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Expanding Payer and Provider Participation in Data Exchange:
Options for California

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Background

Health information exchange (HIE) is vital to enabling the quadruple aim of better care, better health, improved clinician experience, and lower costs. Yet states have struggled for decades to establish infrastructure that allows for the seamless, safe, and secure sharing of health information, despite being associated with improved quality and reduced duplicative services and associated costs.[1] Lack of supportive state policy and leadership, a lack of a compelling value proposition, misaligned incentives, and concerns over privacy and high costs represent many of the barriers that states, providers, and payers must overcome on the journey toward interoperability.

California's path began over two decades ago when the Santa Barbara County Care Data Exchange, a regional health information organization (HIO), blazed a trail by establishing an HIE program among hospitals, physicians, and other providers in the county. Years later, the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 provided billions of dollars in financial incentives to increase the adoption of electronic health records (EHRs) and HIE, with mixed success.[2] The HITECH Act created three programs that would galvanize stakeholder collaboration and commitment to HIE across California. The State HIE Cooperative Agreement Program, Medi-Cal EHR Incentive Program,[3] and Regional Extension Center Program supported widespread adoption of EHRs in hospitals and ambulatory practices and clinics that are certified to electronically exchange information using national standards. Some of the artifacts from these programs remain and continue to support provider adoption, such as the availability of Medi-Cal administrative funding; others, such as the former "state-designated entity" for HIE, Cal eConnect,[4] the Statewide HIT Coordinator position, and public-private California HIE Advisory Board have since shuttered or been discontinued, largely leaving HIE in the hands of the state's health systems and regional HIOs. The lack of an HIT Coordinator with a broad charge to coordinate pubic and private health information technology and exchange efforts across a state as large and complex as California has resulted in a leadership vacuum. Today, the state's nine largest regional HIOs support exchange in 35 of 58 counties in California, representing approximately 22 million of the state's 40 million residents.[5]

Despite progress, significant holes in California's HIE landscape remain. 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. Many health systems have also established private HIE initiatives as a means of creating narrow networks that limit data sharing participation to a limited set of invited health systems and providers. A significant portion of the state is now covered by closed narrow-network or enterprise exchanges, and many independent and safety-net providers are not invited to participate.[6] As a result, many residents receive care in settings that do not have their complete health records, potentially leading to adverse health events and poor outcomes.

Key Terms

Interoperability. The ability of health care entities to seamlessly exchange patient data.

Health information organization (HIO). HIOs are entities that facilitate the exchange of patient health information among the enterprises composing a health care delivery system. They can be community-based and nonprofit, known in California as regional HIOs, or owned and operated by a private enterprise.

Health information exchange (HIE). Processes that allow health care providers, institutions, and agencies to appropriately access and securely share patient health information electronically.

For more background on HIOs and information on the current landscape of HIOs, please see "Promise and Pitfalls: A Look at California's Regional Health Information Exchange Organizations."

Regional nonprofit HIOs have emerged as one potential solution to California's interoperability challenges among safety-net, independent, and rural providers. HIOs facilitate the exchange of patient health information among the entities composing a health care delivery system (e.g., hospitals, clinics, public health agencies, independent providers). They are agnostic to narrow networks and allow for organizations without interoperable EHRs to exchange data with all participating community organizations including, in some cases, public health departments and human, social service, and criminal justice agencies, among others. Allowing these institutions to exchange information with health care providers supports more robust population health management programs that address the social determinants of health.

California's HIOs, however, have struggled to realize their aspirational role as universal conduits of HIE. Today, only half of California's hospitals participate in HIOs, and 23 counties lack any significant HIO presence.[7] Many HIOs continue to grapple with sustainability and, without critical mass in the communities they serve, face an uphill battle developing a value proposition that can compete with private HIE initiatives.[8]

The federal government recently issued proposed rules with the goal of achieving a vision of seamless HIE across the continuum of care and with robust patient access. Federal policy alone, however, has shown time and again to be insufficient in significantly advancing HIE. Without the right mix of state public policy, financial support, and aligned market incentives, providers and payers won't be motivated to adopt HIE services.

This issue brief lays out a spectrum of policy, contracting, and financing levers available to states as they consider how to support interoperability. It reviews other states' experiences and extracts lessons from their successes and failures that can inform California's future.

These levers, however, should be seen for what they are: a means to a greater interoperability end. Before considering the details of which levers to deploy when, California's government and industry leaders would benefit from reaching consensus on a broad, shared vision for interoperability.

This vision could:

- Identify the highest priority and most feasible use cases, and their value propositions for stakeholders
- Articulate the state's role in data exchange and the desired data-sharing relationships among critical state programs
- Clarify California's interest in leading, shaping, and/or participating in growing data-sharing efforts on a national level

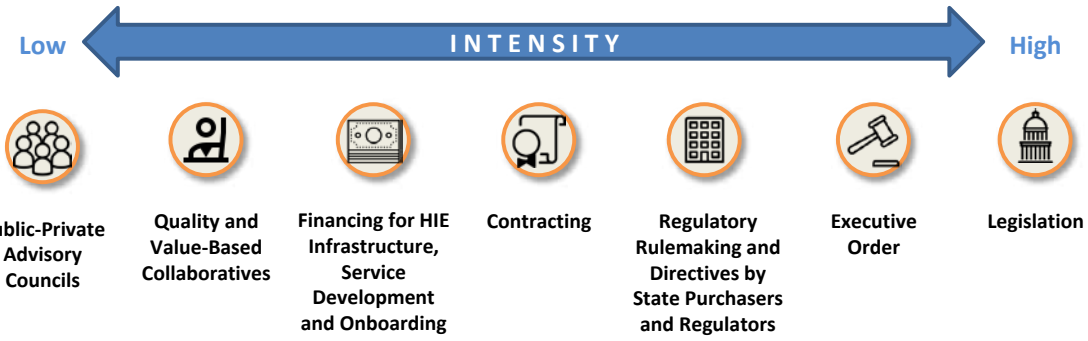
Once there is a clear vision to guide California's efforts, stakeholders can turn to deciding the best means of achieving it.

Policy, Contracting, and Financing Levers

A variety of policy, contracting, and financing levers may be used to advance interoperability. These levers are arrayed below according to the intensity of the state's role in advancing HIE activity (see Figure 1, page 5). These levers are not mutually exclusive and states have deployed them in tandem. This section discusses each lever and its respective pros and cons, and subsequent sections describe how states have employed such levers as well as contemplate how they may be used in California.

Public-private advisory councils. Public-private advisory councils can guide HIE programs and recommend policies and standards. These stakeholder bodies typically convene to develop policy recommendations related to HIE, and they have broad representation across the health care industry, including from state agencies, health plans, providers, consumers, and HIOs. Many of these councils emerged as states implemented the HITECH Act, and some continue to play a role in shaping their states' HIE policies and critical use cases. Their impact does not come from

Figure 1. Intensity of State's Role in Advancing HIE



any power they wield, but rather from the consensus they generate regarding HIE priorities that help drive adoption by public and private organizations.

An advisory council can be charged with operating a transparent, consensus-based process that may include:

- Recommending priority HIE services to support statewide quality and cost-containment goals
- Reviewing national and state data exchange standards and recommending standards for priority HIE use cases and incorporation into health plan contracts
- Establishing a certification process for HIOs
- Developing template language that state agencies and health plans may use in their contracts to promote interoperability and provider participation in priority use cases
- Advising the administration and agencies on implementation of an executive order or legislation instituting HIE requirements should one be enacted
- Preparing regular reports on the status of interoperability and developing recommendations for presentation to the administration and legislature

Pros. Under transparent and consensus-based processes, these bodies can garner broad stakeholder input and support. They are helpful venues for prioritizing, shaping, and revising policies that stakeholders can agree upon.

Cons. Without power or enforcement authority, an advisory council's recommendations cannot compel industry participants to act. An advisory council is most effective when coupled with other levers, and more so if it is coupled with policies that generate funding it can direct and prioritize.

Quality and value-based collaboratives. Quality and value-based collaboratives have been used to design and develop programs that may require HIE and pay providers who have met specified milestones. Participation in such collaboratives may be voluntary or required under a state's contract with a Medicaid managed care plan or through a plan's contracts with its providers. Generally, participants agree to comply with the recommendations or policies of the collaborative, which may be tied to financial incentives or penalties. These collaboratives often mirror public-private advisory councils in their composition, and are often led by purchasers or payers (e.g., commercial, Medicaid, Medicare) attempting to increase value and/or decrease costs in their contracted provider networks.

Pros. Collaboratives allow industry stakeholders to jointly develop programs that align care delivery with payment incentives. They can build trust and a cooperative process for defining objectives, identifying and spreading leading practices, and tying progress (including HIE milestones) to payment.

Cons. Collaboratives are typically voluntary and can't compel participation. Without sufficient incentive payment heft underlying the quality goals or states and payers requiring participation, provider participation will be limited.

Financing for HIE infrastructure, service development, and onboarding. Efforts to advance interoperability around the country have largely failed when not coupled with funding, meaningful financial incentives, and/or monetary penalties. States are in the position to pursue federal funding to support HIE objectives:

- *HITECH administrative funding.* Federal administrative funding for some state activities related to interoperability is available through the Medicaid EHR Incentive Program through 2021 and may be requested through an Implementation Advanced Planning Document. The program makes federal administrative funding available at the 90% match rate, with the state funding 10% of the cost for eligible activities, such as:
  - HIE onboarding and outreach
  - Facilitating connections between providers and HIOs
  - Promoting Medicaid providers' use of EHRs and HIOs
- *1115 Waivers.*[9] States may access federal funding to support HIE adoption through Section 1115 demonstrations in partnership with the Centers for Medicare & Medicaid Services (CMS). For example, CMS has partnered with state Medicaid agencies to develop demonstrations that hold the state and managed care plans accountable for health IT adoption.

Pros. Making funding available can help providers overcome a significant interoperability barrier — cost — and enhance the HIE value proposition. It is made more powerful when coupled with contractual requirements and policy directives to use HIE services (discussed below).

Cons. While funding for onboarding helps mitigate the initial costs associated with connecting to an HIO, it does not address sustainability (e.g., ongoing fees). If HIOs are not able to demonstrate their value to providers quickly, they will lose participation. The use of HITECH administrative funding to support onboarding as well as utilization at the 90% match rate also has a limited timeline; all expenditures must be completed by September 2021. Other administrative funding may be available, but at a lower match rate.

Contracting. State agencies may use their purchasing power to promote and require interoperability. The most straightforward example of this is through state contracting that may be paired with payments; under CMS guidance, states may pay incentives to managed care plans that meet performance targets.[10] All state purchasers are responsible for delivering health care benefits and services to their members through contracts with health plans that in turn contract with networks of providers and facilities. In their contracts with health plans, state purchasers set forth expectations for health plan performance and may augment their existing contracts to include interoperability requirements and expectations for supporting provider network connectivity to HIOs.

At the federal level, demonstrating HIE capabilities is an important part of the Medicare Access and CHIP [Children's Health Insurance Program] Reauthorization Act of 2015 (MACRA) Merit-Based Incentive Payment System (MIPS). In order to avoid payment reductions and be eligible for a payment increase, participating providers are required to submit data across four performance categories: quality, promoting interoperability, improvement activities, and cost.[11] The promoting interoperability domain, which is weighted as 25% of the total MIPS score, requires participating providers to use a certified EHR to report five HIE-related measures: security risk analysis, electronic prescribing, patient access to their health data, sending a summary of care, and requesting/accepting a summary-of-care record.[12] Participating providers are also eligible to earn a bonus of up to 10% of their quality category score — 6% of their overall score

— for using a certified EHR to collect, calculate, and report quality measure data.[13]

Private purchasers can implement similar incentive programs through contracting, thereby enhancing alignment and the value proposition for health plans and providers to pursue interoperability.

Pros. This approach leverages existing purchasers' contracting mechanisms, procurement processes, and payment models, enabling them to integrate changes that advance interoperability alongside other requirements. Health plans and providers are accustomed to receiving direction through these mechanisms and will take action if failing to meet a requirement that could potentially reduce payment or jeopardize contracts.

Cons. Purchasers must enforce contractual requirements to ensure they are effective, which can be difficult and carries some risks. Health plans may elect to forego participation in state-sponsored programs rather than comply, resulting in decreased market coverage and competition. Health plans also risk losing providers if they incorporate penalties into contracts that result in providers being removed from networks or moved to non-preferred tiers, or withheld claims; this is a particular concern in rural areas where fewer providers and plans are available to serve residents. Without enforcement or meaningful penalties, however, health plans are unlikely to meaningfully incentivize their provider networks.

Regulatory rulemaking and directives by state purchasers and regulators. State purchasers and regulators may promulgate rules requiring health plans to engage in HIE or promote interoperability among providers. As previously discussed, state agencies may use contracting, licensing, credentialing, or other mechanisms to implement and enforce rules.

Pros. Regulatory rulemaking and directives allow agencies to consider aspects of interoperability most critical to their goals and priorities, and tailor requirements accordingly. It is also a transparent process with an opportunity for public participation through submission of written comments or presentation of oral comments during public hearings.

Cons. Regulatory rulemaking on its own would be piecemeal and not have the same sweeping effect of a broader executive order or legislation (discussed below). Without direction from the governor or legislature, agencies may not prioritize interoperability given other competing priorities. And if rulemaking takes place, it is unlikely that requirements would be coordinated and consistent across agencies, thereby placing a burden on health plans and providers to implement and track a varying set of requirements.

Executive order. Governors have authority to direct state regulatory agencies and purchasers to advance interoperability through contracting and rulemaking within each regulator's or purchaser's purview. That authority can extend to agencies that regulate or operate programs related to insurance, managed care, public health, the state Medicaid program, state marketplaces, provider credentialing/licensing, and/or that purchase health coverage on behalf of state employees, retirees, and their dependents. Generally, state agencies can promulgate regulations and establish policies within the scope of their authority on relevant matters, and an executive order can help enable consistent rulemaking across agencies.

Pros. An enforced statewide directive via executive order with accompanying incentives and penalties would likely have broad impact. An executive order can be done quickly, requiring only the governor's signature.

Cons. A directive can have a negative impact on the trust between state government and HIE stakeholders, especially if it is developed without broad stakeholder input, and some stakeholders will oppose this path, especially if it is seen as an "unfunded mandate." An executive order is not as strong a lever as legislation (discussed below), and would only serve as a directive to state agencies to promulgate rules within their authority, which dissatisfied stakeholders may attempt to challenge on procedural grounds (e.g., claiming interoperability is beyond agency purview or authority).

Legislation. State legislatures have the authority to require payers and providers to meet interoperability requirements by enacting legislation.

Pros. Legislation is a more direct statewide action than an executive order. Legislation would give implementing state agencies clear authority to take action, including through rulemaking as described above. Additionally, legislative interoperability directives would apply to all regulators and purchasers, even those that are not operated by an appointee of the governor.

Cons. Any legislation imposing requirements on health plans or providers would likely encounter significant debate in the legislature and subsequent reviews by legislative committees before becoming law, which also requires the governor's signature. And, if legislation is not accompanied by a meaningful, enforceable incentive or penalty, it will likely not have a significant or immediate impact on the market. It can also be difficult to enforce requirements promulgated in legislation in large states given the sheer number of affected providers.

Measurement and reporting. Regardless of the levers deployed in a state, it is critical that the state establish an accompanying measurement and reporting process and infrastructure to establish a baseline, track progress against targets, and inform how policymakers can adjust or craft levers to ensure progress. Measurement and reporting are important to evaluating the progress of HIE adoption, increasing transparency and identifying strategies that are working and may be scaled up, as well as identifying strategies that are not working and can be modified or eliminated. The measures most readily available can assess HIE adoption and utilization statewide through a dashboard or similar public setting. More difficult to measure is whether HIE adoption and utilization is impacting patient outcomes, improving provider workflow, reducing costs, and improving overall population health. This level of measurement would require significant planning and data collaboration among researchers, providers, and the state.

State Profiles

States that have been most successful in advancing HIE have played an active role in convening stakeholders and using public policy to articulate expectations for providers, payers, and HIOs. Many lessons can be gleaned from efforts in other states that have used different levers with varying degrees of success. This section briefly describes the efforts of five states — Florida, Maryland, Michigan, Minnesota, and North Carolina — examining their policy and market levers and available results. Each state represents a unique approach and combination of public and private market forces to advance HIE. The states are ordered according to the intensity of state actions taken to advance HIE, with Minnesota taking the least intensive approach and North Carolina taking the most intensive approach. For the full state profiles, please refer to the appendix.

MINNESOTA

Minnesota has legislation requiring HIE participation, but it has not enforced the legislation or used other levers, such as executive orders, regulatory rulemaking, contracting, or funding mechanisms. The state's approach centers around two pieces of legislation, but HIE in Minnesota has largely been driven by organizations using Epic; approximately two-thirds of the state's population receives care from health systems that use Epic as their EHR.[14]

- The **Minnesota Interoperable EHR Mandate of 2008** requires all Minnesota health care providers to have an interoperable EHR system that is connected to a state-certified HIO, either directly or indirectly, through a connection established with a state-certified Health Data Intermediary (HDI) (e.g., health information service providers, EHR vendors, pharmaceutical electronic data intermediaries) by 2015.[15] As of April 2019, there were four state-certified HIOs and 16 state-certified HDIs.[16] The mandate has had limited impact because it does not have an enforcement mechanism and is not connected to funding or penalties.

- The **Minnesota HIE Oversight Law of 2010** requires the Minnesota Department of Health to establish an oversight process that will protect the public interest on matters pertaining to HIE and gives the Minnesota Commissioner of Health authority to implement the HIE oversight program.[17] The HIE Oversight Law requires that HIOs and HDIs demonstrate they can meet Minnesota's interoperability requirements, including:
  - Meeting national standards for exchanging health information
  - Demonstrating compliance with all privacy and security requirements under state and federal law
  - Participating in statewide shared HIE services as defined by the commissioner of health to support interoperability between state-certified HIOs and HDIs
  - Holding reciprocal agreements for the exchange of clinical transactions.[18]

To date, HIOs have not met the last requirement regarding reciprocal data-sharing agreements. Each HIO has implemented a consent management system with a master patient index to allow providers to accurately identify a patient who provided consent. This infrastructure will support HIOs' abilities to exchange information, but there is currently no governance structure or timeline to establish requirements or agreements for cross-HIO data sharing.[19]

Minnesota has not issued incentive payments or penalties to complement the EHR mandate and attract a critical mass of HIE participants, largely allowing providers to ignore the portion of the mandate requiring them to connect to a state-certified HIO.[20] This has led to a bifurcated HIE landscape in Minnesota. Ninety percent of hospitals and 59% of clinics that use Epic but only 21% of hospitals and 16% of clinics that do not use Epic reported that they routinely have necessary clinical information from outside providers available electronically.[21] The Minnesota Health Records Act may also represent an unintended barrier to HIE participation, as it requires that providers obtain patient consent to share health records, which goes beyond federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) requirements.[22] Taken together, Minnesota's experience suggests that EHRs can advance HIE for its network of users, but there may be a need for the state to take an active role in establishing the rules of the road and enforcing HIE policy decisions to achieve cross-network adoption.

FLORIDA

Florida has relied on state contracting mechanisms rather than laws, executive orders, or regulations to increase adoption. The Agency for Health Care Administration (AHCA), the agency administering Florida's Medicaid EHR incentive program, developed the statewide health information network, Florida HIE. The Florida HIE offers an encounter notification service (ENS), direct messaging, and a state gateway service enabling users to query national networks.[23] The Florida HIE is funded through annual subscription fees starting at $7,500 for the ENS.[24]

Florida created a knowledge management system for its HIE to track performance indicators related to the electronic delivery of lab results, electronic prescribing, and exchange of summary-of-care records. Florida's AHCA uses these data to identify opportunities for improvement in the implementation and development of the Florida HIE.[25]

Florida's approach to HIE represents a middle ground between full and no state control of the HIE, since the state developed and administers the HIE, but there is no requirement that providers connect. Rather, Florida has used contracting approaches to advance HIE, such as requiring participation in the HIE's ENS for providers to receive uncompensated care funding (referred to in Florida as Low-Income Pool); the state withholds uncompensated care funding from hospitals that do not participate in the ENS. And the Medicaid managed care contract requires health plans to encourage providers to participate in direct messaging. Florida has achieved the most success onboarding providers to specific use cases such as the ENS. However, broader utilization has been hampered by costs of HIE onboarding, insufficient network

density, privacy concerns, frustration with past unsuccessful HIE attempts, and a lack of stakeholder buy-in to the benefits of HIE.

MICHIGAN

Michigan has advanced HIE through a blend of contracting approaches by public and private payers, financing for HIE infrastructure, quality and value-based collaboratives, and public-private advisory councils. The public-private Michigan Health Information Technology Commission serves as an advisory body for advancing HIE in the state.[26] The Michigan Health Information Network (MiHIN), the statewide HIE, serves as a network of networks for the state's 13 regional HIOs and other qualified organizations.[27] Providers connect with regional HIOs and qualified organizations that transmit data to MiHIN, and MiHIN aggregates those data so they are available for other HIOs and data-sharing partners. MiHIN is funded through state contracts, subscription fees from regional HIOs, and contributions from payers.[28]

Medicaid managed care contracts require contracted health plans to actively participate in MiHIN and incentivize their provider networks to connect with HIE-qualified organizations.[29] As a result, providers participating in the statewide HIO receive daily admission, discharge, and transfer (ADT) and emergency room notifications for more than 70% of the state's 10 million residents.

Blue Cross Blue Shield of Michigan (Blue Cross) provides incentives for participation in MiHIN through its Michigan Collaborative Quality Initiatives (CQIs), partnerships among Blue Cross hospitals, physicians, and other stakeholders that facilitate data sharing to develop best practices around clinical program areas with high costs and disparate quality outcomes.[30] These CQIs reinforce many of the statewide objectives and services supported by MiHIN, thereby having a mutually reinforcing effect. Participating hospitals receive points toward pay-for-performance bonuses for meeting the following HIE quality measures based upon data exchange with MiHIN:[31]

- Maintain ADT data quality conformance for both complete routing and complete mapping of required data elements
- Maintain ADT adherence to coding standards
- Receive, send, and maintain Common Key Service attribute
- Maintain medication reconciliation data quality conformance for specified data elements
- Transmit complete Consolidated Clinical Document Architecture (CCDA) within 24 hours of discharge
- Sign MiHIN System for Opioid Overdose Surveillance Use Case

Through these approaches, Michigan has achieved widespread HIE adoption. Incentives and requirements from two of the largest insurers in the state (Medicaid and Blue Cross), covering approximately half of the population, have driven extensive participation in MiHIN, thereby increasing the value of its services. Furthermore, Michigan's collaborative and transparent approach to governance and alignment among the public and private sectors has contributed to the state's success.

MARYLAND

Maryland has used a strong regulatory rulemaking approach to drive HIE adoption among hospitals, but has taken a more laissez-faire approach to onboarding ambulatory providers, supplying funding for the latter to connect through the Maryland Primary Care Program, a voluntary program open to all qualifying Maryland primary care providers that provides funding and support for the delivery of advanced primary care.[32] Under Maryland state regulation (Md. Code Regs. § 10.37.07.03), hospitals must connect to the state-designated HIO Chesapeake Regional Information System for our Patients (CRISP)[33] to enable the Health Services Cost Review Commission (HSCRC), an independent state agency that has regulated hospital rates since 1971, to measure hospital performance on

readmissions.[34] CRISP is funded through fees assessed on hospitals by the HSCRC.[35] While providers do not directly access the information reported to HSCRC, they do participate in HIE via CRISP and other HIOs in Maryland.

Today, CRISP facilitates several HIE services across Maryland providers, including ENS, direct messaging, a clinical query portal, and access to data from the Prescription Drug Monitoring Program (PDMP).[36] As of 2018, 100% of Maryland hospitals were connected to CRISP while only 28% of ambulatory practices were connected.[37] CRISP submits quarterly reports to the state detailing:[38]

- Connections by provider type and service type
- CRISP portal participation and usage
- Consumer metrics such as the number of consumers opting out of CRISP services and the number of unique patients for whom data may be accessed through CRISP
- Number of direct messaging, ENS, and PDMP accounts

Maryland has been successful in onboarding hospitals through the mandatory use case of hospital rate regulation, but it remains to be seen whether the funding provided through the voluntary Primary Care Program will increase HIE adoption among ambulatory providers since it just launched in 2019. Statewide hospital participation in CRISP is partly credited with Maryland's ability to achieve a 6.5% reduction in hospital admissions.

NORTH CAROLINA

North Carolina has advanced HIE through legislation, contracting requirements from Blue Cross Blue Shield of North Carolina, and financing for HIE. In 2015, North Carolina passed legislation, the Statewide HIE Act, requiring 98% of providers to connect to the state-designated HIE, NC HealthConnex, by 2020 or risk losing payments for state-funded health care services. The Statewide HIE Act also charged the North Carolina Health Information Exchange Authority (NC HIEA), a public-private partnership composed of diverse stakeholders, with carrying out the HIE Act and overseeing NC HealthConnex.[39] In addition to NC HealthConnex, North Carolina state law (Gen. Stat. 130A-480) requires all civilian North Carolina hospitals operating a 24/7 emergency department contribute data for syndromic surveillance to the North Carolina Hospital Emergency Surveillance System (NCHESS).[40] Hospitals may also voluntarily participate in initiatives that ADT alerts for Medicaid and State Health Plan (SHP) members (teachers, state employees, retirees, and their dependents). Currently, there is no fee for organizations to connect to NC HealthConnex or NCHESS. NC HIEA and NC HealthConnex are funded by the state through a $9 million annual allocation from the general assembly; however, the state is planning to implement subscription fees in the future to make the model self-sustaining.[41]

HIE participation in North Carolina is increasing, as the HIE Act established clear timetables for provider participation and allocated state and federal funding to support provider onboarding. However, the additional funding does not appear to have completely alleviated concerns among providers, and some still anticipate having difficulty meeting the deadlines established in the HIE Act.[42] As of April 2019, the general assembly is considering granting a one-year extension for certain providers and hospitals.[43] HealthConnex also gained private sector support when Blue Cross Blue Shield of North Carolina announced it will reject all SHP claims received from providers who are not compliant with the HIE Act until they are in compliance.[44] The North Carolina use case demonstrates that a legislative approach coupled with funding and private sector buy-in can increase HIE adoption.

Table 1. Intensity of State's Role in Advancing HIE

		INTENSITY (LEAST TO MOST)				
	 CALIFORNIA	 MINNESOTA	 FLORIDA	 MICHIGAN	 MARYLAND	 NORTH CAROLINA
Public-Private Advisory Council	California Association of Health Information Exchanges (CAHIE)	Minnesota e-Health Initiative Advisory Committee Minnesota e-Health Task Force	State Consumer Health Information and Policy Advisory Council	HIT Commission	HIE Policy Board	North Carolina HIE Advisory Board
Quality and Value-Based Collaboratives	"Align. Measure. Perform." commercial HMO program (IHA) California Quality Collaborative (PBGH) Smart Care California (IHA)	None	None	Blue Cross of Michigan CQIs	None	Voluntary admission, discharge, and transfer (ADT) initiatives in Medicaid and State Health Plan
Financing for HIE Infrastructure, Service Development, and Onboarding	California HIE Onboarding Program (Cal-HOP): $45 million in federal funding and $5 million in state funding	None	Florida HIE charges subscription fees for its encounter notification service (ENS), starting at $7,500 per year	The Michigan Health Information Network receives state funding, charges subscription fees, and has a built-in subscriber base due to state contract requirements	Chesapeake Regional Information System for Our Patients is partially funded through a hospital assessment as part of the global budget model Annual subscription fees vary by HIE participant type Annual direct messaging fees were $240 per user per year in 2015	$45 million in federal and state funding in 2017 State funded annual $9 million budget toward NC HealthConnex, the state-designated HIE Subscription-based fee structure planned
Contracting	Covered California Attachment 7 Department of Health Care Services Medi-Cal managed care contracts	None	Low Income Pool (hospitals) Contracting (Medicaid MCOs) State Quality Strategy (Medicaid MCOs)	Contracting (Medicaid MCOs) Incentive-based contracts with Blue Cross CQIs (commercial)	None	Blue Cross of NC State Health Plan contracting requirements

Table 1. Intensity of State's Role in Advancing HIE, *continued*

	INTENSITY (LEAST TO MOST)					
	 CALIFORNIA	 MINNESOTA	 FLORIDA	 MICHIGAN	 MARYLAND	 NORTH CAROLINA
Regulatory Rulemaking and Directives by State Purchasers	None	None	State-designated HIE (Florida HIE) without participation requirements	Medicaid requires MCOs to incent provider connectivity to HIOs	Regulatory requirement that hospitals participate in state-designated HIE (CRISP)	None
Executive Order	None	None	None	None	None	None
Legislation	None	The Minnesota Interoperable EHR Mandate of 2008 — no penalties for noncompliance The Minnesota HIE Oversight Law of 2010	None	None	None	Statewide HIE Act (requires nearly all providers to connect to NC HealthConnex) North Carolina Gen. Stat. 130A-480 (requires most hospitals to contribute public health data to the North Carolina Hospital Emergency Surveillance System)

Lessons Learned

States that have been most successful in advancing HIE have coupled state policy with financial incentives and stakeholder collaboration. In the states surveyed, none of the policy levers guaranteed widespread HIE adoption when employed in isolation. Minnesota's EHR and HIE legislation furthered EHR adoption, but failed to facilitate cross-network HIE likely due to its failure to include compliance incentives or penalties. Maryland's regulation has resulted in universal HIE participation among hospitals, but participation rates are lower among ambulatory providers who fall outside the regulation. Florida has used contracting requirements to boost participation in its ENS and direct messaging use cases, but it has struggled to galvanize stakeholders for broader utilization. North Carolina and Michigan have supplemented state policy with additional supports to garner broad HIE participation among a balanced group of stakeholders. In both states, the largest commercial Blue Cross Blue Shield plans have provided private sector support for advancing HIE. North Carolina's legislation has been furthered by state efforts to provide funding for providers who may struggle with the cost of complying with its requirements. Michigan's success in advancing HIE has been facilitated by its collaborative and transparent approach as well as effective use of managed care organization (MCO) contracting to require and incentivize HIE adoption.

Applying Policy, Contracting, and Financing Levers in California

Policy and business leaders may consider any number of levers to advance interoperability in California. Some levers contemplated in this brief have been partially deployed (e.g., the California HIE Onboarding Program [Cal-HOP] to provide financial support for HIE), while others such as an executive order or legislation with enforceable incentives or penalties have not. These options are considered below and are not mutually exclusive; most are in fact mutually reinforcing.

Public-private advisory council. Various public-private advisory bodies have been constituted to guide current and past HIE initiatives in California. These advisory bodies have played a critical role in representing an extremely diverse and large state by ensuring that critical and often underrepresented perspectives have a voice (e.g., rural and safety-net providers, social service agencies, consumers). There are many advisory councils in place today advising individual HIOs, as well as the state, on critical health care issues. For example, the California Association of Health Information Exchanges (CAHIE) convenes HIOs, providers, payers, state agencies, and other stakeholders to work on common challenges, and advocate for supportive policies. One of CAHIE's achievements is the California Trusted Exchange Network (CTEN), a multiparty data-sharing agreement and set of policies and procedures, and technical specifications and validation testing that supports secure exchange of health information among CTEN participants. Today, state agencies, HIOs, and providers participate in CTEN.[45] Health care policy and business leaders should consider how to best utilize existing councils or whether to create a new advisory council when contemplating levers to advance HIE in California. These advisory councils could also be helpful in defining and prioritizing HIE use cases for California and describing their value propositions.

Quality and value-based collaboratives. California has a strong history of public-private quality collaboratives. The "Align. Measure. Perform." commercial HMO program of the Integrated Healthcare Association (IHA) was established 20 years ago and supports 10 health plans and over 200 physician organizations who care for over nine million Californians. The program uses a common set of measures and benchmarks for value-based incentive payments to providers.[46] The California Quality Collaborative of the Pacific Business Group on Health (PBGH) "identifies and shares innovations in ambulatory (outpatient) care to physicians, medical groups and hospitals throughout California."[47] To reinforce the HIE value proposition, these initiatives would need to add interoperability use cases that providers need to fulfill in order to qualify for incentives or to meet other priority objectives.

Quality and value-based collaboratives may also serve as venues for stakeholders to develop consensus around policy levers or approaches to advancing and measuring HIE. For example, Smart Care California is a public-private partnership chaired by the California Department of Health Care Services (DHCS), Covered California, and the California Public Employees' Retirement System (CalPERS), and its participants collectively purchase health care for more than 16 million Californians.[48] To date, Smart Care California has engaged health plans, hospitals and health systems, physicians, consumer organizations, and other purchasers to tackle c-sections, opioid overuse, and low back pain. Due to its participants and mission to promote safe, affordable health care, Smart Care California could convene stakeholders to develop consensus on issues related to HIE. Specifically, it could develop model contract language that all state purchasers and payers could incorporate into their contracts, thereby aligning incentives for health plans and providers and enhancing the value proposition of their participation in HIE. Smart Care California also has developed metrics dashboards to track progress toward other health care focus areas, a practice that could be extended to track HIE.

Quality and value-based collaboratives, such as Smart Care California and those supported by IHA and

PBGH, have been powerful vehicles for garnering provider and payer consensus around priority initiatives and standards and supporting the transition to value-based payment. The experience and leadership of these collaboratives are important platforms that analogous programs in other states including Michigan have used to advance HIE objectives.

Financing for HIE infrastructure, service development, and onboarding. While most hospitals and ambulatory providers in California have adopted EHRs that have the capability to electronically exchange information using national standards, the majority have not connected to HIOs or routinely share electronic patient information with other providers.[49] Cost and the lack of a clear value proposition remain providers' biggest barriers to adoption. Many health systems have also established private HIE initiatives as a means of managing patients within narrow affiliation networks. Others use capabilities that are native to their EHRs to exchange information with a limited set of affiliated providers that have a similar platform (e.g., Epic Care Everywhere).

Providing a financing stream to help alleviate the financial burden of connecting to an HIO has been an effective enabler in other states. Medi-Cal recently took steps to do this through the Cal-HOP program. Onboarding incentives for new HIO participants in the Cal-HOP program are expected to range from $48,000 to $55,000 for an individual provider organization and $150,000 for a hospital.[50] These payments will not cover ongoing operating costs associated with connection to an HIO. Additional funding through the budget process coupled with enhanced federal funding (10% state dollars matched by 90% federal dollars) can be accessed through 2021 to support Medi-Cal provider onboarding and outreach activities, including support for connecting to HIOs. Other federal administrative dollars may be available after 2021, but at a reduced match rate.

As DHCS leadership and policymakers consider the objectives of the state's next 1115 waiver, they may consider promoting interoperability to advance state initiatives that depend on complete health, social, human service, and criminal justice information in order to address social determinants, improve health outcomes, and reduce costs. California could incorporate HIE into its demonstration to ensure all regions of the state are covered by an HIO and that all Medi-Cal providers have plans to connect to an HIO to support Medi-Cal program goals. Some states are pursuing community information exchanges (CIEs) to facilitate referrals from clinicians, community health workers, and others to community-based organizations equipped to address patients' social determinants of health (e.g., housing providers, access to food). CMS has partnered with other state Medicaid agencies to develop demonstrations that hold the state and managed care plans accountable for health IT adoption. Alternatively, if the state were to pursue an accountable care model in Medi-Cal, it could create incentive payments for providers who demonstrate the use of HIE to manage total cost of care, improve outcomes, or reduce unnecessary utilization.

Contracting. All state purchasers — DHCS, CalPERS, and to a degree, Covered California — are responsible for delivering health care benefits and services to their members through contracts with health plans that in turn contract with networks of providers and facilities. In their contracts with health plans, state purchasers set forth expectations for health plan performance and may augment those to include interoperability requirements and expectations for their contracted provider networks. Private purchasers can pursue similar paths, thereby enhancing alignment and the value proposition for health plans and providers to pursue interoperability.

For example, Covered California's Attachment 7 currently requires contracted health plans to describe "participation in statewide or regional initiatives that seek to make data exchange routine."[51] It also requires health plans to describe how they meet criteria for integrated health care models (IHMs)[52] or accountable care organizations, including integration of certified EHR technology in the inpatient and ambulatory settings as well as risk-sharing arrangements and incentives between health plans and providers. To fulfill these requirements, a health plan must provide Covered

California details on its existing integrated systems or plans to develop integrated systems, and report the number of members managed under IHMs across all lines of the health plan's business. Contracted health plans provide this information to Covered California through their annual applications for certification.[53]

Covered California could enhance interoperability requirements and criteria as enabling factors in its integrated health care model definition. Enhancements could include performance guarantees that specify percentages of contracted network providers that must meet interoperability requirements, and penalties when targets are not met. Those interoperability requirements could include use cases that support integrated health care models such as notifications for hospital and post-acute care facility admissions, discharges, and transfers; sharing of electronic patient visit summaries; and sharing of encounter information, among others. It may also include requirements to use existing and new federal interoperability standards and rules, or state-specific standards that may be promulgated in the absence of federal rules.

HIE metrics could also be incorporated into Covered California's "hospital payments to promote quality and value" through which health plans adopt a payment methodology that puts at least 6% of hospital reimbursement at risk.[54] Covered California could also enhance its "Payment Incentives to Promote Higher Value Care" to include interoperability requirements to support delivery system reforms. California may also consider including requirements for hospitals to connect to an HIO as a condition for receiving a portion of their uncompensated care funding.

DHCS, CalPERS, and private employers could also use their purchasing authority to establish similar requirements for health plans, and health plans may in turn pass these requirements onto providers. Today, DHCS includes some general expectations in Medi-Cal managed care contracts regarding payer and provider participation in data exchange. As Medi-Cal develops it procurement for Medi-Cal managed care plans in 2020, it intends to enhance these requirements and their alignment with quality measures, including the Healthcare Effectiveness Data and Information Set (HEDIS).[55] Smart Care California or another statewide collaborative could take up the development of standard contract language for inclusion in the RFP.

Alignment of public and private payer interoperability incentives is taking place in North Carolina in support of the state's legislation requiring providers to connect to the statewide HIE. Blue Cross Blue Shield of North Carolina recently announced that it will not pay claims for providers who are not compliant with the HIE Act.

Regulatory rulemaking and directives by state purchasers and regulators. Michigan's Medicaid program issued rules and directives requiring its MCOs to create incentives for providers to connect to an HIO and demonstrate specific capabilities that support its program goals. California DHCS could issue similar directives to support its quality improvement priorities (see Table 2).[56]

Table 2. DHCS Strategy for Quality Improvement Department-Wide Priorities, 2018

- Improve patient safety
- Deliver effective, efficient, affordable care
- Engage individuals and families in their health
- Enhance communication and coordination of care
- Advance prevention
- Foster healthy communities
- Eliminate health disparities

Such capabilities could include the transmission and receipt of ADT notifications to *enhance communication and coordination of care*, or consultation of the Controlled Substance Utilization Review and Evaluation System (CURES) prior to prescribing a Schedule II–IV controlled substance to *improve patient safety and foster healthy communities*. Covered California and CalPERS could issue similar rules with new requirements for contracted health plans. Florida has taken a similar approach by including requirements in MCO contracts that encourage network providers to participate in direct messaging through the statewide HIE.

DHCS could also support interoperability through Medicaid demonstrations or 1115 waivers that identify HIE as an enabler of the goals of the Medicaid program and include federal and state funding to incentivize provider participation. For example, if the state were to pursue an accountable care model in Medi-Cal, it could create incentive payments for providers who demonstrate the use of HIE to manage total cost of care, improve outcomes, or reduce unnecessary utilization.

State leadership will be important to achieve the desired effects of any regulatory rulemaking or directives. Leadership may require the focused attention of one or more dedicated individuals and could benefit from a public-private advisory body to guide implementation of the Executive Order. While many advisory bodies exist today, none are empowered at the state level and such a body could bring valuable provider, payer, government, and consumer perspectives and input to resolve California's data exchange challenges.

Executive order. The governor has authority to issue an executive order that directs state regulatory agencies and purchasers to advance interoperability within each regulator or purchaser's purview. That authority can extend to agencies that oversee health plans and providers, including DHCS, the Department of Managed Health Care, Department of Public Health, and the Office of Statewide Health Planning and Development. The governor could also provide guidance and direction to the California Department of Insurance, Covered California, and the Medical Board of California directly or via the governor's appointees to the boards governing Covered California and the medical board.

Generally, California agencies will implement an executive order by promulgating regulations and establishing policies within the scope of their authority on relevant matters. Because an executive order would require health plans, including Medi-Cal managed care plans, Covered California marketplace qualified health plans, CalPERS contracted health plans, and other government plans to meet interoperability requirements, state agencies with oversight authority as health insurance regulators or purchasers must be engaged to implement and enforce the executive order.

Legislation. The legislature could enact law requiring payers and providers to meet interoperability requirements. Legislation would give implementing agencies clear authority to take the actions mandated via legislation, which would make moot any questions regarding whether interoperability is within a specific regulator's purview. Additionally, legislative interoperability directives would clearly apply even to those

Proposed Federal HIE Regulations

An executive order or legislation requiring HIE participation should comply with and ideally build upon federal HIE regulations. CMS is currently considering a proposed rule requiring that by 2020 Medicaid, CHIP, Medicare Advantage plans, and qualified health plans (QHPs) implement, test, and monitor standardized, open application programming interfaces (APIs) without requiring access fees; develop and maintain a process to exchange electronic health information between payers; and participate in a trusted HIE network.[57] API technology enables software, even when made by different developers, to connect and exchange information.

The proposed rule would also require hospitals by January 1, 2021, to send event notifications to another health care facility and provider as a condition of Medicare and Medicaid participation. In the proposed rule, CMS encourages states operating marketplaces to adopt similar interoperability standards for QHPs. The Office of the National Coordinator has a proposed rule calling on HIT developers to publish standardized (via Health Level 7) Fast Healthcare Interoperability Resources — transparent and pro-competitive APIs — while limiting fees and combating information blocking by health plans and providers.[58] These requirements are meant to address technical and cost-related barriers to interoperability that exist today. An executive order requiring HIE participation could be structured to wrap around and coordinate with such federal requirements, which may give an executive order more heft.

regulators and purchasers that are not operated by an appointee of the governor.

North Carolina has had some success with enacting HIE participation requirements through legislation. The law specified a timetable by which different provider types were required to connect, and increased the network's value by prioritizing the onboarding on key network contributors (hospitals) and key network users (ambulatory providers) first.

New York eHealth Collaborative HIE Measurement and Reporting

New York's eHealth Collaborative (NYeC) provides an example of HIE metrics within a pay-for-performance program. NYeC requires HIOs, also called "Qualified Entities," to report on the following measures on a recurring basis, and it ties performance payments to these measures:

- Patient consent
- Hospital participation in the Qualified Entity
- Other regulated entities' participation in the Qualified Entity
- Physician participation in the Qualified Entity
- Hospital data completeness and quality
- Other regulated data completeness and quality
- Physician data completeness and quality

NYeC is also considering new reporting performance metrics that address:

- System usage
- Customer satisfaction
- System reliability
- Metrics designed for advocacy

Measurement and reporting. Measurement and reporting are important to evaluating the progress of HIE adoption, increasing transparency, and identifying strategies that are working and may be scaled, as well as strategies that are not successful. All the levers described in this brief can be complemented by a set of California-specific metrics that may include:[59]

- *Program measures.* To the extent the state develops or funds specific programs that support HIE, it may choose to develop corresponding evaluation protocols and regularly report on progress and outcomes to the public. Such an evaluation is planned for Cal-HOP and may serve as a model for future statewide initiatives aimed at fostering interoperability. These measures are intended to foster transparency and accountability for expenditure of public funds, and to help assess whether programs are meeting stated goals.

- *Statewide adoption and use metrics.* These measures can assess HIE adoption and utilization and may be published in a statewide dashboard. Potential measures include:

  - The number of provider organizations participating in an HIO, which may be broken down by type and size of provider (e.g., small/solo providers vs. clinic vs. health system)

  - The total volume of monthly transactions, such as ADT notifications or clinical data queries

  - Patient utilization and access through HIE portals

Impact assessment. Providers typically engage in HIE to support their achievement of the quadruple aim. While it may be impossible to measure whether HIE has a direct impact on patient outcomes, measures can link the availability of HIE infrastructure and services to provider workflow, patient outcomes, and ultimately, whether overall population health improves and costs are reduced. Such measures would require significant planning and data collaboration among researchers, providers, and the state.

Conclusion

There are many public policy and private market levers available to advance HIE. California can learn from other states that have more effectively used them to accelerate interoperability. A consistent theme in more successful states is the use of a multitude of levers that align business interests of providers and payers. By coupling strong state leadership with sound public policy, leveraging state and private purchasing power, and aligning private payer programs with interoperability goals, some states are finding they can move the market toward more systemic information exchange. These states have also sustained their efforts for a decade or more and recognize that one-off policy directives are not sufficient to get the job done. California likely needs to take a similar long-term, holistic view to create an undeniable value proposition for all stakeholders and make appreciable progress toward a truly interoperable health system.

Appendix. State HIE Profiles
MINNESOTA

Background

Two pieces of legislation laid the groundwork for health information exchange (HIE) in Minnesota:

- *The Minnesota Interoperable Electronic Health Record (EHR) Mandate of 2008* requires all Minnesota health care providers to have an interoperable EHR system that is connected to a state-certified Health Information Organization (HIO), either directly or indirectly through a connection established with a state-certified Health Data Intermediary (HDI) (e.g., health information service providers, EHR vendors, pharmaceutical electronic data intermediaries, etc.) by 2015.[60]
- *The Minnesota HIE Oversight Law of 2010* requires the Minnesota Department of Health to establish an oversight process that will protect the public interest on matters pertaining to HIE and gives the Minnesota Commissioner of Health authority to implement the HIE oversight program.[61]

As of March 2019, there are four state-certified HIOs and 16 state-certified HDIs.[62] However, HIE in Minnesota is largely driven by organizations using Epic; approximately two-thirds of the state's population receives care from health systems that use Epic as their EHR.[63]

HIE Model and Services

EHR Mandate. Under the mandate, providers' secure EHR systems are required to securely:[64]

- Incorporate clinical lab test results as structured data
- Support transitions of care, care coordination, population health, and quality improvement
- Allow patient access to view online, download, and transmit health information

Interoperability is achieved by using standards for exchange and by connecting to a state-certified HIO.

HIE Oversight Law. An entity providing HIE services in Minnesota must apply for a certificate of authority to conduct business as either a HIO or HDI. Applicants must demonstrate they can meet a set of state-specified requirements, including but not limited to:

- Comply with national standards for exchanging health information
- Demonstrate compliance with all privacy and security requirements under state and federal law
- Participate in statewide shared HIE services as defined by the commissioner of health to support interoperability between state-certified HIOs and HDIs
- Hold reciprocal agreements for the exchange of clinical transactions[65]

HIO or HDI applicants must pay a $14,000 application fee and, if granted a certificate of authority, a $7,000 annual renewal fee.[66]

Funding

In 2009, Minnesota received $65 million in federal Health Information Technology for Economic and Clinical Health (HITECH) Act funding under the State HIE Cooperative Agreement Program and four other programs in the state.[67]

Metrics

Minnesota tracks and publishes the following HIE metrics in statutorily mandated Minnesota e-Health Initiative legislative reports:[68]

- EHR adoption and utilization
- Electronic prescribing
- Information exchange between unaffiliated provider organizations

Policy Levers to Encourage Adoption and Utilization

The EHR mandate requires that all Minnesota health care providers, with exceptions for solo and private-pay-only practitioners, have an interoperable EHR that is connected to a state-certified HIO. However, there is no fine or state-administered penalty for not complying with the mandate.[69] Under the Minnesota Promoting Interoperability Program, formerly the Minnesota EHR Incentive Program, all providers and hospitals are required to attest to meaningful use of an EHR. To receive incentives paid under this program from the state's Department of Human Services, health care professionals, hospitals, and critical access hospitals must meet the criteria for eligible professionals and eligible hospitals.[70] Minnesota also has two HIE advisory groups, the Minnesota e-Health Initiative Advisory Committee and the e-Health Task Force, that focus on improving statewide HIE.[71]

Participation

HIE Participation in Minnesota remains limited. As of January 2018, approximately 20% of hospitals (mostly rural) and 12% of clinics have connected to a HIO, while only 1 of the 10 largest health systems in the state is connected. Most of the HIE taking place in Minnesota today is through Epic due to its large presence in the state; however, significant gaps remain in providers' abilities to seamlessly exchange health information.[72]

Lessons Learned

EHR adoption in Minnesota is nearly universal, but participation in cross-network HIE has not followed due to several barriers.[73] Minnesota did not provide sufficient incentives or penalties to complement the EHR mandate to attract a critical mass of HIE participants. As a 2018 legislative study explained, the business case for small providers is weak because large providers are not participating, and the business case for large providers is weak because most of their clinical information sharing needs are satisfied by their EHRs and their EHRs' connections to national HIE networks. This has led to a bifurcated HIE landscape in Minnesota in terms of access to key clinical information. Ninety percent of hospitals and 59% of clinics use Epic, but only 21% of hospitals and 16% of clinics that do not use Epic reported that they routinely have electronic access to necessary clinical information from outside providers. The Minnesota Health Records Act is also seen as a significant barrier to HIE participation since its requirements for obtaining patient consent to share health records go beyond those in the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA). Finally, stakeholders emphasized the need for the state to take a more active role in making and enforcing HIE policy decisions (e.g., the EHR mandate).[74]

FLORIDA

Background

The Agency for Health Care Administration (AHCA), which oversees Florida's Medicaid program, is authorized by 2011 Florida statutes (XXIX Fla. Stat. 408.062) to promote and foster health information technology (HIT) systems through the administration of the Medicaid EHR Incentive Program.[75] This statutory authority enabled AHCA to develop a statewide health information network, known as the Florida Health Information Exchange (HIE), and to promote a variety of HIT and HIE initiatives among Florida's providers and hospitals. The Florida Center for Health Information and Transparency (the center) within the AHCA sets the governing rules for the Florida HIE and administers the state contract for the third party that manages the system, Audacious Inquiry. The center also sets policy, convenes stakeholders, engages federal partners, and promotes the benefits of HIT.[76]

HIE Model and Services

The Florida HIE offers the following services:

- *Encounter Notification Service (ENS).* The ENS provides subscribers timely notices of patients' hospital encounters (admission, discharge, and transfer (ADT) data).[77]
- *Direct messaging.* Direct messaging allows health care organizations to securely send health information over the internet. The Florida HIE's messaging service is DirectTrust-accredited, allowing exchange within a "trust framework" that extends to over 106,000 health care organizations nationwide.[78]
- *Query solutions.* The State Gateway service provides an onramp to national exchange networks such as the eHealth Exchange to enable providers to search for clinical documentation for patients across all 50 states. Providers participating in the Florida HIE can connect to national exchange networks and, in the future, the State Gateway will aggregate and deduplicate multiple continuity-of-care documents retrieved through state or national exchange networks.[79]

Funding

Florida HIE subscribers are charged an annual fee starting at $7,500 for the ENS.[80] In 2019, the AHCA will go to the state legislature to request funding for the overhead associated with program expansion and management (the amount has not been disclosed).[81]

Metrics

Florida tracks the following HIE metrics, and uses these data to identify opportunities for improvement in the implementation and development of the Florida HIE:[82]

- Monthly ADT Notifications Sent[83]
- Number of Participating Data Sources[84]
- Number of ENS Subscribers[85]
- Number of Lives Covered by ENS[86] (total and per subscriber type)
- ENS Hospital Encounter Alerts[87] (total and per 1,000 lives)
- Electronic Prescribing Rates[88]

Policy Levers to Encourage Adoption and Utilization

The 2011 Florida statutes authorized the AHCA to develop a statewide health information network.[89] While the statutes did not mandate participation in the statewide health information network, the state has since used policy levers to encourage HIE adoption:

- *Low Income Pool (LIP) reimbursement.* Starting in 2014, the AHCA relied on its LIP authorities to require hospitals to share ADT data through the ENS, creating a real-time notification network covering 95% of the acute care hospital beds in the state.[90] As the ENS was rolled out across the state, hospitals were required to meet ENS milestones, such as completing onboarding as a data source, to receive a quarterly LIP payment.[91]
- *Medicaid Managed Care Organization (MCO) contract.* Florida's MCO contract requires the MCO to encourage its network providers to participate in the AHCA's direct messaging service.[92]

State quality strategy. All states contracting with MCOs must have a written strategy to assess and improve the quality of managed care services in the state. HIT and HIE requirements are specified in Florida's strategy, including use of HIT to assess access to care, the method of data collection for use in reporting performance measures, identification of enrollees with special needs or health care disparities, or use of a new health information/exchange technology as a performance improvement project or focused study.[93]

Florida also has three HIE-related public-private advisory committees:[94]

- *State Consumer Health Information and Policy Advisory Council.* Established under Florida Statute 408.05(6), the goal of the State Consumer Health Information and Policy Advisory Council include identifying, collecting, standardizing, sharing, and coordinating health-related data across federal, state, local, and the private sectors.
- *HIE Coordinating Committee (HIECC).* Established as a subcommittee of the State Consumer Health Information and Policy Advisory Council, the HIECC advises AHCA in developing and implementing a strategy to establish a privacy-protected, secure, and integrated statewide network for the exchange of electronic health records.
- *HIE Legal Work Group.* The HIE Legal Work Group is a dedicated subcommittee of the HIECC that focuses on resolving legal and privacy issues related to the Florida HIE.

Participation

As of January 1, 2019, Florida HIE ENS subscribers represented approximately 8 million lives (out of 21 million people living in Florida) and 215 hospital data sources covering 95% of all acute care beds in the state.[95] Within the ENS, one million monthly ADT messages were being sent.[96] However, HIE adoption remains far from universal in Florida. A February 2018 assessment of Florida's HIE found that 60% of inpatient and non-ambulatory care setting respondents reported having HIE capabilities, and 51% of ambulatory outpatient respondents had the capability to electronically exchange patient health information outside of their practice.[97]

Lessons Learned

While Florida has achieved some success onboarding providers to specific use cases such as ENS, broader utilization has been hampered by "insufficient partners with which to exchange information; misaligned incentives leading to a 'minimum necessary' attitude among some adopters; and technical solutions that do not seamlessly integrate with existing platforms."[98] Specifically, providers who do not participate in the Medicaid EHR Incentive Program operated by AHCA, including long-term and postacute care facilities, are less likely to have the capability to exchange information with external providers. Stakeholders also cite costs related to procurement and integration as a major barrier as well as a lack of understanding of the benefits of HIE, frustration with past unsuccessful HIE attempts, and concerns over what data sharing is permissible under state and federal privacy laws.

MICHIGAN

Background

Michigan has advanced HIE through a blend of public and private efforts, including:

- *Michigan Health Information Network (MiHIN)*, the statewide HIE.[99]
- *Medicaid managed care contracts* via the Michigan Department of Health and Human Services (MDHHS).[100]
- *Blue Cross Blue Shield of Michigan (Blue Cross) Collaborative Quality Initiatives (CQIs)*, partnerships among Blue Cross, hospitals, physicians, and a coordinating center that facilitate data sharing for the purposes of developing best practices around clinical program areas with high costs and disparate quality outcomes.[101]
- *The Health Information Technology (HIT) Commission*, created by Michigan Public Act 137-06 in 2006; the commission is housed within MDHHS. The commission's mission is to "facilitate and promote the design, implementation, operation, and maintenance of an interoperable health care information infrastructure in Michigan."[102]

HIE Model and Services

MiHIN acts as a network of networks, incorporating clinical information from 13 regional HIOs and qualified organizations representing providers, health plans, and federal and state government agencies. Providers do not directly connect with MiHIN to share or access data; they connect to a regional HIO or qualified organization that facilitates data sharing among providers, health plans, and state government agencies.[103] Regional HIOs and qualified organizations generally transmit lab results; diagnostic imaging; medications; public health data; ADT data; and referrals to MiHIN. MiHIN, in turn, acts as a single access point for these data and offers services to enable health information sharing, including:

- Direct messaging
- Clinical quality measure reporting and repository
- Directory of providers and patients
- Care coordination and transition tools
- Statewide lab orders and results service

Additionally, patients can access the MiHIN Statewide Consumer Directory, a centralized consent-management system, where they have control over how health care information is exchanged. The directory connects to mobile apps, patient portals, and personal health records, and allows patients to manage their data-sharing preferences.[104]

Funding

The State HIE Cooperative Agreement Grant provided federal funding to plan and implement MiHIN.[105] Today, regional HIEs, the State of Michigan, and payers finance MiHIN's operations.

In 2015, MiHIN had three primary drivers of revenue:

- ~$10 million collected in state contracts
- ~$1.2 million collected in Office of the National Coordinator funding
- ~$1.1 million collected in service fees from subscribers

Metrics

The HIT Commission tracks and regularly reports on a number of metrics, including the number of:

- Trusted data-sharing organizations
- Labs sent to MiHIN
- Inbound and outbound ADT messages
- Medication reconciliations

Policy Levers to Encourage Adoption and Utilization

Medicaid managed care contracts. MDHHS requires contracted health plans to actively participate in MiHIN and incentivizes their provider networks to "increase the number and percentage of network providers that are members of HIE qualified organizations." In the October 2018 to September 2019 contract, health plans are required to prioritize provider participation in five statewide use cases:[106]

- Provider capability to received ADT messages
- Active care relationship service (ACRS) — this service is offered by MiHIN
- Medication reconciliation
- Quality measure information
- Health provider directory

In addition, health plans must prioritize provider adoption of "e-prescribing and e-portals" through incentive plans. These contracts are with health plans delivering care to nearly 90% of 1.7 million Medicaid beneficiaries.[107] MDHHS may impose monetary penalties not to exceed $5,000 for contract violations.[108]

Blue Cross, the largest insurer in the state, collaborates with MiHIN to offer incentives through its 17 CQIs for participation in MiHIN's statewide notification service for ADT, emergency department (ED) visit, and medications upon discharge from hospitals and skilled nursing facilities to patients' doctors.[109]

The HIT Commission is an advisory commission to the MDHHS, and its membership is appointed by the governor. It makes annual recommendations to support interoperability in Michigan, and its most recent recommendations endorsed updates to a standard consent form; called for development of a framework for care coordination; and recommended a strategy to align quality reporting and improvement efforts across the state.[110]

Participation

MiHIN has enjoyed substantial statewide participation, with provider organizations serving approximately 70% of the state's population.

- MiHIN has data-sharing agreements with 132 organizations.[111]
- As of 2017, participating provider organizations are receiving daily ADT and ED visit notifications for more than seven million Michigan patients.[112]
- Medication reconciliation data going through MiHIN represents over 70% of discharges in Michigan.[113]
- As of December 2016, notifications sent to MiHIN by participating hospitals represented almost 91% of admissions statewide.[114]
- As of May 2018, 86 million lab results had been sent to MiHIN.[115]

Lessons Learned

Michigan has achieved widespread HIE adoption. Incentives and requirements from two of the largest insurers in the state (Medicaid and Blue Cross of Michigan), covering approximately half of the population, have driven extensive participation in MiHIN, thereby increasing the value of its services. Furthermore, Michigan's collaborative and transparent approach to governance and alignment among the public and private sectors, has contributed to the state's success with HIE. MiHIN's Operations Advisory Committee, the HIT Commission, and Blue Cross's CQI are all composed of diverse stakeholders, and these organizations routinely collaborate to advance HIE in Michigan.

MARYLAND

Background

In Maryland, two independent commissions play a critical role in the interoperability landscape. The Maryland Health Services Cost Review Commission (HSCRC), an independent state agency, has regulated hospital rates since 1971. Under state regulation, all hospitals must connect and submit data to the state-designated health information exchange (HIE) — the Chesapeake Regional Information System for our Patients (CRISP) — to enable HSCRC to measure hospital-specific performance. In return, CRISP provides all hospitals a set of monthly reports on hospital trends and utilization to support hospital efforts around quality improvement, strategic planning, and financial modeling.

The Maryland Health Care Commission (MHCC) was created by the Maryland General Assembly in 1999, and its Center for Health Information and Innovative Care Delivery began overseeing certification of HIEs on October 1, 2018. Within the commission's purview is to "plan and implement a statewide health information exchange" and to "develop programs to promote electronic data interchange between payers and providers."[116]

HIE Model and Services

Maryland law requires that HIEs register with the MHCC and renew registration annually.[117] The law also sets out administrative requirements for HIEs specific to auditing, remedial actions, and notice of breach.[118] State law, however, does not specify types of data or services that registered HIEs must support. In the application to register as an HIE, the applicant must indicate its services, including support for various data types, transactions, and access models.

There are currently eight HIOs registered in the state, but CRISP has the broadest participation. Most of the remaining seven are enterprise HIOs serving specific organizations.[119] Through CRISP, participants are able to access both prescription drug monitoring program (PDMP) data on controlled substances and clinical data, and to receive alerts through the encounter notification service (ENS). And CRISP's partnership with the HSCRC has resulted in hospitals, public health departments, and ambulatory providers having access to CRISP Reporting Services (CRS), a set of monthly reports that analyze hospital trends and utilization by linking hospital case mix data with unique patient identifiers. In June 2018 CRISP announced it would use an API gateway to deliver PDMP data, care alerts, overdose alerts, encounter data, and public health alerts directly into clinical workflows. CRISP data are now directly embedded into hospital EHRs, and at the time of the announcement, 37 of the 47 hospitals were fully integrated, with integration of the last 10 under development.[120]

HIE Policy Board. The Maryland HIE Policy Board is an advisory group that advises MHCC staff on the policies regarding the privacy and security of protected health information exchanged through an HIO operating in the state.[121]

Funding

Hospitals are assessed a fee by the HSCRC to contribute to CRISP's budget in support of the services CRISP provides. CRISP received a total of $2.36 million from hospital fees in FY 2018.[122] CRISP also received annual HIE participation fees that vary by provider type, and annual subscription fees based on the number of subscribers to its direct messaging service. In 2015, the direct messaging subscription was $240 per user per year.[123]

Metrics

CRISP tracks the following HIE metrics and submits reports to the MHCC on a quarterly basis:[124]

- Connections by provider type and service type
- CRISP portal participation and usage
- Consumer metrics such as the number of consumers opting out of CRISP services and the number of unique patients for whom data may be accessed through CRISP
- Number of direct messaging, ENS, and PDMP accounts

Policy Levers to Encourage Adoption and Utilization

The regulation of hospital rates and corresponding requirement that all hospitals connect to CRISP essentially acts as a mandate for Maryland hospitals to engage in HIE. Primary care practices are also encouraged to use CRISP through the Maryland Primary Care Program (MDPCP) that launched in January 2019 as part of the state's Total Cost of Care All-Payer Model contract with the Centers for Medicare & Medicaid Services (CMS) and the Center for Medicare and Medicaid Innovation. Participation in MDPCP is voluntary and provides funding and support for primary care practices to connect to CRISP and offer ENS, clinical query portal, PDMP, and secure text messaging services.

Participation

While 100% of Maryland hospitals are connected to CRISP, only 28% of ambulatory practices were connected by the end of 2018.[125] These practices may be connected to other HIEs in the state, and connectivity to CRISP may increase with the MDPCP.

Lessons Learned

Maryland is a unique environment for HIE given the purview of the HSCRC to regulate hospital rates. Tying hospital rates and reimbursement to HIE services has clearly had an impact on driving their adoption. Maryland has been successful in onboarding hospitals through a mandatory use case, and it remains to be seen whether the funding provided through the voluntary Primary Care Program will increase HIE adoption among ambulatory providers since it just launched in 2019. Statewide hospital participation in CRISP is partly credited with Maryland's ability to achieve a 6.5% reduction in hospital admissions.

NORTH CAROLINA

Background

In 2015, North Carolina passed the Statewide Health Information Exchange (HIE) Act, requiring 98% of providers to connect to the state-designated HIE, NC HealthConnex, by 2020. The HIE Act also charged the North Carolina Health Information Exchange Authority (NC HIEA), a public-private partnership comprised of diverse stakeholders, with carrying out the HIE mandate and overseeing NC HealthConnex.[126]

HIE Model and Services

NC HealthConnex. NC HealthConnex links disparate systems and existing HIE networks together so that providers can share important patient health information."[127] It currently requires:

- Hospitals, physicians, physician assistants, and nurse practitioners who provide Medicaid services and have an EHR to connect to NC HealthConnex by June 1, 2018.
- All other providers of Medicaid and state-funded services to connect to NC HealthConnex by June 1, 2019.
- Prepaid health plans to connect to NC HealthConnex to submit encounter and claims data (expected November 2019).
- Local management entities and managed care organizations to submit encounter and claims data by June 1, 2020.
- Dentists and ambulatory surgical centers to submit clinical and demographic data by June 1, 2021.[128]
- Pharmacies to submit claims data pertaining to state services once per day by June 1, 2021.[129]

Under the HIE Act, "connected" means a Medicaid provider's clinical and demographic information pertaining to services paid for by Medicaid and other state sources must be sent to NC HealthConnex *at least twice daily*, either through a direct connection or via a hub (e.g., regional HIE, EHR vendor, etc.).[130] To connect to NC HealthConnex, participants must review and sign a participation agreement, and providers must have EHRs capable of sending HL7 messages. Providers participating in NC HealthConnex can receive information about their patients, including laboratory results, diagnostic studies, and clinical documents via web-based portal or within their EHRs. Data elements available in NC HealthConnex as of February 2019 include allergies, demographics, encounters, immunizations, labs, medications, problem lists, and procedures.[131] The North Carolina HIE Advisory Board provides consultation to the NC HIEA on the advancement and operation of NC HealthConnex.[132]

North Carolina Hospital Emergency Surveillance System (NCHESS). In addition to NC HealthConnex, North Carolina GS 130A-480 requires all civilian North Carolina hospitals operating a 24/7 ED to contribute data for syndromic surveillance to NCHESS. NCHESS data are incorporated into North Carolina's statewide syndromic surveillance system, NC DETECT.[133] Hospitals may also voluntarily participate in initiatives that provide admission, discharge, and transfer data alerts for Medicaid and State Health Plan (SHP) members (teachers, state employees, retirees, and their dependents).

Funding

The North Carolina Division of Medical Assistance and the NC HIEA received approval in July 2017 for a federal funding request to accelerate onboarding Medicaid providers to NC HealthConnex and to offset providers' costs of EHR integration; CMS approved the request for $45 million (including $5 million in state funds) through an advanced planning document. The state also established an EHR funding program for providers not included in the federal "meaningful use" program.[134] Currently, there is no fee for organizations to connect to NC HealthConnex or NCHESS. The NC HIEA and NC HealthConnex are funded by the state through a $9 million annual allocation from the general assembly; however, the state is planning to implement subscription fees to make the model self-sustaining.[135]

Metrics

NC HIEA produces a map and a list of all HealthConnex participants.[136] The state does not currently report other metrics.

Policy Levers to Encourage Adoption and Utilization

The HIE Act requires 98% of North Carolina's health care providers to connect to NC HealthConnex by June 1, 2020, or risk losing payments for health care services provided to the state.[137] Additionally, Blue Cross Blue Shield of North Carolina announced that, beginning June 1, 2019, it will reject all SHP claims received from providers who are not compliant with the HIE Act until they are in compliance.[138]

Participation

HIE participation in North Carolina is rapidly increasing, likely due to the HIE Act. In the first year of operations (2016), NC HealthConnex connected to 89% of the state's hospitals and health systems, 87% of county health departments, and 100% of Federally Qualified Health Centers.[139] As of March 1, 2019, 97 of North Carolina's 122 hospitals and over 4,000 other health care facilities across North Carolina are connected and sending data to NC HealthConnex.[140]

As of 2016, 123 North Carolina hospitals were participating in the NCHESS, accounting for 4.5 million ED visits per year.[141]

Lessons Learned

North Carolina has implemented statewide HIE through the HIE Act passed by the general assembly in 2015, and through Medicaid contracting requirements coupled with state funding commitments from the general assembly and federal funding to support provider onboarding. The state was clear about the timetables by which provider participation was mandatory, and a key element of the timetable is that it onboards the core users — hospitals and ambulatory providers — first. North Carolina also recognized that onboarding and recurring costs would pose barriers to HIE participation and took measures to support connecting organizations. However, the additional funding does not appear to have completely alleviated concerns among providers, and some still anticipate having difficulty meeting the deadlines established in the HIE Act.[142] As of April 2019, the general assembly is considering granting a one-year extension for certain providers and hospitals.[143] Despite these setbacks, North Carolina's approach to HIE has been predominantly successful. By accompanying the HIE Act with strict enforcement penalties, and funding for organizations that would face difficulties due to cost and reinforcement from Blue Cross, NC HIEA grew HealthConnex's network density, thereby increasing the network's value.

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