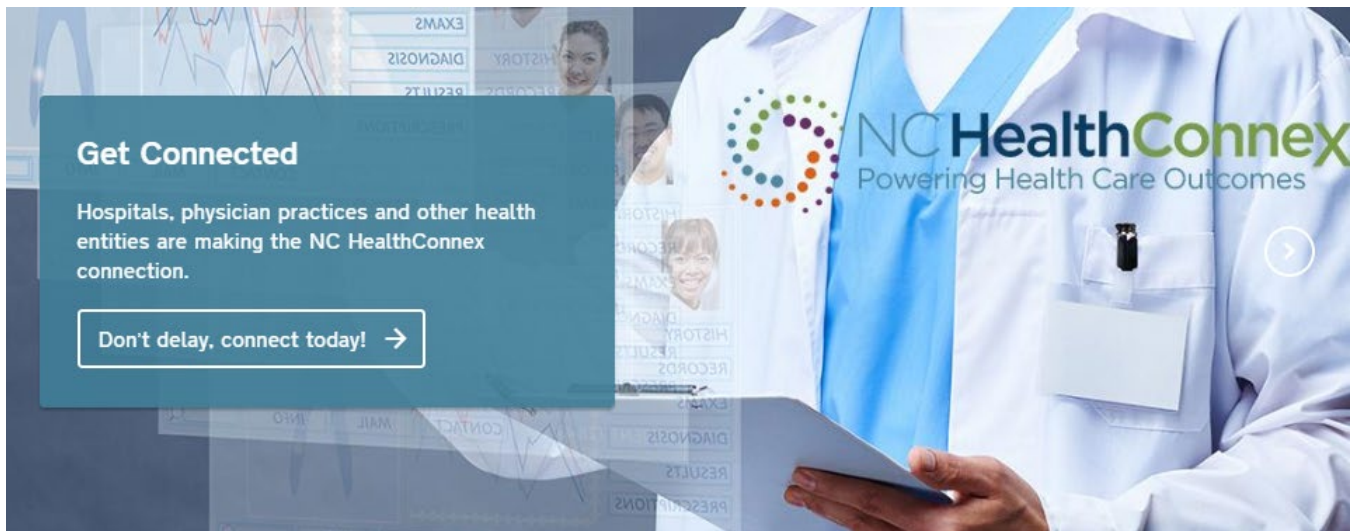# NC HealthConnex

Government to Business

North Carolina

Initiated: January 2016

Completed: June 2019

Contact: Christie Burris, Executive Director, NC Health Information Exchange Authority (NC HIEA) (919-754-6956, Christie.burris@nc.gov)

EXECUTIVE SUMMARY

One of the responsibilities of state government is to advance the health, safety, and well-being of the people we serve. This is impossible without our health care provider community. North Carolina created NC HealthConnex, a state-managed health information exchange (HIE), in part to provide the medical community with the data they need to make more informed decisions about patient care.

With 98 percent of the state's health care providers covered, it is one of the largest HIEs in the country.

Suite of Services

Exchange	Notify	Communicate	Connect	Contribute
Flexible Delivery Custom delivery methods integrate into varied provider workflows	**NC*Notify** Notifies providers as their patients receive services across the care continuum	**Direct Secure Message** Connection with other providers by sending and receiving secure, encrypted messages.	**Provider Directory** More than 21,000 secure messaging addresses of health care providers	**Public Health Reporting** Diabetes Public Health Registry and NC Immunization Registry (help providers meet MU/MIPS)

As of May 2020, NC HealthConnex links more than 6,000 health care facilities, including hospitals, physician practices, long-term care facilities, local health departments, behavioral health providers, Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs), radiology centers and others. More than 4,000 additional facilities are currently in the onboarding process, among them, laboratories and Emergency Medical Services. In addition to sharing and retrieving patient history across the care continuum, HIE participants today leverage NC HealthConnex for secure provider-to-provider messaging, event notifications, automated reporting to the NC Diabetes Registry, and as a gateway to the NC Immunization Registry and required state hospital electronic laboratory reporting.

NC HealthConnex empowers providers with nearly real-time clinical information that links to colleagues across North Carolina and travels seamlessly and securely to their practices, ultimately helping to reduce medical errors and duplicate procedures.
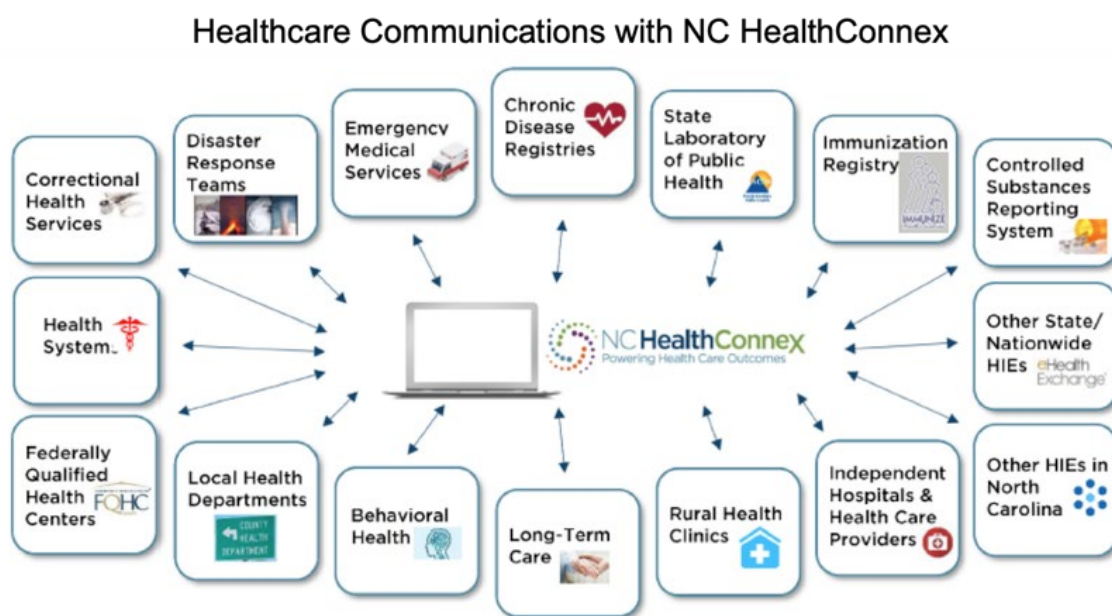
The information shared through NC HealthConnex is vital to protecting and promoting the health and wellbeing of North Carolinians. **The state has fully funded NC HealthConnex so that its services are provided at no cost to the medical community.** The North Carolina General Assembly has committed $9 million annually to this endeavor. Below are some of the benefits NC HealthConnex delivers to the provider community.

CONCEPT

Health Information Exchange (HIE) systems have been in development nationwide since a federal law was passed in 2009 to promote the use of electronic movement and use of health information among health care providers.

Providers in North Carolina today use more than 200 disparate electronic health record (EHR) systems, and NC HealthConnex, North Carolina's state-managed HIE, bridges the gap between them—and between rural and urban health care—to promote access to and exchange of health information at the point of care for more appropriate treatment decisions and more effective care management. Sharing of this data also helps to create a more complete, longitudinal clinical patient record, resulting in less duplicative testing, more efficient and accurate diagnoses, recommendations, and treatment, and improved coordination across all levels of care.

NC HealthConnex is one of the largest HIEs in the country, providing a secure, standardized electronic system through which providers can share important patient health information securely such as labs, diagnostics, history, allergies, medications, and more.
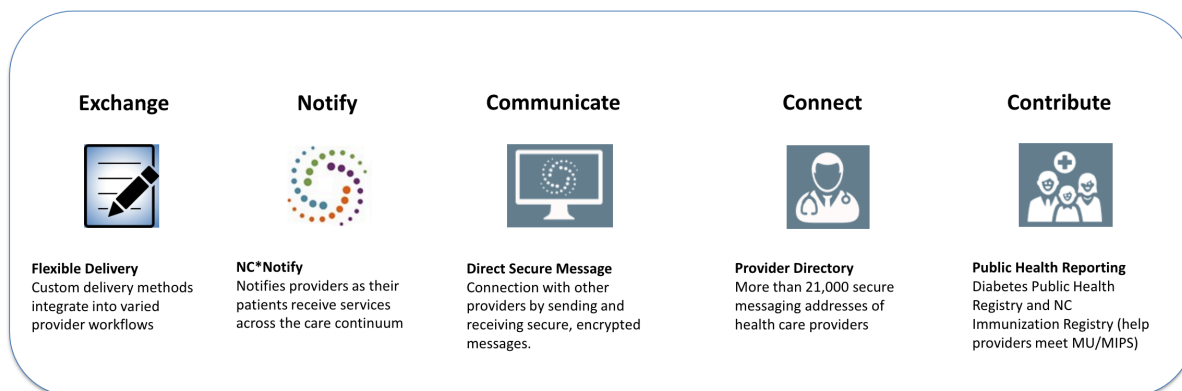

Healthcare Communications with NC HealthConnex

The North Carolina Health Information Exchange Authority (NC HIEA), part of the North Carolina Department of Information Technology (NCDIT), works closely with the North Carolina Department of Health and Human Services (NCDHHS), the North Carolina General Assembly, and other key stakeholders to provide meaningful input for needed policy and funding changes that support NC HealthConnex as a useful tool for the provider community. NC HealthConnex is continually evolving, as NC HIEA uses stakeholder feedback to expand its suite of services. In 2018 the state added NC*Notify, a statewide event notification service. In 2019, NC HealthConnex worked to expand nationwide connectivity across 20 HIEs, the Veterans Administration and the Department of Defense through the Patient Center Data Home (PCDH) network and the eHealth Exchange network.

In late 2019, NC HealthConnex built an integration to the Patient Centered Data Home (PCDH) network, an initiative of the Strategic Health Information Exchange Collaborative (SHIEC). PCDH is a cost-effective, scalable method of exchanging patient data among HIEs. It is based on triggering episode alerts, which notify providers a care event has occurred outside of the patient's "home" HIE, and confirms the availability and specific location of the clinical data, enabling providers to initiate additional data exchanges to access real-time information across state and regional lines and the care continuum.

NC HealthConnex includes the out-of-state alerts from the PCDH into the NC*Notify event notification service as well as in the NC HealthConnex clinical portal.

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NC HealthConnex
Powering Health Care Outcomes

In addition to the core functionality of the NC HealthConnex health information exchange infrastructure, the HIE offers additional services for full participants that are designed to integrate more complete patient information into care delivery. The NC HIEA places a significant emphasis on NC HealthConnex's data quality.
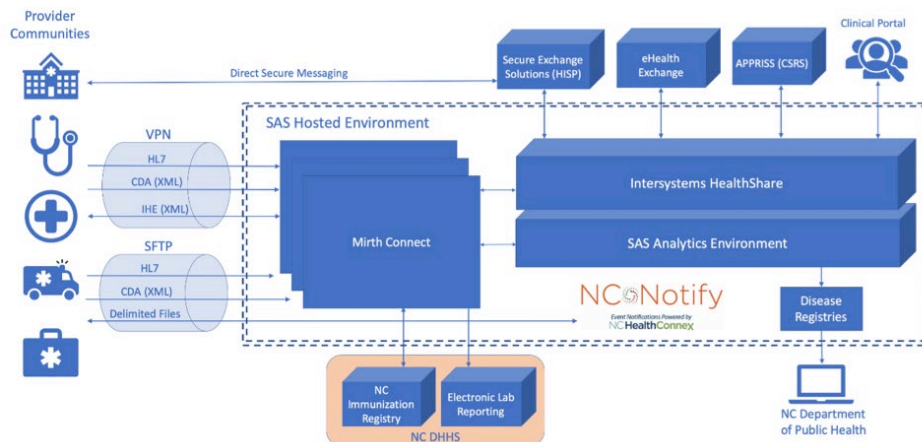
- **NC HealthConnex Clinical Portal**: The Clinical Portal can be used to query and exchange patient records, view the longitudinal patient record, and access other features.
- **Direct Secure Messaging (DSM):** NC HealthConnex uses Orion Health as our HISP (health information services provider), which is also a participant in the DirectTrust framework. Full participants are eligible to receive a unique secure email address assigned in the NC HIEA Direct domain. Users will have the ability to append files containing Protected Health Information to their direct messages.
- **Event Notifications**: NC*Notify is a statewide event notification service designed to routinely place targeted, actionable patient data into the hands of subscribed providers, based on their desired, specified patient panels. NC*Notify provides a secure, regular "push" of relevant notifications to providers as their patients receive services statewide and across the care continuum, including in acute and ambulatory care settings.
- **Integration with the Controlled Substance Reporting System**: This integration will create an additional pathway for providers to access the state's prescription drug monitoring program, NC Controlled Substances Reporting System, and help combat the opioid epidemic in North Carolina.

- **Specialized Health Registries:** The NC HIEA is a proud partner with NCDHHS's Division of Public Health (NCDPH) and is working alongside this agency to deliver public health registry reporting for full participants through the NC HealthConnex connection. Some of the registries include the Electronic Laboratory Reporting Registry, NC Immunization Registry, and the Diabetes Registry.
- **Provider Directory:** The Provider Directory is a directory of more than 22,000 secure email addresses of NC HealthConnex participants and North Carolina providers participating in DirectTrust.
- **Training**: NC HIEA offers training for Clinical Portal use, DSM, and other HIE features.

The NC HIEA is a Health Information Organization (HIO) under the Health Insurance Portability and Accountability Act (HIPAA). In accordance with HIPAA regulations and state and federal law, the NC HIEA has entered into Business Associate Agreements or HIPAA-compliant agreements with all organizations (e.g. covered entities) that will receive personal health information (PHI) from NC HealthConnex. Information is always encrypted at rest and in transit. Additionally, the environment is SOC 2 compliant. The NC HIEA performs regular audits to ensure compliance, follow data specifications standards already set by the eHealth Exchange and strives to minimize the amount of data shared to what is required to provide safe, quality and affordable care to patients.

NC HealthConnex centrally manages all connections with its Participants via an integration platform located within NCDIT that is housed in a secure colocation facility at SAS. Healthcare information is collated and distributed to the remaining portions of NC HealthConnex, including the HealthShare software licensed from Intersystems and an analytics environment built on the SAS platform.

The current version of the NC HealthConnex technology stack has the following components - an Integration Engine, an Enterprise Master Patient Index (EMPI), Clinical Portal, Clinical Repository, Document Repository, SAS analytics platform, and Direct Secure Messaging (DSM) which interact as illustrated in the diagram below.

SIGNIFICANCE AND IMPACT

NC HealthConnex exists to improve healthcare quality, enhance patient safety, improve health outcomes, and reduce overall healthcare costs by enabling health information to be readily available to healthcare providers and clinical staff across the state.

Participation in NC HealthConnex is mandatory for providers who receive state funds, but the state has worked hard to make it something that providers want to use. NC HealthConnex empowers providers with nearly real-time clinical information that links to colleagues across North Carolina and travels seamlessly and securely to their practices, ultimately helping to reduce medical errors and duplicate procedures. Below are some of the benefits NC HealthConnex delivers to the provider community.

> "Health data is critical during natural disasters. Our connection with NC HealthConnex helps us provide the best care we can during Hurricane Florence."
>
> -Yvonne Hughes, CEO of both Coastal Carolinas Health Alliance and Coastal Connect Health Information Exchange

Reduces administrative burden. NC HealthConnex is the single point of electronic reporting of health information to the State of North Carolina. Providers can electronically submit immunizations, reportable labs, communicable disease diagnoses, and other reportable information to state systems directly through NC HealthConnex.

Alerts providers through NC*Notify. This system currently alerts providers when and where their patients interact with the healthcare system. To help providers make more informed decisions about appropriate care management, NC*Notify includes chief complaint and diagnosis information, as well as information from various connected state registries and repositories, including, but not limited to, the North Carolina Immunization Registry (NCIR), the NC Controlled Substances Reporting System (CSRS) and the North Carolina Resource Platform (data on social determinants of health).

Enables providers to share information across state lines. The NC HIEA is a participant of the eHealth Exchange, enabling NC HealthConnex to integrate neighboring state HIEs and federal agencies. Full participants can access the eHealth Exchange connections via the NC HealthConnex Clinical Portal. We are currently live with the Georgia HIE and the U.S. Department of Veterans Affairs HIE. During Hurricane Florence, NC HealthConnex, enabled connectivity to HIEs in NC, Virginia, Georgia, South Carolina, and Tennessee through the eHealth Exchange, so that medical providers assisting displaced citizens could have access to their medical records.

These connections via the eHealth Exchange trusted framework remain live and available, allowing for patient data from these health information organizations (HIOs) to be queried from within the NC HealthConnex clinical portal, and vice versa, when North Carolinians seek care outside their communities. In addition, North Carolina healthcare providers are now able to receive information when their patients present at certain out-of-state emergency rooms or inpatient stays thanks to a connection between NC HealthConnex and other participating HIEs across the nation via the Patient Centered Data Home (PCDH) national network. Between April and June 2020, more than 11,000 ADT notifications were exchanged in NC with 18 HIEs for out-of-state patient visits. Nationally, more than 1 billion total event notifications have been exchanged while working with 45 participating HIEs and serving 177 million patients in PCDH regions.

NC HealthConnex has loaded all 45 participating HIEs zip codes into our system to capture out-of-state visits to North Carolina and will provide periodic updates as new HIEs are added to the PCDH network.

Facilitates better health with HIE work groups. The NC HIEA regularly holds focused work groups to gather stakeholder input on NC HealthConnex services, ensuring it fits the needs of the healthcare community. NC HIEA hosts two work groups dedicated to better understanding the unique challenges in implementing, and defining the benefits of, HIE for dental and behavioral health providers, respectively; as well as a work group to evaluate use cases brought forth by provider groups, researchers and healthcare organizations for leveraging HIE to improve population health and close gaps in care.

Provides assistance and funding to transition to Electronic Health Records (EHRs). The behavioral health work group identified lack of technology as a major barrier for this provider community to fulfilling their HIE connectivity mandate. In response, the NC HIEA, together with the NC Office of Rural Health, developed a program to fund the purchase of EHRs for 178 behavioral health and intellectual and developmental disability providers still using paper records. The program created a model for connecting the Behavioral Health community, resulting in connections between more than 200 Behavioral Health facilities and NC HealthConnex through a pilot program carried out by the NC HIEA Behavioral Health/IDD Work Group.

NC HealthConnex has improved access to healthcare data statewide. Healthcare providers are better able to share clinical data and submit state reports. In addition, NC HealthConnex provides public health and emergency management agencies with a single tool to facilitate the movement of timely clinical data across the state. This is invaluable for outbreak and disaster response, as well as the planning of prevention programs. As of March 2020, NC HealthConnex has health data available for more than nine million unique patients (NC's population is 10.4 million[2]) with more than 60 bidirectional interfaces delivering NC HealthConnex data into the clinical workflow; Additionally, there are more than 3,000 users with Clinical Portal credentials. Average monthly portal logins in CY2020 are just over 1,200, an increase year over year by 140%. Additionally, average monthly document queries in CY2020 are more than 450,000 across the HIE with more than 600,000 in March. This represents a 60% increase year over year.

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[2] https://www.census.gov/quickfacts/NC [nam02.safelinks.protection.outlook.com]