CONNECTING CONNECTICUT: WHAT'S HAPPENING WITH HEALTH INFORMATION EXCHANGE IN THE STATE

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This brief provides an overview of the current landscape for the secure exchange of patient health information in Connecticut and describes opportunities and potential obstacles going forward. It was informed by a review of select national and state literature, as well as interviews with key stakeholders both in Connecticut and in other states that are further along with statewide health information exchange efforts. It is intended to help policymakers and those interested in patient care and population health understand where the state is today, what's coming, and what to consider for success.

INTRODUCTION

Patients have long been promised that one day, if they go to a hospital or clinic, their care providers will have electronic access to their most up-to-date health information. This exchange of patient health information (known as health information exchange) is critical to the delivery of high-quality care. On a broader level, a system that can use the health data being exchanged to identify patient health outcomes and population health trends, including health inequities, will be essential in the shift toward paying health care providers based on the quality of care, rather than the number of services provided.

Despite the potential, this vision of a secure and easy electronic exchange of patient health information has not become a reality. While health care providers in Connecticut can share some records with others, there is no statewide system designed to connect all providers. Instead, multiple networks have developed —within and across state lines—that allow some providers to share some information, resulting in a fragmented system of health information exchange.

Connecticut is now on the verge of having a statewide health information exchange (HIE) to connect the many organizations and networks that currently house and share patient health records. Although the concept of establishing a statewide information exchange might sound simple, experiences in Connecticut and many other states have shown the work is slow and challenging. The roll-out and next steps of this HIE will be critical in shaping the future of health information exchange in Connecticut.

HIGHLIGHTS

- **Being able to securely exchange patient health information is critical to care quality**, addressing health disparities, and meeting the requirements of new care delivery and payment approaches designed to reward providers based on care quality and patient outcomes.

- **Connecticut's new statewide health information exchange (HIE) has the potential to** reduce fragmentation and allow participants to have a more complete view of where patients have received care and of population health in Connecticut, which has not been possible to date.

- **The ability of the statewide HIE to reach its full potential will hinge in part on:**

  – Being seen by participants as a neutral player in a competitive health care environment

  – Demonstrating that it adds value and provides capabilities that other systems do not

  – Ensuring that Connecticut organizations take advantage of $17.2 million in federal funds that are only available until September 30, 2021

  – Developing plans for long-term financial sustainability

  – Involving patients and earning their trust

WHAT IS "HEALTH INFORMATION EXCHANGE" AND WHY IS IT IMPORTANT TO CONNECTICUT?

Health information exchange is the electronic flow of health-related information between a patient's care providers.[1] Research has linked the exchange of health information to improved health care performance, including reductions in hospital readmissions and total costs of care, and improved population-level immunization rates.[2] Surveys suggest that consumers see value in health information exchange, identifying benefits including better care quality and interactions with their doctors, and fewer medical errors and duplicate tests and procedures.[3,4]

Health information exchange can occur in several ways:

1. A specific piece of information can be shared directly between two organizations, often called a "direct" or "push" exchange. An example is Direct Secure Messaging, used to send a document summarizing patient health information from one provider to another.

2. A more sophisticated level of exchange allows users to "pull" or "query" information about one or more patients from various providers and integrate that information into their own electronic health record (EHR) systems. This type of exchange is often used when a provider is delivering unplanned care, such as in an emergency room.

3. A third level of exchange lets users analyze and understand the health data of an entire population or geographic area. Uses include responding to disease outbreaks, coordinating with community organizations to support patients' social needs, and identifying health disparities.

The second and third levels of information exchange will be especially important for health care providers to adapt to new methods for delivering and paying for health care, which require providers to coordinate patient care and meet goals related to care quality and health outcomes.

Connecticut has seen progress in achieving the first two levels of information exchange. According to national survey data:

- Over 70 percent of Connecticut hospitals (compared to 61 percent nationally) reported in 2017 that that they could electronically find or query patient health information from outside their organization.[5]

- Fifty-seven percent of Connecticut physicians reported in 2017 that they could find patient health information from providers outside their organization, slightly above the national average of 53 percent.[6]

Still, there remains substantial work to be done in Connecticut and nationally, particularly in achieving the third level of exchange (analysis of population-level health information).[7] In addition, non-medical providers, such as behavioral health and long-term care providers, have historically not had access to the same financial incentives as medical providers to invest in health information technology, and they exchange information at lower rates as a result.[8] This can limit providers' ability to gain a full picture of their patients' health.

HEALTH INFORMATION EXCHANGE IN CONNECTICUT TODAY

Currently in Connecticut, there are examples of health information exchange throughout the state.[9] Organizations that use electronic health records can share data internally or with partners using the same EHR vendor (such as EPIC or Cerner). However, they often have to build connections to multiple HIE networks to access or exchange information with other care providers. The result is a fragmented, disconnected landscape of health information for patients.

In 2011, to facilitate a statewide HIE, Connecticut established a quasi-state agency called the Health Information Technology Exchange of CT (HITE-CT). However, with no functioning network or source of sustainable operating funds, the legislature eliminated HITE-CT in 2014.[10]

Frustrated with the lack of progress, several major health care delivery systems, as well as the Connecticut State Medical Society, the Connecticut Hospital Association, and the Connecticut Department of Social Services, invested in their own initiatives to exchange information for their patient populations or beneficiaries (see Exhibit 1).

Health Information Exchange Activities (Start Year)	Sponsor	Provider Types Sharing	Key Services Provided
CTHealthLink (2017)	Connecticut State Medical Society	Clinicians (approximately 600 members) including doctors, physician assistants, and nurse practitioners	• Direct messaging to enable providers to send personal health information securely to each other • Dashboards that calculate and display reports of interest based on clinical data
Cross-Continuum Patient Reference System (2016)	Connecticut Hospital Association	Hospitals (27), post-acute providers, accountable care organizations	• Alerts to providers when patients are admitted to the hospital, discharged, or transferred between facilities (called "PatientPing") • Sharing of patient care plans between providers
Medicaid HIE Node/ HealthShare (2014)	Connecticut Department of Social Services	Medicaid providers	• Direct messaging • Alerts when Medicaid patients are admitted to the hospital, discharged, or transferred (called "Project Notify") • Master person index: A unique identifier that tracks patients across various care settings, systems, and populations • Provider directory: A repository of providers and their relationships, which may include provider name and ID number, type, credentials, work addresses, affiliations, demographics, and services
Health Center Controlled Network (2012)	Community Health Center Association of Connecticut	Federally qualified health centers (FQHCs) (approximately 9)	• Centralized data warehouse where all participating FQHCs' clinical encounter data can be stored and analyzed to support clinical outcome and operational reporting

SOURCE: STATE HEALTH ACCESS DATA ASSISTANCE CENTER (SHADAC) 2019 ANALYSIS OF SPONSOR DOCUMENTATION AND INTERVIEW TRANSCRIPTS.

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STATUS OF CONNECTICUT'S STATEWIDE HIE

For clarity in this brief, we will use the acronym "HIE" to refer to the organizations that facilitate the exchange of health information.

Connecticut is now launching a new statewide HIE. Rather than offering services that others already provide, it will focus on connecting existing HIEs to each other and to national HIEs, as well as provide an on-ramp for providers that are not already connected to an HIE.[a] This is often called a "connected-networks" technology approach, which can work alongside other initiatives and bridge gaps where they exist (see Exhibit 2). This approach has been implemented by or is planned for several other statewide HIEs, such as those in Michigan, Minnesota, New Jersey, New York, and Texas.
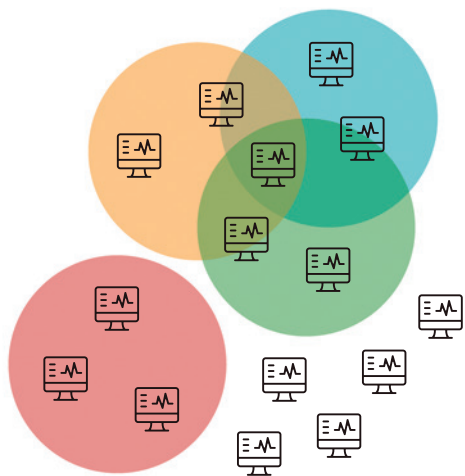
Efforts to establish the statewide HIE are being led by the state's health information technology officer (HITO), and overseen by the Health Information Technology Advisory Council, both of which are part of the state's Office of Health Strategy.

The statewide HIE will function as a nonprofit called the Health Information Alliance (the Alliance), which was incorporated in July 2019 and is expected to begin testing the first data exchange (or "use case," the technical term for data exchange) by February 2020. Its board includes ex officio state employees, including the HITO (who will serve as the board chairman), and private sector representatives.
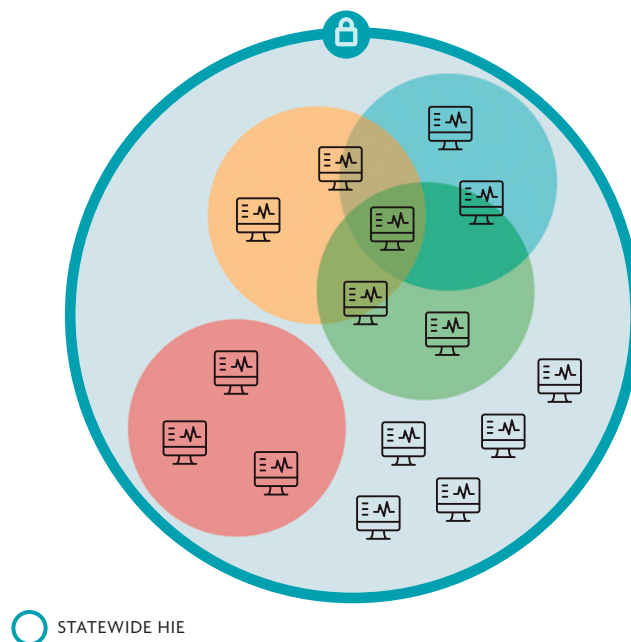
WHAT'S A USE CASE?

A use case is a detailed list of all the requirements (technical, business, and legal) for sharing a specific type of information regarding patients and their health. For example, an "image exchange" use case spells out all of the steps, actors, and technical and legal requirements needed to electronically exchange images such as X-rays or CT scans between health care providers.

Once the HIE goes live, the Alliance will have leverage to require providers to use it: Legislation passed in 2015 requires Connecticut hospitals and clinical laboratories to connect to the statewide HIE within one year of it becoming operational, and health care providers with electronic health records will be required to connect within two years.[11,b]

If all goes according to plan, the new HIE will allow authorized users to see where and when individual patients have received care—a full view that is not available anywhere else—and will be able to generate summarized data on topics including health outcomes and costs. One interviewee described this initial functionality as, "Focusing on the problem that none of the actors in the ecosystem can solve themselves—that is, mapping who is getting care from which providers to capture a 360-degree view of where care is being delivered for any particular person."

EXHIBIT 2

HEALTH INFORMATION EXCHANGE IN CT NOW
SEVERAL HEALTH CARE ORGANIZATIONS SHARE INFORMATION WITHIN NETWORKS; SOME AREN'T CONNECTED AND CAN'T SHARE INFORMATION.

A STATEWIDE HEALTH INFORMATION EXCHANGE
ONE STATEWIDE EXCHANGE THAT CONNECTS EXISTING NETWORKS, AS WELL AS ORGANIZATIONS OUTSIDE THEM.

HEALTH CARE ORGANIZATIONS (HOSPITALS, CLINICS, LABS, ETC.)

NETWORKS IN WHICH INFORMATION IS SHARED

STATEWIDE HIE

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[a] There are numerous activities occurring at the national level to connect providers across state lines, such as eHealth Exchange, a network that focuses on connecting health care organizations, including state and regional HIEs, with federal agencies; and Carequality, a framework (or rules of the road) that facilitates data sharing across disparate HIE networks.

[b] State legislation also prohibits information blocking or the practice of interfering with access, flow, and use of electronic health information. The HITO also oversees the state's health information technology strategic plan and the all payer claims database.

The new HIE will allow authorized users to see where and when individual patients have received care.

A DEEPER LOOK: WHAT THE HIE WILL DO FIRST

To meet the legislative requirement, hospitals and clinical laboratories as well as health care providers with EHRs will have one and two years, respectively, to prove they can complete at least one type of data exchange in real time and with real patient data. The initial types of data exchange—called "use cases"—will be designated by the health information technology officer, informed by the work of a 2017 design group.[12]

One use case that is expected to be designated is exchanging summaries of patient care, known as Consolidated Clinical Document Architecture. This refers to the capability of organizations to "pull" (access through a query) standardized patient health summaries (called C-CDAs). These summaries include the core clinical, demographic, and administrative information that one health care provider can share with another, such as patient name and contact information, procedures, relevant past diagnoses, lab test results, vital signs, demographic information, care plan, and active medication and allergy lists.

The HIE will also offer two shared services that were specifically chosen to demonstrate the value a statewide HIE can provide.

They are functions that no single organization can currently do by itself—provide a full view of where patients are receiving care and provide summarized data from multiple sources for analysis. They are:

- **Identity and Care Map.** This service keeps track of patients' consent to sharing and accessing information through an HIE and allows users who have permission to see a universal view of where individual patients are receiving care. The care map identifies all of a patient's relationships with active caregivers, including where and when that patient received care. It will give participating providers a view of their patients' care that has not previously been possible, and can be used to communicate and coordinate care more effectively. (This addresses the "push," "pull" or "query" health information exchange functionality.)

- **Core Data Analytic Solution (CDAS).** This service allows users who have received permission to report and analyze summarized data from various sources to answer questions about topics such as health outcomes, disparities, or health care costs for a specific population. (This addresses the third level of health information exchange functionality.)

> **Key steps for the Alliance to reach its full potential include clearly communicating its role as a neutral player in the health care landscape.**

PIVOTAL STEPS FOR THE NEW STATEWIDE HIE

The Alliance (like all new HIEs) faces a challenge: It will need to secure enough participation in its early years of operation to demonstrate value, but in order to demonstrate value it has to achieve a critical mass of participants.

Key steps for the Alliance to reach its full potential include clearly communicating its role as a neutral player in the health care landscape, demonstrating the advantages of its structure and services, and facilitating financial and technical assistance to bring users aboard.

ESTABLISH ITSELF AS A NEUTRAL, TRUSTED PLAYER IN THE HEALTH CARE LANDSCAPE

Addressing concerns about trust and confidence will be critical to the success of the Alliance. This includes concerns related to the privacy and security of data, as well as the neutrality and transparency of the entity facilitating the statewide exchange of information in a competitive health care environment. Interviews and a review of documents indicate that the Alliance aims to serve as a neutral connector, and plans to reflect that through its oversight structure and a "trust framework" among participants.

The decision to establish the HIE as a nonprofit entity is intended to foster collaboration among participants that often compete for business and to emphasize neutrality, meaning that no member will be advantaged in business decisions over another. The HIE's board is composed of both public and private sector members, with plans to include patient representatives. As a nonprofit, the Alliance also can serve as a buffer between participating organizations and state government. (The Alliance will have to follow government contracting rules, which include stipulations related to open contracts and bidding as well as conflicts of interest.) Some interviewees raised concerns about a lack of coordination within state government on health information exchange efforts. The Alliance's structure could help address these concerns, since the state's health information technology officer serves as the board chairman and will be well-positioned to understand the significant amount of health information exchange work happening across the state, including within government.

An advantage of the "connected-networks" technology approach the Alliance is taking is that it does not require designating one central place where all health data is stored. One interviewee said, "Organizations tend to trust this model more because the HIE does not keep a pile of data that might be used for unintended purposes or be a cyber-security risk."

Another aspect of the Alliance's design intended to foster trust is the framework, or legal agreement, participants will sign, which is meant to ensure that everyone operates by the same rules and provides participating organizations an opportunity to shape the Alliance's day to day operations and data exchange priorities. The Alliance's trust framework creates five operating committees populated by representatives of the participating organizations, enabling them to be hands-on with the inner workings of the HIE. For example, one committee will guide the selection and testing of new use cases, which should give participating organizations control in the HIE's priorities for data exchange, including how that data should be exchanged. This open process could help address concerns interviewees expressed about working with vendors to verify their capabilities to support specific use cases.

DEMONSTRATE THAT THE STATEWIDE HIE OFFERS NEW CAPABILITIES AND ADDS VALUE

Once the new statewide HIE is up and running, care providers will be required to participate in at least one type of data exchange from a menu of options. The experiences of HIEs in other states indicate that this menu approach can help avoid protracted legal discussions because organizations only sign up for the use cases they want. This approach appears to have strong buy-in from providers we interviewed; however, success or failure will lie in how many providers participate in each use case and how well the first few use cases are implemented and tracked.

Notably, even though providers will only have to select one type of data exchange, any option they choose will allow key information about patients to flow through the HIE's two shared services, allowing it to create a map of where patients receive care and to compile summarized data for analysis.

Some provider organizations report needing more clarity about the details and benefit of the two shared services. For example, some organizations, especially hospitals and other large health care organizations, have already invested significant resources in sophisticated programs to aggregate and analyze disparate data (like the summarized data service the Alliance is planning). The Alliance will need to further explain why this service will add value, such as allowing users to analyze a more complete or up-to-date set of data than they would have access to on their own.

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c   The federal Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 provided over $123 million in incentive payments to Connecticut providers to adopt and use a certified electronic health record system for their patients' health records.

MAKE SURE CONNECTICUT ORGANIZATIONS TAKE ADVANTAGE OF TIME-LIMITED FEDERAL FUNDING TO GET CONNECTED

One of the most common hurdles for providers in connecting to an HIE is the cost. The cost to integrate an electronic health records system with an HIE can be a huge barrier for small and independent providers that often do not have the financial resources to invest in new, or modify existing, technology. (See sidebar for more information.)

The state has secured $17.2 million in federal funds from the Centers for Medicare & Medicaid Services to help offset the costs incurred by organizations that connect to the statewide HIE.[13] These funds are only available until September 30, 2021, so there is an extremely limited window of opportunity—and an enormous sense of urgency among officials involved in the Alliance's formation—for organizations to take advantage of that onboarding support. The funds will become available when the Alliance and the state Medicaid agency establish policies and procedures related to access and flow of dollars.

Organizations that need it should not miss the opportunity to secure funding for onboarding. Unlike previous incentives, which were largely limited to medical providers, the current funds are available to any provider that can attest that they serve Medicaid patients, including behavioral health providers, long-term and post-acute care, emergency medical technicians, and others.[14,c] Taking advantage of this support likely will affect the Alliance's ability to reach the critical mass needed to sustain the HIE's work—and the vision behind health information exchange.

HIE ONBOARDING: IT'S HARD BUT MORE PARTICIPANTS MEANS MORE VALUE
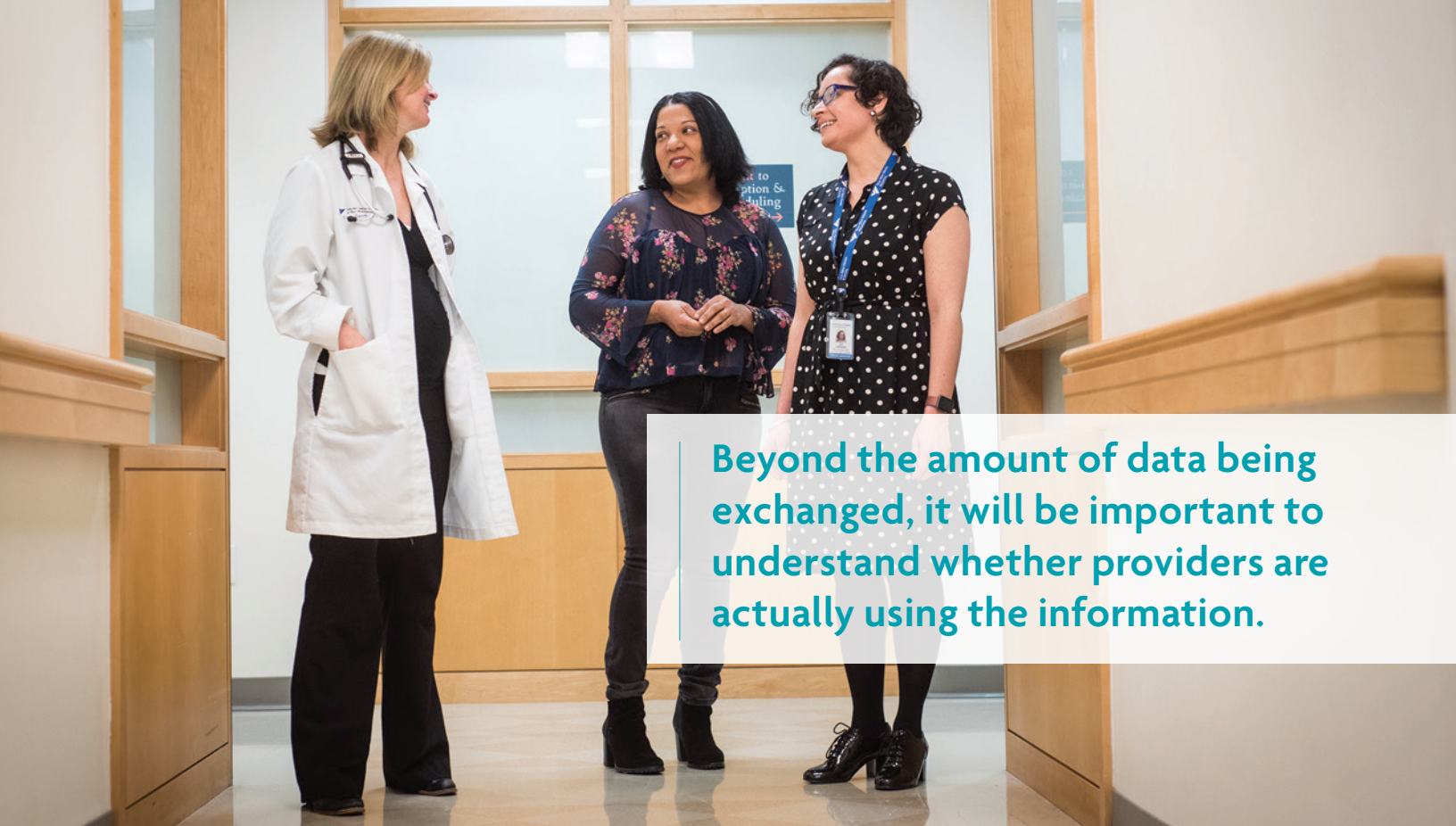
In addition to financial barriers, there are other challenges that can make it difficult for organizations to connect to HIEs.

Technical Infrastructure: Not all electronic health records (EHR) systems are "ready" to exchange information (i.e., have the capabilities for sending, receiving and querying Information). Organizations often need to install software updates or develop entirely new code to be able to input or extract new data.

Operational: Organizations have to account for staff time to make workflow and process changes necessary to implement a new data exchange or to automate tasks that used to be done manually. Organizations run into competing health information technology priorities, which are often planned years in advance. Providers in small and rural organizations often do not have in-house or onsite IT staff expertise and are left dependent on their EHR vendor's capabilities and timetables.

Legal: Time spent reviewing legal participation agreements slows down participation. As currently structured, there are different types of agreements from which organizations can choose when joining the Alliance. Organizations will need time to carefully review those agreements to understand their responsibilities and legal risks.

Beyond the amount of data being exchanged, it will be important to understand whether providers are actually using the information.

The ability of a statewide HIE to reach its full potential will hinge on answers to several questions:

ARE THE INCENTIVES STRONG ENOUGH TO ENCOURAGE MEANINGFUL PARTICIPATION? IS DATA EXCHANGE BEING USED TO IMPROVE CARE?

Connecticut's legislative mandate for organizations to participate in the Alliance is a strong policy lever that will encourage health care providers to connect. Although there is technical assistance and onboarding funding available to defray costs, additional incentives may be needed to help drive more providers to participate in each use case and to encourage connection to the Alliance by providers not legislatively mandated to participate, such as social service providers.

Commercial insurers could provide one source of incentive, as they have in Michigan. That state's HIE, the Michigan Health Information Network (MiHIN), began in 2010, and is a nonprofit that provides an HIE platform used by 159 hospitals, 310 skilled nursing facilities, 1,700 pharmacies, and over 5,000 medical practices.[15] Commercial payers in Michigan tie an estimated 15 percent of the population health incentives in their contracts with providers to participation in specific use cases, such as alerts to providers when patients are admitted to the hospital, discharged, or transferred between facilities; or the exchange of patient medication information at time of discharge so members of a patient's care team can reconcile the patient's medication. Blue Cross Blue Shield of Michigan, for example, rewards providers for performance on use-case participation (several million dollars each year) as part of its pay-for-performance program.[16] Once providers start participating in a use case, MiHIN generates report cards for the insurer to assess the usability of the data that providers are submitting. The insurer then incentivizes providers to provide high-quality data, which expands the data available for care delivery and analyses and facilitates statewide data exchange.

Research has also found that social motivators can outweigh economic motivation in encouraging uptake of health information exchange—in other words, peer pressure to do what is good for the patient can sometimes be more effective than financial rewards.[17] The Alliance plans to publicly report which organizations are participating in specific data exchange transactions, which could spur participation.

Beyond the amount of data being exchanged, it will be important to understand whether providers are actually using the information. In Maryland, for example, the state-designated HIE, Chesapeake Regional Information System for Patients (CRISP), closely monitors the number of manual searches that providers conduct, which suggest that providers are proactively seeking out information likely to support decision-making in their care (beyond what is being sent on a regular basis). CRISP reports more than one million automated or standard queries per week, as well as over 90,000 manual queries. Going forward, it will be important for the Alliance to examine whether data exchange is helping to improve care.

WHAT IS THE PLAN FOR LONG-TERM FINANCIAL STABILITY OF THE HIE?

The long-term financial stability of the statewide HIE is an issue many will be watching closely. In the short term, federal and state incentive funds—90 percent from the federal government, 10 percent from the state—will support operations and onboarding costs for Medicaid providers through 2021. The Connecticut General Assembly has earmarked $15 million in bond funding that can be drawn down as needed to fund the state's share. Interviewees expressed some concern about the reliance on Medicaid funds to support statewide HIE efforts, as well as the health information technology officer's ability to draw down the state bond funds in a political environment that is focused on limited spending.

Funding to support long-term operations of the HIE still needs to be identified and the dollar amount needed is not yet clear. The Alliance's business planning suggests it will eventually implement participant user fees to support ongoing work, with a focus on raising funds from risk-bearing entities, such as insurance carriers, self-insured employers, and accountable care organizations. This structure is very similar to the Michigan HIE's funding strategy, which only charges entities that are at-risk for payment, not providers that are not at risk. This distinction is important because providers that are paid on a fee-for-service basis are hesitant to pay for ongoing HIE services that may lead to a decline in utilization and revenues, unless the HIE effort coincides with other changes that lead to payments based on factors other than volume. One interviewee explained, "In the models where you're asked to pay to get access to the data that is then used to reduce office visits, you get an expense on one side and an anti-revenue ... on the other. That's a really difficult model for a CFO to say, 'Let's jump in with both feet.' So the payment reform processes have to coincide with these types of initiatives."

Interviewees indicated that the Alliance will have to demonstrate to risk-bearing entities the value of the HIE. Several interviewees felt confident, however, that the HIE's value will become clear over time, especially as the adoption of alternative payment models increases in the state. One interviewee explained, "What we know from a track record with other states is that the people who are taking risk ... really depend on high quality data sharing, and they have a lot to gain by having access to it."

HOW WILL THE STATEWIDE HIE INVOLVE PATIENTS?

Developing trust with patients will be crucial for the Alliance, particularly as it considers the exchange of more sensitive information such as behavioral health, race, ethnicity, and language data, as well as data on social factors that influence health, with the aim of identifying and addressing health disparities. Sharing and accessing data through an HIE will require additional consent from patients.

Those involved in creating the Alliance acknowledge that there has been limited patient involvement so far. Initially, most of the data exchanges and recruitment activities will be focused on health care providers. Going forward, however, a consumer

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advocate representative will sit on the Alliance's board. In addition, the Health Information Technology Advisory Council envisions the HIE opening up more data to patients, such as through portals or mobile-friendly applications.

It will be important to ensure that the interests of patients are well represented in the ongoing operations of the Alliance—that their questions and concerns are documented and addressed, and there is follow up to assess outstanding issues. One interviewee felt this last step of accountability is often missing, explaining, "Consumers participating in this process can feel like they're talking to a black hole."

Patients also need trusted messengers to effectively communicate what is being done with their health information and why, and to explain how the security and privacy of their health data are being maintained. One stakeholder suggested that those messages could come from providers who participate in the HIE, and that an effective approach would be to say to patients: "We're going to ask you questions [about sharing your health information], but we're asking questions so that we know you better and we can serve you better."

CONCLUSION

Momentum to enable the secure exchange of health information is growing in Connecticut, and important steps need to be taken now to ensure that patients can expect that their care providers have as complete a picture as possible of their health history. In particular, the statewide HIE will need to demonstrate its neutrality in the health care landscape; show that it can provide capabilities that participants would not otherwise have; and find a sustainable long-term funding model. In addition to the longstanding need for statewide information-sharing capabilities, there is a sense of urgency to ensure that organizations can take advantage of $17.2 million in federal funds to help them connect to the statewide HIE; the funds are only available through September 2021. Early actions by the Alliance, including its structure and the choice of initial services and data exchange options, should help it emphasize its neutrality and value, including its flexibility to explore emerging issues and test new use cases for data exchange of import to participants. Key issues to watch include whether there is meaningful participation, ensuring that valuable and transparent data exchange occurs, finding a sustainable funding model, and engaging patients. Each of these is critical to assuring that Connecticut can realize the potential of health information exchange.

LOOKING FORWARD: A ROLE FOR THE STATEWIDE HIE IN PROMOTING HEALTH EQUITY

While Connecticut is consistently ranked as one of the healthiest states in the nation, there are significant racial and ethnic disparities in health care access, coverage, and outcomes. The statewide HIE can be an important tool in addressing health inequities, both in identifying health disparities at the community level and identifying the assets of communities that are reducing avoidable differences in illness, disability, and mortality. Collecting and reporting data in a standardized way that allows for comparisons by race, ethnicity, preferred language, and country of origin (RELC), along with the social determinants of health (SDoH)—such as access to safe housing, healthy food, transportation and jobs—can be an important first step toward improving health equity.

A statewide HIE can be an effective place to bring together different partners to define common standards for collecting RELC information or social determinants of health data. Some of that work is beginning in Connecticut as part of a health equity data analytics project that will advise the Alliance on priority data elements for electronic exchange to address health equity.[18] A recent report produced as part of the project recommended three measures to incorporate into all of the HIE's data exchanges: race/ethnicity, insurance status, and geocoded residential address.[19]

Successfully collecting high-quality RELC and SDoH data will require the cooperation of patients and families to report the information, as well as incentives for providers to spend the time to collect high-quality data. Minnesota has made significant progress in the standardization and collection of RELC data, and Connecticut could take lessons from the work already done there. Since 2011, Minnesota has required health care providers to collect RELC data, and, since 2014, statewide quality measures have been reported publicly by race, ethnicity, preferred language, and country of origin in an annual *Disparities by RELC Report*.[20] MN Community Measurement (a nonprofit, multi-stakeholder organization that develops, collects, analyzes, and publicly reports information on health care quality and cost in Minnesota) has also published a handbook that defines a standard set of data elements and provides advice on implementing a RELC data collection process.[21] The Alliance can also build on initiatives that aim to address social determinants of health, such as the Connecticut Hospital Association's initiative to develop an electronic system to refer patients to community resources.

REFERENCES

1. National Alliance for Health Information Technology. (2008, April 28). *Report to the Office of the National Coordinator for Health Information Technology on Defining Key Health Information Technology Terms*. Washington, DC: Department of Health and Human Services.

2. Menachemi, N., et al. (2018, September 1). The benefits of health information exchange: an updated systematic review. *J Am Med Inform Assoc, 25*(9), 1259-1265.

3. Patel, V.N., Dhopeshwarkar, R.V., Edwards, A., Barrón, Y., Sparenborg, J., & Kaushal R. (2012). Consumer support for health information exchange and personal health records: a regional health information organization survey. J Med Syst, 36(3), 1043-1052.

4. Tikoo, M., & Costello, D. (2014). *Evaluating Connecticut's Health Information Technology Exchange: Consumer Survey Report*. Retrieved from https://portal.ct.gov/-/media/Departments-and-Agencies/DSS/DSS-Health-IT/CS_Final_Report.pdf

5. Office of the National Coordinator for Health Information Technology analysis of American Hospital Association (AHA) Annual Survey/Health IT Supplement. (2017). Non-federal Acute Care Hospital Health IT Adoption and Use [Data file]. Retrieved from https://dashboard.healthit.gov/datadashboard/documentation/hospital-health-it-adoption-use-data-documentation.php

6. Office of the National Coordinator for Health Information Technology analysis of National Electronic Health Records Survey (NEHRS). (2017). Office-based Physician Health IT Adoption and Use [Data file]. Retrieved from https://dashboard.healthit.gov/datadashboard/documentation/physician-health-it-adoption-use-data-documentation.php

7. Minnesota Department of Health. (2018, April). *Health Information Exchange Legislative Study*. Retrieved from https://www.health.state.mn.us/facilities/ehealth/hie/study/docs/studyreport2018.pdf

8. Dullabh, P., Hovey, L., & Petry, U. (2015, June). *FINAL REPORT Provider Experiences with HIE: Key Findings from a Six-State Review*. Retrieved from https://www.healthit.gov/sites/default/files/reports/provider_experiences_with_hie_june_2015.pdf

9. Matthews, M., & Robinson, C. (2017, May 23). *Assessing Connecticut's Health Information Technology & Health Information Exchange Services*. Retrieved from https://portal.ct.gov/-/media/OHS/Health-IT-Advisory-Council/Reports/Environmental_Scan_Summary_Findings_FINAL_20170523.pdf

10. Geragosian, J., & Ward, R. (2014, November 12). *Auditors' Report, Health Information Technology Exchange of Connecticut for the Fiscal Years Ended June 30, 2012 and 2013*. Retrieved from https://www.ctnewsjunkie.com/upload/2014/12/Health_Information_Technology_Exchange_of_Connecticut_20141107_FY2012-2013.pdf

11. State of Connecticut General Assembly. (2016). *Public Act No. 16-77. An act concerning patient notices, designation of a Health Information Technology Officer, assets purchased for the state-wide health information exchange and membership of the state health information technology advisory council.* Retrieved from https://www.cga.ct.gov/2016/ACT/pa/2016PA-00077-R00SB-00289-PA.htm. State of Connecticut General Assembly. (2015). *Public Act No. 15-146. An act concerning hospitals, insurers, and health care consumers*. Retrieved from https://www.cga.ct.gov/2015/act/pa/pdf/2015PA-00146-R00SB-00811-PA.pdf

12. Matthews, M., & Robinson, C. (2017, October 31). *Final Report and Recommendations of the Health Information Exchange Use Case Design Group*. Retrieved from https://portal.ct.gov/-/media/OHS/Health-IT-Advisory-Council/Design-Groups/HIE/HIE_Use_Case_DG_Final_Report_20171101.pdf

13. State of Connecticut Department of Social Services. (2017, April 3). *Annual Health Information Technology Implementation Advance Planning Document for Federal Fiscal Years 2018-2019*. Hartford, CT: Division of Health Services.

14. Connecticut Office of Health Strategy. (2019, January 17). *Presentation from Health IT Advisory Council Meeting* [PowerPoint slides]. Retrieved from https://portal.ct.gov/-/media/OHS/Health-IT-Advisory-Council/Presentations/20190117_HealthIT_Presentation_v4.pdf

15. The Office of the National Coordinator for Health Information Technology. (2018, December). *State Data Sharing (HIE) Interoperability: Design and Implementation - A Panel Discussion with Connecticut, Michigan, and Oklahoma* [PowerPoint slides]. Retrieved from https://www.healthit.gov/sites/default/files/2018-12/CTMIOKStateDataSharingInteroperability.pdf

16. Blue Cross Blue Shield of Michigan. (2018, November). *2019 Hospital Pay-for-Performance Program: Peer Groups 1-4*. Retrieved from https://www.bcbsm.com/content/dam/public/Providers/Documents/value/2019-hospital-pay-performance-program.pdf

17. Feldman, S., Schooley, B., and Bhavasar, G. (2014, August 15). *Health Information Exchange Implementation: Lessons Learned and Critical Success Factors From a Case Study*. JMIR Med Inform. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4288070/

18. Connecticut Office of Health Strategy, Health Information Technology Advisory Council. (2019, April 18). *Meeting Minutes*. Retrieved from https://portal.ct.gov/-/media/OHS/Health-IT-Advisory-Council/Meeting-Minutes/20190418_HealthIT_DraftMinutes.pdf

19. Abraham M, Everette TD, McGann S, Rizzo T, Wang K. (2019, June). *Health Equity Data Analytics*. Connecticut Office of Health Strategy. Forthcoming.

20. MN Community Measurement. (2019, April 17). 2018 Disparities by Race, Hispanic Ethnicity, Preferred Language, and Country of Origin [PDF file]. Retrieved from https://mncm.org/reports-and-websites/reports-and-data/health-equity-of-care-report/

21. MN Community Measurement. (2010). *Handbook on the Collection of Race/Ethnicity/Language Data in Medical Groups*. Retrieved from https://mncm.org/wp-content/uploads/2013/04/Handbook_on_the_Collection_with_Addendum_10.21.10.pdf

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