ASSESSING CONNECTICUT'S HEALTH INFORMATION TECHNOLOGY & HEALTH INFORMATION EXCHANGE SERVICES

Summary Findings of Current State, Future Needs, and Recommendations for Action

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The Connecticut Health Information Technology Advisory Council

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Executive Summary

The following report, *Assessing Connecticut's Health Information Technology and Health Information Exchange Services: Summary Findings of Current State, Future Needs, and Recommendations for Action* is a summary of several documents developed for the Health Information Technology Program Management Office (HIT PMO), led by the Connecticut Health Information Technology Officer (HITO), with funding and supplemental support from the State Innovation Model Program Management Office (SIM PMO). In total, the collection of documents will form an environmental scan and assessment of the current availability and use of health information exchange (HIE) services and health information technology (health IT) tools in Connecticut by each stakeholder segment. The environmental scan also curates Connecticut stakeholders' understandings, attitudes, beliefs, aspirations, and levels of confidence in a future as envisioned by Connecticut Public Act No. 16-77 (2016), where health IT and HIE services will support enhancements in the efficiency and effectiveness of healthcare. The report identifies key areas where:

- investments in enhanced new health IT services should be made;
- improvements in interoperability between existing systems should be strongly encouraged or required;
- requirements for coordination and connectivity among state agency systems and private sector initiatives should be developed; and
- governance of current and future health IT and HIE technologies should be strengthened.

The technology needs described in the environmental scan have been identified through a rigorous process, beginning with a document review of earlier unsuccessful efforts to stand up HIE services, from the substantive work that has been done through Connecticut's State Innovation Model (SIM) grant, and from the efforts of the Connecticut Legislature. A broad stakeholder engagement process was deployed, in which individuals and organizations shared their perspectives on Connecticut's "current state" of health IT and HIE services to meet their business needs and the needs of their patients or clients. Additionally, stakeholders were asked to provide their perspective on their ability to meet the State's "Quadruple Aim" of better health, better care, lower costs, and improved clinician experience.

While documenting stakeholders' thoughts on currently available health IT services, interviewees were also asked to put forward wish lists for their desired "future state" of a health IT infrastructure to meet the needs of businesses and individuals in Connecticut. In addition to technology features and functions, interviewees were engaged on the topics of governance, financing, and what frequently was referenced as "the elephant in the room," the essential element of trust in how health IT services would be delivered. Having gathered qualitative data from group interviews, focus groups, and surveys of 282 individuals representing 136 organizations, CedarBridge Group applied subject matter knowledge to develop the findings and recommendations described in this report.

CALL TO ACTION

Priority Recommendations for the State

1. Connecticut must keep **patients and consumers as a primary focus** in all efforts to improve health information technology (health IT) or health information exchange (HIE), including addressing health equity and the social determinants of health.
2. Connecticut must **leverage existing interoperability initiatives**, including existing or planned private investments and relationships with state-based HIEs and the national initiatives of eHealth Exchange, Care*e*Quality, CommonWell, and Surescripts.
3. Connecticut must **implement core technology** that complements and interoperates with systems currently in use by private sector organizations. At a minimum, core technology should include the ability to authenticate identities of patients/consumers and providers through a **statewide Healthcare Directory** including providers, healthcare delivery organizations, community service organizations, etc., linked to a **statewide Master Patient Index** through strong attribution capabilities.
4. Connecticut must establish **"rules of the road"** to provide an appropriate policy framework that:
    - engenders trust amongst all stakeholders through the committed and transparent participation of public and private sector leaders who have been legislatively appointed to represent Connecticut's interests on the Health IT Advisory Council, and of all future subgroups designated to bring forward recommendations to the Council;
    - discourages inertia and duplicative solutions to shared problems facing the healthcare community, particularly amongst state agencies and other key stakeholders;
    - creates patient- and provider-centric, solutions-oriented cooperation and conversation in the healthcare community, particularly amongst state agencies and other key stakeholders;
    - safeguards consumers' interests in privacy, security, confidentiality, and patient safety;
    - encourages market-based solutions that lead to broad availability and financial sustainability of healthcare technology services; and
    - defines legislative and regulatory oversight as needed for enforcement and compliance.
5. Connecticut must support provider organizations and networks assuming accountability for quality and cost, such as **Accountable Care Organizations** (ACOs) and **Clinically Integrated Networks** (CINs), with technical assistance, education, and communications for data-sharing, referral coordination, and inter-ACO clinical data exchange.
6. Connecticut must ensure **all stakeholders can securely exchange health information**, through electronic means, with others involved in a patient's care. This includes providers in behavioral health and long-term post-acute care (LTPAC) settings, as well as community organizations positioned to impact social determinants of health and health equity.

7. Connecticut must **implement workflow tools** that will improve the **efficiency and effectiveness of healthcare delivery**. These include, but are not limited to:
    - the ability to share data **bi-directionally** (report and query) with the **Connecticut Department of Public Health** through the Connecticut Immunization Registry and Tracking System (CIRTS), as well as robust Electronic Laboratory Reporting (ELR) and Syndromic Surveillance systems that accept electronic data submissions and enable providers and hospitals to attest for Meaningful Use;
    - the provision of a **single, integrated clinical encounter alerts service** for all patients admitted or discharged from all acute care facilities and those LTPAC facilities that find clinical and economic value in such a service;
    - the development and implementation of a robust **statewide quality measurement system** to collect **electronic clinical quality measures (eCQM)** and other quality measures, consistent with the recommendations of the eCQM Design Group chartered by the Health IT Advisory Council; and
    - the expanded use of **Direct messaging** in support of transitions of care, coordination of care, and referral coordination.
8. To provide transparent oversight and coordination of State-owned and State-operated health IT assets, the State should charter and implement a **Health IT Steering Committee**, chaired by the HITO, staffed by the HIT PMO, and reporting to the legislative and executive branches, with membership of management-level personnel representing the following agencies:
    - Department of Administrative Services
    - Department of Children and Families
    - Department of Consumer Protection
    - Department of Corrections
    - Judicial Branch - Court Support Services Division
    - Department of Developmental Services
    - Department of Mental Health and Addiction Services
    - Department of Public Health
    - Department of Social Services
    - Office of the Healthcare Advocate
    - Office of the State Comptroller
9. Connecticut should establish, or designate, a **neutral, trusted organization** representing public and private interests to **operate agreed-to statewide health information exchange services**. The organization should adhere to best practices in health information governance, including, but not limited to:
    - Accountability to, and transparency with, stakeholders;
    - Governance by an engaged Board of Directors representing private and public sector leaders with decision-making authority in the organizations that they represent, ensuring that
        - The needs and perspectives of consumers are always represented with a voting position on the Board;

  - The Health Information Technology Officer (HITO) provides cohesive representation of State agencies' needs and perspectives through the Health and Human Services IT Steering Committee; and
  - Board positions are established to ensure representation of independent provider organizations and of community health service organizations;
- Foundational trust agreements that establish clear "rules of the road," including enforcement authority related to compliance;
- Sound policies and procedures;
- Business decisions driven by value-creation, leading to financial sustainability;
- Judicious use of scarce public and private resources; and
- Effective engagement with the State of Connecticut for public policy and technology integration with State-run systems.

Background and Overview of Methodology

Interoperable HIE technology services, as envisioned by Connecticut Public Act 16-77, states the following:

> *There shall be established a State-wide Health Information Exchange to empower consumers to make effective health care decisions, promote patient-centered care, improve the quality, safety, and value of health care, reduce waste and duplication of services, support clinical decision-making, keep confidential health information secure and make progress toward the state's public health goals. [Sec. 6, § 17-b-59d (a)]*

The Health Information Technology Officer (HITO) is administratively responsible for the planning, design, implementation, and oversight of HIE services that will meet the goals of PA 16-77 and the healthcare needs of the people of the state of Connecticut. To that end, CedarBridge Group was retained to support the HITO with several HIE-related projects including undertaking an environmental scan to assess the current health IT environment, and engage organizations to provide input from across the healthcare ecosystem. The outcomes of this work were designed to support Connecticut's HITO in:

- identifying the health IT and HIE opportunities of greatest stakeholder interest and value;
- defining the optimal approach to enhance and streamline the reporting of electronic clinical quality measures (eCQMs) and other quality measures; and
- planning for an organizational entity appropriate to govern the delivery of HIE services deemed to be highest priority to Connecticut stakeholders.

This *Summary of Findings* provides an overview of the results of a comprehensive environmental scan that was conducted as the first step toward defining the current and desired future state of the exchange of health information in Connecticut.

A comprehensive assessment of stakeholder interests and priorities was essential to the development of the environmental scan. The stakeholder engagement process consisted of seven distinct steps as outlined below in Figure 1.

FIGURE 1 STAKEHOLDER ENGAGEMENT PROCESS

1. Identify Stakeholder Domains

The environmental scan collected input from a broad range of stakeholder domains across public and private sectors; traditional and non-traditional healthcare settings; community organizations providing health support services; and patient and consumer groups.

Domains included in the data collection phase were:

- Consumers
- Hospitals and health systems
- Primary and specialty care providers
- Other healthcare service providers and organizations, including:
    - Behavioral health providers
    - Long-term and post-acute care (LTPAC) providers
    - Radiological services
    - Commercial reference laboratories
    - Pharmacies
- Members of the Connecticut Health IT Advisory Council
- Organizations that have assumed responsibility for quality and cost, including Accountable Care Organizations (ACOs) and Clinically Integrated Networks (CINs)
- Professional and medical associations
- Community organizations, including in the areas of:
    - Homelessness and housing services
    - Addiction services
    - Aging services
    - Services for HIV/AIDS patients
    - Services for victims of trauma
- State agencies
    - Department of Administrative Services
    - Department of Children and Families
    - Department of Consumer Protection
    - Department of Corrections
    - Department of Developmental Services
    - Department of Mental Health and Addiction Services
    - Department of Public Health
    - Office of the Healthcare Advocate
    - Office of the State Comptroller
- Payers, including commercial insurers and employers
- Pharmaceutical and bio-tech interests
- Other stakeholders as needed for completeness of input

2. Identify Stakeholders within Domains

In close collaboration with the HITO, the Connecticut State Innovation Model Program Management Office (SIM PMO), members of the Connecticut Health IT Advisory Council, and other key stakeholders, individuals within the stakeholder domains were identified as **key informants** for the data-gathering process. Through this process, over 100 individuals and organizations were identified as critical stakeholders to be included in the interviews and focus groups conducted during the environmental scan.

Additional key informants were identified during stakeholder engagement, bringing the total number of organizations providing input to 136.

3. Define Topics to be Addressed

Across all stakeholder domains, common focus areas were identified for investigation and analysis, including:

- **Current state** of health IT and HIE;
- **Desired future state** of health IT and HIE functionality and capabilities;
- Current understanding of eCQMs and the impact of **clinical quality measurement** on health IT and value-based payment requirements; and
- Areas where support for **technical assistance, education, and training** could be of value to end users of health IT and HIE services.

These areas of investigation were further developed and customized for each stakeholder domain. For example, topics were added for interviews with behavioral health organizations to address specific requirements for sharing data within psychotherapy notes or information regarding substance abuse, defined by the Health Information Portability and Accountability Act (HIPAA) and 42 CFR Part 2, respectively.

4. Establish Mechanisms for Input

A multi-modal approach to data collection was employed, guided by logistics and relevant topics. Stakeholder interviews were determined to be the most effective method for gaining an in-depth understanding of stakeholder needs. Whenever possible, **interviews** were conducted in person, and supplemented by telephonic interviews as circumstances dictated (such as inclement weather or scheduling challenges). Interview guides were developed and customized for each stakeholder domain and background research was conducted for each unique stakeholder interview.

Focus groups were conducted to gather a representative assessment of identified topics for four stakeholder groups: hospitals and health systems (Connecticut Hospital Association), healthcare providers (Connecticut State Medical Society), consumers (SIM Consumer Advisory Board), and the LTPAC community (in collaboration with LeadingAge Connecticut). The format for each focus group was customized by stakeholder domain. A behavioral health focus group was originally planned; after consultation with thought leaders in this domain, an alternative approach of individual interviews with eight behavioral health organizations and associations was implemented.

Additionally, a **survey** of LTPAC stakeholders was designed and distributed with the assistance of LeadingAge Connecticut and the Connecticut Association of Healthcare Facilities. This survey supplemented information gathered through individual interviews and the LTPAC focus group to gather a robust representation of 52 individuals working in this important but often-overlooked stakeholder domain.

5. Review Relevant Background Documents

In addition to stakeholder interviews, focus groups, and the LTPAC survey, the environmental scan process included a comprehensive **review of background and reference documents**. The documents covered a variety of topics of relevance to health IT and HIE, both in Connecticut and nationally, and provided important context for the stakeholder engagement process. The literature also provided context and support for the conclusions and recommendations in this report. Examples of reviewed documents include, but are not limited to, the following:

- SIM Operations Plan and other SIM documentation
- The State Medicaid Health IT Plan (SMHP)
- Connecticut's Implementation Advanced Planning Document (IAPD) for Health IT and HIE
- Various reports and documents from the Connecticut Department of Public Health, including *Healthy Connecticut 2020*
- Annual reports of community organizations
- Past documentation from the Health IT Exchange of Connecticut (HITE-CT)
- Descriptions of national interoperability initiatives such as eHealth Exchange, Carequality, CommonWell, and Surescripts
- Office of the National Coordinator's (ONC's) Nationwide Interoperability Roadmap
- Request for Proposals (RFPs) from Rhode Island and Oregon for eCQM Systems
- Various documentation on state HIE organizations, HIE vendors, and HIE governance models

6. Gather Input

The above stakeholder engagement and data collection methodology was initiated on January 11, 2017 and continued through April 6, 2017. Connecticut's HITO, Allan Hackney, provided overall direction of the engagement process, with CedarBridge Group subject matter experts Carol Robinson (Principal) and Michael Matthews (Senior Engagement Director) serving as project leads throughout the process, aided by four analysts and one project manager. The CedarBridge team was augmented by UConn Health's Center for Quantitative Medicine, and significant support was provided by the SIM PMO, including assistance in communications, scheduling, and review of interview guides, focus groups, and survey design.

In addition to a targeted online survey returning 52 responses from LTPAC providers, CedarBridge hosted four focus groups and interviewed 68 organizations, for a total of 282 individual stakeholders providing input. Interviews ranged in length from 30 to 120 minutes, depending on the number of participants. In total, 136 organizations provided input in the process through one or more of the input mechanisms, as detailed in Appendix B (Stakeholder Organizations and Engagement Type).

7. Analyze Stakeholder Input

Interview summaries were created following each interview and delivered to the HITO and SIM PMO. Each summary included the following criteria:

- Description of stakeholder

- Current state of health IT and HIE capabilities
- Organizational priorities
- Desired future state of health IT and HIE
- Key takeaways

Summary of Findings

In the Summary of Findings, focus is placed on cross-domain findings and common themes that emerged during the environmental scan process across the following categories: the experience and views of **patients and consumers**; the market **environment** experienced by healthcare organizations; the current usage and future needs for health IT **tools** by stakeholders; and stakeholder views on **governance** of health IT investments in Connecticut. The consistent themes that cut across the domains and the recommended considerations for future planning follow the Summary of Findings.

Patients and Consumers

Stakeholders view improvement of **patient care and consumer engagement** in better health as the core reasons for data-sharing and data access. These priorities are consistent with the patient-centric focus and priorities in PA 16-77 and have become increasingly important as the State embraces whole-person care and consumer engagement as foundational elements for the transition to value-based care. Stakeholders view **privacy, security, and confidentiality** of health information as critical considerations for any systems implemented by the State.

Patients and Consumers

- "North Star"
- Engagement
- Whole-Person
- Devices
- Data Access
- Tools
- Vulnerable Populations
- Health Equity

Stakeholders also emphasized the importance of **health equity** and support for vulnerable populations. These concerns were also referenced with respect to **social determinants of health**. Most frequently cited areas of need (outside the medical and healthcare sector) were nutrition, housing, and transportation.

The ability for patients and consumers to **easily access clinical data** is an issue of concern to stakeholders. Most health systems and some providers have **patient-facing portals** that enable a patient to view clinical data from the electronic health record (EHR), such as medications and lab values. Patients generally cannot view their clinical data across multiple healthcare providers in a single, consolidated view.

Many stakeholders recognize that **consumer-generated data** is of growing importance. This can take the form of **consumer-defined outcome measures**, but often relates to data from **devices**. Devices may be **home-based monitors** (such as blood pressure monitors and smart scales), **implantable devices** (such as pacemakers), or **wearable devices** (such as a Fitbit or similar product with a heart rate monitor). There is a rapidly expanding marketplace for such technology. Future opportunities for integrating patient-generated data into EHRs and enterprise data warehouses should be closely monitored.

Environment

Ongoing **health challenges** experienced by many citizens of Connecticut were discussed in multiple interviews. Stakeholders called attention to an aging population base, and wide gaps in income and socioeconomic status of various regions of the state. This is consistent with the report of the Connecticut Department of Public Health, *Healthy Connecticut 2020: Part 1: State Health Assessment*.[1] The report identified health improvement opportunities in seven areas:

1. Maternal, Infant, and Child Health
2. Environmental Risk Factors and Health
3. Chronic Disease Prevention and Control
4. Infectious Disease Prevention and Control
5. Injury and Violence Prevention
6. Mental, Alcohol, and Substance Abuse
7. Health Systems, including coverage and access

Environment

- Value-based Care
- ACO / CIN
- Population Health
- Social Determinants
- Community Orgs
- Current Assets (National)
- Current Assets (State)
- Quadruple Aim

Interviewees from community organizations shared many examples of their work to redress these ongoing health challenges. These included a diversity of services such as telehealth support for trauma victims from Cambodia; housing support services for wounded warriors; information and referral services; and services for individuals with opioid addictions.

The State is actively transitioning from a predominantly fee-for-service healthcare system to a **fee-for-value healthcare system**. Many stakeholders participate in ACOs and in other transformation initiatives designed by the Centers for Medicare & Medicaid Services (CMS) and the Center for Medicare and Medicaid Innovation (CMMI). The State is leveraging its role as the leading employer in Connecticut by promoting consumer engagement and aligning payer incentives for cost and quality. Other notable programs that encourage principles of coordinated and/or value-based care include:

- Medicare Shared Savings Program (MSSP)
- Patient Centered Medical Home Plus program (PCMH+)
- Community and Clinical Integration program (CCIP)
- Advanced Medical Home program (AMH)

Commercial payers are also critical to the transition to value-based care in Connecticut and have each taken significant strides to that end. Most major health plans are sharing **analytics tools** with providers (utilizing claims data), with the intent to identify patients at risk for poor outcomes and/or high utilization costs. **Incentives** are beginning to be incorporated into provider contracts to reward efficiency and quality. A variety of mechanisms are used by payers for accessing clinical data from providers and health systems; these include data provided to support utilization management and pre-authorization. Payers are currently receiving lab results through electronic means from their contracted commercial labs, but all

[1] http://www.ct.gov/dph/lib/dph/state_health_planning/sha-ship/hct2020/hct2020_state_hlth_assmt_032514.pdf

health plans interviewed for the environmental scan recognize the value of **receiving electronic lab data from all lab settings**.

While approaches to provider engagement differ by payer, most payers agree on the value of **sharing clinical data**, as well as assessing performance based on clinical data. Payers also express a willingness to share their claims data with providers if providers have the technical and operational capabilities to use such data effectively. Payers generally see value in the emergence of organized delivery systems, such as ACOs and CINs, although there is variability in structure and capabilities across these systems. Payers spoke to the **critical importance of data security and data provenance** as claims and clinical data are shared between providers and payers.

Value-based care initiatives increase the demand on providers not only to understand the needs of their patients at an individual level, but also across the **entire patient population**. Several providers noted the deficiencies in their EHR system's current capabilities for clinical decision support. They described functionality that could create improvements, such as a prompt if a diabetic patient is due for a Hemoglobin A1c lab test.

There is a growing recognition in the state that **social determinants of health** need to be addressed as part of the transition to value-based care. As provider entities increasingly take on clinical and financial risk for improved outcomes and cost, these organizations are incentivized to look to other patient and consumer support systems that can be coordinated and integrated as part of an overall care plan. Input from **community-based organizations** during the stakeholder engagement indicated a high degree of interest in new or expanded partnerships with the medical and healthcare delivery system. Several community-based organizations stated they do not know how to engage in meaningful partnerships with healthcare providers, referencing the need for better coordination and communication processes, as well as enhanced technology integration. Solutions should focus on overall coordination of care and the sharing of care coordination plans, with technical assistance and education/communication support for building community partnership hubs.

In addition, there is widespread support for adding a fourth aim – **improved clinician experience** – to the Triple Aim defined by the Institute for Healthcare Improvement (IHI) as patient experience, per capita cost, and population health.[2] This adaptation is referred to as the **Quadruple Aim** across the state and in other parts of the country.

Tools

- Public Health Reporting
- Encounter Alerts
- Referral Management
- Connecticut Prescription Monitoring and Reporting System Integration
- Analytics
- Electronic Clinial Quality Measurement
- Advanced Directives Registry
- Direct Messaging

Tools

Health IT **tools currently deployed or planned by private sector entities** was a common topic raised during stakeholder interviews. One stakeholder shared, "We've had to make do without a state HIE. Our needs today are different than they were three to five years ago." This section highlights several tools that are currently in use by some providers and

[2] http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/MeasuresResults.aspx

organizations, and other tools identified by stakeholders as desirable for improving coordinated care delivery, measuring quality, and enabling value-base payment models in the future.

Electronic Health Record (EHR) Systems

Health systems have had success in the **adoption of EHRs** for their hospitals and employed physicians. Providers have also adopted EHRs, but the vendor platforms for providers are much more diverse than those adopted by health systems. LTPAC providers, as reported by a survey conducted as part of the Environmental Scan, have achieved an adoption rate over 80%. Meaningful Use (MU) funds to support EHR adoption were not available for behavioral health providers, yet there are notable examples in the state of adoption by this stakeholder group to improve quality and better understand outcomes and performance.

Regardless of stakeholder domain, EHR users stated a **preference for working within their EHR environment** whenever possible. They spoke to the inefficiency of having to log into a different portal to obtain needed data. Most EHRs have an integrated Direct messaging utility. Health system EHR vendors have some capacity for **interoperability with eHealth Exchange**[4], enabling data exchange with federal agencies such as the US Department of Veterans Affairs (VA) and the Social Security Administration (SSA), though only one hospital in Connecticut is currently an eHealth Exchange Participant. Ambulatory providers across the country have far less participation in eHealth Exchange.

Trust is widely viewed as foundational to any initiative in interoperability and HIE. Principles of trust have been established at a national level and the **21st Century Cures Act** calls for a continued federal role in the promotion and regulation of interoperability. There is a specific call for public/private collaboration to establish a "**trusted exchange framework,** including a common agreement among health information networks nationally."[3] In addition to embracing principles of trust and appropriate trust agreements, successful health information organizations employ best practices in conducting their governance responsibilities. These practices include transparency, representation of stakeholders on the governing body, and accountability to those whom they represent.

Data Exchange Tools

National interoperability initiatives were observed by interviewees as delivering some measure of current value and representing strong potential for future value. Specifically, CommonWell and Care*e*quality are notable. Care*e*quality provides a national, consensus-built interoperability framework to enable exchange between and among health data-sharing networks. CommonWell is a non-profit trade association of health IT companies working together to create universal access to health data nationwide. CommonWell and Care*e*Quality both support query-based information exchange and signed an agreement in December 2016 for CommonWell to become a Care*e*quality implementer. This development has enormous potential to rapidly scale connectivity across the country, particularly for ambulatory care providers.

Most providers and health systems, and many behavioral health and LTPAC providers, have **Direct secure messaging capabilities** for HIPAA-compliant communication with other provider entities. However, these

[3] https://www.healthit.gov/sites/default/files/trustframeworkfinal.pdf

capabilities could be characterized as sub-optimal due to two factors. First, there is a **lack of a common directory of Direct electronic addresses** that would enable one provider entity to find the Direct address of another provider entity with whom to communicate. This need could be addressed through a state-level initiative to create a directory of Direct addresses. There is also a **lack of standardization and training** in how Direct messaging could be integrated into organizations' workflows to support activities such as referral coordination.

There is an opportunity for Connecticut healthcare organizations to **collaborate on the preferred content of shared clinical data** with other providers during the consultation and referral processes, and work with EHR vendors as consortia to improve the functionality of Direct messaging within EHR systems. Direct messaging can also provide an **enhanced secure communication tool to clinical and community-based organizations without an EHR system** through internet-based services.

Encounter alerts was a topic of optimism and concern for stakeholders. There are two primary encounter alert platforms in use today: PatientPing (offered in partnership with the Connecticut Hospital Association), and Project Notify (provided by DSS for only Medicaid providers). Three concerns related to encounter alerts were frequently expressed. First, there should be a seamless and efficient way to gain access to **more robust clinical data** related to an encounter once a provider has been alerted. Second, while encounter alerts are generally viewed as positive, **multiple encounter-alerting platforms will be burdensome** to both health systems and providers. Third, **cost of receiving encounter alerts** will be a barrier to implementation for all patients.

Medication-related Tools

e-Prescribing is widely recognized as one of the more successful examples of HIE in the state, largely driven by the success of Surescripts in creating a gateway connecting pharmacies and prescribers. Most providers have e-prescribing functionality built into their EHR systems. This functionality enables the prescriber to check **medication history** through seamless access to medication data in retail pharmacy and Pharmacy Benefit Manager (PBM) databases. Because medication history can usually be consumed as structured, discrete data into the provider's EHR, **clinical decision support** (such as drug-drug and drug-allergy alerts) is enabled.

Opioids are widely cited as a significant public health issue in Connecticut. The **Connecticut Prescription Monitoring and Reporting System (CPMRS)** allows providers to access controlled prescription data both within and outside the state**.** This generally occurs through a **portal provided by Appriss**, the vendor contracted by the State to operate the technology for the CPMRS. Providers view the **CPMRS data as valuable** and essential to meet the State's requirements for prescribed opioids and related drugs. However, the use of a **separate portal is not ideal from a clinical workflow standpoint**, and often results in lower utilization and adoption by providers. Two organizations are piloting interfaces with the CPMRS that enable single sign-on (SSO) for a user within their own EHR, and initial impressions of this interface functionality are positive. The **possibility of Surescripts enabling the CPMRS database** to allow prescribers to access controlled medication histories within the e-prescribing workflow (like PBMs and retail pharmacy medications) is also a current discussion. This potential approach is viewed positively, although one provider stated that the need for opioid data often comes during patient evaluation before the actual

prescribing process. The **Veterans Administration Connecticut Healthcare System made special note of the importance of access to opioid prescription data** for their patient population.

Analytic Tools

Increasingly, **providers have implemented analytics tools** to better understand patient outcomes, gaps in care, and other population health measures. Often, these tools are obtained through the provider's EHR vendor, such as Epic's Healthy Planet module, Cerner's Cloudera enterprise data hub, or athenahealth's Population Health knowledge hub. However, many providers also describe an approach of using an external data warehouse with population-level analytics tools populated with clinical and billing data. In some cases, these tools are used to support data reporting.

Reporting requirements is a topic of great interest for stakeholders. Without exception, there is support for **simplifying the report of electronic clinical quality measures (eCQMs)**. In the current state, providers report in a variety of formats, and the measures themselves (even for the same health condition or disease) sometimes vary by the entity requiring the data. The concept of **extract once, report to many** was endorsed by interviewees, with the desired future state being a **statewide quality measurement system** that reduces the burden of reporting to numerous quality programs and/or multiple value-based contracts. Stakeholders also see long-term value in considering **quality measures based on varied sources of data**, such as educational systems, the Connecticut corrections system, environmental and public health systems, community-based organizations, and patient-generated data, in addition to claims and clinical data from EHRs.

Identity Management Tools

Several of the large health systems and health plans acknowledge the onerous efforts needed to maintain **accurate provider directories**. Many stakeholders expressed enthusiasm for a **statewide healthcare directory** that can serve as **an authoritative source of truth** for demographic and other identifying information on providers and organizations providing healthcare and health support services in Connecticut, although interviewees recognize that there will likely be a need for regulatory or contractual requirements to ensure data is updated on a timely basis. Interviewees expressed concern regarding **missing data** due to Medicaid eligibility status changes, commercial health plan annual changes, and out-of-network utilization**.** Linking a statewide healthcare directory and a statewide master person index, through methods of **attribution between providers and their patients,** is recognized by many organizations as having high value for addressing key business needs.

Governance

While governance of HIE services was not a common theme among stakeholder interviews, there were a number of topics discussed that serve to inform governance considerations and decisions.

Trust is widely viewed as foundational to any initiative in interoperability and health information exchange. There is a prevalent **sense of frustration** among stakeholders regarding the State's previous efforts to implement HIE services

Governance

- Trust
- Confidence
- Value
- Scarce Resources
- Decision Criteria
- Stakeholder Engagement
- Emerging Opportunities

and an apparent lack of coordination across state agencies with respect to their health IT assets. Some stakeholders cited current and past efforts by the State as a source of confusion, including the proposed eCQM engine for Medicaid (Zato Health), and the alert notification system specific only to Medicaid beneficiaries (Project Notify). Stakeholders cited a **lack of clear and timely information** about these two initiatives

Similarly, providers and hospitals in Connecticut are not satisfied with public health reporting and this was routinely ranked as a high priority and necessary improvement for the State. Many interviewees expressed concern about the insufficient functionality of the Department of Public Health (DPH) technology applications, particularly about the Connecticut Immunization Registry and Tracking System (CIRTS). It was reported that the Centers for Disease Control (CDC) sent DPH a gap analysis that the CIRTS registry was not meeting standards required to support bi-directional exchange, and that the American Immunization Registry Association (AIRA) has also issued questions to DPH about the gaps in CIRTS functionality.

Stakeholder interviews included many **state agencies** with numerous top-ranking management as well as program staff members, providing input on the State's current health IT systems. These systems included eligibility determination for various programs and payment systems lacking infrastructure to provide client services to the people of Connecticut. Alignment, transparency of efforts, and improved coordination between state agencies for deployment of healthcare technology systems were cited as opportunities for improvement.

Stakeholders' **confidence in the State's** ability to successfully implement HIE services is low across all sectors. Some stakeholders recommended that **early wins** would be helpful in restoring confidence. Many **commended the stakeholder engagement** as an effective means for strategy development and expressed **encouragment for the leadership shown by the HITO**.

Across all domains, stakeholders spoke to **scarce resources**. Expressed in various ways, most reported they do not have time, money, staff, or energy to participate in a State-sponsored HIE unless there are tangible benefits greater than the accompanying costs. Many address this by speaking of **value creation**. This might take a number of forms, such as workflow efficiency, enhanced clinical decision-making, or realization of performance incentives.

Themes and Considerations

The following themes and considerations represent the distillation of input from stakeholders, documentation reviewed throughout the environmental scan, and the subject matter expertise of CedarBridge Group.

1. The Patient is the North Star

Consistent with the priority and focus of PA 16-77, one stakeholder coined the phrase, "the patient is the North Star." The interests of **patients and consumers** must always be considered foremost and provide a guiding compass in any decisions related to health IT and HIE. Specific areas of importance include:

- **Privacy, security, and confidentiality;**
- **Consumer engagement** and tools for better management of one's health and healthcare in partnership with the care team;
- Patient **access to integrated clinical data,** versus patient portals tethered to a single EHR; and
- **Quality and price transparency.**

2. "Skate to where the puck is going to be, not where it has been." (Wayne Gretzky)

Significant effort has gone into query-based exchange initiatives over the past decade, with over $550 million in federal funds invested in state-level HIE through the ONC. While Connecticut has previously struggled to successfully launch statewide HIE services, it is also true that most existing statewide HIEs across the nation are not yet operating as self-sustaining technology service providers. Many astute observers would conclude that efforts to establish robust query-based HIEs have not been realized.

On the national level, **eHealth Exchange** boasts participants representing over 65% of all hospitals in the US, and while the network provides connectivity to the US Department of Veterans Affairs, Department of Defense, and Social Security Administration health records systems, the utilization of the network, outside of these government-related use cases, has been slow to materialize. However, promise is offered in vendor-backed interoperability initiatives such as **CommonWell and Care*quality***. In addition, there is an increasing use of application program interfaces (APIs) that support integration and interoperability.

These considerations lead to the recommendation that there is no compelling reason for Connecticut to spend its scarce resources on a mechanism for basic query-based exchange because credible organizations offer services that are already in use in the state that can be leveraged.

Strong consideration should be given to the creation of robust **identity management services**. These include a **statewide healthcare directory** that can become a reliable source of truth for demographic and other identifying information on healthcare providers and organizations, as well as key providers of community support services. The directory should be linked to a **statewide master person index (MPI)** and **attribution services** with capabilities to map care relationships between providers and patients/consumers.

Similarly, any system or service implemented by the State will need capabilities for **data stewardship and data normalization**. These capabilities, in addition to others such as protecting the **security and privacy** of protected health information (PHI), must be considered **table stakes** that will be required of any system

or service operated by, or on behalf of, the State. These table stakes will, in part, be codified through data use agreements, defining terms and conditions for data exchange in the state.

The various initiatives and capabilities will ultimately result in a **network of networks** approach to interoperability in the state. Individual interoperability initiatives will continue to support the business needs of their respective constituencies**.** Even with unique HIE offerings like Epic's CareEverywhere, or broader HIE efforts like the Connecticut State Medical Society (CSMS) tool hosted by Kansas Medical Mutual Insurance Company (KaMMCO), stakeholders agree additional benefits can be derived by the provision of shared identity services. Ultimately, **interoperability across these individual initiatives** will create synergy and value beyond what any one initiative could achieve on its own. Certain **rules of the road** should ensure that policies and procedures are followed, to ensure **privacy and security** of data exchange and that standards are adopted and implemented on a consistent basis by entities engaged in interoperability in the state. These rules could take the form of qualifying criteria for organizations desiring to participating in HIE and interoperability in the state, and for those who will want to utilize the core technology of identity management and other services offered by the State.

3. No stakeholder left behind

There is widespread recognition that **whole-person care** requires an expanded notion of who is on the healthcare team. Many stakeholders, including **behavioral health providers, LTPAC providers, and community-based organizations can contribute to a more value-driven healthcare system**, but specific actions must be taken to redesign current processes of care and communications for that contribution to occur. Connecticut should implement **methods to support care coordination, including the ability to securely share care coordination plans** across all those participating in the support and care of patients/consumers.

4. Workflow, workflow, workflow

Across the healthcare landscape, providers are under intense and growing pressure to increase the efficiency and effectiveness of care delivery. At the same time, support is growing to add a fourth component to the Triple Aim (as defined by the IHI) of population health, experience of care, and per capita cost. That goal is to **improve the work life of healthcare providers**, including clinicians and staff. Providing a suite of integrated and effective workflow tools will contribute immeasurably to this goal. Of primary consideration should be the following:

- **eCQMs:** Connecticut should establish a standardized approach to reporting eCQMs in support of value-based care, which would benefit from better harmonization of payers around a core set of measures.
- **CPMRS:** Connecticut should further integrate this important database into the e-prescribing workflow of providers.
- **Public Health Reporting:** Connecticut should establish the means for efficient electronic reporting of immunizations, labs, and syndromic data to the Connecticut Department of Public Health, while enabling CIRTS to communicate bi-directionally with providers.
- **Direct Messaging:** Connecticut should expand the use of Direct messaging capabilities by: (1) creating a healthcare directory that would include Direct addresses as part of its functionality;

(2) standardizing use of Direct messaging to support referral coordination; and (3) promoting the use of Direct messaging for those providers and community organizations that do not have certified EHRs.

5. "Give me a lever long enough and a fulcrum on which to place it, and I shall move the world." (Archimedes)

Transforming healthcare from fee-for-service to value-based care is an enormous challenge, yet Connecticut already has important **levers in place in the form of ACOs and CINs**. These initiatives are designed to align incentives for meeting Triple Aim objectives. **ACOs and CINs also provide important value in health IT and HIE design.** HIE is never an end unto itself, but rather a means to an end. Concepts of data-sharing and interoperability within an accountable care context can create more tangible value propositions for the stakeholders involved. Connecticut must identify specific strategies for **data-sharing (as needed) within ACOs, as well as data-sharing *across* ACOs.** Harnessing market forces that are enabled or enhanced by HIE and interoperability will increase the likelihood of sustainability for whatever services the State chooses to implement.

6. "The future ain't what it used to be." (Yogi Berra)

Two areas have potential for **future value-creation** for Connecticut. The first is **genomics and precision medicine**. Certain **foundations are already in place,** such as academic medical centers, labs, and technology incubators. Precision medicine is already impacting certain areas of clinical decision-making, and those areas will only grow in the future. Nonetheless, it is uncertain how genomic data will be shared across provider entities and how such data will be integrated into EHRs and clinical decision support tools. Connecticut should consider the **opportunity for national leadership and economic development** in this arena.

In addition, **bring your own device (BYOD)** is still an emerging concept, whether in the form of home-monitoring, wearable devices, or implantable devices. How devices are deployed in the state and how data from those devices are integrated into EHRs and other data systems remains to be determined. This is recommended as an **area of future study** for the State.

Recommendations

The following recommendations are the distillation of input from stakeholders, documentation acquired through the environmental scan, and the subject matter expertise of CedarBridge Group. These recommendations are intended to provide a foundation for future strategy, policy, and program development.

1. Connecticut must keep patients and consumers as a primary focus in all efforts to improve health IT or HIE, including addressing health equity and the social determinants of health.

2. Connecticut must leverage, not duplicate, existing interoperability initiatives; and provide technical assistance, education, and coordinated communication to all stakeholders using health IT and HIE services.

3. Connecticut must establish "rules of the road" to provide an appropriate governance framework.

4. Connecticut must implement core technology that complements and interoperates with systems currently in use by private sector organizations.

5. Connecticut must support provider organizations and networks that have assumed accountability for quality and cost.

6. Connecticut must ensure that basic mechanisms are in place for all stakeholders to securely communicate health information with others involved in a patient's care and treatment.

7. Connecticut must implement workflow tools that will improve the efficiency and effectiveness of healthcare delivery.

8. State agencies must charter and implement a Health IT Steering Committee, chaired by the HITO, staffed by the HIT PMO, and reporting to the legislative and executive branches.

9. Connecticut should establish or designate a neutral, trusted organization, representing public and private interests, to operate agreed-to statewide HIE services.

In conclusion, Connecticut has a unique opportunity to leverage health IT and HIE in support of its journey to value-based care. Stakeholders have made many advancements in health IT, however collaborative effort is still needed to advance technical standards and process re-design in the state. Stakeholder engagement efforts can begin to lay the foundation for the State and all its stakeholders to be successful in the important work that lies ahead.

Appendix A: Glossary

Term	Definition
42 CFR Part 2	42 CFR Part 2 is a federal regulation that applies to all records relating to the identity, diagnosis, prognosis, or treatment of any patient in a substance abuse program that is conducted, regulated, or directly or indirectly assisted by any federal department or agency, and establishes how consent for those records must be managed.
ACO	Accountable Care Organization. An ACO is a healthcare organization characterized by a payment and care delivery model that seeks to tie provider reimbursements to quality metrics and reductions in the total cost of care for an assigned population of patients.
AMH	Advanced Medical Home. The AMH program is an initiative being implemented through the Connecticut SIM PMO. This program assists primary care practices within Advanced Networks to become patient-centered medical homes.
Care*e*Quality	Care*e*Quality is a national public-private collaborative that facilitates agreement among diverse stakeholders to develop and maintain a common interoperability framework enabling exchange between and among data-sharing networks. Care*e*Quality is coordinated by The Sequoia Project.
CCIP	Community and Clinical Integration Program. CCIP is an initiative developed as part of the Connecticut State Initiative Model to provide a set of care delivery standards and technical assistance intended to enable Advanced Networks and Federally Qualified Health Centers to deliver care that results in better health outcomes at lower costs for Medicare, Medicaid, and commercial plan enrollees.
CINs	Clinically Integrated Networks. As healthcare systems transition to value-based care, they might reorganize into a clinically integrated network to allow for employed and affiliated providers to jointly negotiate with payers. Development of this kind of network means developing a team of primary care and specialty physicians to actively participate in a streamlined care delivery model.
CommonWell	CommonWell is a non-profit trade association of EHR vendors working to achieve cross-vendor interoperability that assures provider access to personal health information.
Community-based Organizations	Organizations or institutions who are not traditional healthcare providers but whose work intersects with the healthcare system.
CMS	Centers for Medicare and Medicaid Services. CMS is the federal agency within the US Department of Health and Human Services (HHS) that administers the Medicare program and works in partnership with state

Term	Definition
	governments to administer Medicaid, the Children's Health Insurance Program (CHIP), and health insurance portability standards.
CPMRS	Connecticut Prescription Monitoring and Reporting System. The CPMRS is a state-run electronic database used to track the prescribing and dispensing of controlled prescription drugs to patients.
Direct Messaging	Direct messaging is a secure, encrypted web-based communication system for physicians, nurse practitioners, physician assistants, and other authorized users to share protected health information.
eCQM	Electronic Clinical Quality Measures. eCQMs are tools that help measure and track the quality of health care services provided by providers within the healthcare system. To report CQMs electronically from a her, electronic specifications must be developed for each CQM. The specifications can be captured or stored in the EHR so that the data can be sent or shared electronically.
eHealth Exchange	The eHealth Exchange, formerly the Nationwide Health Information Network Exchange, is a community of exchange partners (including federal agencies, private healthcare organizations, and HIEs), that share information under a common trust framework and a common set of rules. The Sequoia Project is the non-profit organization under which the eHealth Exchange operates.
EHR	Electronic Health Record. An EHR is an electronic version of a patient's medical history, maintained by a provider over time, which usually includes key clinical data relevant to that person's care under a particular provider, including demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports.
Encounter Alerts	An encounter alert is a notification sent to an attributed provider that a patient has been admitted, discharged, or transferred from a hospital.
e-Prescribing	e-Prescribing is a provider's ability to electronically send a prescription directly to a pharmacy from the point of care.
Health Equity	Health equity is the attainment of the highest level of health for all people. Achieving health equity requires valuing individuals equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities.[4]

[4] U.S. Department of Health and Human Services, Office of Minority Health. (2011, April). National Stakeholder Strategy for Achieving Health Equity. doi: https://minorityhealth.hhs.gov/npa/files/Plans/Toolkit/NPA_Toolkit.pdf

Term	Definition
HIE	Health Information Exchange. The term "HIE" can be used as a verb (the electronic exchange of health-related data) or as a noun (organizations dedicated to the secure exchange of health-related data). HIE organizations (or groups of organizations) are responsible for coordinating the exchange of protected health information in a region, state, or the nation. HIEs are also known as Health Information Organizations (HIOs).
HIPAA	Health Information Portability and Accountability Act. The HIPAA Privacy Rule establishes national standards to protect individuals' medical records and other personal health information and applies to health plans, healthcare clearinghouses, and healthcare providers that conduct certain healthcare transactions electronically. The Rule requires appropriate safeguards to protect the privacy of personal health information, and sets limits and conditions on the uses and disclosures that may be made of such information without patient authorization. The Rule also gives patients certain rights over their health information, including rights to examine and obtain a copy of their health records and to request corrections.
Health Information Technology Advisory Council	The Connecticut Health Information Technology Advisory Council provide counsel and input to the HITO. The Council's membership and responsibilities were established through PA 16-77.
HITO	Health Information Technology Officer. With PA 16-77, the position of the HITO was established and charged with the following: (1) Overseeing the development and implementation of the State-wide Health Information Exchange; (2) coordinating the state's health IT and HIE efforts to ensure consistent and collaborative cross-agency planning and implementation; and (3) serving as the state liaison to, and working collaboratively with, the statewide HIE, to ensure consistency between the statewide health IT plan and the statewide HIE and to support the state's health IT and HIE goals; within existing resources and in consultation with the State Health IT Advisory Council.
Interoperability	Interoperability refers to the ability for systems to exchange data and operate in a coordinated, seamless manner.
KaMMCO	Kansas Medical Mutual Insurance Company. KaMMCO is a medical professional liability insurance company providing liability insurance for physicians and other health care professionals, medical groups, hospitals, and professional associations.
LTPAC	Long-Term Post-Acute Care. Long-term and post-acute care settings include inpatient rehabilitation facilities, assisted living facilities,

Term	Definition
	skilled nursing facilities, nursing homes, and home health agencies, among others who provide care services to patients for an extended period.
MPI	Master Patient Index. MPIs store, and cross-reference, unique patient identification for every patient in an HIE or health system.
MSSP	Medicare Shared Savings Program. The MSSP was established by the Affordable Care Act to facilitate coordination and cooperation among providers to improve the quality of care for Medicare Fee-For-Service (FFS) beneficiaries and reduce unnecessary costs. Eligible providers, hospitals, and suppliers participate in the MSSP by creating or participating in an ACO.
PBM	Pharmacy Benefit Manager. A PBM is a third-party administrator of a prescription drug program. PBMs are primarily responsible for developing and maintaining formularies, contracting with pharmacies, negotiating discounts and rebates with drug manufacturers, and processing and paying prescription drug claims.
PCMH+	Patient-Centered Medical Home Plus. PCMH+ is a national, advanced primary care medical home model that aims to strengthen primary care through regionally-based, multi-payer payment reform and care delivery transformation. The program was launched by the Center for Medicare and Medicaid Innovation (CMMI), a division of CMS, in March of 2016.
PHI	Protected Health Information. PHI refers to all individually identifiable health information held or transmitted by a covered entity or its business associate, in any form or media, whether electronic, paper, or oral. PHI is protected by the requirements of the HIPAA Privacy Rule.
Provider Directory	A provider directory is a listing of healthcare providers or organizations in a directory format.
Query-based exchange	Query-based exchange is the ability for providers to search for and/or request a patient's health information from another provider.
SIM PMO	Connecticut State Innovation Model Program Management Office. The SIM PMO was established in January 2014 to manage the implementation of the Connecticut Healthcare Innovation Plan. The SIM PMO works collaboratively with consumers, advocates, providers, employers, health plans, and state agencies to achieve their vision to *establish a whole-person-centered healthcare system that improves community health and eliminates health inequities; ensures superior access, quality, and care experience; empowers individuals to actively participate in their health and healthcare; and improves affordability by reducing healthcare costs.*

Term	Definition
Social Determinants of Health	Social determinants of health are factors in the environments in which individuals are born, live, learn, work, play, worship, and age that affect a wide range of health, function, and quality-of-life outcomes and risks. Examples of social determinants include socioeconomic conditions; access to educational, economic, and job opportunities; public safety; and access to healthcare services.
SSA	Social Security Administration. The SSA is an independent agency of the US government that administers a social insurance program consisting of retirement, disability, and survivors' benefit. The SSA is the largest social welfare program in the US.
Whole-Person Care	Whole-person care is the coordination of health, behavioral health, and social services centered around a patient with the goal of improved health outcomes and more efficient and effective use of resources.
VA	US Department of Veterans Affairs. The VA is responsible for providing services to US veterans. The VA provides healthcare services and benefits programs to former military personnel and their dependents.

Appendix B: Stakeholder Organizations and Engagement Type

	Stakeholder Organization	Engagement Type
1.	Access Health Connecticut	Interview
2.	Aetna	Interview
3.	Anthem	Interview
4.	Apple Rehab	Interview, Survey
5.	Avalon Health Center at Stoneridge	Survey
6.	Avon Health Center	Survey
7.	Beacon Brook Health Center	Survey
8.	Beechwood	Survey
9.	Bishop Wicke Health Center	Survey
10.	Bradley Home, The	Survey
11.	Bristol Hospital	Focus Group
12.	Caleb Hitchcock Health Center	Survey
13.	Cardiology Associates of New Haven	Focus Group
14.	Cigna	Interview
15.	Clifford Beers Clinic	Interview
16.	Coalition to End Homelessness	Interview
17.	Community Health Center Association of Connecticut (CHCACT)	Interview
18.	Community Health Center, Inc.	Interview
19.	Community Health Resources	Interview
20.	Community Medical Group	Interview
21.	Community Mental Health Affiliates, Inc.	Interview
22.	ConnectiCare	Interview
23.	Connecticut Academy of Family Physicians	Interview
24.	Connecticut Association for Healthcare at Home	Interview
25.	Connecticut Association of Health Care Facilities, Inc.	Interview
26.	Connecticut Chapter of the American Academy of Pediatrics	Interview
27.	Connecticut Children's Medical Center	Focus Group, Interview
28.	Connecticut Coalition of Taft-Hartley Health Funds	Interview
29.	Connecticut Health Data Collaborative	Interview
30.	Connecticut Hospital Association	Focus Group
31.	Connecticut Institute for Primary Care Innovation	Interview
32.	Connecticut Medical Group, LLC	Focus Group
33.	Connecticut Orthopaedic Society	Interview
34.	Connecticut Psychiatric Association	Interview
35.	Connecticut Psychological Association	Interview
36.	Connecticut State Medical Society	Focus Group, Interview
37.	Connecticut United Way	Interview
38.	Covenant Village of Cromwell	Survey

	Stakeholder Organization	Engagement Type
39.	Crestfield Rehabilitation Center and Fenwood Manor	Survey
40.	CVS	Interview
41.	Day Kimball Hospital	Focus Group
42.	Department of Administrative Services	Interview
43.	Department of Children and Families	Interview
44.	Department of Consumer Protection	Interview
45.	Department of Corrections	Interview
46.	Department of Developmental Services	Interview
47.	Department of Mental Health and Addiction Services	Interview
48.	Department of Public Health (Immunization/Syndromic/ELR Staff)	Interview
49.	Department of Public Health (Population Health Staff)	Interview
50.	Dermatology Surgical Associates, LLC	Focus Group
51.	Elim Park	Focus Group, Survey
52.	Eye Care Group, The	Focus Group
53.	Fair Haven Community Health Center	Interview
54.	Filosa Convalescent Home	Survey
55.	Genesis Healthcare	Survey
56.	Glendale Center	Survey
57.	Griffin Health System	Focus Group, Interview
58.	Hamden Rehabilitation and Health Care Center	Survey
59.	Hartford Healthcare	Focus Group, Interview
60.	Hartford HealthCare Senior Services	Survey
61.	Harvard Pilgrim	Interview
62.	Health IT Advisory Council Member David Fusco	Interview
63.	Hughes Health and Rehabilitation, Inc.	Survey
64.	iCare	Survey
65.	Ingraham Manor of Bristol Hospital	Survey
66.	Jefferson House	Survey
67.	Jerome Home	Survey
68.	Jewish Senior Services	Survey
69.	Khmer Health Advocates	Interview
70.	LabCorp	Interview
71.	LeadingAge Connecticut	Focus Group, Survey
72.	Leeway (Skilled Nursing Facility)	Interview, Survey
73.	Legislative Representative	Interview
74.	Legislative Representative	Interview
75.	Lord Chamberlain	Survey
76.	Meadow Ridge	Survey
77.	Mercy Community Health	Survey

Stakeholder Organization	Engagement Type
78. Middlebury Convalescent Home, Inc.	Survey
79. Middlesex Hospital	Focus Group
80. Midwestern Connecticut Council of Alcoholism (MCCA)	Interview
81. Milford Hospital	
82. Montowese Health & Rehabilitation Center	Survey
83. Mystic Healthcare & Rehabilitation Center	Survey
84. Nathaniel Witherell (SNF), The	Survey
85. National Alliance on Mental Illness	Interview
86. National Health Care Associates	Survey
87. Noble Horizons	Survey
88. Northeastern Medical Group	Interview
89. Office of the Healthcare Advocate	Interview
90. Office of the State Comptroller	Interview
91. Orange Health Care Center	Survey
92. Partnership for Strong Communities	Interview
93. Pfizer	Interview
94. Pierce Memorial Baptist Home, Inc., Creamery Brook	Survey
95. Pomperaug Woods	Survey
96. Private Citizen Privacy Advocates	Interview
97. ProHealth	Interview
98. Public Health Committee	Interview
99. Quest Diagnostics	Interview
100. Radiological Society of Connecticut	Interview
101. Recovery Network of Programs	Interview
102. Riverside Health & Rehabilitation Center	Survey
103. Robert D. Russo, MD & Associates Radiology	Focus Group
104. Saint Mary Home	Survey
105. Shady Knoll Health Center	Survey
106. Sharon Health Care Center	Survey
107. Sheriden Woods Health Care Center	Survey
108. SIM Consumer Advisory Board	Focus Group
109. SIM PMO	Interview
110. St. Francis Health Care Partners	Interview
111. St. Francis Hospital and Medical Center	Focus Group
112. St. Mary's Hospital	Focus Group
113. St. Vincent's Health Care Partners	Interview
114. Stamford Hospital	Focus Group
115. Starling Medical Group	Interview
116. Stoneridge	Survey

Stakeholder Organization	Engagement Type
117. SureScripts	Interview
118. Torrington health and Rehabilitation Center	Survey
119. Twin Maples Health Care Facility	Survey
120. UConn Health	Focus Group, Interview
121. United Connecticut Action for Neighborhoods (UCAN)	Interview
122. United Methodist Homes	Focus Group
123. UnitedHealthcare	Interview
124. Value Care Alliance	Interview
125. Vernon Manor HCC	Survey
126. Veteran's Health Association	Interview
127. Villa Maria	Survey
128. Visiting Nurses Association Community Health	Interview
129. Walgreens	Interview
130. Waterbury Hospital	Focus Group
131. West Hartford Health & Rehabilitation Center	Survey
132. Western Connecticut Health Network	Interview
133. Western Connecticut Medical Group	Focus Group
134. Wheeler Clinic	Interview
135. Wilton Meadows Rehabilitation and Health Care Center	Survey
136. Yale New Haven	Focus Group, Interview

ASSESSING CONNECTICUT'S HEALTH INFORMATION TECHNOLOGY & HEALTH INFORMATION EXCHANGE SERVICES

Supporting Presentation on Current State, Future Needs, and Recommendations for Action

May 22, 2017

Report prepared for:

The Connecticut Health Information Technology Advisory Council

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The State of Connecticut is deeply grateful to all of those who participated in this environmental scan and stakeholder engagement process. You have generously shared information and perspectives through interviews, focus groups, and surveys. Just as meaningfully, you have displayed deep commitment to your work and dedication to the health and well-being of the citizens of Connecticut.

Overview of CedarBridge Engagement

CedarBridge Group LLC was retained to support the Health Information Technology Officer (HITO) in several health information technology (health IT) and health information exchange (HIE) initiatives, which included directing an environmental scan to assess the current state of health IT in Connecticut and to engage organizations from across the healthcare continuum to provide input on the desired future state of health IT and exchange. The outcomes of this work are designed to support the HITO in the following ways:

- Identify the health IT and HIE opportunities of greatest interest and value among stakeholders.
- Define the optimal approach to enhance and streamline the reporting of electronic clinical quality measures (eCQMs).
- Plan for an organizational entity to appropriately govern and provide oversight for the delivery of HIE services deemed to be highest priority to stakeholders and citizens of Connecticut.

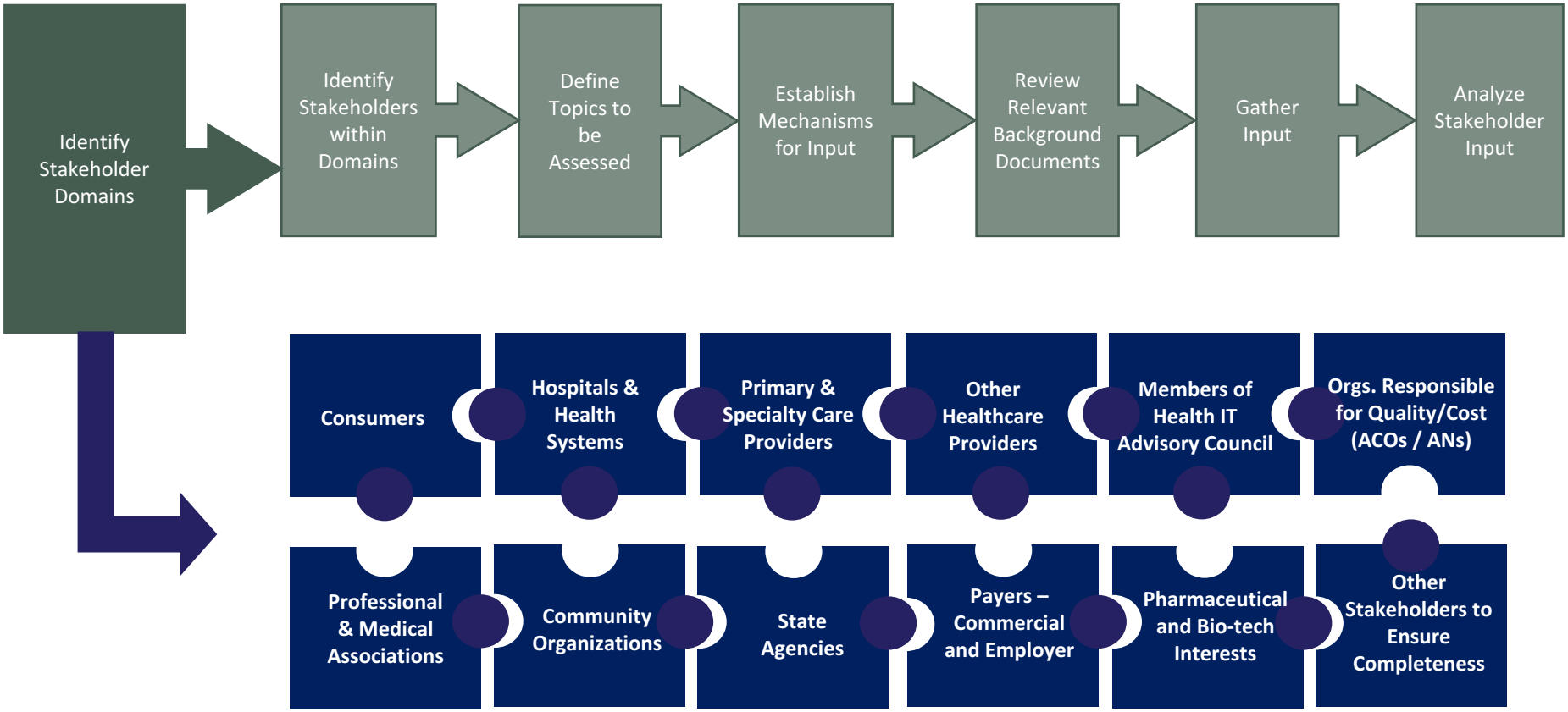
Approach and Methodology

Approach and Methodology:

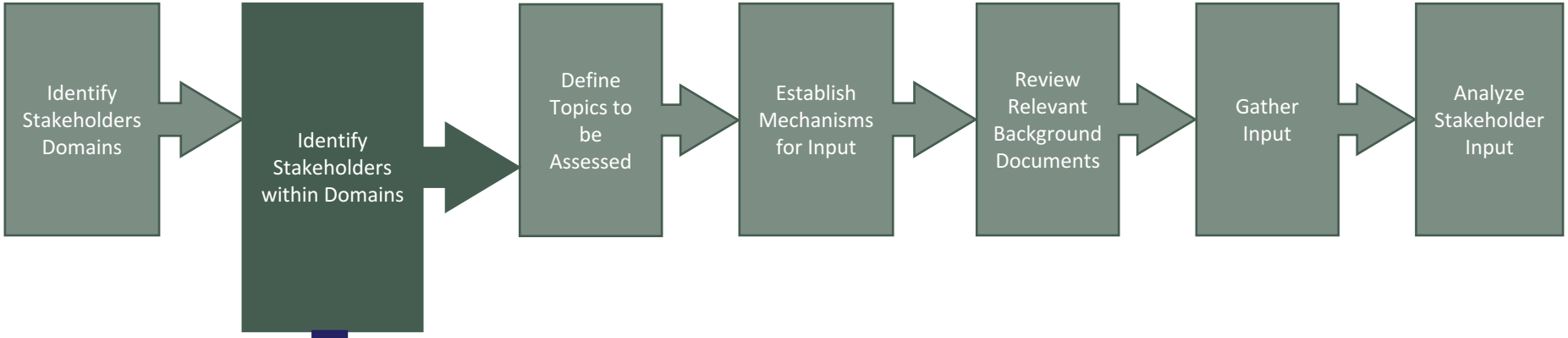
Identify Stakeholder Domains

A comprehensive assessment of stakeholder interests and priorities was essential to the development of the environmental scan. The stakeholder engagement process consisted of seven distinct steps as outlined in the figure below:

Stakeholder Engagement Process:



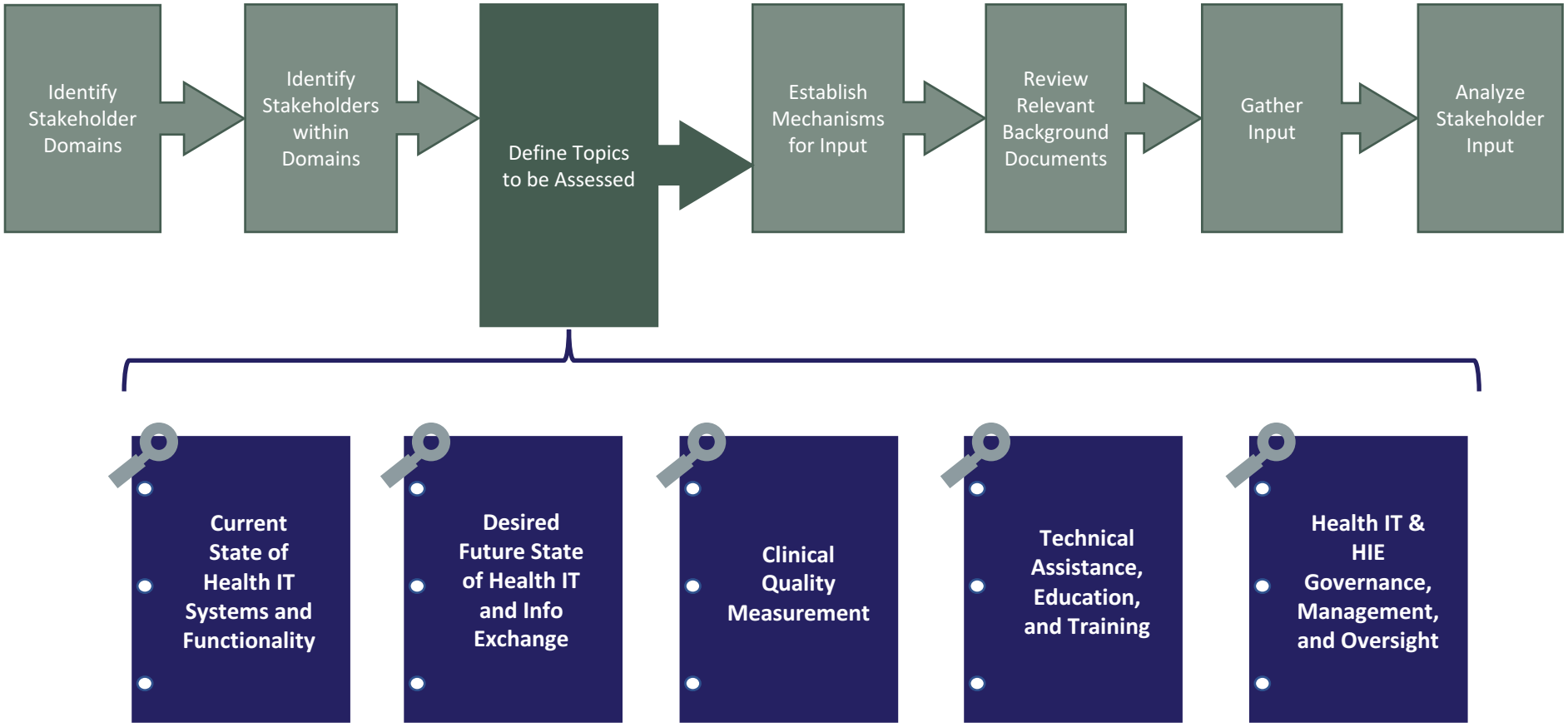
Approach and Methodology:
Identify Stakeholder Domains



In close collaboration with the HITO, the Connecticut State Innovation Model Program Management Office (SIM PMO), members of the Connecticut Health IT Advisory Council, and other key stakeholders, individuals within the stakeholder domains were identified as **key informants** for the data-gathering process. Through this process, a total of 136 individuals and organizations were identified as critical stakeholders and engaged through one or more of the input mechanisms.

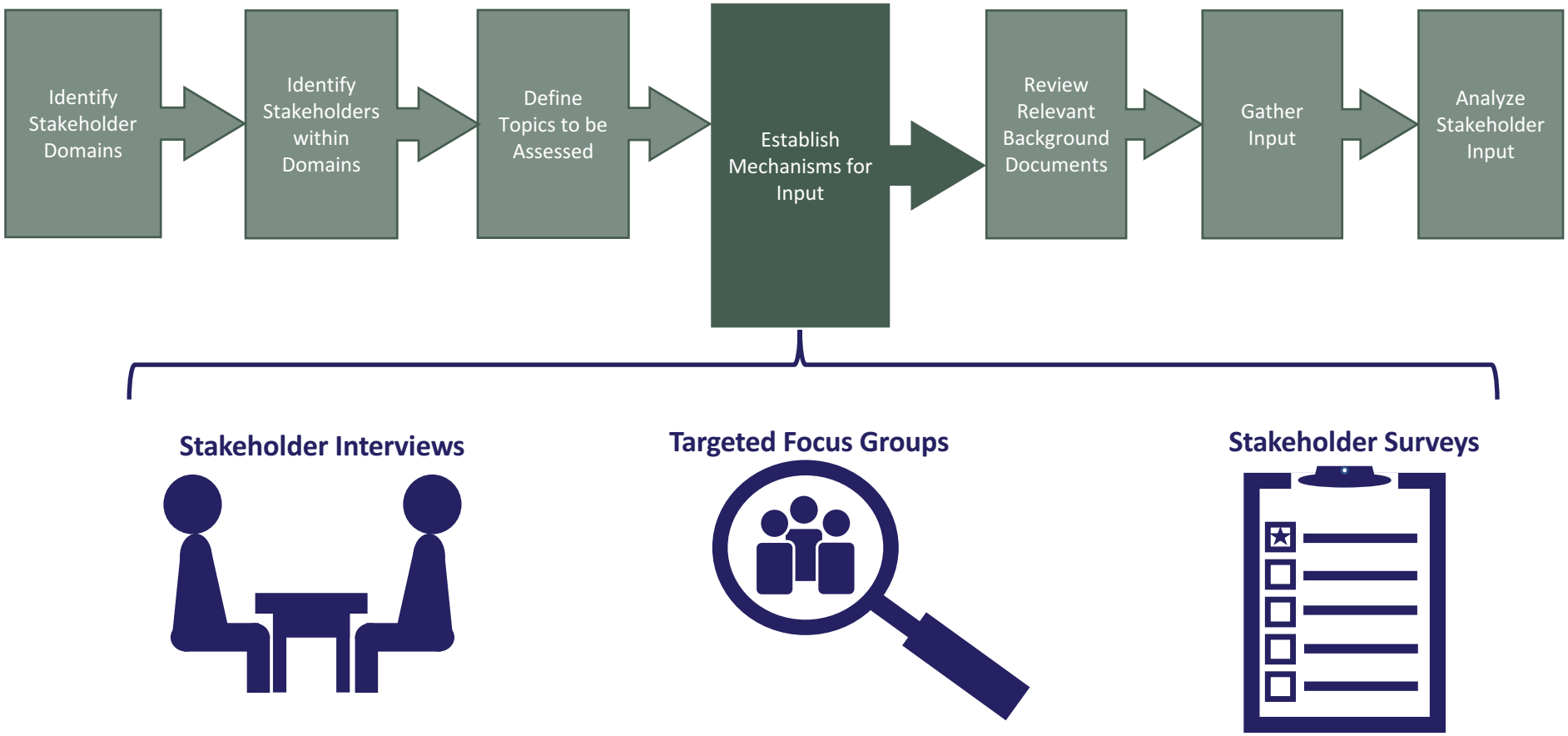
Approach and Methodology:

Define Topics to be Addressed



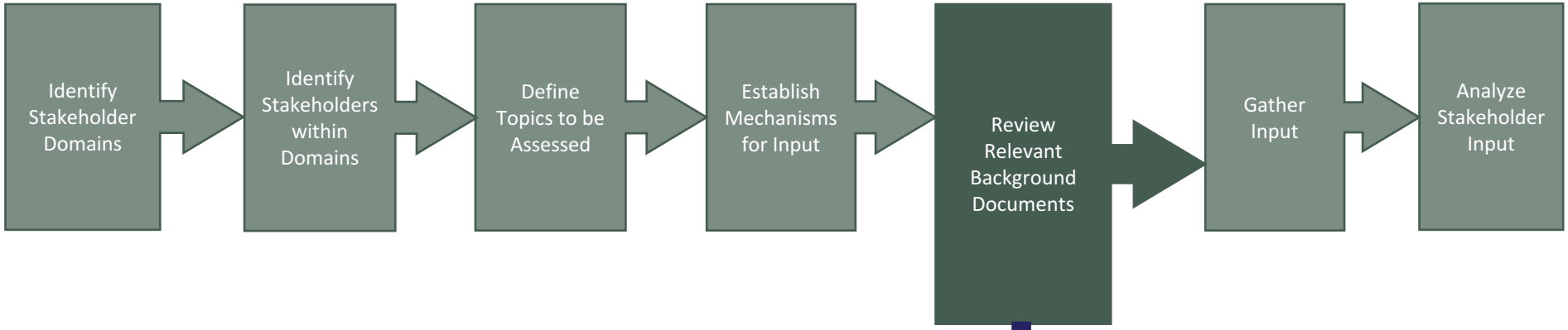
Approach and Methodology:

Establish Mechanisms for Input



Approach and Methodology:

Review Relevant Background Documents

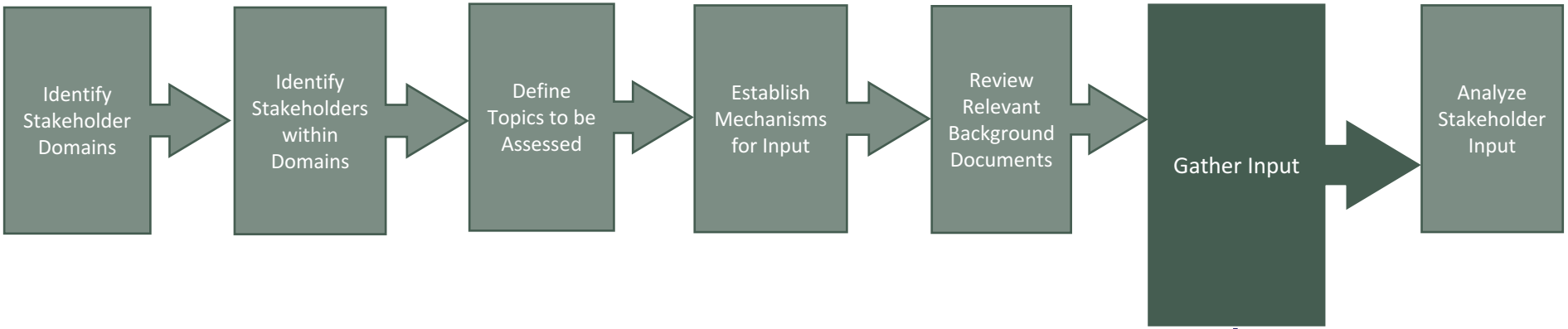


Documentation Review (select items):

- SIM Operations Plan and other SIM documentation
- State Medicaid Health IT Plan (SMHP)
- Connecticut's IAPD for Health IT and HIE
- Reports and documentation from the Department of Public Health, including *Healthy Connecticut 2020*
- Annual reports of community organizations
- Documentation from Health IT Exchange of Connecticut (HITE-CT)
- Documentation regarding national interoperability initiatives
- ONC's *Nationwide Interoperability Roadmap and Health IT-Enabled Quality Measurement Strategic Implementation Guide*
- RFPs from Rhode Island and Oregon for eCQM systems
- Documentation related to statewide HIE organizations, HIE vendors, and HIE governance/operational models

Inform and supplement engagement process

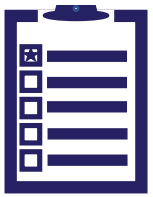
Approach and Methodology:
Gather Input



136 Total Organizations / Entities

Stakeholder Interviews:
- 68 total interviews
- 237 individuals

Targeted Focus Groups:
- Consumer Focus Group
- Connecticut Hospital Association
- Connecticut State Medical Society
- Long-Term & Post-Acute Care (LTPAC)



Stakeholder Survey:
- LTPAC Organizations (for profit and non-profit)
- 52 total respondents

Background and Context

Legislative Overview

- As envisioned by Connecticut Public Acts 15-146 and 16-77, interoperable health information exchange technology is described as follows:

  "There shall be established a statewide Health Information Exchange to empower consumers to make effective healthcare decisions, promote patient-centered care, improve the quality, safety, and value of healthcare, reduce waste and duplication of services, support clinical decision-making, keep confidential health information secure, and make progress toward the state's public health goals." [Sec. 6 § 17-b-59d (a)]

- The Health Information Technology Officer (HITO) is administratively responsible for the planning, design, implementation, and oversight of health information exchange services that will meet the goals detailed in PA 16-77, and will coordinate the state's health IT and health information exchange efforts to ensure consistent and collaborative cross-agency planning and implementation. The HITO can seek private and federal funds for staffing to support health IT and HIE initiatives in the state.

- The HITO will make recommendations for policy, regulatory, and legislative changes, and other initiatives to promote the state's health IT and exchange goals, and will report annually on such initiatives to the joint standing committees of the General Assembly.

- The Health IT Advisory Council, established pursuant PA 15-146 and amended by PA 16-77, shall advise the HITO in developing priorities and policy recommendations for advancing the state's health IT and health information exchange goals, and to advise the HITO in the development and implementation of the statewide health IT plan and the statewide HIE.

- The Advisory Council shall also advise the HITO regarding the development of appropriate governance, oversight, and accountability measures to ensure success in achieving the state's health IT and exchange goals.

Legislative Matrix

	Public Act No. 15-146 *(June 30, 2015)*	Public Act No. 16-77 *(June 2, 2016)*
SUMMARY	Established the Health IT Advisory Council to advise the Commissioner of Social Services in developing priorities and policy recommendations for advancing the state's health IT and health information exchange efforts and goals, and in the development and implementation of the statewide HIE. The Advisory Council shall also advise the Commissioner regarding the development and appropriate governance, oversight, and accountability measures to ensure success in achieving the state's health IT and exchange goals.	Establishes the role of HITO who will be responsible for coordinating all state health IT initiatives. The Health IT Advisory Council will advise the HITO in developing priorities and policy recommendations for advancing the state's health IT and health information exchange efforts and goals, and in the development and implementation of the statewide health IT plan, standards, and the statewide HIE. The Advisory Council shall also advise the HITO regarding the development of appropriate governance, oversight, and accountability measures to ensure success in achieving the state's health IT and exchange goals.

GOALS	• Establish a statewide HIE to empower consumer healthcare decisions, promote patient-centered care, improve the quality, safety, and value of healthcare, reduce waste and duplication of services, support clinical decision making, keep confidential information secure, and make progress toward the state's public health goals.
	• The statewide HIE should meet a wide range of established requirements and provide functionality that allows real-time, secure access to complete patient health information, supports care coordination, reduces costs, promotes interoperability, meets privacy and security requirements, supports public health reporting and population health analytics, is based on nationally-accepted standards, and more.
		• Establish a statewide HIE pursuant to the goals and requirements outlines in PA 15-146.
		• The statewide health IT plan, which will be implemented and periodically revised, will enhance interoperability to support optimal health outcomes and will include, but not be limited to:
		  • General standards and protocols for health information exchange
		  • National data standards to support secure data exchange and facilitate the development of a statewide, integrated electronic health information system for use by healthcare providers and institutions licensed by the state

REQUIREMENTS	• Develop, implement, and periodically revise the statewide health IT Plan and standards. • National data standards to support secure data exchange and facilitate the development of a statewide, integrated electronic health information system. • Develop and implement a statewide HIE and submit a plan to the Secretary of OPM. • Develop and issue a RFP for the development, management, and operation of the statewide HIE. • Promote the reuse of enterprise health IT assets. • Establish appropriate governance and oversight that includes relevant stakeholders that are committed to the successful development and implementation of the statewide HIE. • Ensure any identified HIE organization meets established criteria and requirements. • Within defined timeline, ensure EHR adoption amongst hospitals and clinical laboratories and other providers who already have an EHR apply for participation in the statewide HIE. • Provide annual report to the joint standing committees of the General Assembly on the development and implementation of the statewide health IT plan, data standards, statewide HIE, and recommendations for policy, regulatory, and legislative changes.	• Implement and periodically revise the statewide health IT plan and establish data standards. • Electronic data standards shall include security, privacy, data content, structures and format, vocabulary, and transmission protocols, among other requirements. • Develop and implement the statewide HIE and **coordinate the state's health IT and health information exchange efforts to ensure consistent and collaborative cross-agency planning and implementation.** • Develop and issue a RFP for the development, management, and operation of the HIE. • Promote the reuse of enterprise health IT assets. **Any health information exchange technology assets purchased after the effective date of this Act shall be capable of interoperability with a statewide HIE.** • Ensure any identified HIE organization meets established criteria and requirements. • Provide annual report to the joint standing committees of the General Assembly on the development and implementation of the statewide health IT plan, data standards, statewide HIE, and recommendations for policy, regulatory, and legislative changes.

Health IT Advisory Council

Public Act 16-77, *"An Act Concerning Patient Notices, Designation of a Health Information Technology Officer (HITO), Assets Purchased for the State-wide Health Information Exchange, and Membership of the State Health Information Technology Advisory Council,"* was passed on May 2, 2016. Sections 4 through 7 of the Act modify coordination of health IT related policy and activities for health reform initiatives in the state and allow the state to build upon existing assets acquired and developed by the Department of Social Services (DSS), Connecticut's Medicaid Agency.

Member Roster (as of April 17, 2017):

1. **Allan Hackney**, Co-Chair and HITO (Appointed by Statute)
2. **Roderick Bremby**, Commissioner of DSS (Appointed by Statute)
3. **Michael Michaud**, Designee of DMHAS (Appointed by Statute)
4. **Cindy Butterfield**, Designee of DCF (Appointed by Statute)
5. **Cheryl Cepelak**, Designee of DOC (Appointed by Statute)
6. **Vanessa Kapral**, Designee of DPH (Appointed by Statute)
7. **Dennis Mitchell**, Designee of DDS (Appointed by Statute)
8. **Mark Raymond**, State CIO (Appointed by Statute)
9. **Robert Blundo**, Designee of Access Health CT (Appointed by Statute)
10. **Mark Schaefer**, SIM PMO (Appointed by Statute)
11. **Robert Darby**, Designee of UCHC (Appointed by Statute)
12. **Ted Doolittle**, Healthcare Advocate (Appointed by Statute)
13. **Kathleen DeMatteo**, Representative of health system with more than one hospital (Appointed by Governor)
14. **David Fusco**, Representative of the health insurance industry (Appointed by Governor)
15. **Nicolangelo Scibelli**, Expert in health IT (Appointed by Governor)
16. **Patricia Checko**, Healthcare consumer advocate (Appointed by Governor)
17. **Robert Tessier**, Employee or trustee of a plan established pursuant to subdivision (5) of subsection (c) of 29 USC 186 (Appointed by Governor)
18. **Robert Rioux**, Representative of a FQHC (Appointed by President Pro Tempore of the Senate)
19. **Jeanette DeJesus**, Provider of behavioral health services (Appointed by President Pro Tempore of the Senate)
20. **Matthew Katz**, Representative of the CSMS (Appointed by President Pro Tempore of the Senate)
21. **Lisa Stump**, Technology expert who represents a hospital system (Appointed by the Speaker of the House)
22. **Jake Star**, Provider of home healthcare services (Appointed by the Speaker of the House)
23. **VACANT**, Healthcare consumer or healthcare consumer advocate (Appointed by the Speaker of the House)
24. **Patrick Charmel**, Representative of an independent community hospital (Appointed by the Majority Leader of the Senate)
25. **Ken Yanagisawa, MD**, Physician who provides services in a multispecialty group and who is not employed by a hospital (Appointed by the Majority Leader of the House)
26. **Joseph Quaranta, MD**, Co-Chair and primary care physician who provides services in a small, independent practice (Appointed by the Majority Leader of the Senate)
27. **Alan Kaye, MD**, Expert in healthcare analytics and quality analysis (Appointed by the Majority Leader of the House)
28. **Dina Berlyn**, Designee of the President Pro Tempore of the Senate
29. **VACANT**, Speaker of the House of Representatives or Designee
30. **Jennifer Macierowski**, Designee of the Minority Leader of the Senate
31. **Prasad Srinivasan, MD**, Designee of the Minority Leader of the House

State Innovation Model Test Grant:

Overview and Aims

Background: The State Innovation Model (SIM) program is a Center for Medicare & Medicaid Innovation (CMMI) initiative to support the development and implementation of state-led, multi-payer healthcare payment and service delivery model reforms that will promote healthier people, better care, and smarter spending in participating states. In 2014, Connecticut received a $45 million SIM grant from CMMI to implement its plan for achieving its four- year vision (2015-2019).

Vision: Establish a whole-person-centered healthcare system that improves community health and eliminates health inequities; ensures superior access, quality, and care experience; empowers individuals to actively participate in their health and healthcare; and improves affordability by reducing healthcare costs.

Problem Statement: Healthcare consumers in Connecticut often face an uncoordinated and fragmented system that is characterized by a high rate of emergency department utilization, a high rate of hospital readmissions, and significant racial ethnic and economic health disparities. Growth in healthcare spending has outpaced the growth of the Connecticut economy, reaching $29 billion in 2012, the third highest per capita spending among all states.

Aims:

Improve Population Health
Reduce the statewide rates of diabetes, obesity, and tobacco use

Improve Healthcare Outcomes
Improve performance on key quality measures, including preventative care and care experience

Promote Health Equity
Close the health disparity gap between the highest and lowest achieving populations for key quality measures

Reduce Healthcare Costs
Achieve a 1-2% reduction in the annual rate of healthcare growth

State Innovation Model Test Grant:

Health System Transformation Critical Path

Connecticut's SIM proposes a multi-pronged strategy to transform the healthcare system. It promotes a transition away from paying for volume of services towards payments based on whether people receive care that leads to better healthcare and lower costs. SIM is also promoting insurance plans that remove financial barriers to, or introduce rewards for preventive care, medication adherence, chronic disease management, and high-quality provider selection. Finally, SIM's Population Health Plan aims to combine innovations to improve health through a community-based approach. Advancements in health IT and electronic health information exchange is recognized as a primary driver of these goals.

Initial State:
Fee for Service

- Volume-based
- Poorly coordinated
- No quality & cost transparency
- Unsustainable healthcare costs
- Limited data infrastructure
- Persistent health disparities
- Uninformed consumers

SIM Test Grant (2015-2019):
Accountable Care

- Accountable for patient population
- Rewards:
  - Better health outcomes
  - Preventive care processes
  - Lower cost of healthcare
- Removes barriers/rewards consumers to use prevention, manage conditions, and more
- Competition on healthcare outcomes, experience, and cost
- Coordination of care across medical "neighborhoods"
- Community integration to address social-demographic factors that impact outcomes

Future State (2019 +):
Health Enhancement Communities

- Accountable for entire community population
- Rewards:
  - Prevention outcomes
  - Lower cost of healthcare & improved health
- Cooperation to reduce risk and improve health
- Shared governance including ACOs, employers, non-profits, schools, health departments, and municipalities
- Community initiatives to address social demographic factors that impact health

Healthy Connecticut 2020:

State Health Assessment

Healthy Connecticut 2020 was produced by the Department of Public Health in March 2014 as the state's translation to the national Healthy People 2020 initiative. *Healthy Connecticut 2020* includes two separate documents: the *State Health Assessment*, and the *State Health Improvement Plan*. The goal of these documents is to provide a framework for health promotion and disease prevention in the current decade, with overarching themes for health equity and social determinants of health. These documents clearly demonstrate the need for a healthcare continuum that can efficiently and effectively share a wide range of information, including clinical, demographic, socioeconomic, and other social determinant data. *The State Health Assessment* is organized into the following seven focus areas:

Maternal, Infant, and Child Health

- Preterm birth, low birthweight, and fetal/infant mortality remain highest among infants born to black non-Hispanic women relative to white non-Hispanics

Chronic Diseases and Risk Factors

- Asthma, diabetes, high blood pressure, high cholesterol, obesity, and smoking are more prevalent among persons with lower income/educational attainment
- Black non-Hispanic individuals have a greater mortality rate relative to other racial/ethnic groups for cancer, heart disease, and stroke

Infectious Diseases

- Treatment, survival, and quality of life for those diagnosed with HIV improved over past decade (consistent with nation)
- Despite high vaccination rates, 1 in 5 children aged 19-35 months have not completed the full series of vaccines recommended by the CDC

Mental Health, Alcohol, and Substance Abuse

- Increase in emergency department visits for alcohol use or dependence
- Increase in deaths due to an overdose of prescription pain killers (most common in suburbs and rural regions)

Injury and Violence Prevention

- Falls, unintentional poisonings, and motor vehicle fatalities are the leading cause of unintentional injury deaths
- Suicide is the leading cause of intentional injury death

Environmental Risk Factors and Health

- Decline in childhood lead poisoning over past decade
- Opportunities are recognized to exist to improve environmental conditions in homes and communities

Health Systems

- Racial, ethnic, and geographic disparities exist in health insurance coverage, healthcare access, and utilization, particularly for Hispanics
- Preventable emergency department visits and healthcare professional shortages are common in large towns

Healthy Connecticut 2020:

State Health Improvement Plan

The Healthy Connecticut State Health Improvement Plan, published in March 2014, was informed by the research and data collection conducted during *The State Health Assessment*. *The State Health Improvement Plan* serves as the roadmap for promoting and advancing population health and improving health outcomes through prevention and risk reduction. The central tenant of this improvement plan is achieving health equity and the concept that good health is a right for every resident, regardless of age, sex, race, ethnicity, gender identity, sexual orientation, disability status, socioeconomic status, or geographic location. The improvement plan contains specific objectives that are organized into seven primary focus areas.

Maternal, Infant, and Child Health	Chronic Disease Prevention and Control	Infectious Disease Prevention and Control	Mental Health, Alcohol, and Substance Abuse	Injury and Violence Prevention	Environmental Risk Factors and Health	Health Systems
➢ Reproductive and sexual health ➢ Preconception and pregnancy care ➢ Birth outcomes ➢ Infant and child nutrition ➢ Child health and well-being (oral health and developmental screenings)	➢ Heart disease, stroke, and high blood pressure ➢ Cancer ➢ Diabetes and chronic kidney disease ➢ Asthma and chronic respiratory disease ➢ Arthritis and osteoporosis ➢ Oral health ➢ Obesity ➢ Tobacco ➢ Nutrition and physical activity	➢ Vaccine-preventable diseases (children, HPV, flu, etc.) ➢ Sexually transmitted diseases ➢ Tuberculosis ➢ Vector-borne diseases ➢ Foodborne/ waterborne illness/infections ➢ Healthcare associated infections ➢ Emerging infectious diseases	➢ Mental health emergency room visits ➢ Excessive drinking by youths and adults ➢ Illicit drug use ➢ Screening for autism ➢ Screening for trauma	➢ Unintentional injuries (falls, poisonings, motor vehicle crashes and seatbelt use, etc.) ➢ Intentional injuries (homicide, firearms, suicide, sexual violence, child maltreatment)	➢ Childhood lead poisoning ➢ Drinking water quality ➢ Air quality ➢ Healthy homes ➢ Healthy communities	➢ Access to health services ➢ Quality of care and patient safety ➢ Health literacy, cultural competency, and language services ➢ Electronic health records (EHRs) ➢ Public health infrastructure ➢ Primary care and public health workforce ➢ Financing systems ➢ Emergency preparedness

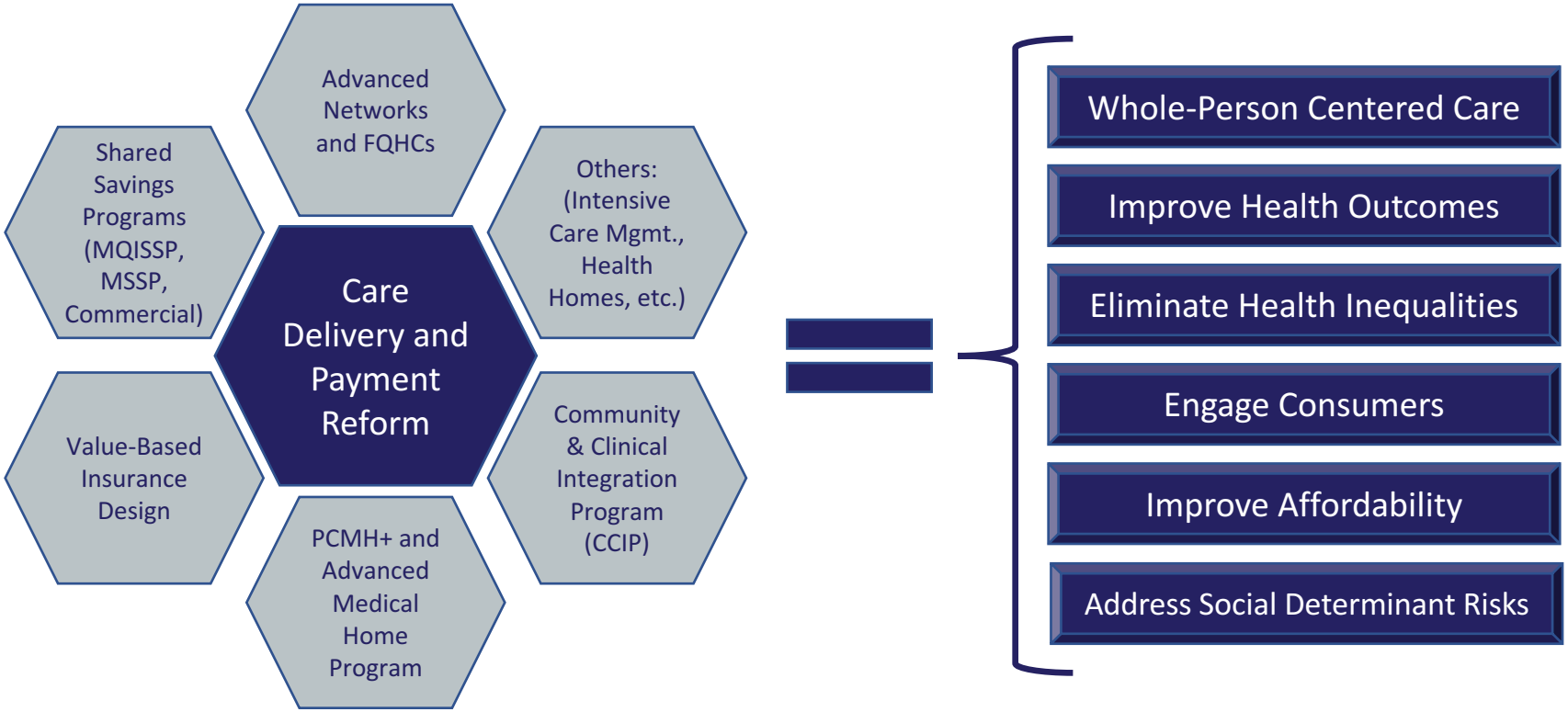
Across numerous objectives - "Surveillance: Maintain and enhance Connecticut immunization registry; included across lifespan; implement comprehensive reminder/recall system."

"Objective HS-9: Increase to 100% the percentage of providers who have access to EHRs that meet national data/regulatory standards for interoperability, data integrity, and patient privacy."

"Objective HS-10: Increase the number of Connecticut residents who want and have access to their own personal health record."

Overview of Care Delivery and Payment Reform in Connecticut

A variety of care delivery and payment reform initiatives are actively underway within Connecticut, or are being planned for implementation in the near future. The SIM initiative in Connecticut was established, in part, as a means to ensure that these reform efforts are informed by the diverse and knowledgeable stakeholder community, and to promote alignment, flexibility, and innovation. Effective, robust health IT and information exchange services are a primary driver in the success of these reform efforts. Below is a high-level overview of some reform efforts underway within the state.



Overview of Care Delivery and Payment Reform Initiatives

Shared Savings Programs

The **Medicare Shared Savings Program (MSSP)** was established by the Affordable Care Act, and is a key component of the Medicare delivery system reform initiatives. MSSP was created to facilitate coordination among providers to improve the quality of care. Eligible providers and hospitals may participate in MSSP by creating or participating in an **Accountable Care Organization (ACO).** Similar initiatives have been launched by commercial payers and Medicaid agencies in some states, including Connecticut.

- **Medicaid Quality Improvement and Shared Savings Program (MQISSP)** was developed by DSS in Connecticut.

Advanced Networks & FQHCs

- **Advanced Networks** are independent practice associations, large medical groups, clinically integrated networks, and integrated delivery system organizations that have entered into value-based payment arrangements.
  - 18 Advanced Networks
  - 10 ACOs participate in MSSP
- **Federally Qualified Health Centers (FQHCs)** are federally designated entities that provide comprehensive healthcare services, often including integrated behavioral health services, to an underserved area or population, regardless of a patient's ability to pay for care.

Value-Based Insurance Design

Value-based insurance design (VBID) is an innovative insurance strategy that seeks to improve health and control rising care costs by promoting the use of high value services and providers through consumer incentives.

- SIM recognizes VBID as an important component of their overall strategy to improve the quality of healthcare and reduce costs.
- Connecticut's Office of the State Comptroller has successfully implemented a VBID for all state employee and retiree's medical benefits that has seen an increase in the use of preventive care and decrease in emergency room utilization.

PCMH+ and Advanced Medical Home Program

- The **Person-Centered Medical Home – Plus** (**PCMH+)** was launched in January 2017 by DSS. Building upon the Integrated Care Model (ICM) initiative, PCMH+ is focused on improving the ability of FQHCs and Advanced Networks to provide integrated care to Medicaid beneficiaries; developing the capacity of providers to identify social and resources issues; and linking members to effective community supports. Through PCMH+ participating FQHCs and Advanced Networks will provide **enhanced care coordination activities to PCMH+ members.**
- The **Advanced Medical Home (AMH)** program was designed by Connecticut SIM and the Practice Transformation Task Force (PTTF) as a way to help practices create the infrastructure that is required to become a NCQA Patient Centered Medical Home (PCMH), and to adapt transitional medical home standards to place emphasis on capabilities that are important to achieving Connecticut's care transformation goals. AMH support includes webinars, on-site technical assistance, conference calls, and peer learning events.

Clinical & Community Integration Program (CCIP)

- The Clinical & Community Integration Program (CCIP) was designed by Connecticut SIM and the PTTF with the goal of effectively integrating non-clinical community services and traditional clinical care into a set of comprehensive, routine primary care services. The CCIP program is intended to complement MQISSP to strengthen the capabilities of an increasingly accountable provider community.
  - CCIP standards are intended to support the advancement of Advanced Networks and FQHCs that are participating in the MQISSP (whereas AMH supported individual practices).
  - CCIP targets 3 specific groups of Connecticut residents: patients with complex healthcare needs; patients experiencing equity gaps; and patients with unidentified behavioral health needs.
  - CCIP is built on 3 Core Standards, and supported by several elective standards. The Core Standards include: Comprehensive Care Management, Health Equity Improvement, and Behavioral Health Integration.

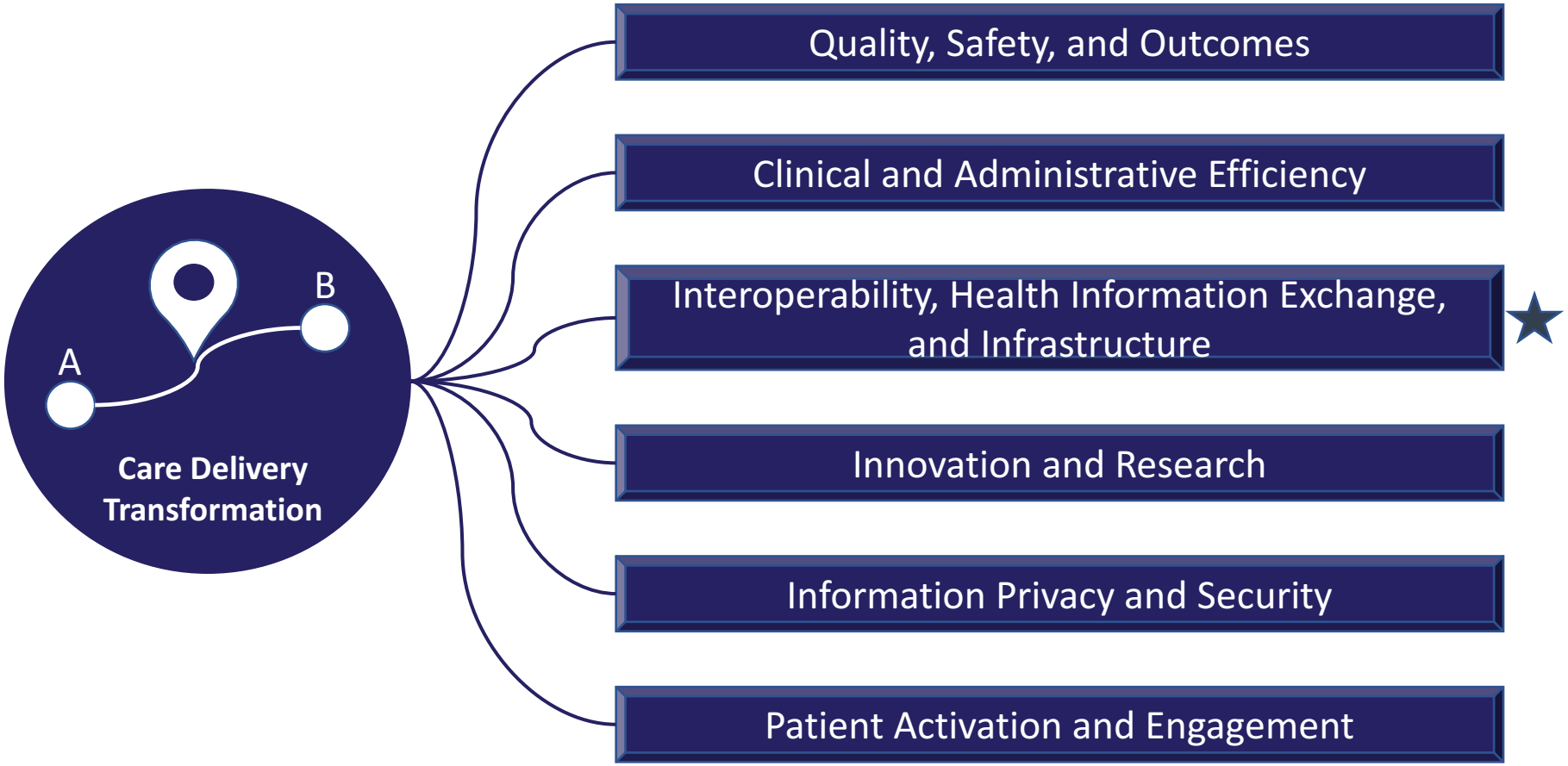
Health IT as a Driver for Care Delivery and Payment Reform

Health IT including health information exchange is a primary driver of care delivery and payment reform. As discussed throughout this document, there are a variety of ways that effective reform can be enabled by health IT and information exchange. For example, the table below was developed to demonstrate the relationship between various CCIP standards and health IT services.

General Capability	CCIP Standard – Relevant Details
Data Acquisition	➢ **Claims –** Capture/aggregate utilization data from each payer. ➢ **Clinical and Social Determinant Data –** Capture/aggregate clinical, behavioral, and social determinant data, including additional race/ethnicity categories, preferred language, geography, and gender identity. ➢ **Additional:** Capture data from external data sources (e.g. Homelessness Management Information System, state agency data, etc.)
Data Analytics	➢ **Analyze Performance Regularly –** Including care gaps, clinical outcomes, individual care experiences, and utilization measures that are stratified by race/ethnicity, language, other demographic markers such as geography. ➢ **Identify At-Risk Individuals –** Apply risk-based stratification methodology to identify individuals with complex health needs across payers and use criteria to identify individuals who may benefit from health equity interventions. ➢ **Conduct Root Cause Analyses** – To understand and address areas of under-performance using clinical data.
Care Coordination *(including Referral and Linkage, Information Exchange, and Care Transitions)*	➢ **Coordinate Care for Identified Individuals –** For care management intervention and health equity intervention. ▪ Connect identified individuals with care teams and deploy individual assessments and care plans ▪ Allow shared care planning and monitoring by all members of the care team (including CHWs) ▪ Modify process for exchanging health information across care settings to accommodate comprehensive care teams and CHWs. ▪ Monitor and periodically re-assess transitioned individuals ➢ **Access Community Resources –** Establish a process and protocols for accessing an up-to-date resource directory (such as United Way 2-1-1), connecting individuals to needed community resources, and tracking barriers to care. ➢ **ADT Alerts –** Establish a technology solution and/or protocols with local hospital and facility partners to alert PCP and care teams when a patient is admitted or discharged from an ED, hospital, or other acute care facility. ➢ **Behavioral Health:** ▪ Capture behavioral health screening tool results in the EHR ▪ Make assessments and care plans accessible to the care team members ▪ Alert the primary care practice when a behavioral health referral is completed

Health IT as a Driver for Care Delivery and Payment Reform

The Healthcare Information and Management Systems Society (HIMSS) includes care delivery transformation as a guiding principle of its 2017-2018 public policy agenda, and lists the following areas as key components for achieving transformation.



Overview of Federal Funding Options for Health Information Technology

Funding for planning, implementation, and maintenance of health IT can come from multiple sources, including federal and state sources, as well as private sector investment and payment. Below is a brief overview of some current federal funding options for health IT that can be leveraged by Connecticut.

American Reinvestment and Recovery Act (ARRA) HITECH Administrative Funds through Medicaid EHR Incentive Program	
Overview	As part of HITECH, the Medicaid EHR Incentive Program provides incentive payments to eligible Medicaid providers to adopt, implement, upgrade, and meaningfully use certified EHR technology. States will receive 90% Federal Financial Participation (FFP) through 2021 for program administrative expenses and to support participation in value-based payment models through health IT infrastructure and technical assistance
Funding Opportunity	State Medicaid Director Letters in 2011 and 2016 directed states that they can use the 90% FFP to join or spearhead efforts to build the needed health IT infrastructure in support of Eligible Providers (EPs) meeting Meaningful Use. Funding can be applied to the following examples: designing, developing, and implementing (DDI) health IT infrastructure; implementing Public Health systems and various registries; onboarding or connecting an EP to an HIE; connecting ineligible Medicaid providers to EPs; HIE onboarding of lab, pharmacy or Public Health agency providers to support EPs to demonstrate Meaningful Use; staffing costs related to planning, and stakeholder engagement, onboarding, education, or training.
Limitations	The 90% FFP cannot be used for ongoing operations and maintenance once technology is operational (however, there are other federal funding options to help with the transition to operations).

Medicaid Enterprise 90/10 Funding	
Overview	When the health IT functions directly relate to Medicaid Information Technology Architecture (MITA) business services, and/or there are interfaces to the Medicaid Management Information System (MMIS), states may seek MMIS matching funds for the interfaces or connections between the MMIS and HIE services, such as master patient indexes, provider directories, identity proofing and management within their Medicaid/CHIP enterprise, or for “Blue Button” services for patients to download/access their data.
Funding Opportunity	States can obtain enhanced Federal matching from Medicaid Enterprise funding for health IT infrastructure. CMS provides State Medicaid agencies federal matching of the following percentages: ▪ 90% for the assessment, design, development, and implementation, which may include health IT infrastructure; ▪ 75% for maintenance and operations; and ▪ 50% for general administration.
Funding Methodology	For operation costs, the State could calculate the Medicaid-eligible percentage of its total covered population, or the percentage of total healthcare expenditures within the state that are Medicaid expenditures. The percentage could be Medicaid’s allocated funding share. States are currently suggesting and testing different methodologies to determine an appropriate Medicaid share.

Overview of The Health Information Technology Exchange of Connecticut (HITE-CT)

Background:

- Public Act 10-117, effective June 2010, established HITE-CT as a quasi-public agency.
- The CT Department of Public Health (DPH) was awarded $7.29 million in federal funding through ONC's Cooperative Agreement Program to develop, implement, and sustain capacity for a statewide HIE.
- More than $4.3 million of funding was transferred from DPH to HITE-CT to implement a statewide HIE.
- RFP issued in April 2011 to solicit proposals from vendors and in September 2011, HITE-CT entered into a 36-month agreement with Axway, Inc. for the provision, licensing, maintenance, and support of an HIE solution.
- Beginning in May 2012, HITE-CT began renegotiating the contract with Axway to provide additional functionality and greater specificity around milestones, phased implementations, and payment terms. In January 2013, Axway filed a law suit against HITE-CT for breach of contract, which was settled in December 2013 by HITE-CT for $970,000, resulting in an amended agreement to reduce the scope of services to provide only a provider directory and enterprise master patient index (EMPI), as opposed to a full statewide HIE.
- In May 2014, the CT General Assembly passed Public Act 14-217 that repealed the statutes establishing HITE-CT and reassigned some of the responsibilities to the Commissioner of the Department of Social Services.

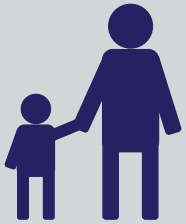
Challenges and Lessons Learned:

- *Governance was Ineffective:* Membership on the Board of Directors declined rapidly and inconsistent participation rendered the Board and its associated subcommittees and work groups ineffective, unestablished, or defunct.
- *Stakeholders were not Engaged:* In an Auditor's Report from 2014, it was noted that the HITE-CT's Annual Report was not being distributed to recipients who were mandated under statute. Communication and engagement issues were reported by numerous stakeholders as a major issue of the HITE-CT project.
- *Insufficient Procurement and Vendor Management:* A technology services vendor was procured, and services were defined, without business, operational, or sustainability models, a defined value proposition, and with insufficient stakeholder buy-in or commitments from stakeholders / customers. As a result, HITE-CT was unable to adapt to emerging market forces and was mired in a 12-month vendor dispute that halted all progress and momentum, impacted confidence, and consumed valuable resources.

Key Findings: Summary & Analysis

Overview of Key Findings

The key findings that emerged from the environmental scan focused on several common themes that spanned stakeholder domains. These themes, outlined below, emerged consistently throughout the environmental scan process and frame the recommended considerations for future planning and calls to action.



Patients + Consumers:

The experience and views of patients and consumers regarding the healthcare continuum, exchange of health information, access to health records, and privacy, security, and confidentiality of information.

Environment

The market environment being experienced by healthcare and community organizations, as well as the ongoing health challenges experienced by people in Connecticut and how the market is responding to address those challenges.

Tools

The current and future usage/needs for health IT tools by stakeholders, including state systems, EHRs, data exchange tools, medication-related tools, analytic tools, identity management tools, etc.

Governance

Stakeholder views on governance of health IT investments in Connecticut, as well as considerations and decisions that will impact and inform the development and implementation of governance around health IT and information exchange.

Patients and Consumers

Stakeholders consistently viewed the improvement of patient care and consumer engagement in better health as a core reason for enhanced data sharing and data access.
"Patients and consumers must be the North Star in all of this work. The state must define what benefits this work will bring to the healthcare consumers in Connecticut."

- Stakeholders' focus on **patient and consumer engagement** is consistent with the existing patient-centric focus and priorities that have been defined through state legislation (PA 15-146 and PA 16-77) as well as reform initiatives (SIM, PCMH+, ACOs, etc.) that have placed an increased importance on **whole-person care** and consumer engagement as foundational elements in the transition to value-based care and the transformation of care delivery.
- **Privacy, security, and confidentiality** of health information was viewed by most stakeholders as a critical consideration for any State health IT or HIE initiatives. Privacy and confidentiality of health information, particularly sensitive information such as behavioral health, substance abuse, adolescent/pediatric, and reproductive health, were repeatedly cited as fundamental components of effective information sharing and care coordination.
- Stakeholders frequently emphasized the importance of **health equity and support for vulnerable populations**, often with respect to the integration and utilization of data pertaining to the social determinants of health (race, ethnicity, gender, socioeconomic status, geographic location, etc.) and the integration of information from social services and community-based organizations (such as nutrition, housing, and transportation services). This finding is consistent with defined objectives in the *Healthy Connecticut 2020 Health Improvement Plan* and the CCIP program.
- Many stakeholders were concerned about **patient and consumer access to clinical data**. Many health systems and providers offer patients access to some clinical data from EHRs through a tethered patient portal, however patients generally do not have access to longitudinal, cross-system/provider health information.
- Many stakeholders, typically those providing primary care services or those with advanced IT systems currently in use, recognized the **growing importance of patient/consumer-generated data.** Stakeholders specifically referenced data from devices such as home-based monitors (such as blood pressure and smart scales), implantable devices (such as pacemakers), and wearable devices (such as Fitbits and smart phones), and the need to closely monitor these opportunities.

"It would be really, really powerful to have social determinants data integrated into a statewide HIE."

"I have a [patient] portal for every organ."

"We need to prioritize a vision of empowered recovery in community settings. Patients must have access to medical records and should own their information."

Environment

Ongoing health challenges experienced by many citizens, and in some cases at a higher prevalence among vulnerable populations, were discussed in multiple interviews as being a critical issue to solve as part of the transition to a value-based healthcare delivery system.

- Several stakeholders called attention to the aging population base and wide gaps in income and socioeconomic status of various regions and across racial/ethnic groups in the state, a theme consistent with the **health improvement opportunities** identified by the *Healthy Connecticut 2020 State Health Assessment.* Several of the community organizations that were interviewed shared specific examples of their work to address the ongoing health challenges, including a variety of **targeted, culturally/linguistically appropriate, healthcare services** (such as telehealth for trauma victims from Cambodia, housing services for wounded warriors, and services to combat the opioid epidemic and substance abuse disorders).
- Connecticut is actively working to transition from a predominantly fee-for-service healthcare system to a **value-based healthcare system**, as seen by the various care delivery and payment reform initiatives underway. The state is leveraging its role as the leading employer in Connecticut by promoting consumer engagement and payer incentives aligned on cost and quality. According to some stakeholders, the transition to value-based care has highlighted the deficiencies in their EHR systems' current capabilities for **clinical decision support and the ability to understand the needs across their entire patient population.**
- **Commercial payers were recognized as a critical component** to the transition to value-based care in Connecticut, and as a group that has not been historically engaged in some past statewide health IT initiatives. The payers that were engaged in this process all have taken significant strides to support care delivery transformation and payment reform, including: providing analytics tools with providers to utilize claims data to identify high risk patients, incorporating incentives into provider contracts to reward efficiency and quality, utilizing available clinical data to support utilization management, pre-authorizations, and improved data access, and sharing claims data with providers who have the necessary technical and operational capabilities. Payers highlighted the **critical importance of data security and data provenance** as claims and clinical data are shared between providers and payers.

"[The healthcare system] needs to serve the people, not the profit margins."

"We are taking on more responsibility for the total cost of care but do not have the information necessary to appropriately manage these populations."

"Carriers [health plans] have not been at the table."

Environment

- Stakeholders frequently referenced the need to integrate **social determinants of health data and information from community-based organizations** to support the effective transition to value-based care. There is a high degree of interest in **new or expanded partnerships** between community-based organizations, state agencies, and healthcare organizations/providers. Stakeholders believe that any solution developed or implemented to support these community partnership hubs needs to focus on the overall coordination of care and the sharing of care plans, with technical assistance and education/communication support.

- There is widespread support for adding a fourth aim – **improved clinician experience –** to the Triple Aim, as defined by the Institute for Healthcare Improvement (patient experience, per capita cost, and population health).

- A common environmental theme that emerged from numerous stakeholders was the **lack of coordination between state agencies and existing state health IT technical assets / infrastructure with private sector stakeholders.** Across all stakeholders, particular concerns were expressed about the lack of engagement and communication with providers and community organizations.

Environment

The diagram below is a partial listing of the state's key health IT and health information exchange technology assets.

Department of Social Services (DSS)

- Medicaid Attestation Repository and Information System (MAPIR)
- Medicaid Management Information System (MMIS)
  Hewlett Packard system called interChange
- Data Warehouse
- ConneXion (eligibility and enrollment)
  Will be fully replaced in 2017
- Enterprise Master Patient Index
  NextGate system called MatchMatrix
- Provider Directory
  NextGate system (acquired by HITE-CT)
- ImpaCT (Eligibility System – replacing EMS)
  Will be implemented by mid-2017
- HISP / Direct secure messaging
  Secure Exchange Solutions
- HIX / Tier-1 (State-based Marketplace)
  Shared asset with Access Health CT
- eCQM Engine (not live) – *Zato Health*
- Project Notify (Alerts/Notification system)
- PHR (through TEFT Grant funding) - *TBD*
- ConneCT (public website)
- Care Analyzer (used by Medicaid ASO)

Dept. of Administrative Services – Bureau of Enterprise Systems Technology (BEST)

- Primary state data centers (and redundant hot spot)
- CT Gig Project (Broadband Network)
  In partnership with several other departments

Department of Children and Families (DCF)

- LINK System (legacy child welfare system)
  DCF is actively looking to replace this system
- CONDOIT (web-based system for juvenile justice records)
- Institutional Case Reporting System (ICRS)
- Institutional Case Reporting System (ICRS)
- Provider Information Exchange (PIE) – Residential Treatment
  DCF is looking to merge with new system that is replacing LINK

Department of Consumer Protection

- CT Prescription Monitoring and Reporting System (CPMRS)
  Appriss system

Dept. of Mental Health and Addiction Services (DMHAS)

- WITS web-based EMR platform
  FEi system
  DMHAS is actively looking to replace this system
- DDaP (data performance system)

Office of the State Comptroller

- Data warehouse (reporting and analytics)
  Care Management Solutions
- Data analytics platform
  Segal Analytics / Highline Health

Department of Correction

- GE Centricity EHR platform
  Scheduled implementation of April 2018

Department of Public Health (DPH)

- CT Immunization Registry and Tracking System (CIRTS)
  Conduent Maven-based system
- Syndromic Surveillance
  Health Monitoring Systems platform called EpiCenter
- Electronic Lab Reporting (ELR)
  System for processing state reportable lab results sent electronically
- Tumor Registry
  National Institute of Health's Surveillance, Epidemiology, and End Results Program (SEER)

Other Systems

Access Health CT:
- APCD – Onpoint Health Data
- HIX / Tier 1 (shared with DSS)

CT Hospital Association:
- Alerts/Notifications - PatientPing

Partnership for Strong Communities
- Homeless Management Information System (HMIS)

UConn Health
- Epic EHR (will be fully implemented in 2018)

Tools: *Electronic Health Records*

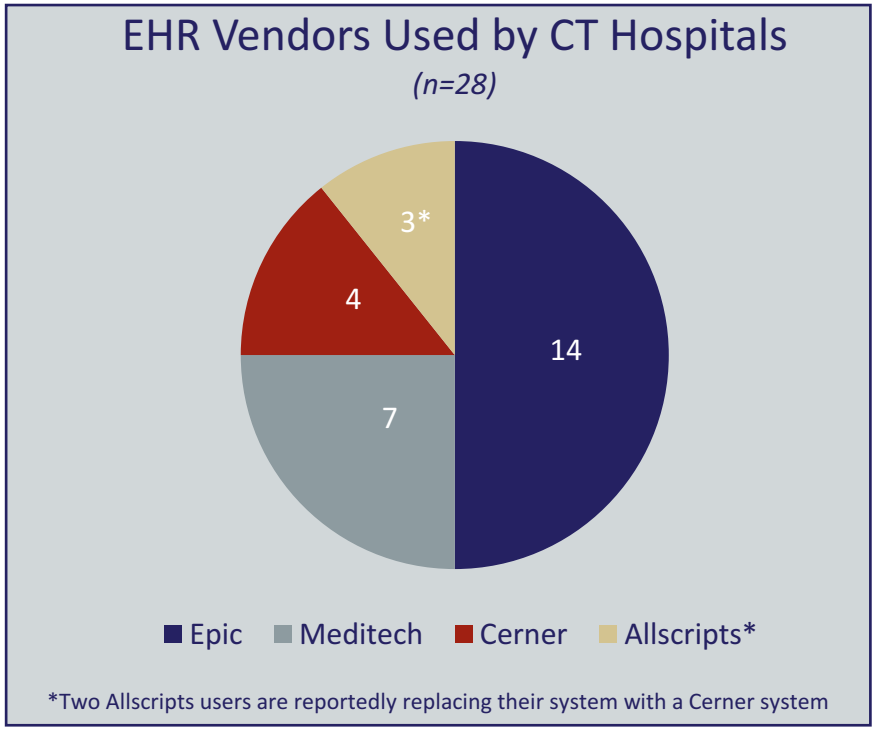
Health IT tools that are currently deployed or planned by private sector entities was a common topic raised by stakeholders during the engagement process. This section highlights several tools that are currently in use, and other tools that were identified by stakeholders as desirable for improving coordinated care delivery, measuring quality, and enabling value-based payment models in the future.

Electronic Health Records:

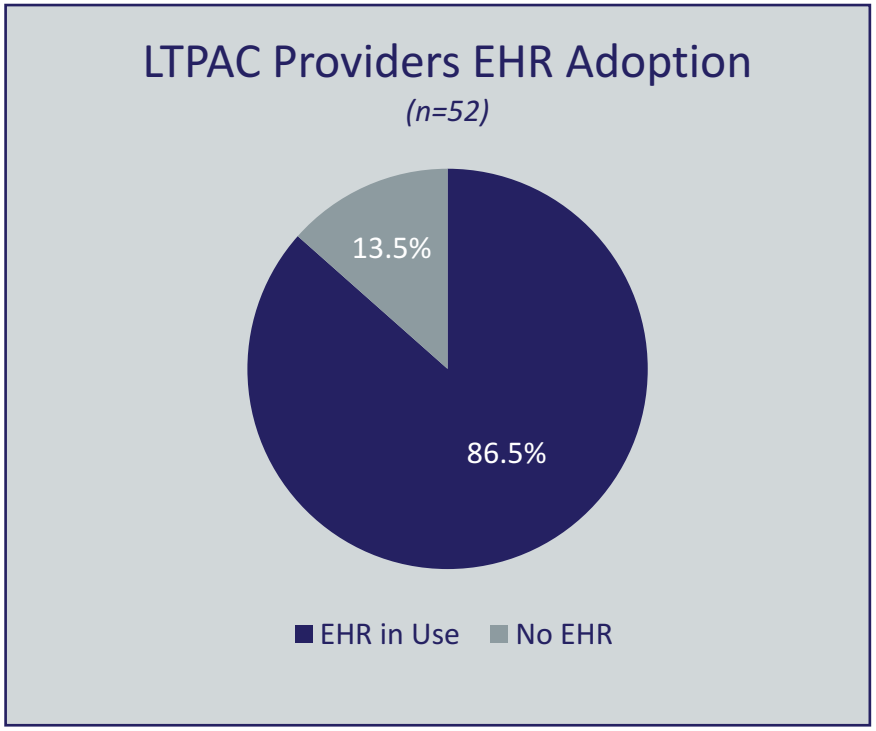
- Health systems have had **success in the adoption of EHRs** for their hospitals and employed physicians. According to data from DSS, all Connecticut hospitals have implemented an EHR system. As demonstrated by the figure on the next page, the hospitals in Connecticut are primarily using the vendors Epic and Meditech for EHR systems.
- Providers and ambulatory practices have also achieved a high level of EHR adoption, however, there is a more diverse selection of EHR systems in use, as compared to hospitals. During the engagement process, CedarBridge identified the following EHR vendors as being in use, or are planned for implementation by various provider groups ("BH" is used to identify behavioral health specialized vendors and "LTPAC" is used to identify long-term post-acute care vendors):
    - Epic, Cerner, Allscripts, athenahealth, McKesson, GE, Meditech, NextGen, eClinicalWorks, eMDs, Practice Fusion, Kareo, Netsmart (BH), Sigmund (BH), Qaulifacts (BH), FEi (BH), Askesis Development Group (BH), Credible (BH), PointClickCare (LTPAC), HealthMEDX (LTPAC), SigmaCare (LTPAC), MatrixCare (LTPAC), and Optima (LTPAC)
- According to the Connecticut State Medical Society (CSMS), 65-70% of providers in Connecticut utilize an EHR. CSMS qualified that this percentage is not indicative of systems that are being utilized effectively or that have been optimized to meet specific use cases. This qualification was echoed by numerous stakeholders throughout the engagement process.
- Meaningful Use EHR Incentive payments were not available to all provider groups (such as LTPAC and BH providers), which slowed the rate of adoption. However, adoption rates are increasing among these groups and there were notable cases of EHR utilization to improve quality and better understand outcomes and performance. These groups are generally using specialized EHRs that are not always certified products.
    - According to the data received from the LTPAC survey, 86.5% of LTPAC providers are using an EHR system, and 28.6% of providers who are not currently using an EHR plan to implement a system in the next 12 months.
- Regardless of stakeholder domain, interviewees stated **a preference for working within their EHR environment and clinical workflows** whenever possible. This consensus speaks to the inefficiency and impact to provider satisfaction that results from providers having to log into different portals to obtain needed data.
- Most EHR systems have some capacity for an integrated Direct Secure Messaging utility and interoperability with the eHealth Exchange which can enable data exchange with federal agencies (DoD, VA, SSA). However, only one hospital in Connecticut reported being an eHealth Exchange participant.

Tools: *Electronic Health Records*

The figure below displays the EHR vendors that are currently in use by Connecticut hospitals, based on available data from interviews and from the January 2016 *Connecticut State Medicaid Health IT Plan.*



The figure below displays the EHR adoption rate of LTPAC providers in Connecticut, based on data from the LTPAC survey conducted by CedarBridge.



Tools: *Data Exchange Tools*

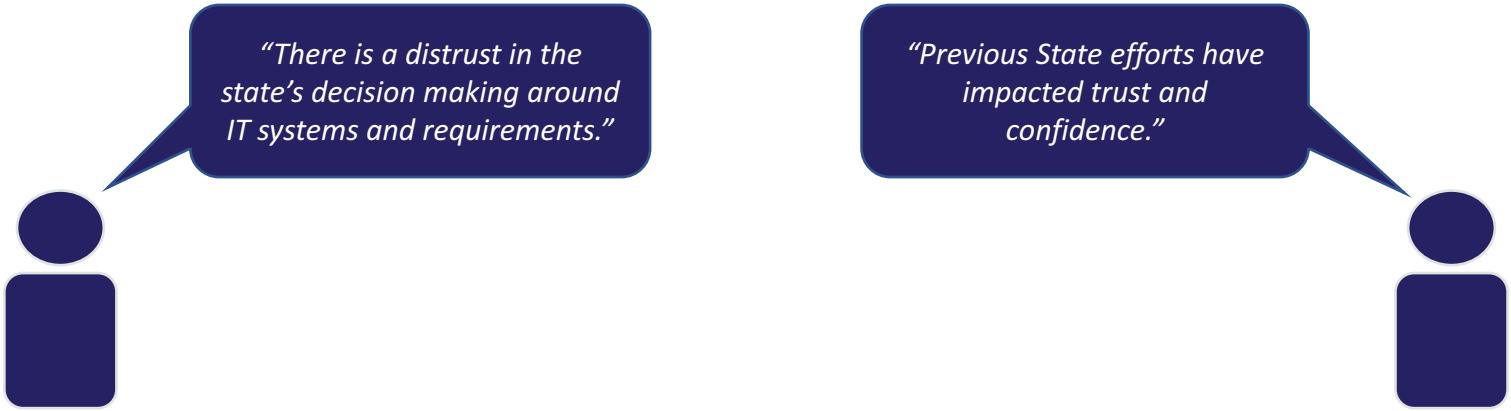
Data Exchange Tools:

- Several stakeholders described their current process for exchanging information as "the old-fashioned way." **Fax, phone calls, secure email, mail, in-person conversations, and other initiatives such as the Red Folder** are commonly used methods for organizations to meet data exchange needs.
  - Stakeholders that use common EHR platforms, such as Epic, are often able to share information with other users on the same platform. However, they reportedly struggle to share information with organizations and providers using other platforms. This was described as the "black hole."
- **Information exchange has improved for many organizations** through the use of national interoperability initiatives, embedded functionality within EHR systems (such as Care Everywhere and Direct Messaging), read-only access, point-to-point interfaces, or limited scope HIEs (Charter Radiology Network). However, all stakeholders agreed that there are still many gaps that exist and **there is future potential** in the expanded use of the above methods, as well as the development of new methods and standards.
- **Direct Messaging is sub-optimal** for most organizations due to the **lack of a common, central Direct address directory**, and **the lack of training and standardization** in how Direct Messaging could be integrated into an organization's workflow to support activities such as referral coordination. Web-based Direct Messaging could provide an enhanced secure communication tool to clinical and community-based organizations that do not have an EHR system (or that are using a non-certified product).
- Stakeholders agree that there is an **opportunity for organizations to collaborate on the preferred content of clinical data sharing** with other providers during the consultation, referral, or transitions of care processes.
- **Encounter alerts/notifications was a topic of optimism and concern for stakeholders**. There are two primary encounter alert platforms in use today: PatientPing (offered in partnership with the Connecticut Hospital Association), and Project Notify (provided by DSS for only Medicaid providers). There were three primary concerns related to this topic:
  - Alerts were generally viewed as positive, but there are concerns that multiple platforms will be burdensome.
  - There needs to be a seamless way (within clinical workflows) to access more robust clinical data related to an encounter when a provider has been alerted.
  - There were concerns that the cost of receiving alerts will be a barrier.

Tools: *Confidence and Trust in State Tools*

Confidence and Trust in State Tools:

- Due to the shortcomings of past State-run initiatives, as well as current functionality issues with some State systems (such as the CT Immunization Registry and Tracking System), there is a **fundamental lack of trust and confidence** among stakeholders in the state's ability to be successful in future health IT or HIE initiatives. However, despite this lack of trust and confidence, there is broad recognition, both among private-sector stakeholders and State agencies, of the value that would be produced by a concerted, coordinated effort to align and optimize the State's efforts and systems. There is also a desire for increased stakeholder engagement, improved communication, and broad collaboration.
- Some stakeholders cited current and past efforts by the State as a source of confusion, including the proposed eCQM engine for Medicaid (Zato Health), and the alert notification system specific only to Medicaid beneficiaries (Project Notify). Stakeholders cited a **lack of clear and timely information** about these two initiatives.
- As of this report, CedarBridge was unable to schedule an interview with DSS leadership.

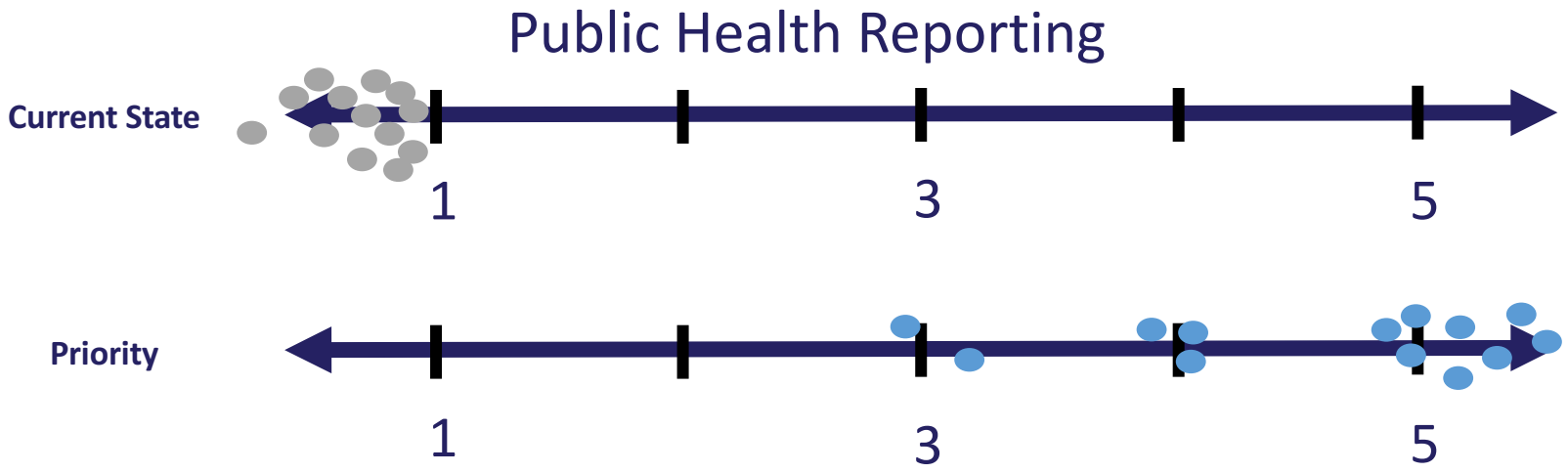


Tools: *Public Health Reporting*

Public Health Reporting:

- Stakeholders across all domains broadly agreed that the **inability for the Connecticut Immunization Registry and Tracking System (CIRTS) to accept electronic submissions of immunization data** is a significant challenge for healthcare providers and organizations across the state. Due to this limitation, providers are not able to efficiently satisfy Meaningful Use Stage 1 or Stage 2 requirements. The Centers for Disease Control and Prevention (CDC) recently provided DPH with a gap analysis detailing how the CIRTS registry was not meeting national standards to support exchange.
- According to the January 2016 *State Medicaid Health IT Plan*, "The State of Connecticut continues to have difficulty developing a fully functional Immunization Registry, Syndromic Surveillance Registry, and Electronic Lab Reporting capabilities. An annual test against the MU Test Portal (MUST) is required to meet both Meaningful Use Stage 1 and 2 requirements for immunization reporting. This requirement will remain in place until such time that the state is ready to accept ongoing electronic submissions."
- The Department of Public Health reported that they had previously attempted to coordinate a request for federal funds as part of the submission of a health IT Implementation Advanced Planning Document (IAPD). DPH targeted four main projects: (1) CIRTS Reporting Enhancements; (2) Immunization Reporting Improvements; (3) Syndromic Surveillance Replacement; and (4) SOAP Web Services to support bi-directional exchange and addresses gaps caused by CDC's PHIN MS system. Stakeholders agree these systems need upgrading and encouraged DPH to continue to seek federal funding.

CedarBridge facilitated a meeting of hospital and health system executives and key staff in February 2017. As part of this meeting, attendees were asked to rate the current state and priority level of certain health IT and information exchange services or activities. The below diagram represents the responses received in regards to public health reporting:



Tools: *Medication-Related Tools*

Medication-Related Tools:

- **e-Prescribing is widely recognized as one of the more successful examples** of the information exchange in the state, driven by the success of Surescripts in creating a gateway to connect pharmacies, prescribers, and payers. This functionality enables the prescribers to check **medication histories** through seamless access to medication data, and in some cases consume that discrete data into an EHR system, thereby **enabling clinical decision support.** However, many providers reported that a **complete and accurate medication reconciliation is impossible in the current state**, and that the state could provide value by creating a centralized medication repository.
- As evidenced by the Surescripts data below, Connecticut does lag behind the national average in most e-Prescribing areas. There is a clear opportunity gap between the number of pharmacies that can accept e-Prescriptions for controlled substances, and the number of providers who are enabled to send these e-Prescriptions.
- **Opioids were widely cited as a significant public health issue in Connecticut.** The Connecticut Prescription Monitoring and Reporting System (CPMRS) allows providers to access controlled prescription data both within and outside of the state. Stakeholders widely found this information access to be valuable, however the need to access data through a separate portal is not ideal from a clinical workflow standpoint. There may be an opportunity for additional EHR integrations and a Surescripts-enabled CPMRS database to strengthen the value of CPMRS.

"Medication reconciliation is a disaster."

Surescripts Connecticut Data (January 2017):

- 21,386 active prescribers in the state (not including dental prescribers or veterinarians)
- 11,886 (55.6%) of active prescribers (sent an e-Prescription over Surescripts in last 30 days)
  - National Average – 64.8%
- 912 (4.3%) of active prescribers are enabled for e-Prescribing controlled substances
  - National Average – 14.5%
- 665 total pharmacies in the state
- 663 (99.7%) are enabled e-Prescribers
  - National Average – 98.1%
- 642 (96.5%) are enabled to accept controlled substances as e-Prescriptions

Tools: *Analytics and Identity Management Tools*

Analytics Tools:

- Increasingly, **providers have implemented analytics tools** to better understand patient outcomes, gaps in care, and other population health measures. Commonly these tools are obtained through an EHR vendor, such as Epic's Health Planet module, Cerner's Cloudera data hub, or athenahealth's Population Health. However, many other providers or organizations described an approach of using an external data warehouse with population-level analytics tools populated with clinical and claims data.

- **Reporting requirements was another topic of interest for stakeholders**. Without exception, there is broad support for **simplifying eCQMs.** Currently, providers must report in a variety of formats to a wide range of agencies and organizations, and the measures themselves vary based on the entity that requires the data. The concept of **"extract once, report to many"** was endorsed by many interviewees, with the desired future state to be a **statewide quality measurement system** that reduces the burden of reporting to numerous quality programs and/or on multiple value-based contracts.
    - **Providers also see the long-term value of considering quality measures based on varied sources of data,** such as educational systems, the Connecticut correctional system, public health systems, community-based organizations, and patient-generated data, in addition to claims data and clinical data from EHRs.

Identity Management Tools:

- Several of the large health systems and health plans acknowledged significant pain points around the onerous efforts they undertake to maintain **accurate provider directories.** Many stakeholders expressed enthusiasm for a **statewide healthcare directory that can serve as an authoritative "source of truth"** for demographic and other identifying information on providers and healthcare organizations.

- **Many stakeholders also expressed concerns regarding accurate patient identification and consistent, standardized demographic information or patient identifiers.** Interviewees expressed concern regarding missing data due to events such as Medicaid eligibility status changes, commercial health plan annual changes, and out-of-network utilization. Linking a statewide healthcare directory and a statewide master person index**, through methods of attribution between providers and their patients** is recognized by many organizations as having high value for addressing key business needs.

- According to an RFP released by DSS in February 2017, the **state's NextGate enterprise master patient index (EMPI)** is "a central index of people, consumers, and clients. The system provides a central view of a small amount of client demographic data and has algorithms and interfaces to try and avoid, and when necessary resolve, the duplication of clients. At the time of writing [this RFP], the EMPI is used by HIX / Tier-1 [state insurance marketplace] and the ImpaCT [eligibility determination] systems." A determination should be made as to how this EMPI will integrate with a state utility for identity management.

Governance

While governance of HIE and health IT services was not a common theme among stakeholders, there were a number of topics discussed that serve to inform governance considerations and decisions.

Stakeholder Perspectives:

- **Trust is widely viewed by stakeholders as being foundational** to any initiative in interoperability and health information exchange.
- Trust at the state-level, particularly regarding state-led initiatives, has been significantly impacted by the state's previous HIE initiatives (such as HITE-CT).
- Previous failures in standing up a viable health information exchange utility have also **negatively impacted stakeholder confidence in the state's capability to achieve success** in a new initiative in this arena.
- **Many stakeholders expressed their gratitude for the stakeholder engagement process** and indicated that this created a measure of optimism that future initiatives may indeed be successful since they would be built on robust stakeholder input.
- Stakeholders commonly stated their support for a neutral, private, not-for-profit organization that would govern and operate health information exchange services, with the state and private sector organizations being engaged partners.

Best Practices:

- **Principles of trust** have been established at a national level and the 21st Century Cures Act calls for a continued federal role in the promotion and regulation of interoperability.
- **Trust agreements such as the Data Use and Reciprocal Support Agreement (DURSA) used by eHealth Exchange serve as solid reference documents** when considering how to establish "rules of the road" for state-level governance.
- Successful health information exchange organizations employ **proven best practices in governance** such as transparency, accountability, and broad representation of stakeholders on the governing body.

"Without effective policies and collaboration, any state effort will be a bridge to nowhere."

"You cannot move systems unless you have a good, strong vision and someone who knows how to move the government."

"[The state] should prioritize and implement quick win HIE modules."

Key Overall Themes and Considerations

- **One of the most significant outcomes of this environmental scan process was the successful engagement of a broad range of stakeholders across a variety of domains. Many stakeholders viewed this effort as highly positive and beneficial, and was recognized as the state learning from past failures. Numerous stakeholders expressed interest in "being part of the solution" and were "excited to see what comes out of this."**

- **Technology:**
  - Stakeholders have had to make do without a statewide HIE, and the "old-fashioned way" of exchanging information is still widely utilized and necessary.
  - Public health reporting is widely regarded as a high priority need.
  - To ensure provider adoption, clinical workflow must be a primary consideration of any service.
  - Statewide encounter alerts and an eCQM system were viewed positively, but concerns exist about the duplication of efforts.
  - ACOs and Advanced Networks are an important part of the Connecticut health care ecosystem and can be leveraged as a driver for health IT and HIE in support of value-based care.
  - Technology and use cases for health IT and HIE are developing and evolving rapidly. The state must monitor areas for future value and scalability when considering services.

- **Relationships:**
  - Community organizations are critical to coordinating systems of care, mapping relationships, and addressing health disparities.
  - Some key stakeholders have felt their needs have been neglected by federal and state initiatives (Behavioral Health and LTPAC) – the state must ensure that they adopt a "no stakeholder left behind" mindset when considering services.
  - Consumer engagement is critical and patients should be viewed as the "North Star" to guide decisions.
  - Trust and confidence in planning and implementing technology are viewed as critical success factors

Desired Future State
&
Recommended Calls to Action

Benefits and Expectations of a Statewide HIE

- The August 2015 *Connecticut Health IT Strategic and Operational Plan* produced by DSS clearly outlined the **benefits of a statewide health IT infrastructure**. These benefits remain relevant today, and help frame the continued need for a state role in provisioning services to provide value for the healthcare environment in Connecticut. "A reliable and secure statewide health IT infrastructure will benefit the citizens of Connecticut as well as assist providers in delivering better care while reducing costs. The potential benefits of having an operational statewide health IT infrastructure that supported statewide exchange of health information includes:
  - Improved patient care coordination
  - Better health outcomes
  - Reduction in unnecessary tests and procedures
  - Reduction in medical errors
  - Opportunities for improved quality reporting and public health surveillance
  - Cost reductions for both private and public payers"

"We've had to make do without a state HIE. Our needs today are different than they were three to five years ago "

- **Public Acts 15-146 and 16-77** both outlined the **expectations for a statewide HIE**:
  - Real-time, secure access to PHI and complete medical records across all settings
  - Provide patients with secure electronic access to their health information
  - Allow voluntary participation by patients to access information at no cost
  - Support care coordination through real-time alerts and timely access to clinical information
  - Reduce costs associated with preventable readmissions, duplicative testing, and medical errors
  - Promote the highest level of interoperability
  - Meet all state and federal privacy and security requirements
  - Support public health reporting, quality improvement, academic research, healthcare delivery, and payment reform through data aggregation and analytics
  - Support population health analytics
  - Be standards-based
  - Provide for broad local governance.

Calls to Action: Priority Recommendations for the State

1. Connecticut must keep patients and consumers as a primary focus in all efforts to improve health IT or HIE, including addressing health equity and the social determinants of health.

2. Connecticut must leverage existing interoperability initiatives, including existing or planned private investments and relationships with state-based HIEs and national initiatives.

3. Connecticut must implement core technology that complements and interoperates with systems currently in use by private sector organizations.

4. Connecticut must establish "rules of the road" to provide an appropriate governance framework.

5. Connecticut must support provider organizations and networks that have assumed accountability for quality and cost.

6. Connecticut must ensure that basic mechanisms are in place for all stakeholders to securely communicate health information with others involved in a patient's care and treatment.

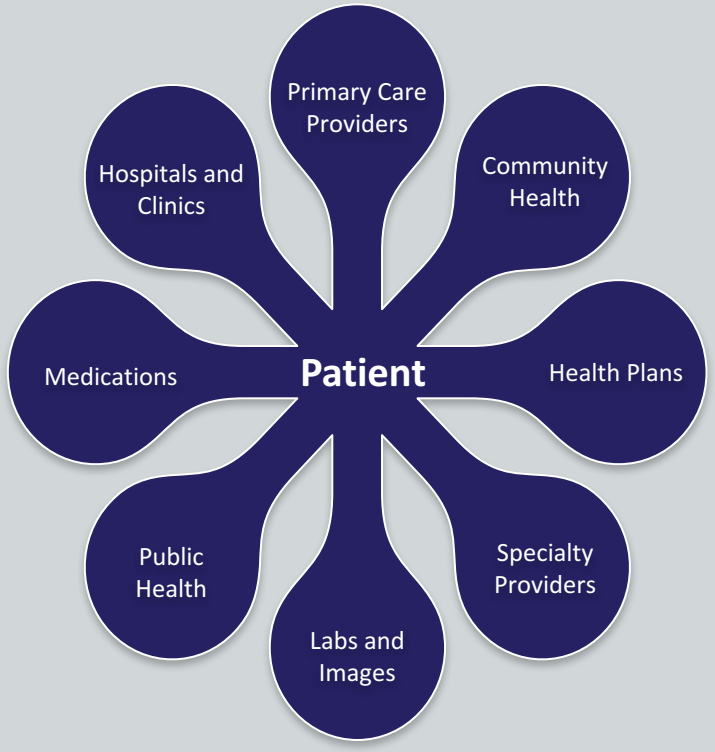
7. Connecticut must implement workflow tools that will improve the efficiency and effectiveness of healthcare delivery.

8. State agencies must charter and implement a Health IT Steering Committee, chaired by the HITO, staffed by the HIT PMO, and reporting to the legislative and executive branches.

9. Connecticut should establish, or designate, a neutral, trusted organization representing public and private interests to operate agreed-to statewide health information exchange services.

Recommendation #1

Connecticut must keep patients and consumers as a primary focus in all efforts to improve health IT or HIE, including addressing health equity and the social determinants of health.



Specific areas of importance include:

- **Privacy, security, and confidentiality**
- **Consumer engagement** and tools for better management of one's health and healthcare, in partnership with the care team
- Patient access to **integrated clinical data,** rather than patient portals tethered to a single EHR system
- **Quality and price transparency**

With a focus on the relationships between patients, providers, and organizations, fully-informed care coordination and shared decision-making can drive improved outcomes.

"The patient is the North Star."

Recommendation #2

Connecticut must leverage existing interoperability initiatives, including existing or planned private investments and relationships with state-based HIEs, and the national initiatives of eHealth Exchange, Carequality, CommonWell, and Surescripts.

- Interoperability is the ability of computer and information technology systems or software to exchange and make use of information.
- According to the eHealth Initiative's 2016 Survey: *Current State of Progress Towards Achieving True Interoperability:*
  - 95% of respondents agreed that strong interoperability capabilities are a key IT requirement for a successful transition to value-based care.
  - 85% of respondents agreed that current interoperability solutions in the market are not meeting needs to transition to value-based care.
- **There is not one single interoperability approach that will work for all use cases or meet the needs of all stakeholders.**
- Different providers and organizations have unique interoperability needs and the optimal approach depends on a wide range of organizational, market, technological, and data sharing characteristics.
- There is a general belief within the industry that there should be a single interoperability approach that will meet the needs of all stakeholders.

Interoperability Approaches

	History	Nationwide Strategy	Governance and Legal	Transactions	Other Info
eHealth Exchange	Evolved from NwHIN as the national public-private "network of networks" – currently the largest health data sharing network in the United States	Onboard enough participating providers and HIEs to achieve nationwide coverage	**Leadership:** The Sequoia Project **Legal Document:** The DURSA	**Most Common:** Hospital/HIE → SSA or VA **Least Common:** Hospital → Hospital (for patient care)	Currently limited by who participates, but they are working to broaden their portfolio of use cases
carequality	Created (by The Sequoia Project) to accommodate the needs of EHR vendors ineligible for eHealth Exchange	Gain participation of EHR vendors, which will gain participation of the customers to achieve nationwide coverage	**Leadership:** The Sequoia Project **Legal Document:** Carequality Connected Agreement	**Most Common:** EHR → EHR (on behalf of customer) to get clinical data to point-of-care (POC) **Least Common:** Anything but POC exchange	Collaboration with CommonWell broadens the potential Does not charge fees or restrict exchange partners (difference from eHealth Exchange)
commonwell HEALTH ALLIANCE	Created by a group of EHR vendors led by Cerner, athenahealth, and others. Partially motivated as a response to Care Everywhere	Gain participation of EHR vendors, which will gain participation of the customers to achieve nationwide coverage	**Leadership:** Board of Directors **Legal Document:** Membership Agreement	**Most Common:** EHR → EHR (on behalf of customer) to get clinical data to POC **Least Common:** Anything but POC exchange	Collaboration with Carequality broadens the potential Together, they represent ~90% of the acute EHR market and ~60 of the ambulatory market
Epic Care Everywhere	Initially developed as part of the Epic EHR product	Provide Epic EHR users with the ability to request/receive data from other Epic users and other EHRs/ sources	**Leadership:** Epic and governing body of customers **Legal Document:** Epic contract and "Rules of the Road" governance document	**Most Common:** Exchanging with another Epic customer **Least Common:** Exchanging with a non-Epic customer	Embraces Carequality as a framework for interoperability
Health Information Exchange (HIE)	Oldest HIEs date back to the 1990s – many of the state-run exchanges emerged from ARRA HITECH funding	No nationwide strategy – HIEs aim to connect the region they serve	**Leadership:** Each HIE has its own management, board, etc. **Legal Document:** HIE participation agreement (all different)	**Most Common:** Making clinical data available at POC **Least Common:** Services like analytics, based on persisted data	Service offerings, capabilities, and available data vary widely between HIEs Coverage ranges from a single organization to multi-state
SHIEC Strategic Health Information Exchange Collaborative	SHIEC is a national association of 48 statewide, regional, and community HIE members. Patient Centered Data Home (PCDH) is a SHIEC initiative for exchanging patient data among HIEs.	Patch together a "quilt" of HIEs to achieve nationwide coverage. Limited by membership and HIE prevalence	**Leadership:** Board elected among HIE members **Legal Document:** Evolving approaches (possibly DURSA)	**Most Common:** ADT from one HIE to another; clinical data at POC in response (based on patient's home zip) **Least Common:** Clinical data back to patient's PCP (through their home HIE)	SHIEC's PCDH model is partially implemented; current focus is to share clinical data at the POC and maintain a longitudinal record in the patient's state. The 48 HIEs comprise 50% of US population

https://www.vitl.net/sites/default/files/documents/Blog/interoperability---one---national---model.pdf

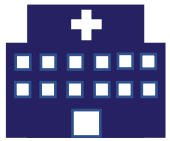
Interoperability Approaches:
eHealth Exchange Statistics (2017)

All 50 States

3,400+ Dialysis Centers

Four federal agencies
(DoD, VA, CMS, SSA)

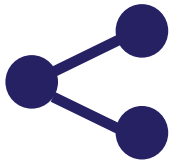
8,300 Pharmacies



65% of US Hospitals

Supporting more than
100 million patients

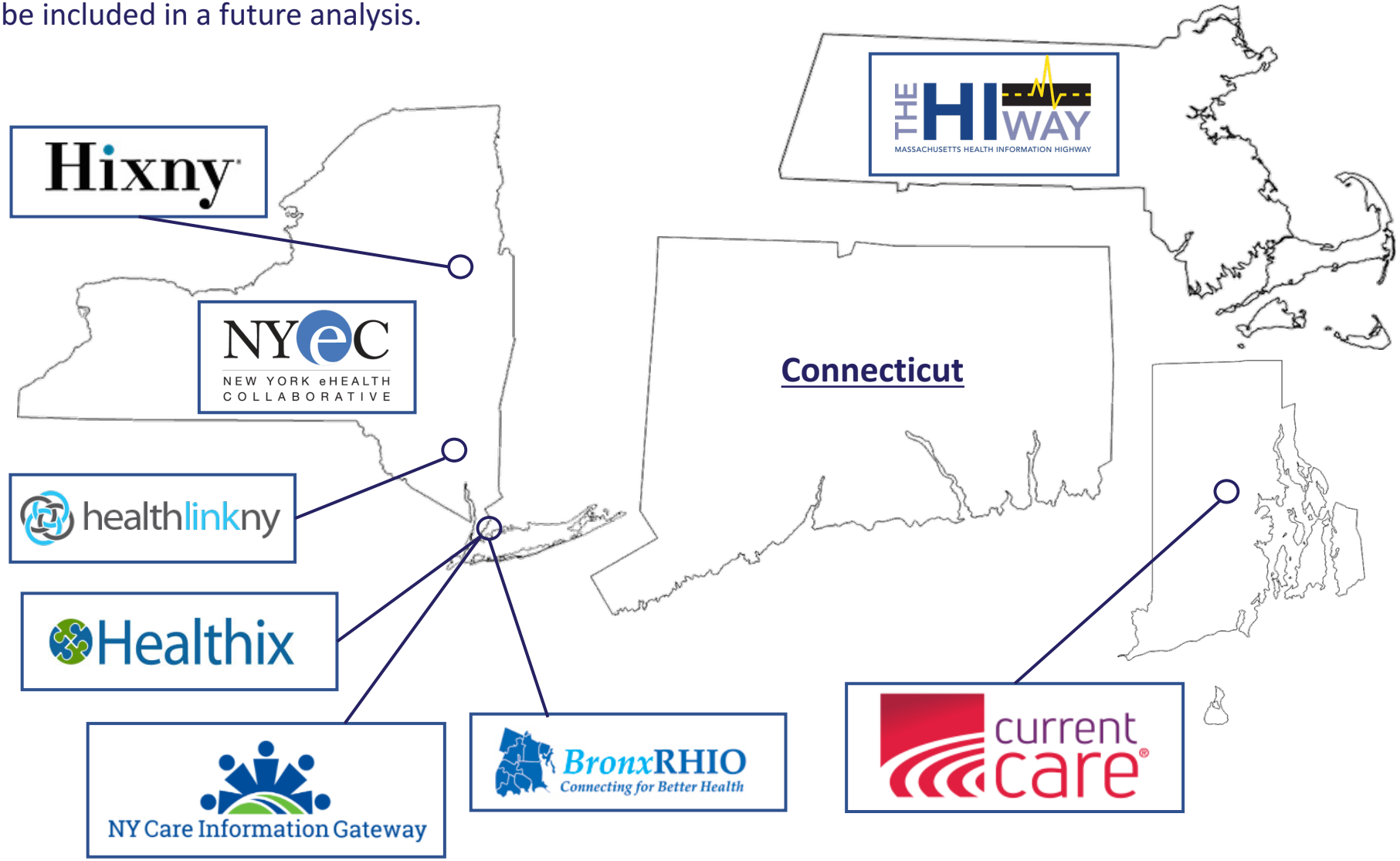
50,000 Medical Groups



35% growth in participation
in 2016

HIE Initiatives in Bordering States

In addition to the nationwide interoperability approaches discussed on the last page, all of Connecticut's bordering states (Rhode Island, Massachusetts, and New York) have active statewide or regional HIE initiatives. Additional states (such as snow-bird states and summer vacation destinations) may need to be included in a future analysis.



HIE Initiatives in Bordering States

The statewide and regional HIE initiatives that exist in Connecticut's bordering states have a range of functionality, operational capacity, governance structures, and sustainability models. A deep-dive analysis of these initiatives, as well as other relevant states, will need to be conducted to determine the specific applicability and relevance to Connecticut.

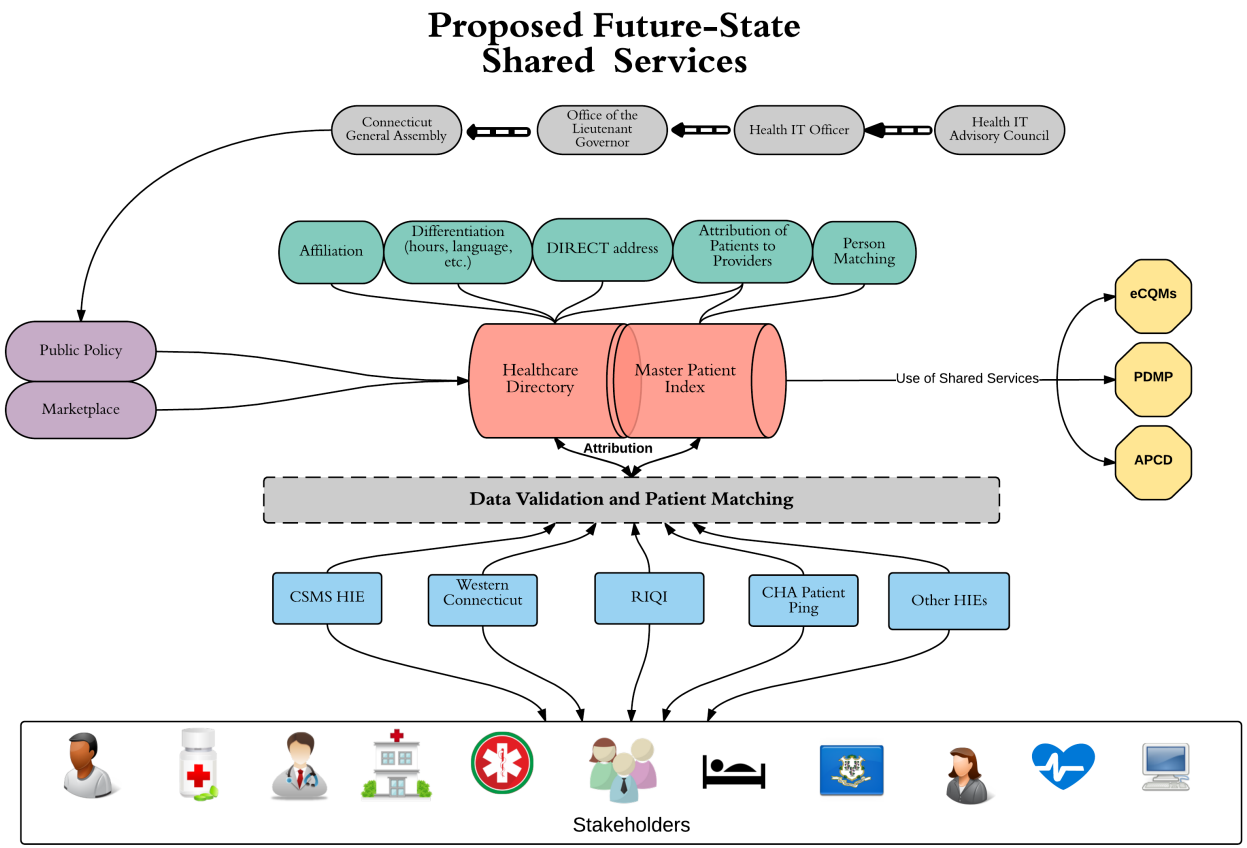
		History/Service Area	Governance	Brief Description
New York	NYeC NEW YORK eHEALTH COLLABORATIVE	Founded in 2006 as a REC. NYeC operates statewide and manages the Statewide Health Information Network with the Dept. of Health.	Not-for-profit organization that is governed by a Board of Directors.	Developed the Statewide Health Information Network for New York (SHIN-NY), a "network of networks" that links New York's 8 RHIOs / certified Qualified Entities (QE) in the state to create a private and secure network for sharing clinical patient data across the state.
	Healthix	Founded in 2009 – serves a range of organizations across New York City and Long Island. Contains data on over 16 million individuals.	Not-for-profit organization that is governed by a Board of Directors and regulated/ funded by the state's Department of Health	Operates as a QE/RHIO of the SHIN-NY and is the "largest public HIE in the nation." They offer a wide range of services to a variety of organizations. Services include data aggregation and patient record search, notifications, Direct Messaging, predictive analytics, and research support.
	healthlinkny	Founded in 2015 (through a merger of 2 orgs). Supports a 13 county region spanning the Hudson Valley, Catskills, and Southern Tier of NY.	Not-for-profit organization that is governed by a Board of Directors and funded by the state's Department of Health.	Operates as a QE/RHIO of the SHIN-NY; offers electronic access to patients' community-wide health records and services and oversees population health improvement programs in the region. Offers patient record lookup, PACS viewer, consent management, Direct Messaging, notifications, and more.
	NY Care Information Gateway	Founded in 2015 through the merger of Interboro and e-Health Network of Long Island. Supports NYC, Nassau, and Suffolk Counties.	Not-for-profit organization that is governed by a Board of Directors and funded by the state's Department of Health.	Operates as a QE/RHIO of the SHIN-NY; offers several services and information, including: aggregate demographic info, emergency data (med lists, allergies, problems), discharge summaries, Direct Messaging, electronic referral, document sharing, lab and radiology reports, and sensitive info management.
	BronxRHIO Connecting for Better Health	Founded in 2005 by the borough's leading healthcare organizations. Supports providers and patients in the Bronx.	Not-for-profit organization that is governed by a Board of Directors that is funded by participants and federal, state, and local grants.	Operates as a QE/RHIO of the SHIN-NY; offers several services to a range of provider/organizations, including: analytics, consent management, notifications, data quality management, Direct Messaging, eReferral management, identity management, patient record lookup, and provider clinical viewer.
	Hixny	Founded in 1999 by the Iroquois Healthcare Alliance and the NY State Health Plan Association. Supports the Capital Region and Northern portion of New York.	Not-for-profit organization that is governed by a Board of Directors.	Operates as a QE/RHIO of the SHIN-NY. They serve 539 connected practices and 2,108 connected physicians. Their Master Patient Index contains 2.6 million patient records. They offer several services, including HIE services, results and reports delivery, notifications, Direct Messaging, patient portal, training, and EHR/HIE standards and interoperability services.

HIE Initiatives in Bordering States *Continued*

		History/Service Area	Governance	Brief Description
Massachusetts	THE HIWAY MASSACHUSETTS HEALTH INFORMATION HIGHWAY	Founded in October 2012 as a statewide electronic health information exchange that is open to all interested providers, hospitals, and other organizations within the healthcare community, regardless of affiliation, location, or technology differences. The Mass HIway was initially funded by $17 million in federal funds (through ARRA).	Operated by the Commonwealth of Massachusetts' Executive Office of Health and Human Services, overseen by the Health Information Technology Council, and informed by consumer, provider, legal and policy, and technology advisory groups.	The Mass HIway provides a mechanism for the Commonwealth's healthcare community to have appropriate access to health information. Offers several options to connect to the Mass HIway, including LAND, Webmail, Direct XDR, and SOAP Web Services. The HIway offers a searchable Provider Directory that contains Direct Messaging addresses and other specific details (name, contact info, NPI, affiliations). They also offer Direct Messaging services, EHR/practice management integration, identity & access management, certificate management, and registry interfaces via the Clinical Gateway to enable the electronic submission of reporting to public health registries.
Rhode Island	current care®	CurrentCare was conceptually launched in 2006 and the Rhode Island Quality Institute (RIQI) took over operations, development, and maintenance of CurrentCare in 2010. The HIE supports providers and patients statewide and participation is voluntary.	CurrentCare is a service of RIQI and is governed by the Rhode Island Health Information Exchange Act of 2008. RIQI operates the HIE under contract with the RI Department of Health. RIQI is a not-for-profit organization governed by a Board of Directors. In 2010, they received $27 million in federal grants (through ARRA) – including HIE, Regional Extension Center (REC), and Beacon Community.	According to CurrentCare, nearly half of the state's population is enrolled (opt-in model) and more than 45 million transactions have occurred. They offer clinical decision support tools such as alert notifications, telehealth alerts, and a web-based CurrentCare Viewer portal that provides clinical information for consented patients from data sharing partners. Additionally, they are working to establish additional data feeds, such as EMS run reports and EKG results, and to develop a Provider Directory and additional HIE tools/Services. CurrentCare has reportedly been hindered by its opt-in policy and the requirement for patient's to specifically designate providers that can access their information. In addition, as with many HIEs, CurrentCare is accessed via a separate portal which has reportedly impacted provider adoption.

Recommendation #3

Connecticut must implement core technology that complements and interoperates with systems currently in use by private sector organizations.



At a minimum, core technology should include the ability to **authenticate identities of patients/consumers and providers** through a **statewide Healthcare Directory including providers, healthcare delivery organizations, community services organizations**, etc., linked to a statewide **Master Patient Index** through strong attribution capabilities.

The diagram to the left displays a draft potential model of how State shared services could be designed.

Recommendation #4

Connecticut must establish "rules of the road" to provide an appropriate governance framework.

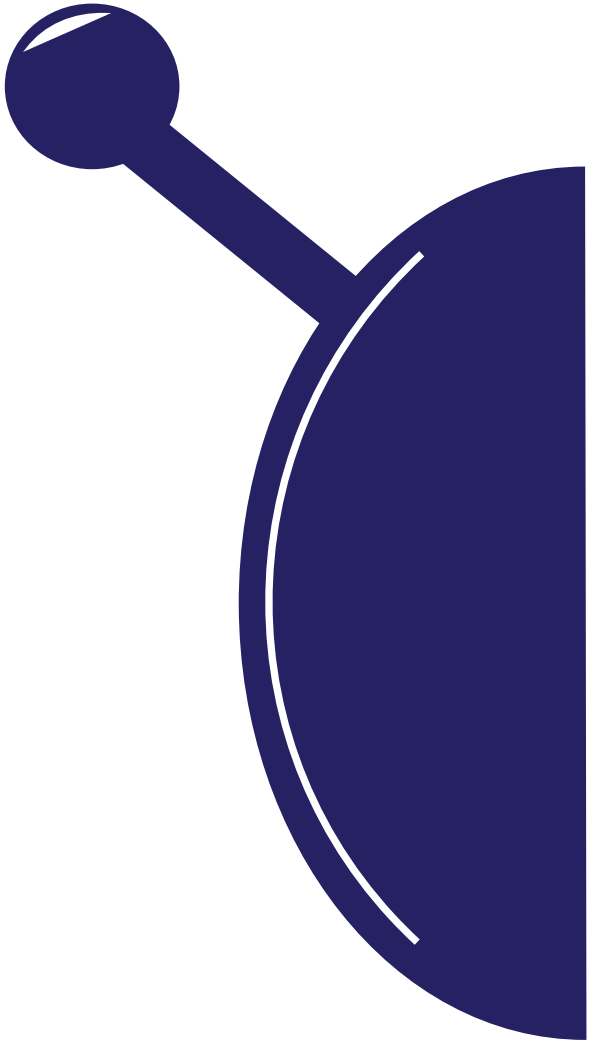
Governance and continued, broad stakeholder engagement and collaboration will be a critical component of any State effort.

Trust is widely viewed as foundational to any initiative in interoperability and health information exchange. Principles of trust have been established at a national level and the 21st Century Cures Act calls for a continued federal role in the promotion and regulation of interoperability. There is a specific call for public-private collaboration to establish a "**trusted exchange framework**, including a common agreement among health information networks nationally."

ONC also desires to increase trust among those who exchange health information to increase nationwide HIE and improve patient care and outcomes. The 2013 National HIE Governance Forum report, *Trust Framework for Health Information Exchange,* was created under the auspices of the National eHealth Collaborative through its cooperative agreement with ONC. It provides "a framework for governing entities and their participants to share trust attributes to support exchange with a group of unaffiliated entities." The report details three axes which group attributes of a trust framework that are needed when developing governing HIE entities:

- **Identity:** Attributes used to confirm identity and provide an adequate technical level of assurance of that identity and its authorization and authentication.
- **Policy:** Attributes used to determine relevant business practices of the organization which are sufficient to provide assurance of data maintenance and use.
- **Contract:** Attributes used to determine specific obligations and policy statements flowing through bilateral or multiparty agreements. Note that the contract Axis is interrelated with the policy axis – that is, some policy terms may be included as contract terms in some agreements.

Examples of Policy Levers to Drive Health IT Adoption and Use



Federal Government Levers

- Regulatory requirements through Federal Rules or Laws (ACA, HITECH, 21st Century Cures, etc.)
- Federal benefits purchaser requirements
- Federal agency requirements / incentives / penalties
- Federally developed, non-regulatory tools (FAQs, best practice toolkits, implementation guides, testing suites, etc.)

State Government Levers

- State laws (PA 15-146, PA 16-77, etc.)
- State benefit purchaser requirements
- State agency requirements / incentives / penalties
- Voluntary accreditation/certification programs
- State-developed, non-regulatory tools

Industry / Market / Other Levers

- Private sector purchaser / payer contracts
- Provider / HIE user or vendor codes of conduct
- Industry standards and compliance consortia
- Market influence through concentration
- Voluntary participation agreements
- Voluntary accreditation / certification programs and blanket legal agreements
- Industry-developed, non-regulatory tools

Overview: 21st Century Cures Act

In December 2016, the 114th United States Congress passed the 21st Century Cures Act (H.R. 34), which authorizes $6.3 billion in funding (primarily for the National Institutes of Health) and includes sweeping measures to improve access to mental health and substance abuse disorders, creates a new Secretary of Mental Health and Substance Use (under HHS), expedites the review and approval process of prescription drugs and medical devices, provides funding to address the opioid epidemic and advance precision medicine initiatives, and defines "Information Blocking" and penalties for those engaging in the practice, among others.

Key Definitions:

- Interoperability: "(A) Enables the secure exchange of electronic health information with, and use of electronic health information from, other health information technology without special effort on the part of the user; (B) allows for complete access, exchange, and use of all electronically accessible health information for authorized use under applicable State or Federal Law; and (C) does not constitute information blocking" as defined below.

- Information Blocking:
  - "With respect to a health information technology developer, exchange, or network, business, technical, or organizational practices that:
    - Except as required by law or specified by the Secretary, interferes with, prevents, or materially discourages access, exchange, or use of electronic health information; and
    - The developer, exchange, or network knows, or should know, are likely to interfere with or prevent or materially discourage the access, exchange, or use of electronic health information."
  - "With respect to a healthcare provider, such provider knows that such practice is unreasonable and is likely to interfere with, prevent or materially discourage access, exchange, or use of electronic health information."

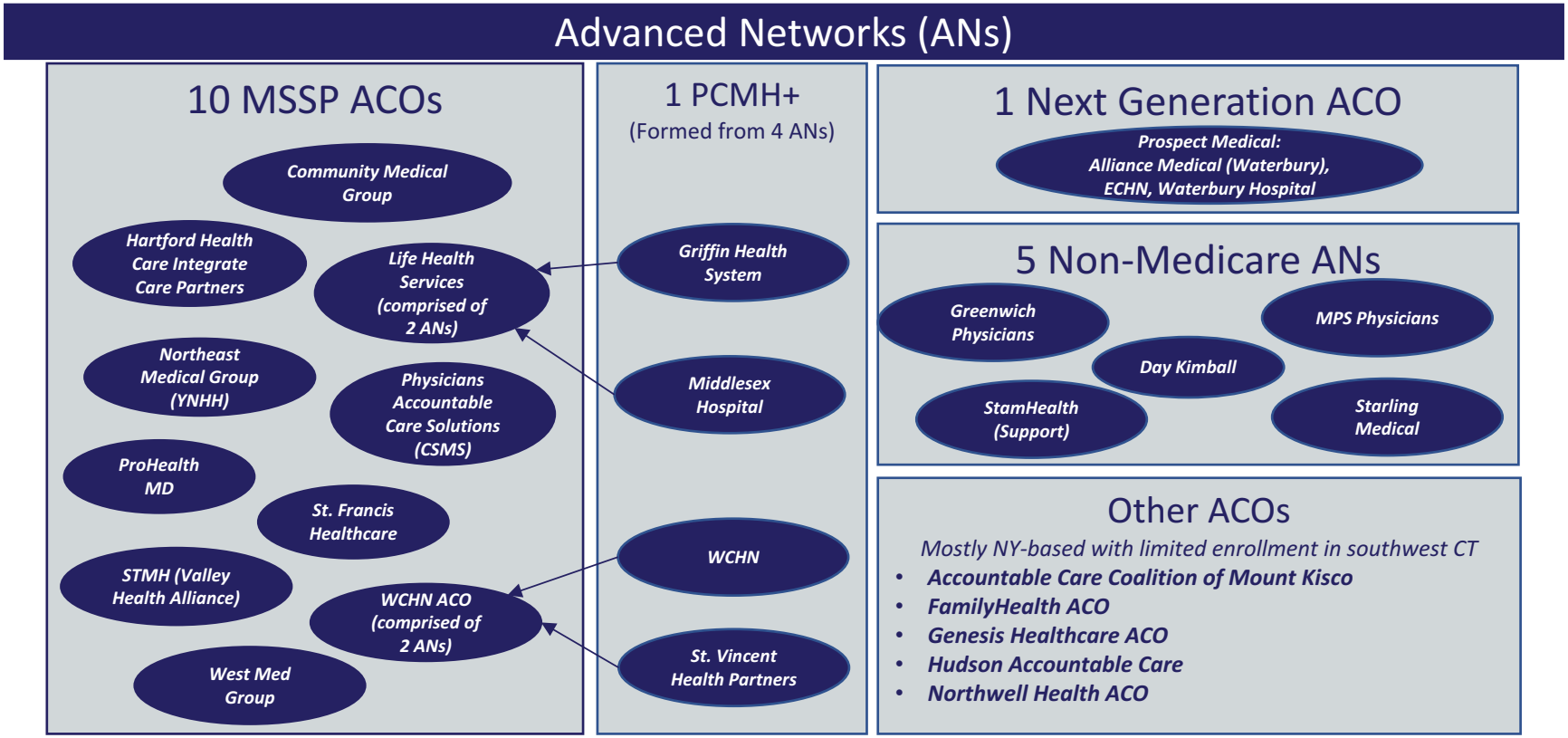
Overview: 21st Century Cures Act

Topic	Overview & Relevant Details
Helping Families in Mental Health Crisis	➢ Creates Assistant Secretary for Mental Health and Substance Use (under HHS) ➢ Improve oversight and accountability of programs and create innovative, evidence-based programs ➢ Interdepartmental Serious Mental Illness Coordinating Committee ➢ Compassionate communication on HIPAA ➢ Strengthening the healthcare workforce ➢ Mental health on-campus improvement ➢ Safe communities and comprehensive justice
Patient Engagement and Empowerment	Section 4006 – "The secretary shall use existing authorities to encourage partnerships between health information exchange organizations and networks and healthcare providers, health plans, and other appropriate entities with the goal of offering patients access to their electronic health information in a single, longitudinal format that is easy to understand, secure, and may be updated automatically."
Research	Remote access by researchers to protected health information is allowed as long as privacy is consistent and the protected health information is not copied or retained by the researcher, thereby amending HIPAA regulations. ➢ Enactment – Reminder of the right to revoke authorization ➢ Within one year of enactment – Clarification of authorized circumstances for PHI in research and establish working group ➢ Within one year of workgroup – Workgroup to submit report on uses and disclosures of PHI
Opioid Epidemic / PDMP	Appropriates $500 million in FY17 and FY 18 to combat the opioid epidemic through PDMP improvements, prevention activities, public health activities, improved access to healthcare services, and provider training.
Patient Matching	A Government Accountability Office (GAO) report must be submitted to Congress within two years of enactment that will review policies and activities at ONC and other relevant stakeholders to ensure appropriate patient matching efforts are taken. Potential improvements to patient matching include: ➢ Defining additional data elements to assist in patient data matching ➢ Agreeing on a required minimum set of elements that need to be collected and exchanged ➢ Requiring EHRs to have the ability to make certain fields required and use specific standards
Provider Directory	Within three years of enactment, a digital contact directory for healthcare professionals and practices must be implemented by the Secretary to encourage the exchange of electronic health information by providing the most useful, reliable, and comprehensive index of providers possible.
Information Blocking	ONC has the authority to refer information blocking to the Office of Civil Rights if the issue would be resolved by confirming HIPAA compliance. The following penalties are enforced, 30 days after enactment: ➢ Health IT Developers and HIEs/Networks – Subject to civil monetary penalties not to exceed $1,000,000 per violation ➢ Healthcare Providers – subject to incentives and disincentives to change behavior

Recommendation #5

Connecticut must support provider organizations and networks that have assumed accountability for quality and cost.

There are provider organizations and networks that are currently assuming accountability for quality and cost in Connecticut, such as **Accountable Care Organizations (ACOs) and Advanced Networks (ANs).** These organizations should be provided with technical assistance, education, and communications for data sharing, referral coordination, and inter-ACO clinical data exchange.



Recommendation #6

Connecticut must ensure that basic mechanisms are in place for all stakeholders to securely communicate health information with others involved in a patient's care and treatment.

There is widespread recognition **that "whole-person care"** requires an expanded notion of who is considered a member of a healthcare team. Many stakeholders, including **behavioral health providers, LTPAC providers, and community based organizations can contribute to a more value-driven healthcare system**, but specific actions must be taken to redesign current processes of care and communications for that contribution to occur. Connecticut should implement **methods to support care coordination, including the ability to securely share care coordination plans** across all those participating in the support and care of patients/clients.

53% *of surveyed Connecticut LTPAC providers do not utilize Direct Secure Messaging for communication with external organizations*

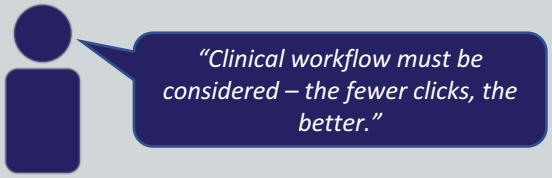
"Information exchange between behavioral health providers and PCPs that efficiently moves in both directions would be beneficial."

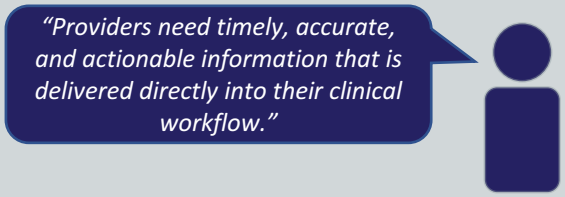
Recommendation #7

Connecticut must implement workflow tools that will improve the efficiency and effectiveness of healthcare delivery.

Examples of workflow tools that will improve the efficiency and effectiveness of healthcare delivery include, but are not limited to:

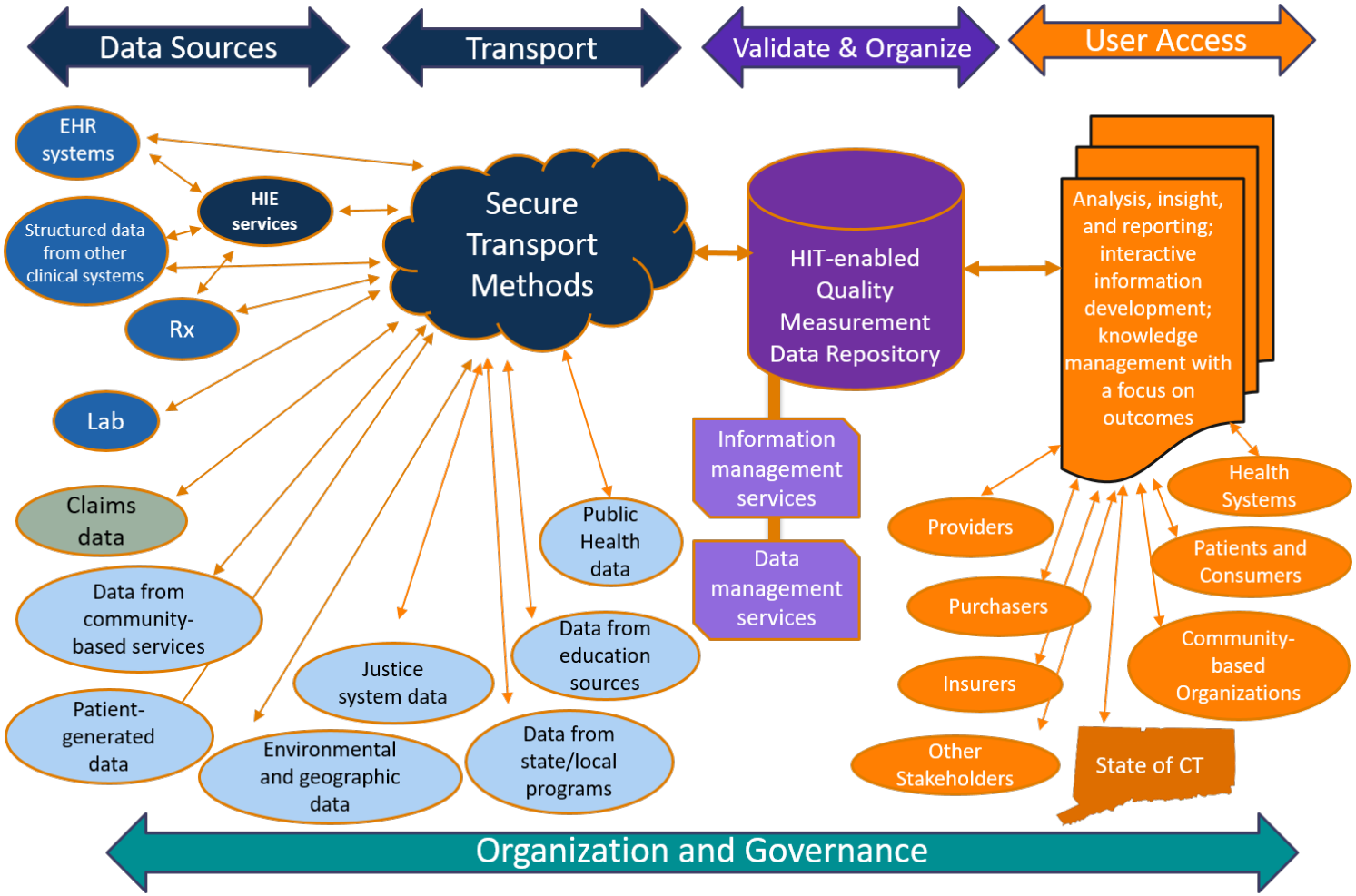
- The ability to share data **bi-directionally** (report and query) with the **Connecticut Department of Public Health** through the Connecticut Immunization Registry and Tracking System (CIRTS), as well as robust ELR and Syndromic Surveillance systems that accept electronic data submissions and enable providers and hospitals to attest for Meaningful Use;
- The provision of a **single, integrated clinical encounter alerts service** for all patients admitted or discharged from all acute care facilities and those LTPAC facilities that find clinical and economic value in such a service;
- The development and implementation of a robust **statewide quality measurement system to collect eCQMs** and other quality measures, consistent with the recommendations of the eCQM Design Group, chartered by the Health IT Advisory Council; and
- The expanded use of **Direct Secure Messaging** in support of transitions of care, coordination of care, and referral coordination.





eCQM Design Group

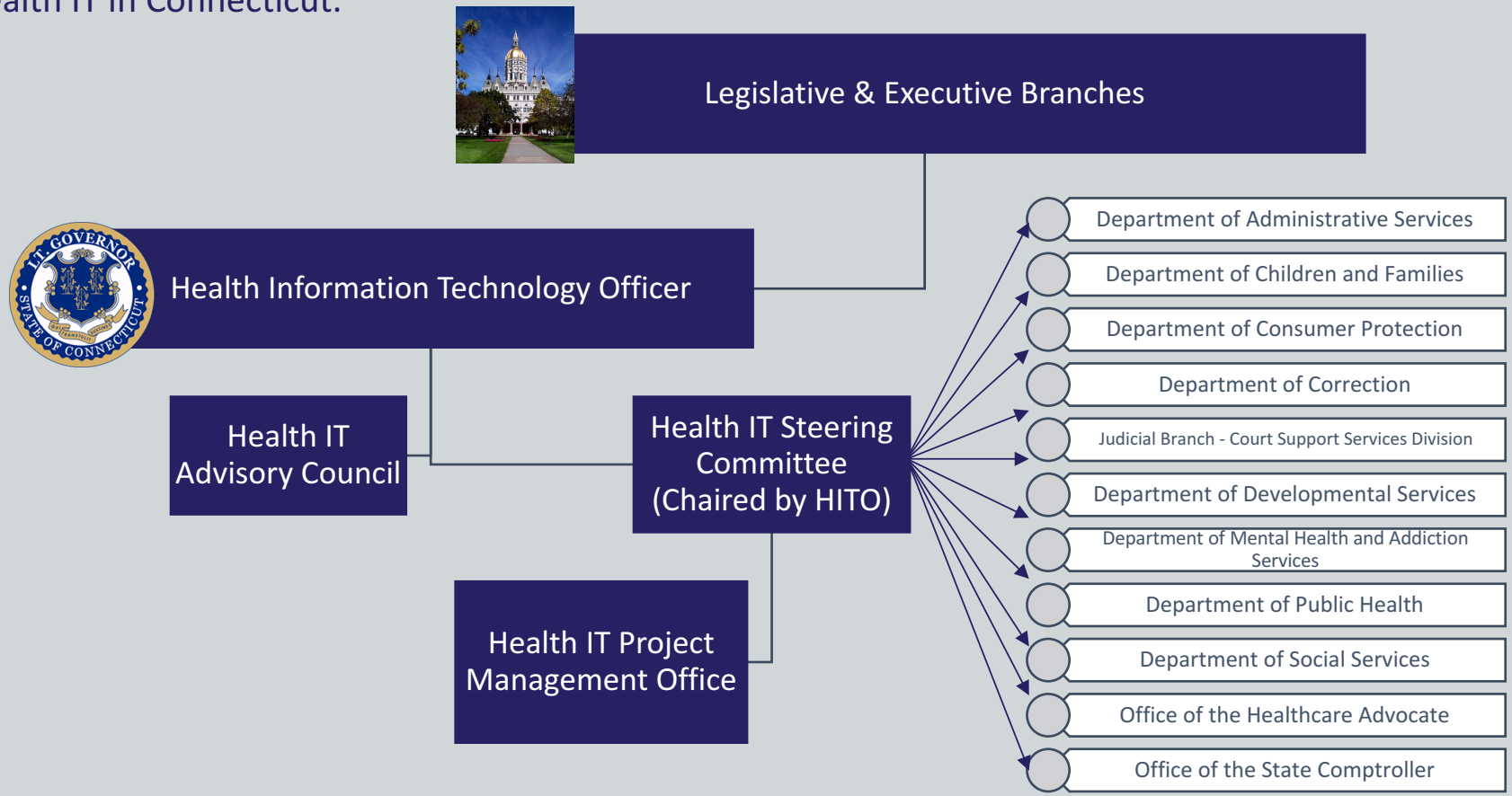
On January 19, 2017, an eCQM Design Group was chartered by the Health IT Advisory Council to make recommendations on a statewide quality measurement system in an environment of alternative payment models (APMs). The work of the Design Group is just **one example of a multi-stakeholder collaborative effort to take initial steps toward implementing workflow tools that will improve the efficiency and effectiveness of healthcare delivery.** The figure below became foundational for the work of the Design Group and graphically represents the many health-related data sources in the state, the mechanisms needed to transport, validate, and organize the data sources, and the ultimate goal of improving patient outcomes through data-driven insight.



Recommendation #8

State agencies must charter and implement a Health IT Steering Committee, chaired by the HITO, staffed by the Health IT Project Management Office, and reporting to the legislative and executive branches.

The organizational chart below presents a strawman model of recommended future governance of Health IT in Connecticut.



Recommendation #9

Connecticut should establish, or designate, a neutral, trusted organization representing public and private interests to operate agreed-to statewide health information exchange services.

The organization should adhere to best practices in health information governance, including, but not limited to:

- Accountability to, and transparency with, stakeholders
- Governance by an engaged Board of Directors representing private and public sector leaders with decision-making authority in the organizations that they represent
  - The needs and perspectives of consumers must always be represented with a voting position on the Board
  - The Health Information Technology Officer should provide cohesive representation of the state agencies' needs and perspectives through the Health IT Steering Committee
  - Board positions should be established to ensure representation of independent provider organizations and of community health service organizations
- Foundational trust agreements that establish clear "rules of the road," including enforcement authority related to compliance
- Sound policies and procedures
- Business decisions driven by value-creation, leading to financial sustainability
- Judicious use of scarce public and private resources
- Effective engagement with the State of Connecticut for public policy and technology integration with State-run systems

Glossary of Acronyms and Initialisms

Below is a partial list of acronyms and initialisms used throughout this document:

- **ACO** – Accountable Care Organization
- **ADT** – Admit Discharge Transfer
- **AMH** – Advanced Medical Home Program
- **AN** – Advanced Network
- **APCD** – All-Payer Claims Database
- **ARRA** – American Recovery and Reinvestment Act of 2009
- **ASO** – Administrative Services Organization
- **CCIP** – Clinical and Community Integration Program
- **CDC** – Centers for Disease Control and Prevention
- **CHW** – Community Health Worker
- **CIRTS** – Connecticut Immunization Reporting and Tracking System
- **CMF** – Care Management Fee
- **CMS** – Centers for Medicare and Medicaid Services
- **CMMI** – Center for Medicare and Medicaid Innovation
- **CPMRS** – Connecticut Prescription Monitoring and Reporting System
- **CSMS** – Connecticut State Medical Society
- **DCF** – Department of Children and Families (Connecticut)
- **DDS** – Department of Developmental Services (Connecticut)
- **DMHAS** – Department of Mental Health and Addiction Services (Connecticut)
- **DOC** – Department of Correction (Connecticut)
- **DoD** – United States Department of Defense
- **DPH** – Department of Public Health (Connecticut)
- **DSS** – Department of Social Services (Connecticut)
- **DURSA** – Data Use and Reciprocal Support Agreement
- **eCQM** – Electronic Clinical Quality Measure
- **EHR** – Electronic Health Record
- **ELR** – Electronic Lab Reporting
- **EMPI** – Enterprise Master Patient Index
- **EMR** – Electronic Medical Record
- **FFP** – Federal Financial Participation
- **FFS** – Fee-for-Service
- **FQHC** – Federally Qualified Health Center
- **Health IT** – Health Information Technology
- **HHS** – United States Department of Health and Human Services
- **HIE** – Health Information Exchange (noun)
- **HIMSS** – Health Information and Management Systems Society
- **HIPAA** – Health Insurance Portability and Accountability Act
- **HISP** – Health Information Service Provider
- **HITECH** – Health Information Technology for Economic and Clinical Health Act
- **HITE-CT** – Health Information Technology Exchange of Connecticut
- **HITO** – Health Information Technology Officer
- **HMIS** – Homeless Management Information System
- **IAPD** – Implementation Advance Planning Document
- **ICM** – Integrated Care Model
- **ICRS** – Institutional Case Reporting System
- **LTPAC** – Long-Term Post-Acute Care
- **MAPIR** – Medicaid Attestation Repository and Information System
- **MITA** – Medicaid Information Technology Architecture
- **MMIS** – Medicaid Management Information System
- **MQISSP** – Medicaid Quality Improvement and Shared Savings Program
- **MSSP** – Medicare Shared Savings Program
- **MUST** – Meaningful Use Test Portal
- **NwHIN** – Nationwide Health Information Network
- **ONC** – Office of the National Coordinator for Health Information Technology
- **PBPM** – Per Beneficiary, Per Month
- **PCMH** – Person-Centered Medical Home
- **PCP** – Primary Care Provider
- **PDMP** – Prescription Drug Monitoring Program
- **PHI** – Protected Health Information
- **PHIN-MS** – Public Health Information Network Messaging System
- **PHR** – Personal Health Record
- **PTTF** – Practice Transformation Task Force
- **QE** – Qualified Entity
- **REC** – Regional Extension Center
- **RFP** – Request for Proposals
- **RHIO** – Regional Health Information Organization
- **SIM PMO** – State Innovation Model Program Management Office (Connecticut)
- **SMHP** – State Medicaid Health Information Technology Plan
- **SSA** – United States Social Security Administration
- **UCHC** – University of Connecticut Health Center
- **VA** – United States Department of Veterans Affairs
- **VBID** – Value-Based Insurance Design

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
1. Access Health Connecticut	Interview
2. Aetna	Interview
3. Anthem	Interview
4. Apple Rehab	Interview, Survey
5. Avalon Health Center at Stoneridge	Survey
6. Avon Health Center	Survey
7. Beacon Brook Health Center	Survey
8. Beechwood	Survey
9. Bishop Wicke Health Center	Survey
10. Bradley Home, The	Survey
11. Bristol Hospital	Focus Group
12. Caleb Hitchcock Health Center	Survey
13. Cardiology Associates of New Haven	Focus Group
14. Cigna	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
15. Clifford Beers Clinic	Interview
16. Coalition to End Homelessness	Interview
17. Community Health Center Association of Connecticut	Interview
18. Community Health Center, Inc.	Interview
19. Community Health Resources	Interview
20. Community Medical Group	Interview
21. Community Mental Health Affiliates, Inc.	Interview
22. ConnectiCare	Interview
23. Connecticut Academy of Family Physicians	Interview
24. Connecticut Association for Healthcare at Home	Interview
25. Connecticut Association of Health Care Facilities, Inc.	Interview
26. Connecticut Chapter of the American Academy of Pediatrics	Interview
27. Connecticut Children's Medical Center	Focus Group, Interview
28. Connecticut Coalition of Taft-Hartley Health Funds	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
29. Connecticut Health Data Collaborative	Interview
30. Connecticut Hospital Association	Focus Group
31. Connecticut Institute for Primary Care Innovation	Interview
32. Connecticut Medical Group, LLC	Focus Group
33. Connecticut Orthopaedic Society	Interview
34. Connecticut Psychiatric Association	Interview
35. Connecticut Psychological Association	Interview
36. Connecticut State Medical Society	Focus Group, Interview
37. Connecticut United Way	Interview
38. Covenant Village of Cromwell	Survey
39. Crestfield Rehabilitation Center and Fenwood Manor	Survey
40. CVS	Interview
41. Day Kimball Hospital	Focus Group
42. Department of Administrative Services, Bureau of Enterprise Systems and Technology	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
43. Department of Children and Families	Interview
44. Department of Consumer Protection	Interview
45. Department of Corrections	Interview
46. Department of Developmental Services	Interview
47. Department of Mental Health and Addiction Services	Interview
48. Department of Public Health (Immunization/Syndromic/ELR Staff)	Interview
49. Department of Public Health (Population Health Staff)	Focus Group
50. Dermatology Surgical Associates, LLC	Focus Group, Survey
51. Elim Park	Focus Group
52. Eye Care Group, The	Interview
53. Fair Haven Community Health Center	Survey
54. Filosa Convalescent Home	Survey
55. Genesis Healthcare	Survey
56. Glendale Center	Focus Group, Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
57. Griffin Health System	Survey
58. Hamden Rehabilitation and Health Care Center	Focus Group, Interview
59. Hartford Healthcare	Survey
60. Hartford HealthCare Senior Services	Interview
61. Harvard Pilgrim	Interview
62. Health IT Advisory Council Member	Survey
63. Hughes Health and Rehabilitation, Inc.	Survey
64. iCare	Survey
65. Ingraham Manor of Bristol Hospital	Survey
66. Jefferson House	Survey
67. Jerome Home	Survey
68. Jewish Senior Services	Interview
69. Khmer Health Advocates	Interview
70. LabCorp	Focus Group, Interview, Survey

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
71. LeadingAge Connecticut	Interview, Survey
72. Leeway (Skilled Nursing Facility)	Interview
73. Legislative Representative	Interview
74. Legislative Representative	Survey
75. Lord Chamberlain	Survey
76. Meadow Ridge	Survey
77. Mercy Community Health	Survey
78. Middlebury Convalescent Home, Inc.	Focus Group
79. Middlesex Hospital	Interview
80. Midwestern Connecticut Council of Alcoholism (MCCA)	Focus Group
81. Milford Hospital	Survey
82. Montowese Health & Rehabilitation Center	Survey
83. Mystic Healthcare & Rehabilitation Center	Survey
84. Nathaniel Witherell (SNF), The	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
85. National Alliance on Mental Illness	Survey
86. National Health Care Associates	Survey
87. Noble Horizons	Interview
88. Northeastern Medical Group	Interview
89. Office of the Healthcare Advocate	Interview
90. Office of the State Comptroller	Survey
91. Orange Health Care Center	Interview
92. Partnership for Strong Communities	Interview
93. Pfizer	Survey
94. Pierce Memorial Baptist Home, Inc., Creamery Brook	Survey
95. Pomperaug Woods	Interview
96. Private Citizen Privacy Advocates	Interview
97. ProHealth	Interview
98. Public Health Committee	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
99. Quest Diagnostics	Interview
100. Radiological Society of Connecticut	Interview
101. Recovery Network of Programs	Survey
102. Riverside Health & Rehabilitation Center	Focus Group
103. Robert D. Russo, MD & Associates Radiology	Survey
104. Saint Mary Home	Survey
105. Shady Knoll Health Center	Survey
106. Sharon Health Care Center	Survey
107. Sheriden Woods Health Care Center	Focus Group
108. SIM Consumer Advisory Board	Interview
109. SIM PMO	Interview
110. St. Francis Health Care Partners	Focus Group
111. St. Francis Hospital and Medical Center	Focus Group
112. St. Mary's Hospital	Interview

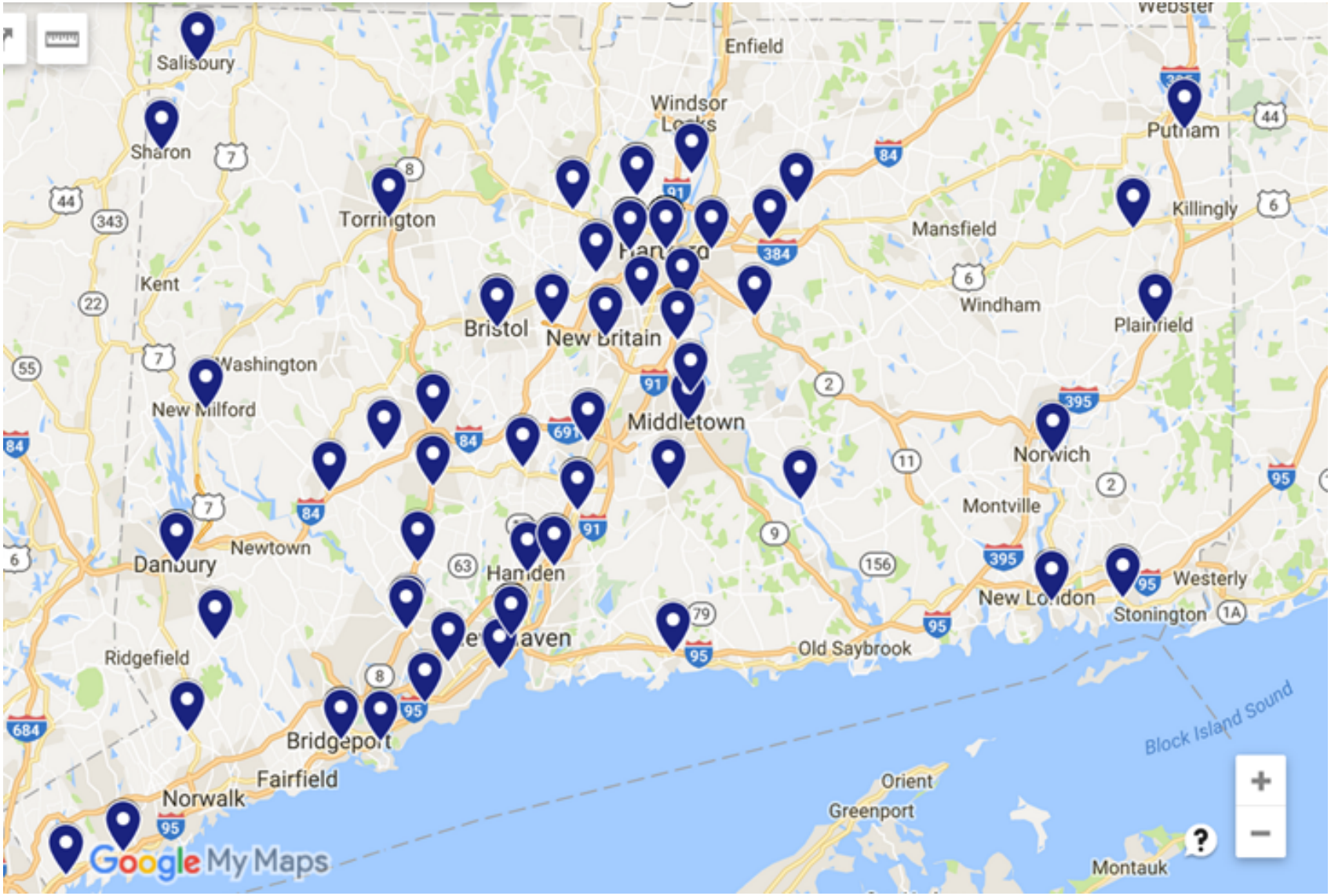
Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
113. St. Vincent's Health Care Partners	Focus Group
114. Stamford Hospital	Interview
115. Starling Medical Group	Interview
116. Stoneridge	Survey
117. SureScripts	Interview
118. Torrington health and Rehabilitation Center	Survey
119. Twin Maples Health Care Facility	Survey
120. UConn Health	Focus Group, Interview
121. United Connecticut Action for Neighborhoods (UCAN)	Interview
122. United Methodist Homes	Focus Group
123. United Healthcare	Interview
124. Value Care Alliance	Interview
125. Vernon Manor HCC	Survey
126. Veteran's Health Association	Interview

Appendix A: Stakeholder Engagement List

Stakeholder Organization	Engagement Type
127. Villa Maria	Survey
128. Visiting Nurses Association Community Health	Interview
129. Walgreens	Interview
130. Waterbury Hospital	Focus Group
131. West Hartford Health & Rehabilitation Center	Survey
132. Western Connecticut Health Network	Interview
133. Western Connecticut Medical Group	Focus Group
134. Wheeler Clinic	Interview
135. Wilton Meadows Rehabilitation and Health Care Center	Survey
136. Yale New Haven	Focus Group, Interview

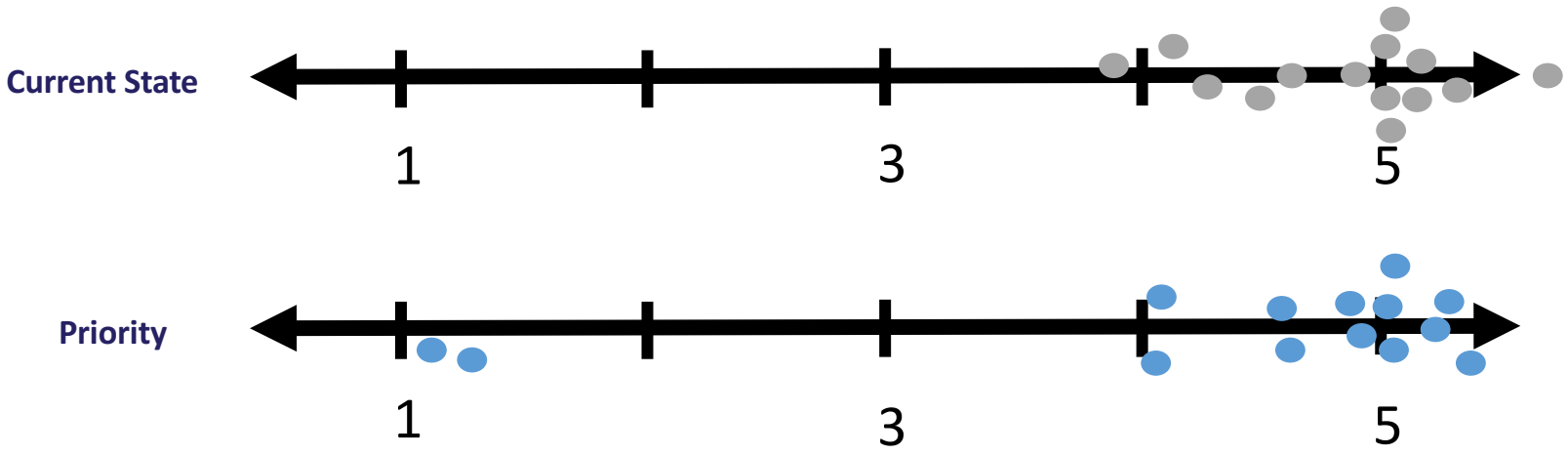
Appendix A: Stakeholder Engagement Map



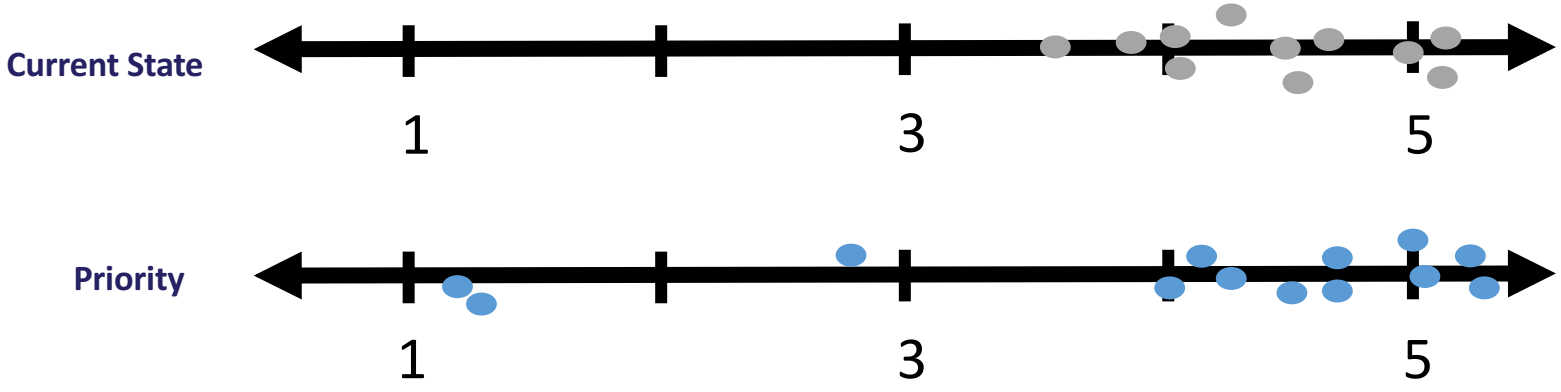
Note: This map represents stakeholders across the state that were engaged via in-person and telephonic interviews, focus groups, and surveys.

Appendix B: Connecticut Hospital Association Response Mapping

Meaningful Use – Eligible Hospitals

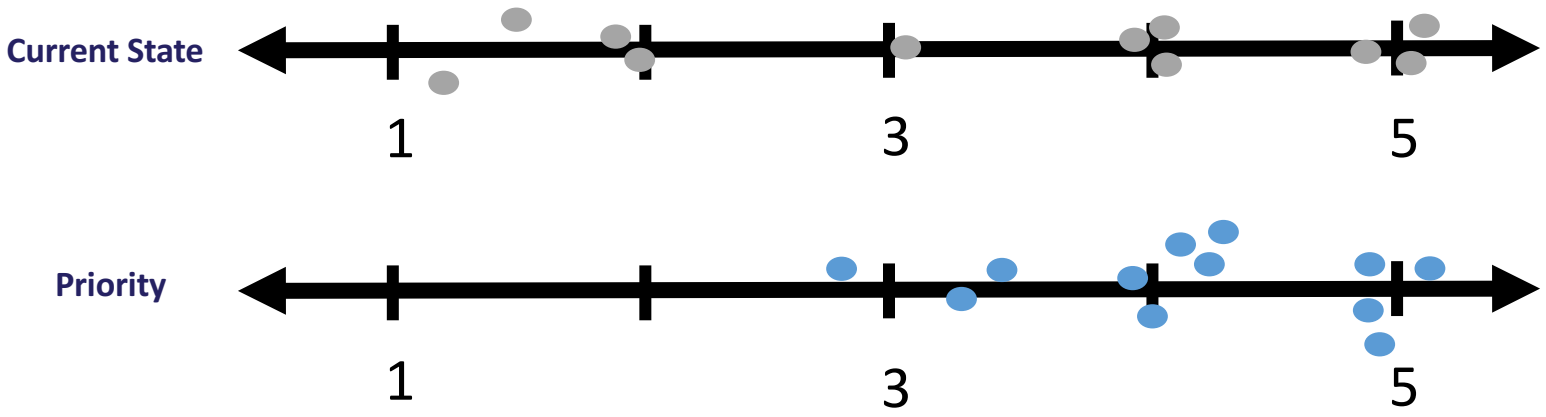


Meaningful Use – Eligible Professionals

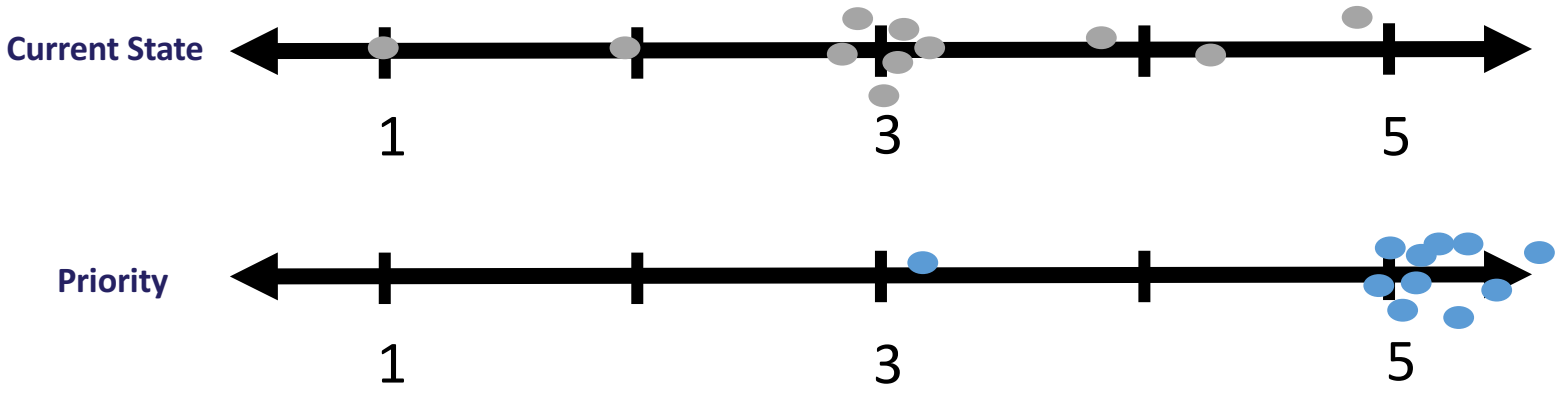


Appendix B: Connecticut Hospital Association Response Mapping

Encounter Alerts

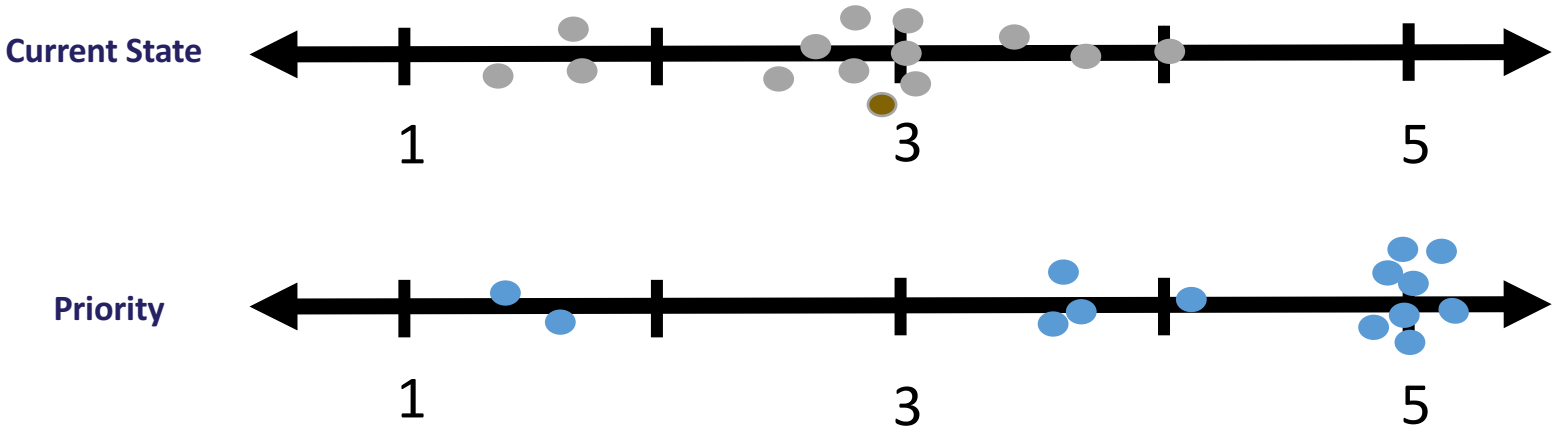


Patient Matching

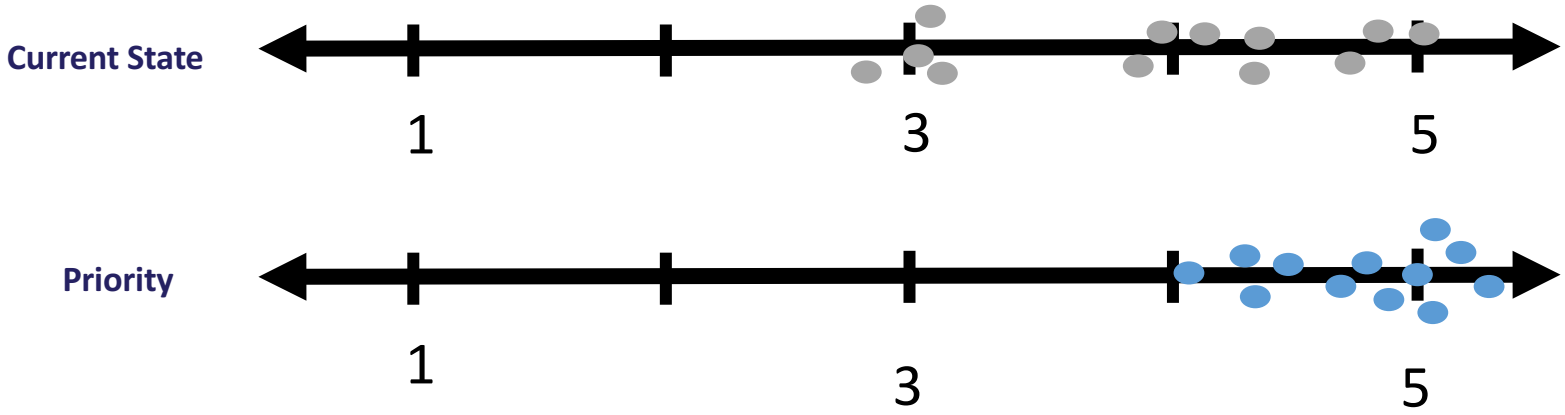


Appendix B: Connecticut Hospital Association Response Mapping

Analytics



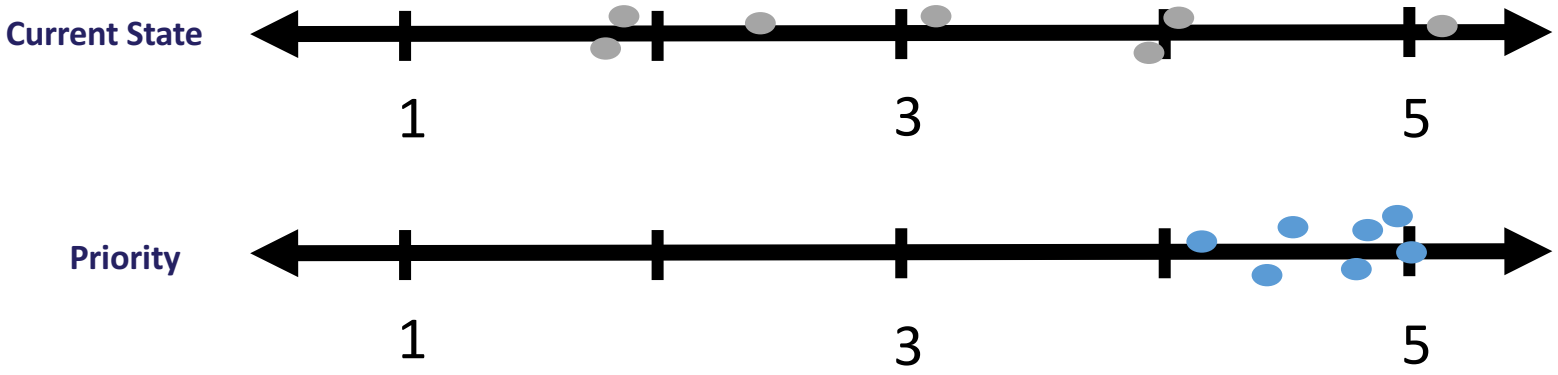
Exchange with Providers



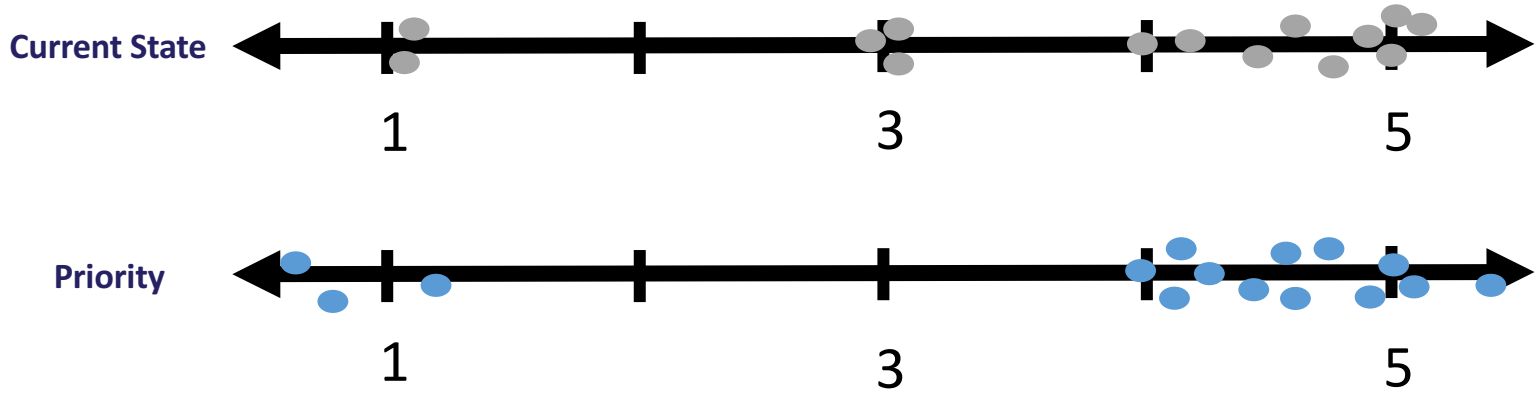
Appendix B: Connecticut Hospital Association Response Mapping

Prescription Monitoring Program

(access and use)



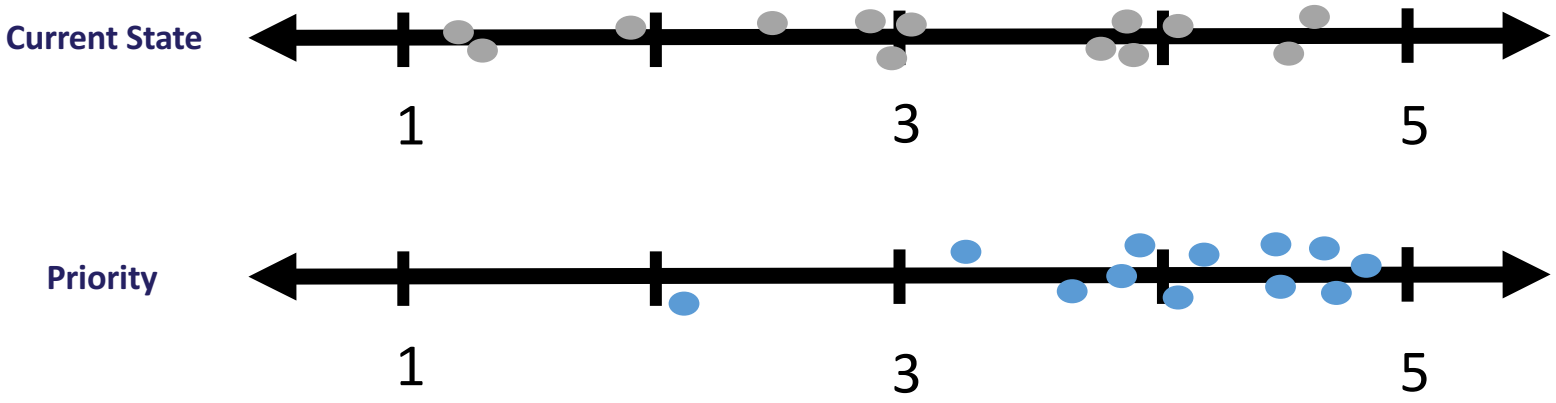
ePrescribing



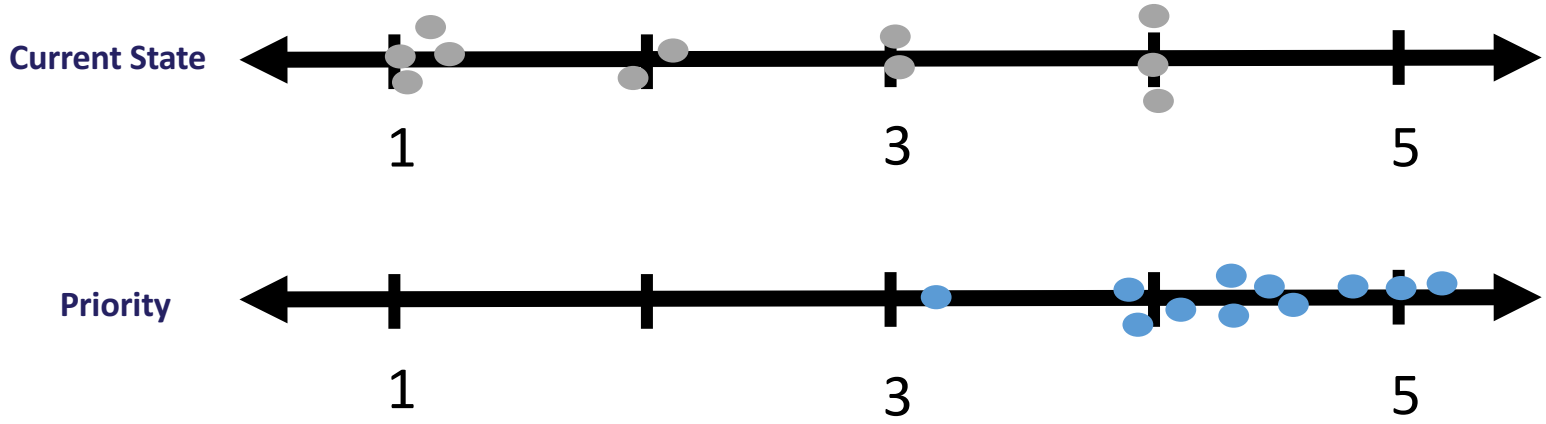
Appendix B: Connecticut Hospital Association Response Mapping

Support for Value-Based Care

(eCQMs, compliance, cost, quality)



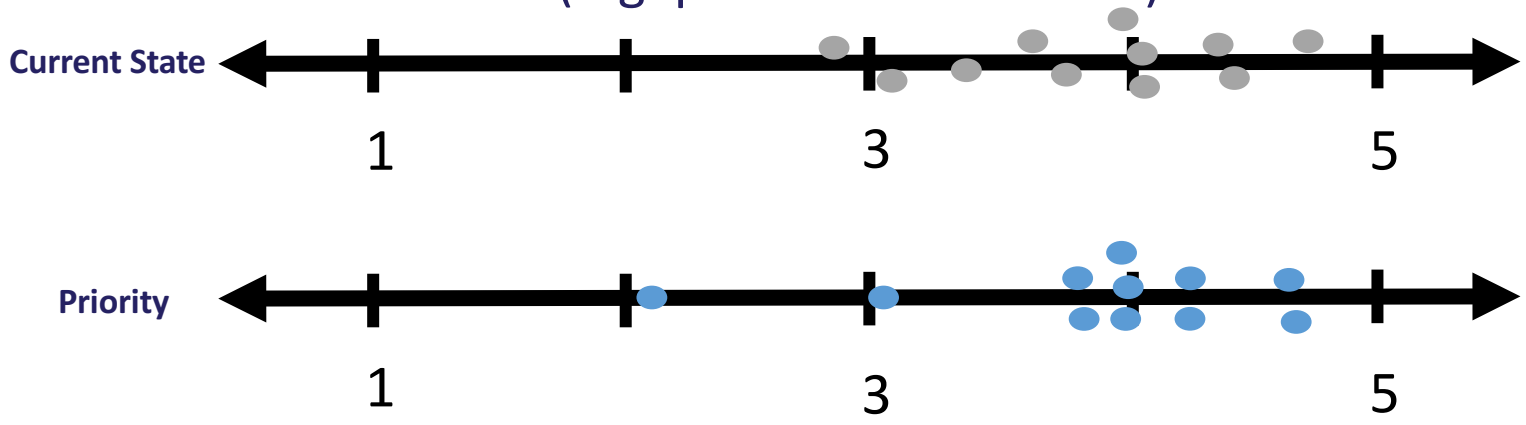
Exchange with LTPAC



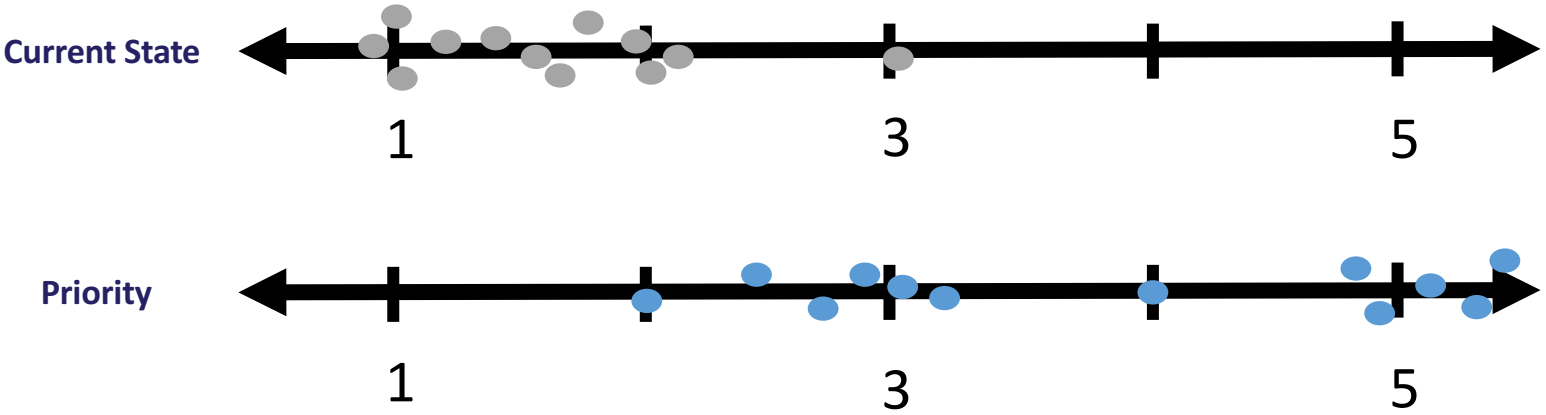
Appendix B: Connecticut Hospital Association Response Mapping

Payer Transactions

(e.g. prior authorizations)

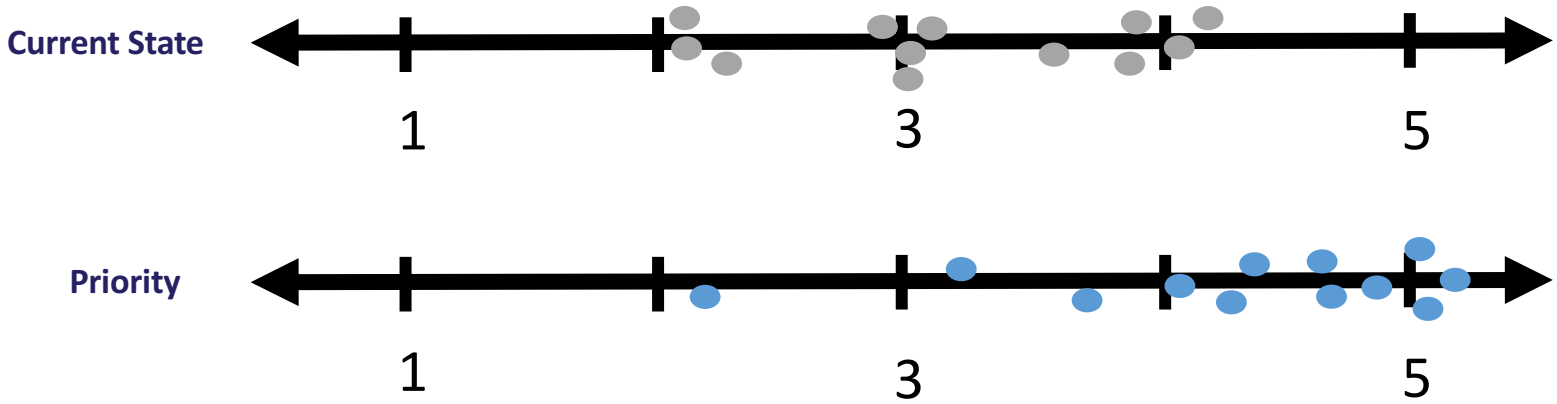


Exchange with VA and DoD

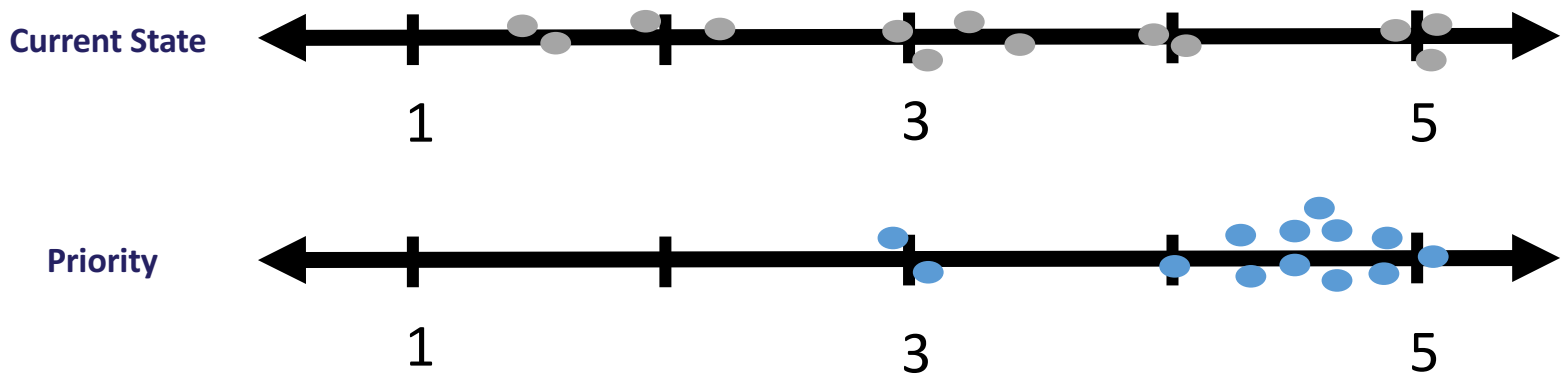


Appendix B: Connecticut Hospital Association Response Mapping

Exchange with Behavioral Health

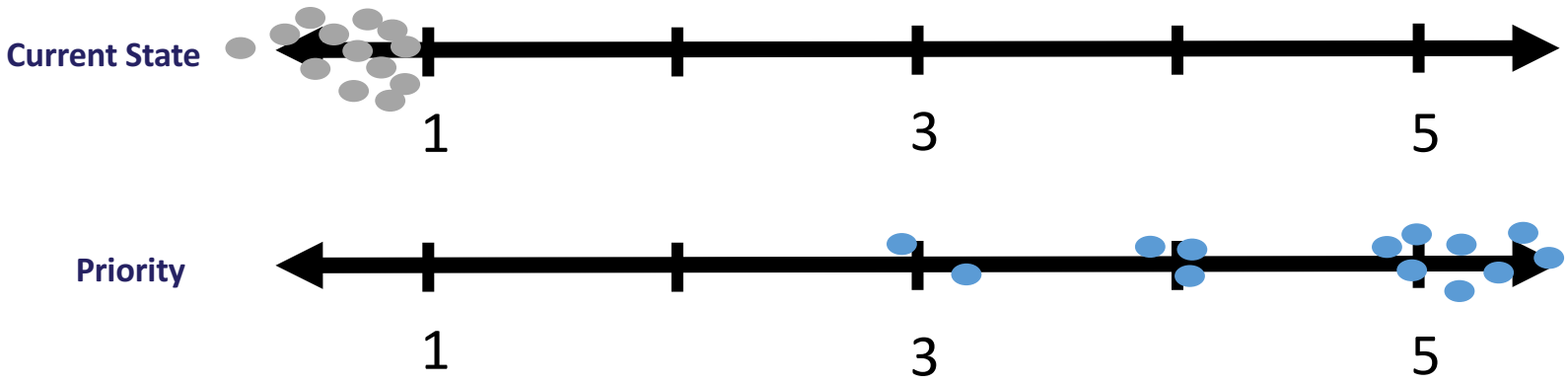


Patient Data Sharing

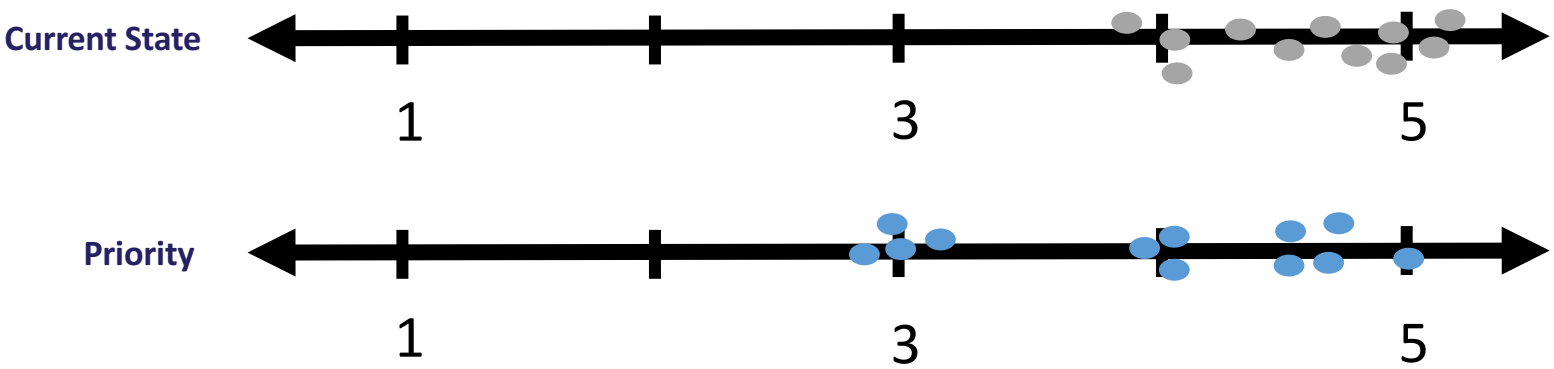


Appendix B: Connecticut Hospital Association Response Mapping

Public Health Reporting

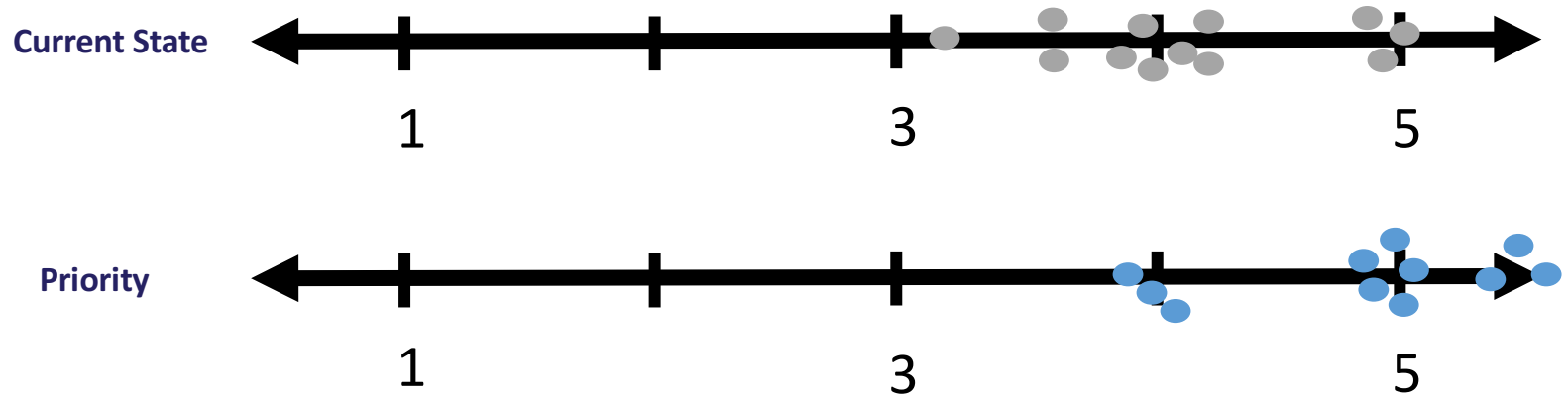


PACS

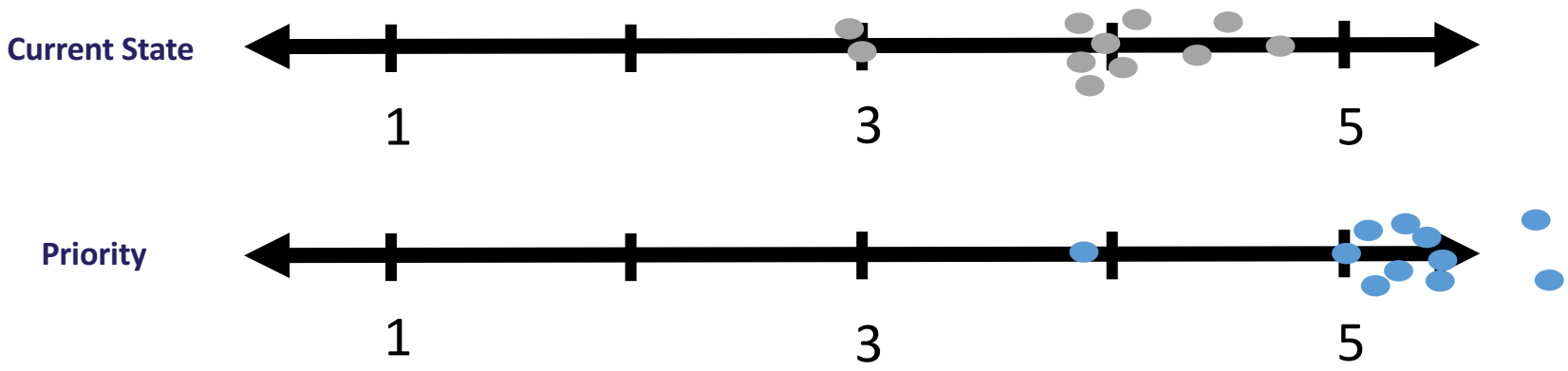


Appendix B: Connecticut Hospital Association Response Mapping

Compliance with Technical Standards

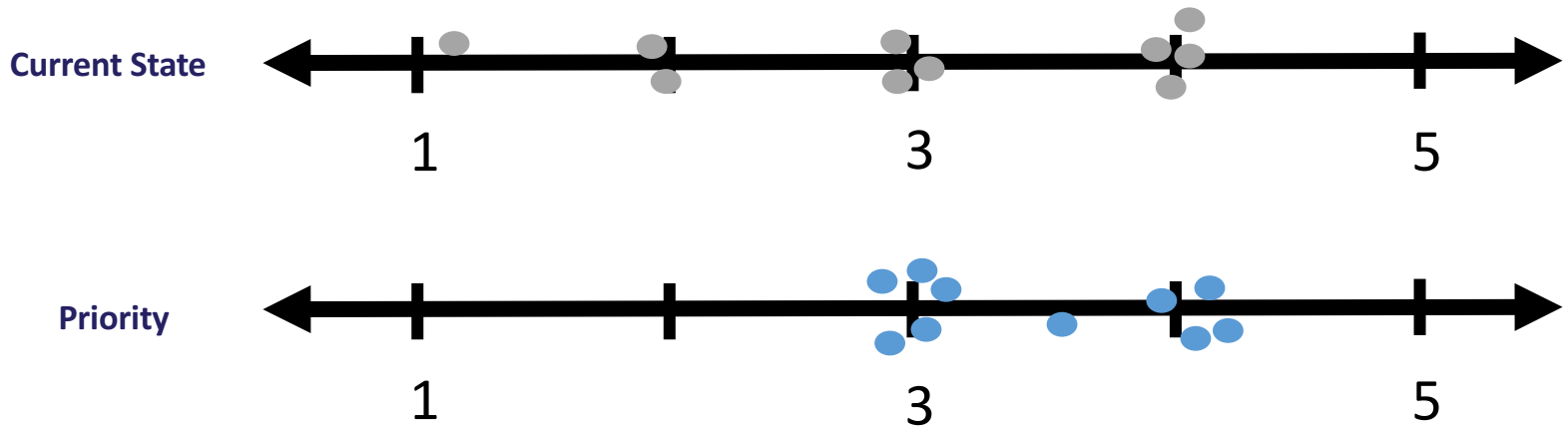


Cybersecurity

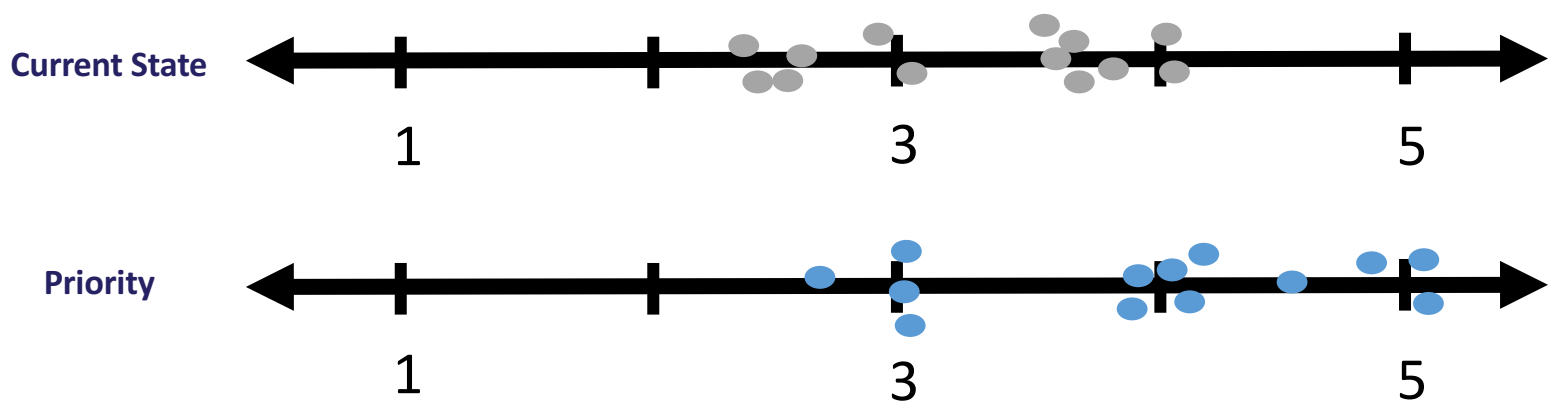


Appendix B: Connecticut Hospital Association Response Mapping

POLST/Advanced Directives

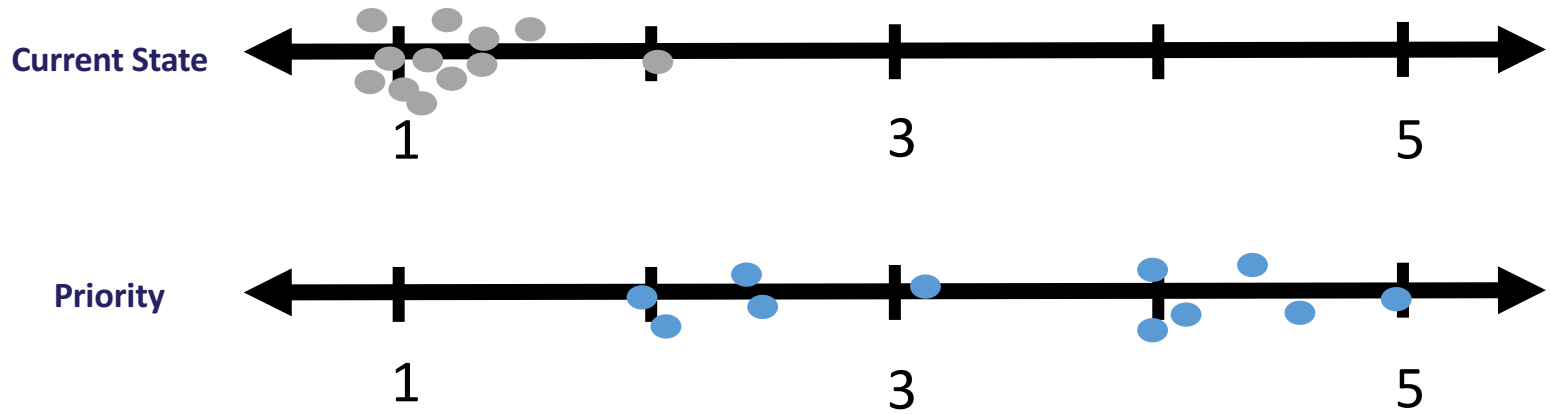


Clinical Decision Support

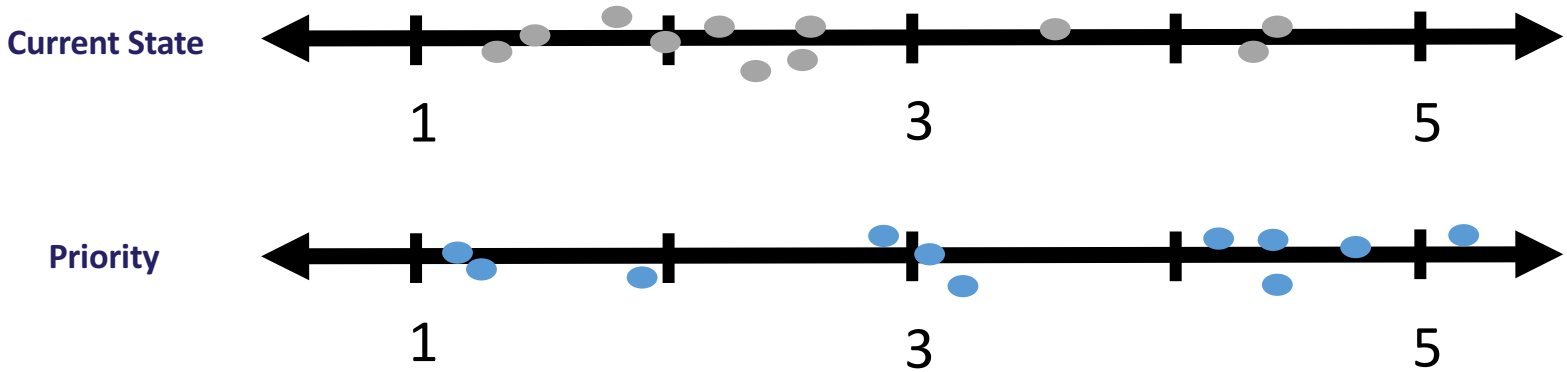


Appendix B: Connecticut Hospital Association Response Mapping

Genomics/Precision Medicine

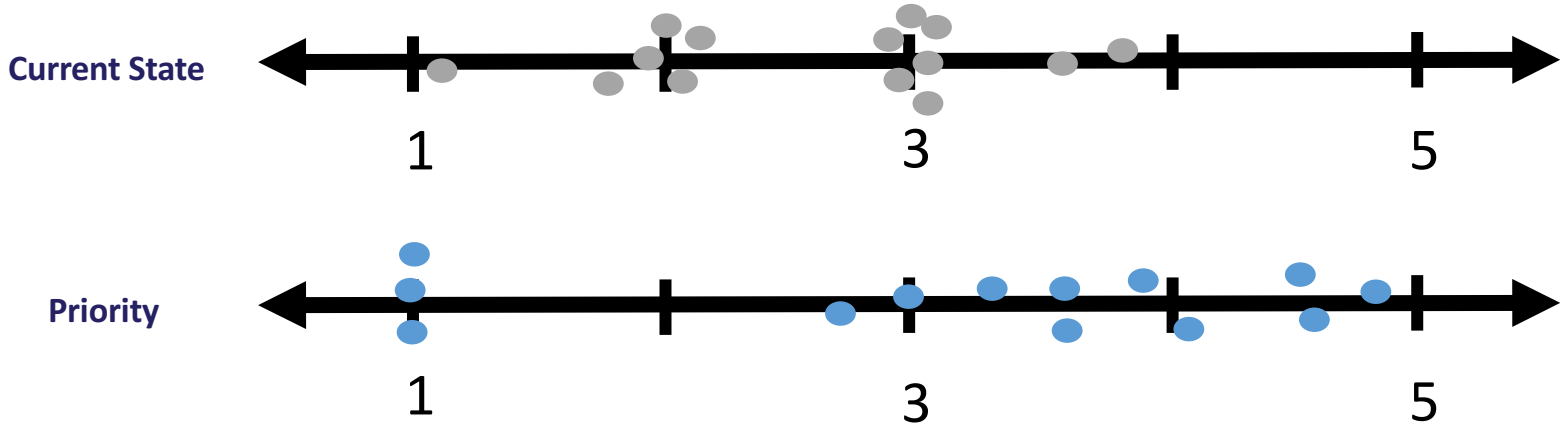


eReferrals

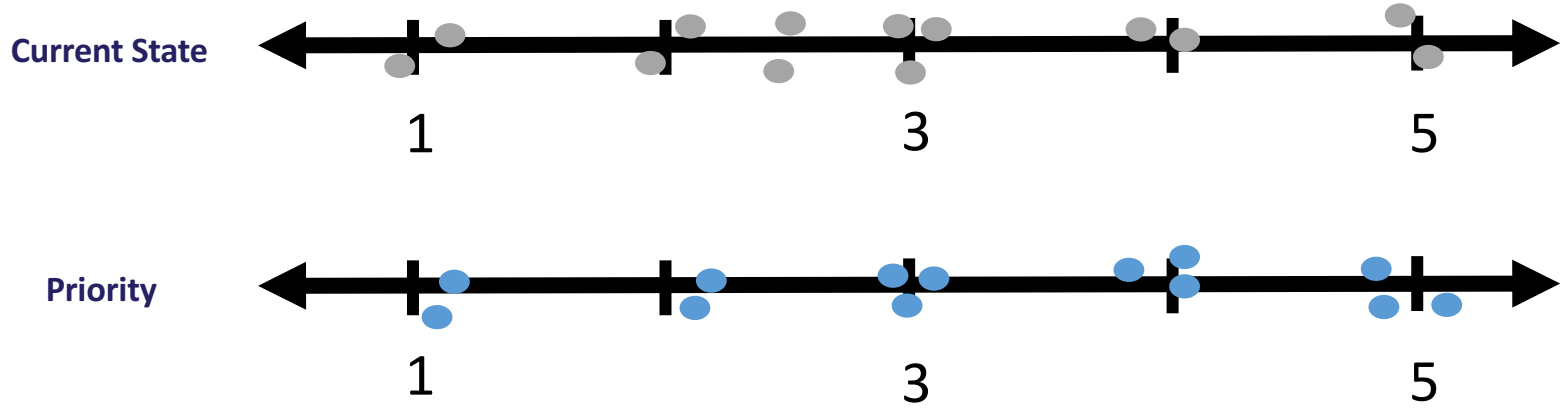


Appendix B: Connecticut Hospital Association Response Mapping

Telehealth

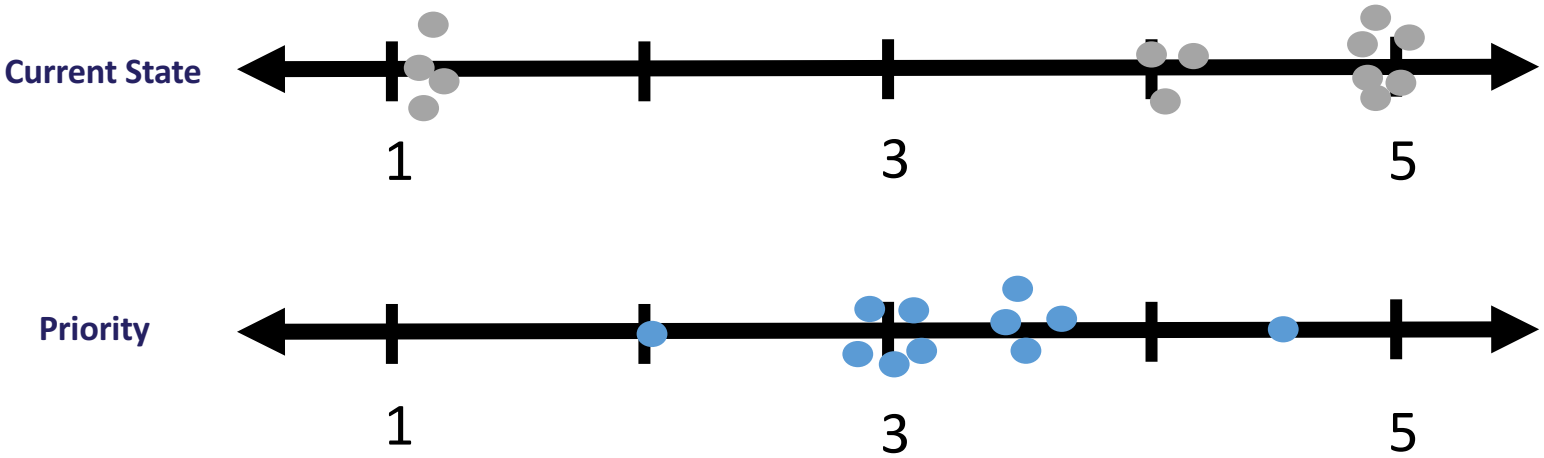


Mobile Devices

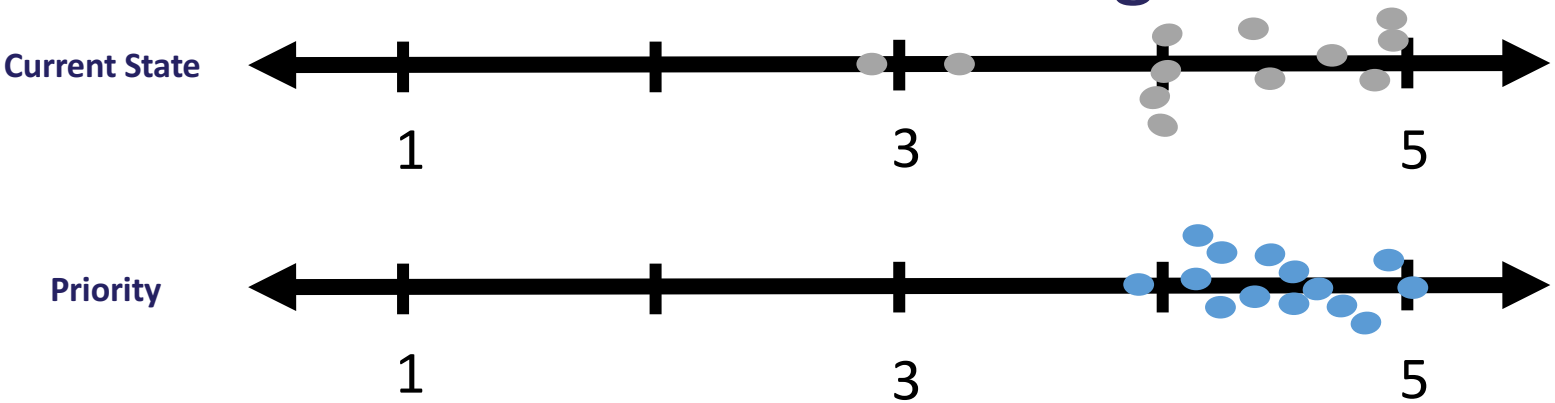


Appendix B: Connecticut Hospital Association Response Mapping

Direct Secure Messaging

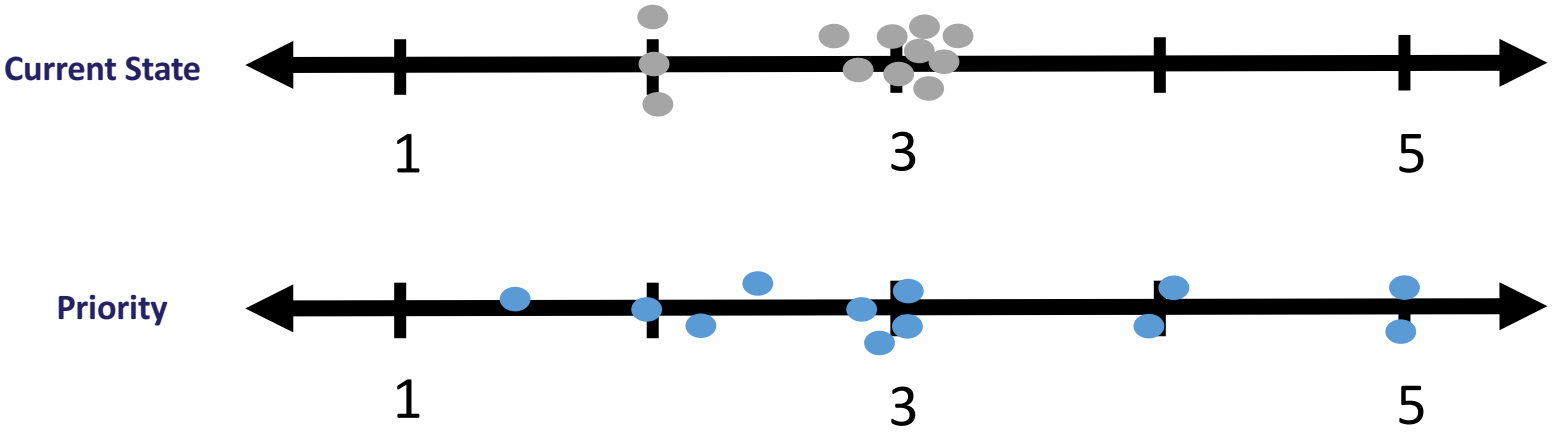


Results Routing

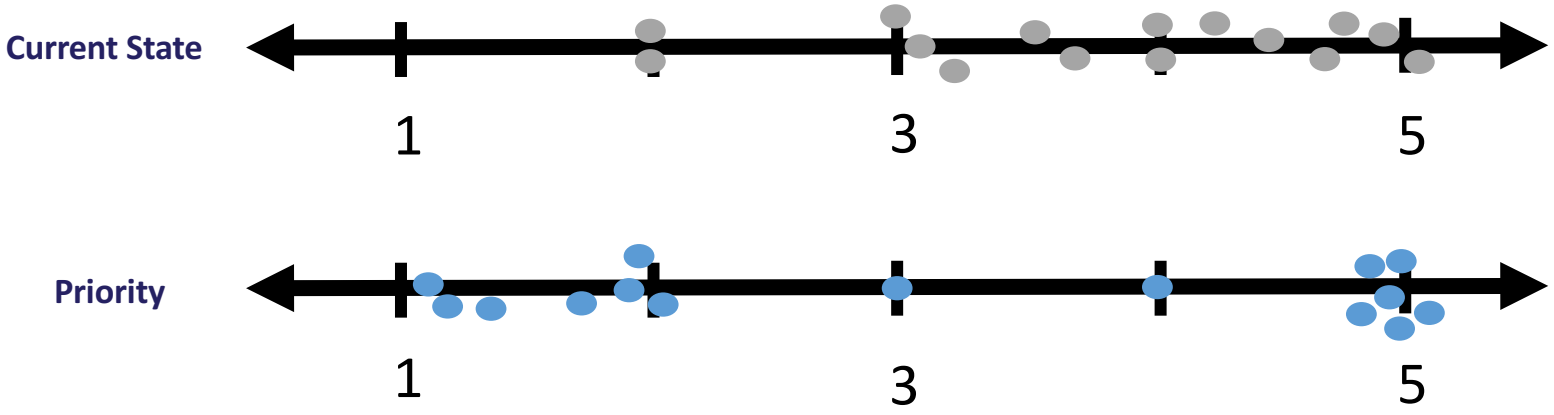


Appendix B: Connecticut Hospital Association Response Mapping

Terminology

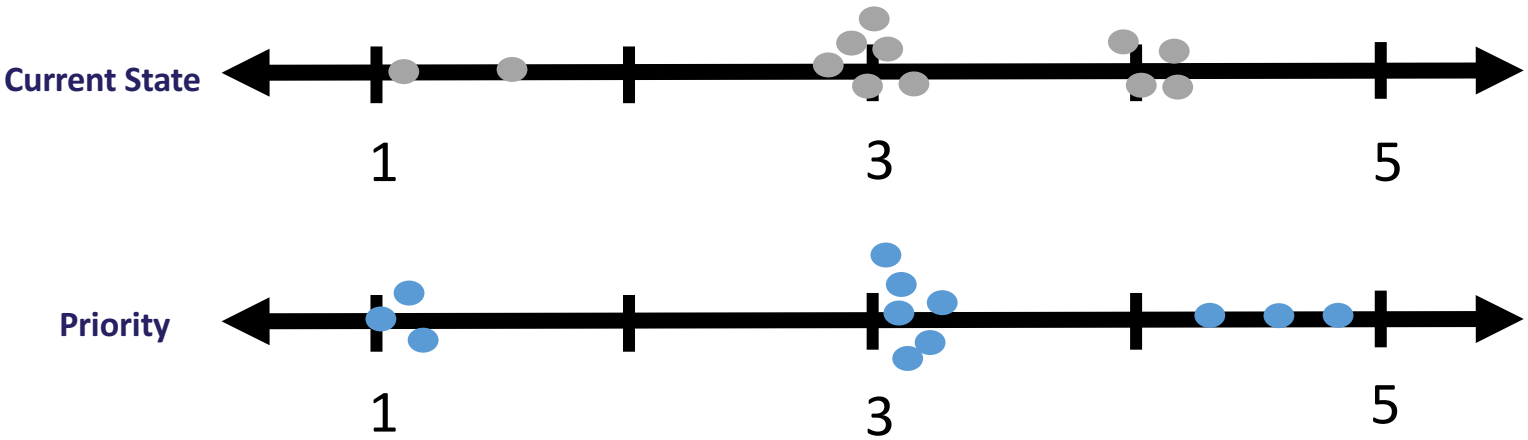


Reporting (from EMR/from external)

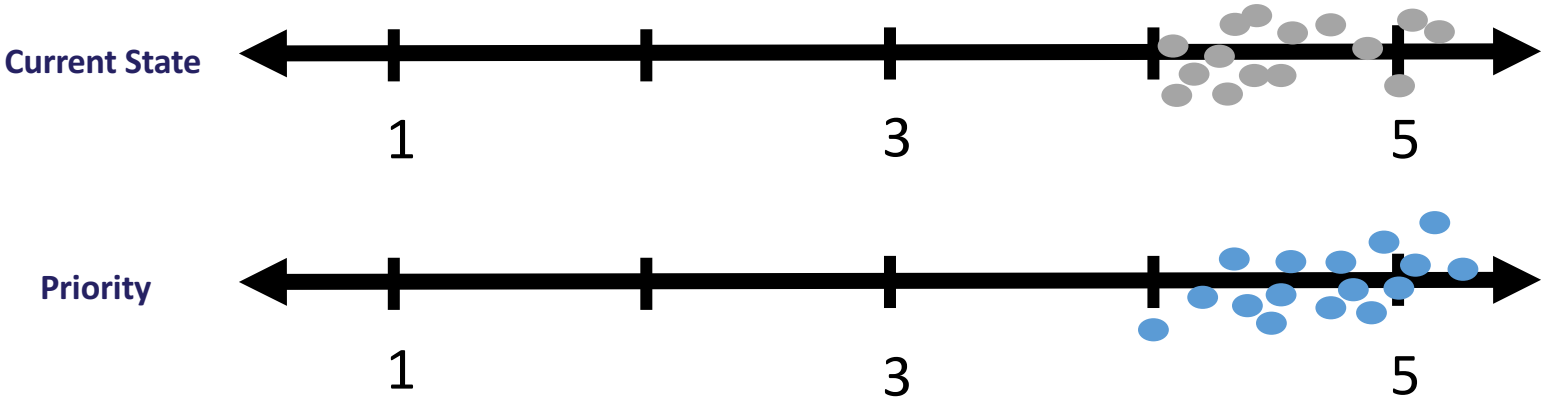


Appendix B: Connecticut Hospital Association Response Mapping

Consent Management



HIPAA Compliance



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