Corrections; DPH is Department of Public Health; FQHC is Federally Qualified Health Center; GF is general fund; HRSA is Health Resources and Services Administration; HUD is Department of Housing and Urban Development; MHSA is Mental Health Services Act.

Appendix E. Strategies for Leveraging Medicaid Dollars

While 1115 waivers and FFP may pay only for systems that serve the Medicaid program, DHCS is not precluded from partnering with public or private entities to help finance program data, technology, and infrastructure needs that serve a wider audience. Other state agencies, counties, and private sector partners can align technology priorities serving the health, social, and public health sectors, and coordinate with DHCS to maximize federal participation. Additional requirements for CMS funding are noted below with examples from states that have proposed and received approval.

- ▶ **Cost-sharing or matching funds.** CMS requires states to provide cost-sharing or matching funds to offset federal funds.⁷⁰ The state can use general funds designated to a Medicaid agency or other state agencies supported by interagency agreements, city/county funds, or philanthropic donations. Other state matching fund examples include but are not limited to a central State Health IT Fund (e.g., Vermont's State Health IT Fund [32 V.S.A. § 10301(g)] with effective date from 2011 until July 1, 2023, with revenue generated from 0.199% of 1% of all health insurance claims deposited into the general fund).⁷¹ Additional funding sources for consideration include other tax funds with the appropriate policy designation, such as the Mental Health Services Act, marijuana tax, or tobacco tax.
- ▶ **Cost allocation.** Medicaid FFP is allowable for Medicaid's "fair share" of state technology investments in Medicaid. The cost allocation methodology must be approved by the state Medicaid agency and CMS, with calculations and data sources justifying the proposed cost allocation amount. Operational funding for Medicaid Enterprise Service modules is typically based on number or percentage of Medicaid enrollees served by the technical investments.⁷² CMS

also provides flexibility and justifiable methodologies for other partner information exchange investments. State examples include Kentucky's APD cost allocation methodology for advanced directives and Maryland's cost allocation methodology for PDMP technical services.⁷³

- ▶ **Delivery system provider payment incentives.** In addition to using state plan authority, states integrating technology and working toward data interoperability can leverage 1115 waiver demonstration authority. State Medicaid agencies must adhere to the special terms and conditions for a state demonstration to hold the state and managed care entities accountable for technology adoption.⁷⁴ As an example, CMS approved \$650 million in Medicaid funding for North Carolina's Healthy Opportunities Pilots, a Medicaid Reform Demonstration with \$100 million available for capacity building.⁷⁵ North Carolina leveraged the 1115 waiver to create a standardized screening initiative, referral platform, and pilot program to link social and medical services using Medicaid funding to address social determinants of health.⁷⁶

Appendix F. Components of CalAIM That Could Support AB 133 Priorities for Data Exchange

Using Section 1115 waiver authority and Medi-Cal State Plan Amendments, California’s Department of Health Care Services (DHCS) is currently administering CalAIM (California Advancing and Innovating Medi-Cal), a multiyear initiative intended to modernize Medi-Cal and streamline service delivery using whole-person care approaches and addressing the social determinants of health.⁷⁷ Modernizing data sharing and integration across organizations and sectors will be a crucial component to the success of CalAIM initiatives. The following table outlines the components of CalAIM for which existing publicly available materials reference funding that could support one or more of the identified needs of stakeholders. Of note, guidance is still pending on some programs, which could limit permissible use of funds.

INITIATIVE	ELIGIBLE ENTITIES	PURPOSE RELATED TO TECHNOLOGY	TIMING
Incentive Payment Program ⁷⁸	MCPs “DHCS anticipates participating MCPs will maximize the investment and flow of incentive funding to [essential community providers] ECM and Community Support . . . providers to support capacity and infrastructure development.” ⁷⁹	Delivery system infrastructure <ul style="list-style-type: none"> ▶ Health IT ▶ Data exchange ▶ Billing ▶ Closed loop referral ECM provider capacity building <ul style="list-style-type: none"> ▶ Workforce recruiting ▶ Onboarding ▶ Training and TA ▶ Workflow development and redesign ▶ Program operational requirements and oversight 	Q1 2022– Q2 2024
Providing Access and Transforming Health (PATH) Program — Capacity and Infrastructure Transition, Expansion, and Development Initiative ⁸⁰	County, city, and local government agencies, providers, CBOs, public hospitals, Medi-Cal Tribal and Designees of Indian Health Programs, ECM and Community Supports providers, and other entities approved by DHCS that contract or intend to contract with Medi-Cal MCPs to provide ECM and Community Support services.	Developing infrastructure and systems, including transition of Whole Person Care (WPC) pilot infrastructure for managed care contracted services under CalAIM. Staff time for data collection that facilitates evaluation and monitoring.	Q3 2022– Q2 2025
PATH — Collaborative Planning and Implementation ⁸¹	MCPs, county, city, and local government agencies, providers, CBOs, public hospitals, Medi-Cal Tribal and Designees of Indian Health Programs, ECM and Community Supports providers, and other entities approved by DHCS that contract or intend to contract with Medi-Cal MCPs to provide ECM and Community Support services	Forum to maximize coordination and minimize duplication within regions related to gaps within the community, topical issues, monitoring use of PATH funds, and disseminating best practices.	Q3 2022– Q2 2025

INITIATIVE	ELIGIBLE ENTITIES	PURPOSE RELATED TO TECHNOLOGY	TIMING
PATH — Technical Assistance ⁸²	County, city, and local government agencies; public hospitals and providers, community-based providers; other ECM and Community Supports providers; Medi-Cal Tribal and Designees of Indian Health programs; and other entities approved by DHCS that contract or intend to contract with Medi-Cal MCPs to provide ECM and Community Support services. ⁸³	Customized support from vendors on the technical assistance marketplace, which may include guidance on data sharing, strategic planning, reporting, and other core functions. Access to published resources developed by TA vendors for the initiative.	Q3 2022– Q4 2024
PATH — The Justice-Involved Capacity Building Program ⁸⁴	State prisons, jails, youth correctional facilities and probation offices, sheriff’s offices, and county behavioral health agencies build capacity	Information technology investments that facilitate data exchange between correctional institutions, Medi-Cal eligibility offices, community providers, and MCPs as well as technical support and training for county behavioral health.	Q3 2022– Q4 2026
Behavioral Health Quality Improvement Program ⁸⁵	County-operated behavioral health plans	Update county technical infrastructure to implement CalAIM policies, including EHRs and reporting systems to facilitate data sharing between county behavioral health agencies and Medi-Cal managed care plans.	Q3 2021– Q4 2023
Housing and Homelessness Incentive Program ⁸⁶	MCPs	MCP connection with local HMIS or other local data sources.	Q3 2022– Q1 2024

Appendix G. Glossary of Abbreviations

AB 133	Assembly Bill 133	HITECH	Health Information Technology for Economic and Clinical Health
ACL	Administration for Community Living	HMIS	Homeless Management Information System
APD	Advanced Planning Document	HRSA	Health Resources and Services Administration
API	Application programming interface	HUD	Department of Housing and Urban Development
BH-EHR	Behavioral health electronic health record	IIS	Immunization Information System
BJA	Bureau of Justice Assistance	IT	Information technology
BRIC	Building Resilient Infrastructure and Communities	MCP	Managed care plan
CalAIM	California Advancing and Innovating Medi-Cal	MES	Medicaid Enterprise System
Cal-HOP	California Health Information Exchange Onboarding Program	MHBG	Community Mental Health Services Block Grants
CBO	Community-based organization	MHSA	Mental Health Services Act
CDC	Centers for Disease Control and Prevention	MPI	Master patient index
CHCF	California Health Care Foundation	PATH	Providing Access and Transforming Health
CalHHS	California Health and Human Services Agency	POLST	Physician Orders for Life-Sustaining Treatment
CMS	Centers for Medicare & Medicaid Services	SAMHSA	Substance Abuse and Mental Health Services Administration
CoC	Continuum of Care	TA	Technical assistance
DHCS	California Department of Health Care Services	USCDI	United States Core Data for Interoperability
DOC	Department of Corrections	WPC	Whole Person Care
ECM	Enhanced Care Management		
EHR	Electronic health record		
FCC	Federal Communications Commission		
FFP	Medicaid Federal Funding Participation		
FMAP	Medicaid Federal Medical Assistance Percentage		
HHS	US Department of Health and Human Services		
HIO	Health information organization		

Endnotes

1. **2021 Cal Stat 143.**
2. **Data Exchange Framework Stakeholder Advisory Group: Meeting #4** (PDF) (California Health and Human Services Agency [CalHHS] webinar, Dec. 14, 2021).
3. **California Budget 2021–22, May Revision Budget Summary — Health and Human Services** (PDF), State of California, May 14, 2021.
4. **California Budget 2022–23, May Revision Budget Summary — Health and Human Services** (PDF), State of California, May 13, 2022.
5. Mark Elson et al., **Health Information Exchange in California: Assessment of Regional Market Activity**, California Health Care Foundation (CHCF), August 2021; **Learning from the History of Statewide Health Data Exchange**, CHCF, July 2021; and Mark Elson, **Health Information Exchange in California: Overview of Network Types and Characteristics**, CHCF, August 2021.
6. “**Grant Terminology**,” grants.gov, accessed March 28, 2022.
7. “**2022 Federal Register Index**,” National Archives and Records Administration, accessed March 25, 2022; “**Federal Policy Guidance**,” Centers for Medicare & Medicaid Services (CMS), accessed March 25, 2022; and “**Grant Terminology**,” grants.gov.
8. The United States Core Data for Interoperability (USCDI) is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange. USCDI v1 is an adopted standard in the Office of the National Coordinator Cures Act Final Rule. Use of the USCDI standard is required as part of the new application programming interface (API) certification criteria, “standardized API for patient and population services” (§ 170.315[g][10]). Health IT developers of Certified Health IT products must be able to share data using the USCDI v1 data set by December 31, 2022. USCDI v2 includes additional data elements and data classes for social determinant of health (SDOH) assessment and plan of treatment coded data elements, SDOH goals, and care team members.
9. **Data Exchange Framework Stakeholder Advisory Group: Meeting #1** (PDF) (CalHHS webinar, Aug. 31, 2021).
10. **Expanding Payer and Provider Participation in Data Exchange: Options for California**, CHCF, November 2019.
11. **Medicare & Medicaid EHR Incentive Program: Meaningful Use Stage 1 Requirements Overview** (PDF), CMS, 2010; “**Cal-HOP**,” State of California, accessed March 28, 2022; and **Cal-HOP Approved Interfaces** (PDF), California Dept. of Health Care Services (DHCS), last updated June 17, 2021.
12. Mental health providers are not explicitly named in AB 133. Many county behavioral health plans are collaborating with the California Mental Health Services Authority on procurement of certified EHR technology and consultant support to bring interoperability to scale. However, policy and programmatic support will be relevant as new policies emerge.
13. Large SNFs owned by commercial organizations, which represent about 70% of facilities, have EHRs. However, SNFs are mostly not connected to other parts of the health care delivery system or to other sectors.
14. Authors were unable to reach either of the major lab associations in the state for an interview.
15. While AB 133 specifically names counties, cities, and nonprofits also often play a role in service delivery and should be considered with regard to data exchange capabilities.
16. In Whole Person Care pilots, counties generally served as Lead Entities and drove the design of the initiatives and technology investments. In CalAIM, MCPs are playing a more central role in implementation and infrastructure. Therefore, it will be challenging to sustain the WPC technological investments in CalAIM without MCP buy-in.
17. Timothy Hill (acting director, CMS) to all state Medicaid directors, **State Medicaid Director Letter 18-005** (PDF), April 18, 2018.
18. **Strengthening US Public Health Infrastructure**, Workforce, and Data Systems, CDC, last reviewed June 17, 2022. On June 16, 2022, the CDC released the Strengthening US Public Health Infrastructure, Workforce, and Data Systems notice of funding opportunity. This five-year cooperative agreement is available to states, counties (over two million population), and cities (over 400,000) for cross-cutting programs intended to meet critical infrastructure and workforce needs and long-term, strategic investments strengthening public health capacity. Key objectives include improving workforce capacity, strengthening public health services and processes, and data modernization for efficient data infrastructure, increased data interoperability, and increased public health data availability and use.
19. Cindy Mann (director, CMS) to all state Medicaid directors, **State Medicaid Director Letter 18-004** (PDF), May 18, 2022; and Hill, State Medicaid Director Letter 18-005. This paper focuses on federal funding sources. States may consider how to leverage private sector participation through Medical Loss Ratio (MLR) for quality improvement investments including technology and data exchange.
20. Technology services must pass operational readiness review and certification review processes, as well as provide six months of data for approved outcomes measures to qualify for 75-25 FFP operational funding.
21. **Maryland State Medicaid HIT Plan** (PDF), ver. 9.0, State of Maryland.

22. **“Section 1115 Demonstration HIE Policy,”** CMS, accessed March 28, 2022. The 1915(c) Home and Community-Based Service waiver is an example of a waiver with technical requirements for enhanced utilization, quality, and cost data for the long-term services and supports population providing a 10% increase in FMAP (10%) through Section 9817 of the American Rescue Plan Act. Funding was available through March 31, 2022.
23. **Medicaid and Children’s Health Insurance Program (CHIP) Programs; Medicaid Managed Care, CHIP Delivered in Managed Care, and Revisions Related to Third Party Liability Final Rule** (PDF), 81 Fed. Reg. 27498–901 (May 6, 2016); and Jonah Frolich, Kevin McAvey, and Jonathan DiBello, **CalAIM and Health Data Sharing: A Road Map for Effective Implementation of Enhanced Care Management and In Lieu of Services**, CHCF, May 2021.
24. States can develop an EHR incentive program up to the state’s allowable FMAP for federal financial support that provides funding to designated Medicaid providers that may not have been eligible for Meaningful Use Program / Promoting Interoperability incentive payments. A program could be designed for long-term care facilities or behavioral health providers to support electronic data capture through certified EHRs or other technical systems to meet the minimum interoperability requirements set forth in AB 133.
25. **SUPPORT for Patients and Communities Act**, H.R. 6, 115th Congress (2018).
26. **“Percent of Specialty Hospitals That Possess Certified Health IT,”** Health IT Quick-Stat #59, Office of the National Coordinator for Health Information Technology, August 2019. Forty-nine percent of psychiatric hospitals use EHRs compared to 96% of general medicine and surgical practices.
27. **“Data Modernization Initiative,”** CDC, last reviewed March 21, 2022. CDC typically funds 64 public health jurisdictions including 51 state public health agencies, which includes the District of Columbia, territories, and local public health agencies over a certain population threshold.
28. Additional funding streams for programs, populations, and prevention are available through public health authorities for services and technical infrastructure. States receive multiyear cooperation agreements that may fund data and technical infrastructure priorities. An example is Section 1815, **“Improving the Health of Americans Through Prevention and Management of Diabetes, Heart Disease, and Stroke.”** This paper did not identify past and existing funding sources with programs currently underway.
29. CDC funding streams allow cities and counties meeting population thresholds to be eligible for public health funding cooperative agreements and grants. Los Angeles is not the only California county meeting these requirements and receiving funds.
30. Federal Section 317 funding is typically authorized for vaccines for children, adolescents, and adults for immunization program operations and critical infrastructure.
31. Federal Section 317 funding is typically authorized for vaccines for children, adolescents, and adults for immunization program operations and critical infrastructure.
32. **“Data Modernization Initiative,”** CDC, last reviewed May 10, 2022; and **“Data Modernization Initiative: An Urgent Need to Modernize,”** CDC, last reviewed November 18, 2020. The Data Modernization Initiative is creating a standards-based interoperable public health infrastructure, ensuring all systems can communicate and seamlessly share data; advancing standards so that information can be stored and shared across systems; and facilitating complete and timely reporting so that the CDC has essential data on race, ethnicity, treatments, and comorbidities critical for achieving equity in public health response.
33. **Office of Financial Resources Fiscal Year 2021 Annual Report** (PDF), CDC.
34. **“Community Mental Health Services Block Grant,”** Substance Abuse and Mental Health Services Administration (SAMHSA), last updated April 16, 2020.
35. **“Community Mental Health Services Block Grant,”** SAMHSA, last updated April 16, 2020.
36. **Block Grant Reporting Section CFDA 93.958 (Mental Health)** (FY 2022-2023 MHBG Report) (PDF), SAMHSA.
37. Daniel Tsai (deputy administrator and director, CMS) to all state health officials, **State Health Official Letter 21-008** (PDF), December 28, 2021.
38. Anita Everett, **“Groundbreaking Developments in Suicide Prevention and Mental Health Crisis Service Provision,”** SAMHSA, May 14, 2021.
39. Kristen K. Beronio, **Funding Opportunities for Expanding Crisis Stabilization Systems and Services** (PDF), Technical Assistance Collaborative Paper No. 8, National Assn. of State Mental Health Program Directors, September 2021.
40. **“FY 2021 Community Mental Health Block Grant Program COVID-19 Supplemental Awards,”** SAMHSA, last updated March 11, 2021.
41. Sara Rosenbaum et al., **Community Health Center Financing: The Role of Medicaid and Section 330 Grant Funding Explained** (PDF), KFF, March 2019.
42. **“Health Center Controlled Networks,”** HRSA, accessed March 28, 2022
43. **“Emergency Broadband Benefit,”** Federal Communications Commission (FCC), accessed March 28, 2022
44. **“Rural Health Care Program,”** FCC, accessed March 28, 2022
45. **“Continuum of Care (CoC) Program Eligibility Requirements,”** HUD Exchange, accessed March 28, 2022.

46. **"Continuum of Care (CoC) Program,"** HUD Exchange, accessed March 25, 2022.
47. **"Program Areas: Overview,"** Administration for Community Living, accessed March 28, 2022.
48. **"Funding Opportunities for Your Community in 2022: An Overview of What Is Ahead"** (PDF) (Bureau of Justice Assistance webinar, Jan. 19, 2022).
49. Christine Nolan, Kelly McPherson, Bryant Karras, Chris Baumgartner, Shawn Roberts, and Jennie Harvell, interview by Kate Ricker-Kiefert, May 5, 2022.
50. **Final Bill Report: E2HB 1477** (PDF), Washington Health Care Authority, May 5, 2022.
51. **Health and Human Services Enterprise Coalition: Information Technology (IT) Investment Coordination Annual Report** (PDF), Washington State Health Care Authority, November 1, 2021.
52. **"MES Certification Repository: Health Information Exchange,"** CMS, accessed May 2, 2022.
53. **"Optimizing Maryland's Prescription Drug Monitoring Program (PDMP),"** BJA, accessed June 7, 2022.
54. **"Overdose Data to Action,"** CDC, accessed June 7, 2022.
55. **574th Meeting of the Health Services Cost Review Commission** (PDF), Maryland Dept. of Health, June 10, 2020.
56. **"Health Equity Resource Communities,"** Maryland Dept. of Health, accessed May 5, 2022.
57. Nebraska leveraged HITECH 90-10 FFP to establish core HIE functionality; sources listed support maintenance and operations.
58. **CyncHealth,** accessed May 5, 2022.
59. **Nebraska Health Information Initiative 2019 Annual Report** (PDF), CyncHealth.
60. **Social Security Act § 1903,** 42 U.S.C. 1396b.
61. **Medicaid Financing: An Overview of the Federal Medicaid Matching Rate (FMAP)** (PDF), KFF, September 2012.
62. MaryBeth Musumeci and Jennifer Tolbert, **"Federal Legislation to Address the Opioid Crisis: Medicaid Provisions in the SUPPORT Act,"** KFF, October 5, 2018.
63. Mann, State Medicaid Director Letter 11-004.
64. Patrick Filbin, **"Behavioral Health Providers Falling Behind in EHR Adoption, Critical to Participate in Value-Based Care,"** Behavioral Health Business, November 13, 2021.
65. Rachel Bennett, **"Federal Grant Funding: Types and Best Ways to Progress Your Opportunities,"** Amplifund, October 6, 2020.
66. "Grant Terminology," grants.gov.
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68. "Grant Terminology", grants.gov
69. **Public Health Financing** (PDF), CDC, June 2013.
70. "Grant Terminology," grants.gov
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76. Hannah Crook et al., **How Are Payment Reforms Addressing Social Determinants of Health? Policy Implications and Next Steps** (PDF), Milbank Memorial Fund, February 2021.
77. **"CalAIM,"** DHCS, accessed March 28, 2022.
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81. "Providing Access," DHCS.
82. DHCS.
83. DHCS.
84. *Funding Opportunities,* DHCS.
85. **Behavioral Health Quality Improvement Program: CalAIM — Program Implementation Plan and Instructions for County Behavioral Health Plans** (PDF), DHCS, December 2021.
86. **Housing and Homeless Incentive Program: MCP Resource Guide** (PDF), DHCS, February 2022.