Our mission is to improve healthcare through the exchange of health information whenever and wherever needed.

Our vision is a dramatically transformed healthcare system where health information exchange is universally used as a tool to make lives better.
At the outset of the SHIN-NY 2020 Roadmap’s development, we engaged directly with all stakeholders—including the State—to make sure we crafted a plan that addresses their needs and acknowledges their concerns. Throughout this process, my firm belief in the SHIN-NY’s ability to help reliably deliver high-quality, value-based healthcare to New Yorkers has been reaffirmed. I eagerly look forward to continuing our collaboration with the State and our partners to help bring the SHIN-NY’s goals to fruition for the benefit of all.”

Valerie Grey
Executive Director,
New York eHealth Collaborative

On behalf of the NYeC Board of Directors, I am proud to present the SHIN-NY 2020 Roadmap, our vision for this vital network. While the SHIN-NY has already become a tremendous public benefit over the past decade, the healthcare and technology landscapes change rapidly and continuously. The strategies outlined in the Roadmap set the course for the ongoing evolution of the SHIN-NY and allow us to fully realize our goal of transforming healthcare in New York State through health information exchange.”

David H. Klein
Chair, Board of Directors,
New York eHealth Collaborative;
Special Advisor to the Medical Center CEO,
Professor of Public Health Sciences, Executive
Professor of Health Care Management,
University of Rochester
New York has been a leader in health information exchange and the Statewide Health Information Network for New York (SHIN-NY) has a proud history of achievement and support.

The New York eHealth Collaborative (NYeC) is the State’s designated entity to collaboratively lead and coordinate the SHIN-NY, working closely with the New York State Department of Health (DOH). The SHIN-NY enterprise is largely publicly funded by the federal HITECH Act, State Medicaid, and State Health Care Reform Act (HCRA).

Clinical information is currently being shared across the State through a “network of networks” consisting of eight Qualified Entities (QEs) and a statewide connector that provides secure sharing of important clinical data from participating providers’ electronic health records (EHRs).

Participants include hospitals, clinics, labs, radiology centers, ambulatory physicians, home care agencies, nursing homes, long-term care facilities, public health departments, health plans, behavioral health providers, DOH, and Federally-Qualified Health Centers (FQHCs), among others.

The network strives to ensure that patients and providers, with patient consent, can electronically access and share their health data so that the right information is available at the right time. By making it possible to immediately share data, the SHIN-NY helps streamline care and supports better patient experiences and outcomes while improving safety and lowering healthcare costs.

Value and Benefits of the SHIN-NY Include:

- Reduced burden of physically transferring or recalling medical history
- More efficient emergency department treatment
- Reduction in unnecessary tests, procedures, and medications
- Enhanced care coordination and care transitions
- Improved public health emergency management and monitoring
- Support for administrative and reporting needs of health plans
- Improvements in population health
- Potential to inform scientific and medical research

To learn more about the value of health information exchange, please see NYeC’s website1.

New York’s eight QEs connect EHRs from participating providers in their community. The QEs include HEALTHeLINK, Rochester RHIO, HealtheConnections, Hixny, HealthlinkNY, Healthix, Bronx RHIO, and NYCIG.

QEs provide publicly-funded core health information exchange (HIE) services free of charge to participating providers including: secure messaging, notifications and alerts, results delivery, patient record lookup (via a clinical viewer or embedded in EHRs), consent management, and public health access. QEs are permitted to charge for membership and non-core value-added services. The QEs are connected across New York by the Statewide Patient Record Look-up (SPRL) hub managed by NYeC.

Each QE has close ties to their communities and has collectively built a strong, secure, and fast statewide network that is improving the lives of all New Yorkers. For more information on current SHIN-NY usage and recent achievements of the QEs, please see the 2016 SHIN-NY Year in Review.2

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1 www.nyehealth.org/shin-ny/value-of-hie/
2 www.nyehealth.org/2016-year-review/
The SHIN-NY benefits greatly from longstanding State support. It is governed by a comprehensive set of regulations (10 NYCRR Part 300) and related policy guidance. SHIN-NY QEs must be certified by DOH. QEs can be regional health information organizations (RHIOs) or other entities and, as a condition of certification, they must follow a set of rules governing the exchange of information via the SHIN-NY.

The DOH requires regulated facilities with certified EHRs to connect to the SHIN-NY, and has incorporated similar requirements in other programs such as the Delivery System Reform Incentive Payment (DSRIP) program and New York State Health Innovation Plan (SHIP) / Advanced Primary Care (APC) initiatives. To accelerate adoption and usage of the network, there are several publicly-funded programs to help providers select and implement EHRs, connect to the SHIN-NY, and improve healthcare.

The network continues to be a critically important tool to help providers and health plans provide the best healthcare for patients and reduce unnecessary costs.

The SHIN-NY addresses some of the shortcomings of EHRs and the lack of interoperability by allowing providers to exchange key health information regardless of which EHR they use. No matter where in New York State a patient receives care, their clinical information is available across the SHIN-NY enterprise.

As the healthcare landscape and needs of stakeholders change, there are many challenges and opportunities ahead. The SHIN-NY 2020 Roadmap identifies top priorities to be addressed over the next few years and actions that must be executed to ensure long-term sustainability of this vital public infrastructure. It has been informed by numerous stakeholder discussions and feedback.

The SHIN-NY 2020 Roadmap sets ambitious goals and employs a variety of tools for execution including new performance-based contracting, policy changes, and advocacy. Success will take a myriad of dedicated stakeholders all working toward these goals using the following five strategies:

1) Ensuring a strong health information exchange (HIE) foundation (the basics) across the State for providers, health plans, and public health

2) Aggressively supporting patient-centric, value-based care, and certain tools, supports, and services desired by stakeholders

3) Enabling interoperability and innovations using HIE as a foundation

4) Promoting efficiency and affordability of the SHIN-NY system

5) Advocating collectively for the SHIN-NY and its stakeholders

The Roadmap will pave the way for reduced reliance on government funding and establish a solid base for additional private support. It will promote and maximize the SHIN-NY’s potential to directly support, enable, and fuel:

- A learning health system
- Patient engagement
- Public health
- Patient-centered, value-based care

This Roadmap should be viewed as a high-level framework. Its purpose is directional. As with most strategic plans in dynamic and changing industries, the Roadmap is a living document that will be revisited at least annually.
Mission and Vision

Our mission and vision constantly guide us.
They are at the heart of who we are and our North Star is always our patients and communities.

▶ **SHIN-NY’s mission** is to improve healthcare through the exchange of health information whenever and wherever needed.

▶ **NYeC’s mission** is to improve healthcare by collaboratively leading, connecting, and integrating health information exchange across the State.

▶ **Our shared vision** is a dramatically transformed healthcare system where health information exchange is universally used as a tool to make lives better.
Driving Forces

Environmental forces significantly impact the work ahead.

Healthcare and technology continue to transform and dramatically change, and we face uncertainty amplified by a new federal administration. Although the landscape will continue to shift, the Roadmap reflects and addresses the following trends:

► Payment for Value. The shift from paying providers on a fee-for-service model to value-based care (VBC) will continue. While some adjustments may be made, Medicare and Medicaid remain committed to VBC and commercial and corporate payers are focused on similar approaches designed to reward prevention, care coordination, and the avoidance of unnecessary services and costs.

► Financial Pressure and Affordability. Virtually all Affordable Care Act (ACA)-related proposals at the federal level would have negative fiscal implications for providers and create immense challenges for New York State's Budget. This will in turn place pressure on New York State Medicaid matching funds and the New York State Healthcare Reform Act (HCRA), which is subject to renewal in 2020. New York will likely face reductions in federal Health Information Technology for Economic and Clinical Health (HITECH) funding in the near future and the enhanced HITECH match expires in 2021. While all stakeholders will strongly advocate for maximum funding, the SHIN-NY will potentially face a perfect storm of reduced support over the next several years.

► Cybersecurity Threats. Security threats abound and healthcare must be diligent in employing all available defenses. Recent global attacks using ransomware are reminders of the need to be vigilant and proactive.

► Interoperability and Standards. Providers are clamoring for meaningful and consistent standards and continue to stress that the lack of interoperability is one of the major barriers to the success of value-based care. Work at the federal level toward interoperability will continue, however, it is unclear how much progress will be made.

► Usability. Frustration with EHRs and other systems are top of mind for providers who are seeking higher levels of functionality that fit better with their workflows.

► New Technology. The market is saturated with new and potential advancements such as Fast Healthcare Interoperability Resources (FHIR), Blockchain, machine learning, and natural language processing. In some cases, the developments of these technologies could have significant impacts on the traditional forms of HIE.

► Consumerism. Consumer expectations continue to rise and patient engagement will be encouraged through new tools to help them become active participants in staying healthy and fulfilling care plans and goals, especially for those with chronic diseases.

► Competition. Some argue there are alternatives to state HIEs given several EHR vendors’ efforts to connect different systems through private exchanges and the availability of national HIEs.
Strategy

The five key strategies are informed by stakeholders

The strategies outlined in the Roadmap are the result of many months of discussion and deep collaboration with a wide variety of stakeholders to understand their needs, priorities, and vision.

Strategy 1
Ensuring a Strong HIE Foundation (the Basics) Across the State

The value of a HIE such as the SHIN-NY is inherently a function of the level of provider participation, completeness and quality of contributed data, usability and functionality, security, trust, and reliability of the system. Currently, partly due to initial design and rollout, statewide SHIN-NY participation is strong for hospitals, FQHCs, and public health departments, but not as robust for physician practices (especially small ones), home care agencies, nursing homes, behavioral health providers, and others. There is also wide variation across the QEs in terms of participation, data completeness, consent, and usage of core services. Further, DOH recently expanded the minimum data contribution requirements to the 20 data elements in the common clinical dataset to be compatible with the meaningful use dataset (C-CDA). This will provide richer information than the prior minimum dataset.

New York’s Department of Financial Services recently adopted new cybersecurity regulations and many health plans are already demanding elevated security requirements via HITRUST (Health Information Trust Alliance) certification. NYeC, working with the QEs, has completed cybersecurity assessments. Medicaid is also seeking appropriate assurances of sufficient security to allow sharing and storing of Medicaid claims data.

Additionally, although there are currently uptime and speed goals for each QE and NYeC’s SPRL individually, there is not a collective goal for the system in its entirety.

A monthly SHIN-NY Dashboard of key metrics based on QE self-reported data is publicly available via NYeC’s website. Generally speaking, SHIN-NY goals have been developed using a bottom up approach that involved rolling up local targets set by individual QEs and approved by NYeC and DOH. Each QE and NYeC have separate contracts with DOH that are budget-and project-based.

Going forward, overarching system goals will be set by DOH and NYeC with input from QEs. The DOH intends to enter into one contract with NYeC for the SHIN-NY enterprise and NYeC will enter into performance-based contracts with each QE. These performance-based contracts will link a portion of QE payments to the attainment of performance goals. Given the current variation in performance, QE targets will be based on a “gap-to-goal” concept. It is expected that NYeC’s contract with DOH will also be performance-based and will include metrics that evaluate overall management and governance of SHIN-NY operations as well as performance of the Statewide Patient Record Look-up service.

The SHIN-NY Roadmap goals for ensuring a strong HIE foundation include, but are not limited to:

▶ 100% of hospitals participating and contributing full data (C-CDA) by 2020
▶ 70% of all other providers participating and contributing full data (C-CDA) by 2020
▶ Health Information Trust Alliance (HITRUST) certification for QEs and NYeC by end of 2018
▶ Goals to be determined based on metrics, formulated to measure:
  ▶ Data quality
  ▶ Meaningful usage of core services
  ▶ Enterprise-wide availability
  ▶ Customer satisfaction (providers, health plans, etc.)

1 https://www.nyehealth.org/shin-ny/qe-dashboard/
Beginning in state fiscal year 2018-19, performance payments to QEs will be based in part on achievement of the above metrics and goals. In 2017-18, an additional QE funding pool will be used to assist with attainment of HITRUST certification and there will be competitive pools focused on user connections, data contribution, and data quality. There will be additional measurement metrics that will be collected, reported, and analyzed regularly. NYeC is developing a provider directory to support these efforts.

As more community based organizations are involved in care teams and population health efforts, it will be necessary to develop additional participation targets and determine appropriate levels of data viewing and data contribution.

### Strategy 2

**Supporting Value-Based Care**

One key strategy of the network is aggressively supporting patient-centric, value-based care and certain tools, supports, and services desired by the State, providers, health plans, and consumers. Not only is this the right thing to do for patients and communities, but it enhances the value of the network and supports its continued funding as a public good that improves healthcare and lowers costs.

Peer-reviewed, published, evidence-based studies have repeatedly shown that the use of the SHIN-NY to access patient information is associated with:

- ▶ 57% reduction in patient readmissions within 30-days after hospital discharge
- ▶ 30% fewer emergency department admissions
- ▶ 52% reduction in laboratory tests and a 36% reduction in the estimated number of radiology exams
- ▶ 25% fewer repeat images within 90-days of first imaging procedure

During the many stakeholder feedback sessions with providers, there was consistency in the desire for enhanced functionality and workflow improvements. It is also widely recognized that providers need additional data and information to help support value-based care efforts. Providers are interested in having the ability to search data, receive advanced alerts and notifications, and better enable medication reconciliation. There was also frustration regarding the State’s current opt-in consent model, which generally requires stand-alone written consent for each provider to access information via the SHIN-NY, except in emergency situations.

An independent statewide assessment of provider input is underway to further inform prioritization of potential enhancements. Based on earlier stakeholder discussions, some functionality enhancements that could be undertaken to improve workflows and help providers include, but are not limited to:

- ▶ Single sign-on for DOH’s Health Commerce System (e.g. prescription drug monitoring, immunization registry, etc.)
- ▶ Advanced alerts with action-oriented information or results delivery with flags for abnormal results
- ▶ Documentation of upload and view/download of summaries of care to demonstrate compliance for Medicare Access and Chip Reauthorization Act (MACRA) / Merit-Based Incentive Payment System (MIPS)
- ▶ Increased integration with EHRs
- ▶ Ability to exchange care plans among teams
- ▶ Potential expansion of available data related to national patient centered data home

The statewide assessment will also seek to better understand provider interest in the types of data currently not available through the network.

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Based on stakeholder feedback, examples of additional data and services that could help support value-based care and initiatives such as Medicaid’s DSRIP value-based payment, Medicare’s alternative payment models (APMs) & MIPS, the State’s APC, include but are not limited to:

- Medication fill data
- Quality measurement reporting
- Claims data (potentially via the All Payer Database and eventually inclusive of ICD-10 z-codes, i.e. social determinants of health)
- eMOLST (Electronic Medical Orders for Life-sustaining Treatment in New York State)
- Variety of registries (cancer, electronic death registration system, etc.)
- Housing, hunger, and other social determinants of health indicators

NYeC estimates, based on QE reported data, that about half of adult New Yorkers have provided the necessary written affirmative consent to allow their clinical data to flow to at least one provider. Recommended changes to consent policy to facilitate the use of HIE to improve healthcare delivery include:

- Patient alerts without written consent to those with treating relationships
- SHIN-NY consent incorporated into other consents (such as health insurance enrollment forms)

In the long-term, additional research and recommendations will be forthcoming on adopting an opt-out system like those used by 38 other states. Differing consent policies among the states also make it more difficult to share information across borders. Any potential changes to consent policies would protect and conform to federal rules governing sensitive health data.

The SHIN-NY 2020 Roadmap goals for supporting value-based care include, but are not limited to:

- Implement up to three enhanced functionality projects
- Implement up to three additional data and services projects
- Establish a new goal for meaningful usage of core services, especially alerts
- Develop basic alerts without written consent option
- Apply integrated SHIN-NY consent form option
- Achieve consent for 95% of all adult New Yorkers (this target will be adjusted if New York State does not move to an opt-out model)
Strategy 3
Enabling Interoperability and Innovations

A strong SHIN-NY with the vast majority of providers participating and contributing complete and high-quality data will be a stellar testing ground for new ways to advance interoperability and enable innovation to improve health outcomes. It has the potential to provide the data needed to enable market-based solutions that could also raise additional non-governmental revenue to support the system within applicable and potentially modernized data governance rules.

The new proposed performance-based contracting model would include an innovation pool to make investments in process or enable technology innovations through competitive applications from high-performing QEs. The investments would include local matches and leverage shared learnings throughout the SHIN-NY enterprise (to the extent permissible). This program would be a "try before you buy" statewide approach and identify the experiments of highest value before implementing innovations on a large scale. It would also be a pool that could fund some of the VBC tools and services.

Potential projects, depending on funding and QE proposals, could include but are not limited to:

- New patient engagement tools, especially for those with chronic diseases
- Value-based care tools and services
- Health Level 7 (HL7) FHIR pilot for discrete data
- Use of Blockchain technologies (a distributed database that is used to maintain a continuously growing list of records)
- Artificial intelligence and machine learning (e.g. predictive models, risk scores, etc.)
- Natural language processing

The SHIN-NY 2020 Roadmap goals for enabling interoperability and innovations include, but are not limited to:

- Develop and implement new innovation pool program
- Select and fund the best innovation proposals that are consistent with state priorities
Strategy 4
Promoting Efficiency and Affordability

Given the financial pressures that are likely on the horizon, SHIN-NY operations will need to be reexamined and value-engineered with an eye towards improved efficiency and affordability. This is especially true when considering the stress that will be placed on the system through the increased number of SHIN-NY participants and demands for additional services and data. There is currently significant variation in the cost structures of the eight QEs. Rather than funding being cost- and budget-based, there will be new core infrastructure payments, contained in the proposed performance contracting model, that will drive cost savings and efficiencies. These efficiency opportunities can take many forms including:

▶ Group purchasing
▶ QE specialization
▶ Standardization
▶ Shared services
▶ Potential QE mergers

While the level of future government funding is not yet known, under a level funding scenario redirecting resources to the performance payments and the innovation pool will result in lower overall funding available for core infrastructure. This will strongly encourage efficiencies and new ways of providing services. This pressure will become more intense if total funding is reduced and underscores the immediate need for market analyses to inform sustainability discussions.

The current system sometimes supports duplication and non-standardized approaches (e.g. high-cost EHR interfaces). Moving forward, a new “wire once” / “pay once” strategy will be employed. Given that the SHIN-NY network allows QEs to provide information statewide, payments will be made only once rather than multiple times for connections to multiple QEs or NYeC. This strategy would apply to various statewide data, certain services, and provider / EHR connections. Already, interest has been expressed by health plans, EHRs, and health systems that span multiple QE areas for single, streamlined approaches.

The SHIN-NY 2020 Roadmap goals for promoting efficiency and affordability include, but are not limited to:

▶ Develop and implement new core infrastructure payments and measure efficiency
▶ Develop and implement performance payments based on key metrics
▶ Implement “wire once” / “pay once” strategy
▶ Manage and calibrate the SHIN-NY system based on government funding levels
Strategy 5
Advocating Collectively for the SHIN-NY and its Stakeholders

Work will continue to connect and relate improved health outcomes to the use of SHIN-NY services and tools. Additional evidence-based studies will be organized and promoted system-wide. A robust and coordinated communication strategy will also be employed to better educate the public and stakeholders about the benefits of the SHIN-NY and health information exchange.

It is vital to showcase the many accomplishments of QEs, NYeC, and the SHIN-NY as a system, ensuring consistent and coordinated messaging. NYeC will continue to lead thoughtful and effective advocacy campaigns for needed funding and policy changes with the Executive branch and the State Legislature.

Collectively, the SHIN-NY’s stakeholders will push for the continuation and refinement of the various provider assistance programs such as Data Exchange Incentive Program (DEIP), Medicaid Eligible Professional Program (EP2), Behavioral Health Information Technology (BHIT) Program, Transforming Clinical Practices Initiative (TCPI), and Advanced Primary Care (APC) that help providers select, adopt and use EHRs, and connect to the SHIN-NY.

There is universal interest in stakeholders working together to address many EHR vendor issues and the common challenges faced by providers and QEs. The Roadmap envisions a coordinated effort by all to address some of the following issues:

► Lack of vendor adherence to interoperable common clinical dataset standards (CCD/C-CDA)
► Lack of certified EHRs in some areas of healthcare such as long-term care and behavioral health
► Need for vendor prioritization of QE participants
► Need for vendor responsiveness to demand HIE connections and development of hubs / gateways to QEs
► Inconsistent pricing and charging for HIE connections

Advocacy for improved interoperability and standards by NYeC and DOH, on behalf of the SHIN-NY, will continue. This will involve active promotion of standards at the national level as well as at the State level, especially for data, formats, and others. The federal administration has stated interoperability as a primary goal in the near term. However, the administration will likely rely on the private industry to achieve their targets. NYeC and the DOH will be active participants in the national interoperability dialogue and will work with other states and regional HIEs on industry advocacy.

The importance of a continuous statewide feedback loop became apparent during the development of the Roadmap. While QEs clearly have strong relationships locally with their participants, it is important for NYeC, as the state designated entity, to ensure ongoing and consistent statewide dialogue. The following advisory groups will be created to foster stakeholder input and feedback:

► Provider and Health Plan Advisory Group
► Consumer Advisory Group
► Technology Advisory Group

Simultaneous with the creation of the Roadmap, SHIN-NY governance is being evaluated to ensure appropriate input and expertise from all stakeholders including QEs, providers, plans, and consumers.

The SHIN-NY 2020 Roadmap goals for advocacy include, but are not limited to:

► Consistently demonstrate SHIN-NY value
► Execute SHIN-NY funding and policy advocacy
► Collectively and effectively organize around EHR vendor issues
► Participate in interoperability and standards work
► Ensure continuous feedback loop from stakeholders
The SHIN-NY recently celebrated its 10-year anniversary and the progress that has been made towards the creation of a high functioning public HIE.

The 2020 Roadmap charts a course that focuses on getting providers connected and providing complete and high-quality data. It also encourages further evolution and enhancements to address numerous challenges and opportunities.

The SHIN-NY will continue to be a vital public asset to improving the quality of patient care, reducing unnecessary health care expenditures, and supporting an array of State policy objectives and initiatives. As the secure network expands and grows to contain richer clinical information and the highest quality data, it will become an even more powerful tool to help transform healthcare and our communities.

The 2020 Roadmap has been developed to allow for calibration of priorities based on efficiencies achieved and available funding and has the potential to enable marked improvements in New York State’s healthcare system.

Achieving the Triple Aim in New York State

▶ For Providers: The SHIN-NY will continue to ensure that doctors and other healthcare professionals can provide the best quality care by enabling instant and secure access to clinical and other actionable data for their patients, regardless of where the patient received care and what EHR other treating providers used. Providers will also benefit by receiving real-time alerts that let them know when their patients are being admitted to or in the ED or when a test result is out of normal range. The network will continue to reduce unnecessary and duplicative tests, support transitions of care, and enable better care coordination.

Additional benefits include administrative and workflow relief such as the elimination of fax machines, the need to no longer track down paper records, and, eventually, the ability to streamline quality measurement reporting for health plans, government, and other programs, saving time, money, and energy. Ultimately, the SHIN-NY will contain a rich and robust set of data that can provide healthcare professionals a 360-degree view of their patients (both clinical and non-clinical), support population health, and enable providers to thrive under existing and future value-based payment initiatives.

▶ For Health Plans: The SHIN-NY will be a valuable tool for participating contracted providers to effectively manage care, improve treatment, and reduce costs. The network has the potential to streamline monitoring, analysis, and reporting of quality measures.

▶ For the State: New York State will benefit from healthier populations, reduced health care costs specifically related to Medicaid and the State Budget, streamlined quality measurement reporting, and potential support to fuel science, research and innovation, and economic growth.

▶ For Public Health: Public health officials will benefit from electronic access to core clinical data needed to monitor and respond to outbreaks and disasters. This is critical to containing dangerous outbreaks and managing disasters that might require hospital and nursing home evacuations when provider EHR systems have been compromised.

For more detailed Roadmap slides, please visit www.nyehealth.org/roadmap
There is tremendous support for reaching SHIN-NY’s maximum potential and the path forward will require focus, discipline, execution, creativity, fairness, data, and teamwork from everyone. Together, we can dramatically transform the healthcare system where health information exchange is universally used as a tool to make lives better!