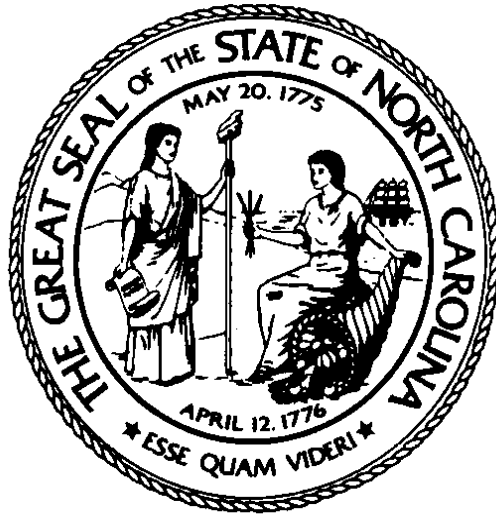


**N.C. Department of Information Technology
Government Data Analytics Center (GDAC) Annual Report**



**Report to the Chairs of the House of Representatives Appropriations
Senate Base Budget/Appropriations Committees
Joint Legislative Oversight Committee on Information Technology
Fiscal Research Division**

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Secretary and State Chief Information Officer**

Oct. 12, 2022

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Legislative Request

The N.C. Department of Information Technology submits this report pursuant to S.L. 2015-241 §7A.(f) (N.C.G.S. 143B-1385(F)), which directs the State Chief Information Officer (State CIO) to report annually on the activities of the Government Data Analytics Center (GDAC), including:

- a. The funding, expenditures, cost savings, cost avoidance, efficiency gains, process improvements, and major accomplishments.
- b. The contribution of funds or resources by those private entities that are participating in public-private partnerships within the GDAC, including, but not limited to, knowledge transfer and education activities, software licensing, hardware and technical infrastructure resources, personnel resources, and such other resources as agreed upon by the State and the private entity.

The full text of the GDAC's enabling legislation is available in Appendix A.

Introduction

The N.C. Department of Information Technology Government Data Analytics' mission is to transform data into information to facilitate decision support, increase operational efficiencies, and improve outcomes for the citizens of North Carolina by integrating and sharing data assets.

This report details the GDAC's activities during the 2021 calendar year.

Accomplishments

The GDAC program integrates data and develops analytics to support business needs associated with criminal justice, child safety, fraud, compliance, health care and longitudinal and performance analysis.

GDAC collaborates with numerous partners, including but not limited to state agencies, local governments, and the health care community to support data sharing and service development. To protect and secure the state's data, GDAC leverages a data governance model that ensures privacy, proper access, and use of data. Each year GDAC continues to deliver new analytic solutions and increased data driven intelligence provided to agencies and partners. Appendix B provides a summary of calendar year 2021 and projected 2022 activities.

Criminal Justice and Public Safety

GDAC supports the criminal justice community by integrating and transforming data to improve public safety. A summary of the criminal justice application development follows.

HB511 "The North Carolina First Step Act." Data Study

Session Law 202-47, H511 directed the Department of Information Technology, Government Data Analytics Center to conduct a statewide study to identify criminal justice data elements related to individuals who have been charged with infractions or criminal offenses that are currently collected and maintained.

The purpose of the study is to (i) identify gaps in data for use by law enforcement, judicial officials, policymakers, and other stakeholders related to the processing, detention, and adjudication of individuals charged with infractions or criminal offenses and (ii) identify solutions for improving availability and accessibility of data available to policymakers to inform public policy related to individuals who have been charged with infractions or criminal offenses.

The study findings were reported in May 2022, which recommended the central collection of statewide jail data and the transformation of data collected to support CJLEADS to be transformed to support analytics for criminal justice stakeholders and policy makers.

CJLEADS

The Criminal Justice Law Enforcement Automated Data Services (CJLEADS) is a foundational cornerstone of the GDAC. This application supports criminal justice professionals by providing access to criminal records on any device 24 x 7 x 365. With a user base exceeding twenty-five thousand (25,000), the CJLEADS application provides:

- A comprehensive view of an offender's records and photographic images
- Alerting capability notifying a user of an offender's change in status
- Access to real-time warrant information
- Access to real-time license and registration information associated with drivers, motor vehicles, hunting, fishing, and vessels.
- Access to real-time pretrial release order information
- Access to federal data
- Interconnection with the Federal data access, providing access to:
 - a. Person related queries identifying, wanted, missing persons, violent persons, foreign fugitives, immigration violations, gang, identity theft, transnational organized crime, protection orders, supervised release, and sex offenders
 - b. Vehicle queries including those; stolen, involved in felonies, with stolen plates, and parts
 - c. Out-of-state DMV person and vehicle inquiries including driver information, driver history and vehicle registration information for all 50 states

Completed Activities

- Conducted a data and impact analysis to CJLEADS associated with planned upgrade of the Administrative Office of the Courts (AOC) e-warrants system and integrated case management systems.

Planned Activities

- Design, develop, test, and implement the integration of data associated with the AOC e-warrant system;
- Design, develop, test, and implement the integration the new AOC integrated case management system data for 4 counties while maintaining the integrations of the 96 counties;
- Develop a repeatable implementation process to streamline the rolling implementation plan for the AOC integrated case management system;

- Design and develop a user query tool to enable criminal justice self-service reporting capabilities utilizing the CJLEADS integrated data.

NC Gun Purchasing Disqualifying Analytics

In partnership with the State Bureau of Investigation (SBI) and Administrative Office of the Courts, the GDAC developed the NC Gun Purchasing Disqualifying Analytics, which identifies and reports NC offenders who have a convicted offense which disqualifies them from gun purchases. NC Offender's with disqualifications are reported to the National Instant Criminal Background Check System (NICS) which alerts firearm sellers and Federal Firearm Licensees, of a person's ineligibility. To date, approximately 72,052 NC offenders have been identified as ineligible for gun purchases which resulted in 494 denials.

Completed Activities

- On-going operations and maintenance.

Planned Activities

- Modify CJLEADS system to account for the new AOC e-warrants and integrated case management system.

Criminal Investigative Case Management (MEMEX)

Session Law 2015-241 §7A.2(c) directed the State CIO through the GDAC to manage and coordinate the deployment of an intelligence-based investigative case management system. Working with the SBI, N.C. Information Sharing & Analysis Center (ISSAC), the GDAC has completed the development of a system which provides:

- A scalable case management capability;
- The ability to incorporate and integrate data from existing investigations and sources;
- The ability to manage investigators and investigation documentation such as interviews, property and evidence, offenses, charges and court dispositions;
- Integrated workflow to assist in guiding the user through the entire case management life cycle.

Completed Activities

- On-going operations and maintenance;
- Upgrade existing application into a new and modern platform TARS (Tactical Activity Reporting System) providing enhanced case management and investigative capabilities.

Planned Activities

- Continue upgrade all remaining modules from MEMEX;
- Link prison visitors log data;
- Migrate data from MEMEX to TARS;
- Explore possibilities of CJLEADS integration for seamless data transfer.

Crime Lab Analytics

GDAC is supporting the N.C. Department of Justice State Crime Lab to expand access to information to investigators, DNA scientists, prosecutors, and other criminal justice professionals for improve operational effectiveness and reduce costs.

Completed Activities

The following reports have been developed:

- Stop Lab Work Reporting – the matching of active crime lab cases to AOC court records to identify crime lab cases that no longer require analysis and allow for the redirection of crime lab resources towards active investigations;
- DNA on file flag –integration with CJLEADS to notify law enforcement that DNA has already been processed, reducing duplicate processing and associated costs;
- DNA collection flag –integration with CJLEADS to notify law enforcement of offenders, who due to a previous conviction, are required to provide a DNA sample;
- Blood Destruction Reporting - the assessment of the current blood sample inventory and the identification of samples which no longer require storage;
- FBI Combined DNA Index System (CODIS) Outcomes Report – reports CODIS matched records to NC criminal case records.

Planned Activities

- On-going operations and maintenance;
- Modify the crime lab reports to integrate the new AOC integrated case management system while continuing the maintenance and operations of the legacy county case data.

Investigation Records Management

The North Carolina Department of Insurance's Criminal Investigations Division (CID) is charged with conducting criminal investigations and supporting prosecution of individuals and entities committing insurance-related crimes. To support their investigative operations the Division required a secure environment that support investigative case management functions, that included advanced reporting and analytics, search capabilities, and built-in case activity monitoring and tracking.

Completed Activities

- Implementation of a secure case management system which supports criminal intelligence management, confidential information management, expungements, investigation case management, chain of custody, and prosecution.

Planned Activities

- Develop a bail bonds complaints administration module to allow for intake, case workflow and investigation;
- Implement an online fraud reporting portal;
- Implement entity resolution Enhance the case management workflow functionality;
- Develop prosecution reporting capability to support the securely sharing case investigation records for prosecution.

Sex Offender Compliance Alerting Program

Partnering with N.C. SBI, GDAC developed a Sex Offender Compliance and Alerting program to identify individuals who may be out of compliance with sex offender reporting. The program identifies data anomalies and generates alerts for individuals who are required to register and maintain their N.C. Sex Offender registration information and identifies out-of-state sex offenders who may be subject to registration due to their North Carolina presence. As of January 2021, this program is implemented across 39 County Sherriff's offices. To date, approximately 6,000 alerts have been generated for investigations.

Planned Activities

- On-going operations and maintenance.

Adult Correction Reporting Environment

The North Carolina Department of Public Safety (DPS) Programs & Services Division reporting repository support user developed ad-hoc reports.

Planned Activities

- On-going operations and maintenance.

Governor Crime Commission – Criminal Justice Analysis Reporting Warehouse

The North Carolina Department of Public Safety (DPS), Governor's Crime Commission Criminal Justice Analytics Center (CJAC), centralizes data sources across criminal justice arena. This repository of data combined with next generation SAS tools will enable the CJAC to develop program measures and provide on demand reporting and analytical support to NC Governor Crime Commission.

Completed Activities

- Implemented a secure data repository linked to query tools for CJAC developed reporting;
- Integration of NC National Incident Based Reporting System (NIBRS) and NC Traffic Stop data;
- Integration of SBI NC Criminal History (NCCH) data;
- Implemented Justice Data Portal to inform NC Citizens of crime trends and matrix.

Planned Activities

- Integration of DPS Adult Correction data;
- Develop new measures for Traffic Stops Data and publish in Justice Data Portal;
- Develop new measures for NC CCH (Computerized Criminal History) Data and publish in Justice Data Portal.

Child and Family Safety

The DACJJ and DHHS's Division of Social Services (DSS) are working with the GDAC to integrate data to improve access to information for social services case workers and juvenile court counselors to assist in developing appropriate care plans.

Child Protective Services

Session Law 2014-100 §12C.1.(e) directed DHHS to coordinate with the GDAC to establish and implement a Child Protective Services Pilot Program to enhance coordination of services and information sharing, and appropriated a sum of \$300,000 to assist in supporting the program's development and implementation. Session Law 2015-241 §12C.11.(a) (HB97) directed the continued collaboration between DHHS and DIT to enhance the pilot to include the:

- Development of a dashboard linking the family to the child;
- Development of a comprehensive profile of a child to include demographic and caretaker information and indicators or flags of other services, including but not limited to: prior assessments of the child, eligibility for food and 25 nutrition programs, Work First/TANF, Medicaid, and Subsidized Child Care;
- Rebranded the Child Protective Service Pilot as the Child Welfare Accessing and Searching Sensitive Information through Technology (CW ASSIST) in Q4 of calendar year 2016;
- In early 2017, DHHS successfully rolled out the Child Welfare ASSIST (CWA) application to the county and state child protective services staff. Currently there are approximately 2,700 active users.

Planned Activities

- Implementation of Case Worker ASSIST 2.0 with the expansion of user base to include Childcare social workers and Adult Aging investigators at state and county levels;
- Integration of additional data sources with expanded security roles, ensuring proper access and data privacy.

Juvenile Justice

The DACJJ is committed to the reduction and prevention of juvenile delinquency by effectively intervening, educating, and treating youth; strengthening families; and improving public safety. GDAC solutions supporting Juvenile Justice include:

- Recidivism Reporting Module - Integration of juvenile record data with adult criminal courts and probation records for the generation of various metrics associated with recidivism;
- Service Directory Catalog - a service management and cataloging mechanism for service providers and the State;
- Juvenile Justice Service Directory public portal <https://www.ncdps.gov/juvenile-justice/service-directory>;
- Service Directory integration with CJLEADS.

Completed Activities

- Enhanced service directory portal including new functionalities and reports for DPS funded programs with expanded search options.

Planned Activities

- Enhance and maintain the Service Directory and reports;
- Enhance and maintain the Recidivism Reporting.

NC Integrated Care for Kids (NC InCK)

NC InCK is an Innovative Model to Promote Child and Family Well-being in Central North Carolina that aims to integrate the needs and services beyond healthcare to provide more holistic care to a child and their family. DHHS is participating in the InCK Project, which is a seven-year pilot with Duke and the University of North Carolina that utilizes grant funds from CMS to improve integration of medical and social services care, reduce out of home placement, and improve health outcomes for Medicaid and CHIP-insured children in the five following North Carolina Counties: Alamance, Orange, Durham, Granville, and Vance.

To identify services to meet participant needs and pilot objectives, the Integrated Care for Kids project (“InCK Pilot”) will utilize data from Medicaid (DHHS-DHB), education (DPI), and juvenile justice (DPS-DACJJ) to risk stratify the participating population. The scope of GDAC is to generate risk stratification files by integrating Medicaid, education, and juvenile justice data sources by assigning a risk score to a child based on the business rules for the InCK Pilot.

Phase 1 includes data collection from Medicaid to create a Risk Stratification which will be integrated into the Virtual Health case management system and for the PHP (Primary Health Providers) to have timely information for NC InCK team in making decisions.

Future phases will bring in education and juvenile justice data as part of the risk stratification which is planned in calendar year 2022.

Completed Activities

- Integration of risk stratification file with Virtual Health and PHPs by utilizing Medicaid data as the first phase.

Planned Activities

- Upgrade and integrate the risk stratification file with education and Juvenile Justice data

Fraud and Compliance

North Carolina Financial Accountability and Compliance Technology System (NC FACTS) is an alerting and lead generation tool that prioritizes opportunities based on risk and recovery modeling. Currently, GDAC has partnered with the Department of Commerce (DOC), the Department of Insurance (DOI), the Industrial Commission, and the Department of Revenue (DOR) to assist in fraud identification and opportunities prioritization.

Unemployment Tax and Benefits Compliance

The DOC’s Division of Employment Security (DES) fraud and compliance alerting supports both employer unemployment tax and individual unemployment benefit analysis. Unemployment Insurance (UI) Wage/Tax Analysis Alerts – supports the analysis of employer’s and their compliance with unemployment tax.

Unemployment Insurance Claimant and Benefit Analysis and Alerts – supports the analysis of benefit claims data and identifying suspect claims associated with possible identity theft and eligibility compliance. Since 2014 GDAC provided a utility that focused on the compliance, eligibility, and overpayment. The Nation’s response to the COVID-19 impacted the economy and led to the introduction of new programs to support those impacted and in need of assistance. With the influx of claims and new program eligibility rules, advanced data analysis was implemented to support new and innovated approaches to manage the alerts generated.

Completed Activities

- Developed/tuned alerting to support Pandemic Unemployment Assistance (PUA) claims;

- Tuned work and earn, deceased and incarceration alerting;
- Developed 20 new analytic rules and fraud scoring model and risk indicators to support identity theft;
- Implemented two predictive models for identity theft fraud
- Implemented automatic dispositioning process to notify DES claims system of suspect claimants
- Integrated GDAC entity integration modeling for anomaly detection and possible identity theft;
- Enhanced the Benefit Integrity Alerting (BIA) Tool to analyze similar claims in bulk format to reduce investigator resource time;
- Integrated a bulk dispositioning utility to notify DES claims system of suspect claims;
- Enhanced the investigator self- service query tool to assist with analysis of tips and leads;
- Enhanced Executive Dashboard to display additional key metrics associated with claimant alerts.

Planned Activities

- "Tuning and refinement of UI claimant benefits alerting utilizing additional identity verification data sources from DES such as Optimal IdM, ID.Me, National Association of State Workforce Agencies (NASWA) data";
- Tuning of unemployment tax alerting to account for employer economic impact;
- Tuning of Fictitious business analysis;
- Enhance and maintain the predictive model for identity theft fraud;
- Enhance and maintain automatic dispositioning process including additional rules to handle new DES business process scenarios.

North Carolina Department of Insurance - Industrial Commission

The North Carolina Industrial Commission (NCIC) leverages the data and analytics within the GDAC to identify businesses that have failed to maintain Workers' Compensation insurance. Employers identified as being out of compliance are at risk of being served potential civil penalties and/or criminal charges.

Completed Activities

Compliance alerting is continuously tuned based on user feedback.

- Enhancements this period support the tuning of reports, the incorporation of NCIC Workers' Compensation claims data, and the integration of new alerts related to misclassification of employees by employers;
- The development of a mechanism to track tips and leads received from external sources;
- The implementation of additional data sources to help leverage the exist analytics.

Planned Activities

- Align the analytics to support the new data available from the NCIC new case management system.

Employee Misclassification and Underground Economy

Underground Economy refers to businesses that utilize schemes to conceal or misrepresent (misclassify) their employee population to avoid one or more employer responsibilities related to wages, payroll taxes, insurance, licensing, safety, or other regulatory requirements. Underground Economy also encompasses other activities such as misclassifying employees as independent contractors or forcing employees to set up shell subcontractor entities.

The Underground Economy results in unfair competition in the marketplace, forces law-abiding businesses to pay greater direct costs and indirectly subsidizes socialized benefits like health care, unemployment, workers' compensation for those companies and individuals who do not play by the rules. Businesses that participate in Underground Economy activities may negatively affect their employees by denying them access to workers' compensation benefits, unemployment insurance coverage, health care coverage, and social security eligibility. As a result, other employers and taxpayers are required to fund these liabilities in the form of workers' compensation or UI coverage, along with other state and federal subsidies.

Completed Activities

- Enhanced economic modeling to support the inclusion of the new Unemployment PUA claims;
- Integrated DOR data updates to support a more comprehensive review of misclassified economy.

Planned Activities

- Enhancement of NCFACS application with a more efficient workflow and reporting meeting the needs of all agencies
- Integration of 2021 DOR data updates to support a more complete review of misclassified economy.
- Continue review and refinement based upon investigator analysis of alerting.

Wage and Employer State Tax Revenue

The Department of Revenue's (NCDOR) partnership with GDAC has resulted in several short-term and long-term projects. N.C.G.S. 105-259 precludes NCDOR from providing specific details regarding data and standards used to determine selection of audit candidates.

Improving both operational efficiency and return on investment is a shared project objective of both NCDOR and GDAC. The GDAC projects continue to assist in the automation of manual functions, reducing time needed for business tax audits and ultimately increasing the state's return on investment. Additionally, advanced analytic models have been implemented to improve overall tax compliance within multiple tax schedules and enhance DOR's ability to determine identity theft prior to issuance of a refund check.

Completed Activities

- Enhancements and tuning of refund fraud analytics to support individual income return processing;
- Annual changes to tax form and Schedule C, E, F;
- Implementation of the ABC analytics and reporting;
- Implementation of an internal Application Programming Interface (API) to allow e-File submissions of tax forms;
- Completed the migration of eNC3 infrastructure to DOR and supporting through remote management
- Enhancements and tuning of eNC3 Information Reporting Portal.

Planned Activities

- Continue enhancements and tuning of refund fraud analytics and eNC3 Information Reporting Portal;
- Implement analytics to support collection and audit activities;
- Upgrade the analytics reporting to new Visual Analytics platform.

Health Care

The GDAC has a growing health care portfolio and supports several divisions within the Department of Health and Human Services in providing information to support the delivery of their services. Additionally, the North Carolina Health Information Exchange Authority (NC HIEA) is part of the GDAC and operates the state designated HIE, NC HealthConnex.

State Health Plan for Teachers and State Employees

In 2022, NCSHP ended its contractual relationship with the GDAC and migrated its data warehouse and reporting repository to their hosted environment.

Medicaid Analytics

The North Carolina Department of Health and Human Services (DHHS) manages the delivery of health and human-related services for all North Carolinians, especially the state's most vulnerable citizens – children, elderly, disabled and low-income families. In state fiscal year 2020 (July 1, 2019, through June 30, 2020), NC Medicaid provided 2.2 million people in North Carolina with health care coverage.

Session Law 2015-241 §12A.17. (b) directed DHHS to coordinate with the GDAC to develop a pilot program that applies analytics to Medicaid data to maximize health care savings and efficiencies and optimize positive impacts on health outcomes. Further, Session Law 2015-241 §7A.2. (c) directed NCDHHS to share claims and encounter data with GDAC to support outcome-based analysis of services and programs and population health analytics associated with the Medicaid and LME/MCO patient population. Session Law 2016-94 § 12A.17. (b1) directed DHHS to coordinate with GDAC to continue the phased development, implementation, and operationalization of the pilot program for Medicaid claims analytics and population health management. The scope of the program was expanded in 2019-2020 to include the following:

1. Integrate new data sources, such as Medicaid beneficiary files, HEDIS quality measure data, and LME/MCO encounter data
2. Automate on-going data feeds to support operational requirements
3. Customized reporting and analytics capabilities

Completed Activities

- Developed a COVID-19 dashboard for near real-time tracking of COVID-19 tests and diagnoses, as well as reported symptoms and indicators that could signify potential COVID-19 cases. The dashboard enables viewing and manipulating these indicators and their demographic attributes by geography to better manage disease progression in the Medicaid population,
- Provisioned an annual extract of the clinical data elements necessary to run hybrid quality measures (diabetes, hypertension, BMI measures, and depression screening supported in 2021), with ongoing discussions to expand the data set in future years,
- Enabled access to Medicaid patient contact information found in the HIE data as requested by Medicaid providers to assist with various outreach and communication efforts,
- Delivered geographic visualizations on Medicaid network adequacy to determine (i) where exceptions may need to be granted to prepaid health plans that are otherwise required to meet access standards; or (ii) where prepaid health plans may need to expand their networks to include available providers in areas where the standard should be able to be met, and

Planned Activities

- Partner with DHHS Division of Health Benefits as they architect the Medicaid Enterprise System with oversight from the Centers of Medicare and Medicaid Services (CMS), including certifying NC HealthConnex as a future module in the MES
- Participate in the NCQA Data Aggregator Validation program to support Medicaid Quality Reporting Program
- Continue operations and support for Medicaid dashboards and measure reporting

Controlled Substance Reporting System

The DHHS, Division of Mental Health Developmental Disabilities and Substance Abuse Services manages the NC Controlled Substances Reporting System (CSRS). The CSRS collects information on dispensed controlled substance

prescriptions and makes this information available to prescribers and dispensers. The system is used as a clinical tool to improve patient care and safety while avoiding potential drug interactions and helps identify individuals who may need a referral to substance use disorder services.

Session Law 2017-57, Section 11A.6 directed the development and implementation of software for the performance of advanced analytics within the GDAC. The objectives outlined in law include the:

- Enhancement and automation of reports under G.S. 90-113.74;
- Development and utilization of advanced analytics to achieve the purposes specified in G.S. 90-113.71;
- Aggregation of relevant data sources including those available within the GDAC;
- Enhancement of DHHS’s ability to deploy advanced analytics to improve opioid prescribing practices, identify unusual prescribing patterns, and detect behaviors indicative of misuse, addiction or criminal activity.

Completed Activities

Data collected within the CSRS application is available within the GDAC for the development of advanced analytics.

Key features developed include:

- Developed internal dashboards to support CSRS STOP Act compliance requirements
- Provided public health access to controlled substance data for population health purposes

Planned Activities

- Work in partnership with Division of Public Health for additional reporting;
- Work in partnership with UNC/DUKE for deidentified reporting;
- Define scope, prioritize, and implement Advanced Analytic reports;
- Enhancement of CSRS data model integrating additional data sources;
- Continue operational support for the automated collection and transformation of data from CSRS to GDAC and internal dashboards.

NC HealthConnex (North Carolina Health Information Exchange Authority)

The North Carolina Health Information Exchange Authority (NC HIEA) operates North Carolina’s state-designated HIE, NC HealthConnex. The statewide NC HealthConnex is a secure, standardized electronic system through which providers can securely share important patient health information such as labs, diagnostics, history, allergies, medications and more, helping create a more complete, longitudinal clinical patient record. This results in less duplicative testing, more efficient and accurate diagnoses, recommendations and treatment, and improved coordination across all levels of care. NC HealthConnex will bring added value to the healthcare conversations happening at all levels in the healthcare industry, help breakdown information silos between providers, provide greater health care outcomes for patients and create efficiencies in state-funded healthcare programs such as Medicaid and State Health Plan.

Historical Background

In 2015, the North Carolina General Assembly passed legislation establishing a state-managed health information exchange authority to oversee and administer the statewide HIE (NCSL 2015-241 Section 12A.5, as amended by NCSL 2015-264). The North Carolina Health Information Exchange Authority (NC HIEA) was subsequently created within the NC Department of Information Technology’s Government Data Analytics Center and assumed control of the statewide HIE in March 2016.

North Carolina law requires that any health care provider who receives state funds for the provision of health care services (e.g. Medicaid, Health Choice, State Health Plan, etc.) connect and submit patient clinical and demographic data by certain dates in 2018-2021 (dependent on provider type and technological readiness) in order to continue to receive payment for those services (NCGS § 90-414.4, as amended by NC Session Law 2018-41, Section 9.(a)). NCSL

2019-23 made additional changes to the HIE Act, including voluntary connection for certain service providers and amended connection deadlines for certain providers, and clarified that data that passes to or through NC HealthConnex is not public record. In response to the COVID-19 pandemic, the [COVID-19 Recovery Act \(NCSL 2020-3\)](#) addressed the connection requirement to NC HealthConnex, extending the June 1, 2020, connection deadline to October 1, 2021.

During 2020, the NC HIEA continued to build out statewide connectivity via inter- and intra-state data connections for the secure exchange of patient health information. Additionally, at the beginning of the pandemic the NC HIEA and its Advisory Board distributed a call to action to expand data sharing to NC HealthConnex to support the State's public health response. Support from stakeholders and supporting legislation allowed the NC HIEA to partner with the Division of Public Health to enable bi-directional data exchange for COVID-19 activities. Section 1.1.(d)(53) of [S.L. 2020-80](#) appropriated \$2.6 million to NC HealthConnex to (a) build bidirectional data exchanges and patient-matching services between the HIE and the State's electronic disease surveillance systems; (b) develop public health dashboards; (c) provide test result delivery services; (d) provide clinical histories and identify at-risk patients; and (e) develop a pilot analytics project around identifying at-risk facilities, providing quality assurance assistance to state surveyors, and targeted public health interventions, funding opportunities, policies, and regulations related to infectious disease spread. These activities and others in support of pandemic response and value-based care data needs have continued through 2021 (see [Completed Activities](#) below).

In May 2021, [NC Session Law 2021-26](#) (i) extended the NC HealthConnex connection deadline for most providers of Medicaid and State-funded health care services, and affiliated entities, until January 1, 2023, (ii) directed the NC HIEA to conduct outreach to health care providers and entities subject to the HIE Act and still unconnected, and (iii) requested that the NC HIEA Advisory Board report to the Joint Legislative Oversight Committee on Health and Human Services on the outreach initiative as well as recommendations of "appropriate features or actions" to support enforcement of the HIE Act.

[Completed Activities](#)

- Completed data connections to more than 7,100 health care facilities, including 140 hospitals, and to more than 20 border, interstate, multi-state, and national HIE networks—encompassing more than 58,000 contributing providers and 11million unique patients;
- Enhanced the clinical notification service, NC*Notify, to include:
 - A self-service panel loader,
 - Auto-attribution,
 - Multiple notification delivery methods, and
 - Clinical intelligence alerts that include dental alerts, COVID-19 test results, 30-day readmission, chronic care management, pre-diabetes, diabetes, and care team changes;

As of November 2021, NC*Notify distributes over 4 million alerts per month to more than 570 organizational subscribers;

- For the NC DHHS enterprise, the NC HIEA uses demographic information from NC HealthConnex to match patients across NC DHHS systems to provide insights into individuals' needs and care across platforms.
- Continued implementation of the 21st Century Cures Act requirements, including information blocking provisions, bringing data connections into compliance with the implemented USCDI Version 1 standard and exploring implementation of subsequent USCDI versions, and supported via notifications the CMS Conditions of Participation requirements for hospitals;

Planned Activities

The NC HIEA remains focused largely on building technical connections to grow the patient data available to NC HealthConnex participants, helping providers meet their state reporting requirements, and providing data and analytics services to NC DHHS agencies to facilitate Medicaid transformation and promote more efficient public health surveillance. In addition, work continues to improve and grow the list of NC HealthConnex features that add value to the provider community and partner agencies. Activities planned for FY 2022-23 include, but are not limited to:

- Continue onboarding health care organizations in compliance with the Statewide HIE Act, as funding allows;
- Integrate claims data from commercial and independent pharmacies and all Medicaid Prepaid Health Plans (PHPs) and Local Management Entities-Managed Care Organizations (LME-MCOs);
- Begin planning the integration to connect all 55 state prisons (and five additional rehabilitative and other related correctional facilities using the same electronic system) to NC HealthConnex (pending technical readiness by the EHR vendor);
- Provide patient linking services to DHHS for use in the BIDP advanced reporting environment for COVID-19 analysis;
- Build and deploy a statewide stroke registry for population health use by the Division of Public Health;
- Plan for and/or build an integration with the NC DHHS Office of Emergency Medical Services (OEMS)' EMS data system, pending funding and OEMS system readiness;
- Plan and launch electronic test orders and results for the State Laboratory of Public Health (SLPH), beginning with Local Health Departments (its highest utilizers);

Longitudinal and Performance

The GDAC has a growing longitudinal and performance portfolio which support a multitude of educational institutions and state agencies by providing access to data/information for use in evidenced-based policy, performance management for programs and services provided to North Carolinians. This includes NC DHHS, NC Commerce, NC Department of Public Instruction (NC DPI), North Carolina Community College System (NCCCS), the University of North Carolina System (UNC System), North Carolina Independent Colleges and Universities (NCICU), North Carolina Office State Human Resources (NC OSHR), North Carolina Department of Military & Veterans Affairs (NC DMVA), North Carolina Pandemic Recovery Office (NC PRO), Governor's Office and the NC Golden LEAF.

NC Economic Recovery Dashboard

Section 1.1.(d)(49) of N.C. Session Law 2020-80, the NC General Assembly appropriated \$750,000 to GDAC to develop a COVID-19 economic analytics and reporting tool to provide insight into how State and federal assistance is impacting North Carolina businesses. GDAC consulted with the NC PRO, and Golden LEAF on development of this Economic Recovery Dashboard (ERD).

Completed Activities

- Implement, update, and maintain visualizations;
- Conduct a bootcamp for users which will provide insight on how to create new reports and visualizations.

Planned Activities

- Project is in production; no additional development work is anticipated.

NC CovidSafe Reporting Dashboard

Executive Order # 224 required the Cabinet agency workers to show either that they are Fully Vaccinated or that they have been recently tested for COVID-19. The CovidSafe application provided by Red Hat is used by the Cabinet agencies to collect vaccine and testing data and the GDAC was tasked with creating CovidSafe Reporting application that summarized vaccines, testing, exemptions, and compliance status of the Cabinet Agencies workforce.

Completed Activities

- Completed prototype for COVIDSAFE application including developing logic and business rules and writing the initial SAS code based on the specifications provided by leadership
- Delivered the first set of reports for leadership as an interim solution
- Provided Tableau interface as an interim solution
- Completed COVID Safe 2.0. New version includes vaccine and exemption conflict fixes. As well as new features such as: Automated daily B0077 files from OSC, Role-Based security for contract employees and updated business rules.
- Booster logic built and incorporated
- Ability to track multiple booster shots

Planned Activities

- Project is in production; no additional development work is anticipated.

NC Longitudinal Data System

North Carolina General Statute 116E defines the NC Longitudinal Data System (NCLDS) as a statewide data system containing individual-level student and workforce data. The purpose of this system is to facilitate and enable the exchange of data among agencies and institutions within the State, in support of analysis of educational programs, performance, and longitudinal outcomes.

The GDAC is charged with developing an implementation plan for and providing general oversight and direction of this enterprise system.

The following longitudinal data systems make data available to the NC Longitudinal Data System;

- Early Childhood Integrated Data System (ECIDS): This system, which is administered by the North Carolina Department of Health and Human Services (DHHS), provides integrated early childhood education, health, and social service data from participating agencies.
- North Carolina School Works (NCSW): This system, which provides access to data from early learning to workforce, is administered by the Department of Public Instruction (DPI).
- Common Follow-Up System (CFS): This system, which is a repository of workforce and education data, is administered by the Department of Commerce's Labor and Economic Analysis Division (LEAD).

In 2018, in response to a request from the Governor to formalize plans for the NCLDS, the GDAC collaborated with the North Carolina Education Cabinet to form an NCLDS Work Group (the Work Group) to guide the mission and deliverables of the NCLDS Modernization Road Map for the NCLDS Study (the Study). The Study identified eight priority recommendations, including a recommendation that the NCLDS be defined and set up as a system that links data across the data systems identified above. The GDAC is addressing this recommendation by integrating data from its contributor systems via a framework that efficiently enables longitudinal analysis supporting student and system outcomes across the education and workforce continuum.

SL 2021-180 provided recurring funding for the NCLDS at \$750,000 per year. These funds are used primarily to modernize the NCLDS, with guidance from the NCLDS Advisory Board.

Completed and In-Progress Activities

- Confirmed initial data contributors (ECIDS, NCSW, and CFS);
- Fully executed the NCLDS Memorandum of Understanding (MOU) (2/2021) with the support of all data contributors;
- Hired an NCLDS Executive Director;
- Created an NCLDS Steering Committee;
- Along with initial data contributors, participated in the development of a draft research agenda to support the prioritization of data requests and the formation of research-practice partnerships;
- Guided by the draft research agenda, began supporting work on several Use Cases designed in part to test and improve the system’s functionality, including:
 - Postsecondary pathways of high school graduates – In partnership with the Department of Commerce; current status: completed
 - Relationships between early childhood experiences and early learning outcomes – In partnership with DHHS, NCDPI and an external research organization; current status: in progress
 - Workforce outcomes for Career and College Promise students – In partnership with several NCLDS data contributors and an external research organization; current status: in progress
 - Education Recovery Dashboards – In partnership with the Pandemic Recovery Office and the Office of the Governor; current status: in progress

Planned Activities

- Transition NCLDS oversight to an Advisory Board comprising representatives of each data contributor, as outlined in Executive Order 249
- Complete work on in-progress Use Cases
- Review and finalize the draft research agenda by extending current areas of focus to include more policy-actionable impact analyses, and by incorporating more connections to existing agency and stakeholder research agendas that reflect NCLDS cross-sector areas of focus
- Expand stakeholder engagement efforts to share information about and grow support for the NCLDS and its applications for policymakers, agency and program leaders, external researchers, and education and workforce practitioners
- Begin developing a statewide network of research and evaluation partners committed to addressing elements of the research agenda
- Establish specifications for, develop plans for, and begin designing four main NCLDS data services:
 - Research-ready, linked datasets for Board-approved and Board-monitored research and evaluation projects
 - A data preparation and linkage service for Board-approved and Board-monitored research and evaluation projects whose data needs are not met by the prepared datasets
 - Secure, restricted-access cross-sector data analysis tools for data contributors and select practitioners
 - Publicly available tools for reviewing de-identified and aggregated cross-sector data
- Complete design and implementation of a data request process (including design and implementation of a data selector tool) for the first two of the four NCLDS data services
- Expand available data via inclusion of data from new sources that are relevant to items in the NCLDS research agenda (e.g., non-degree credential data)

Common Follow-up System

The North Carolina General Statute 96-30 – 96-35 directs the Department of Commerce’s Labor and Economic Analysis Division (LEAD) with the operation of the Common Follow-up System (CFS). This system evaluates the performance and effectiveness of the State’s job training, education, and placement programs by measuring participant’s presence in the workforce.

Session Law 2014-100 directs the Department of Commerce to develop a plan for the transfer of the information and capabilities of the CFS to the GDAC. The objective of the migration and modernization of CFS was to improve access to the State’s longitudinal data providing flexibility and scalability, and advance data analysis capabilities associated with workforce and educational program operation and performance.

Completed Activities

- Use Integrated CFS data sources in the GDAC Enterprise Entity Resolution (EER) to:
- Backfill and validate missing Individual Identifiers for CFS to enable data matching for analysis of education and training outcomes.

Planned Activities

- CFS – request to add Credentials of value (i.e. Certification) data to the CFS warehouse for use in Educational outcome analysis
- Continue partner with Commerce to modernize CFS as a component of the NCLDS;
- Develop an enterprise service and governance model supporting access and use of CFS data
- Continue the maintain and support of operational environment

NC SchoolWorks (P20W) System

In June 2012, the U.S. Department of Education awarded a \$3.6 million grant (Grant) to the North Carolina Department of Public Instruction (NCDPI) to undertake the P20-W System Statewide Longitudinal Data System project (SLDS Project), hereafter referred to as NC SchoolWorks. The objective of the NC SchoolWorks is to enable five statewide entities to partner and share data. The partnership includes the North Carolina Department of Public Instruction (NCDPI), the University of North Carolina (UNC), the North Carolina Community College System (NCCCS), North Carolina Independent Colleges and Universities, Inc. (NCICU), and the North Carolina Department of Employment Security (NCDES), currently known as the North Carolina Department of Commerce Division of Employment Security.

Completed Activities

- Provided NC DPI developers the ability to implement additional CEDS updates

Planned Activities

- Maintain operations and maintenance of NC SchoolWorks;
- Continue to partner with NC DPI to modernize NC SchoolWorks as a component of the NCLDS;

North Carolina Early Childhood Integrated Data System (NC ECIDS)

DHHS, Division of Child Development and Early Education (DCDEE) partnered with the GDAC to develop a system to measure performance and improved outcomes. The NC ECIDS system integrates data from key participating agencies to provide metrics and outputs associated with programs and practices associated with early childhood education.

Completed Activities

- Decommissioned the existing NC ECIDS IBM platform and implemented interim solutions for data requests;
- Completed the development of NC ECIDS visualizations and reports;
- Early Childhood Integrated Data Services – Used EER to support ECIDS Near Match Analysis and Backfill using EER to minimize manual near match resolution.

Planned Activities

- Move the NC ECIDS visualizations and reports into production for customer access;
- Partner with DHHS to modernize NC ECIDS as a component of the NCLDS;
- Continue development of a modernize the research request process for the NC ECIDS application.

Veteran Information Portal

The Department of Military and Veterans Affairs (DMVA), a newly formed agency within the NC Executive Branch, focuses on protecting North Carolina's military installations, working with the communities around military bases, helping military families and veterans get the support and services they need, and helping connect veterans with jobs. DMVA goals are consistent with assisting military members, veterans, and their families and to promoting economic opportunities for the state and its citizens.

DMVA objective is to improve upon efficiencies and accountability by using available data to develop evidence-based decision making. In partnership with GDAC, the DMVA will establish fundamental performance criteria with an agile reporting frequency, facilitating actionable information for strategic decision making.

Planned Activities

- Continue maintenance and operations.

Human Asset Resource Platform (HARP)

The North Carolina Office of State Human Resources (NC OSHR) mission to provide a solid Human Resource Management foundation, responsible oversight, and creative solutions through a collaborative approach with agencies, universities, and local government to maximize the potential of state's greatest asset – employees. GDAC continues to support OSHR executive leadership in the provisioning of an analytical infrastructure and reporting environment for improved decision making.

Completed Activities

- Updated ETL to capture corrections made to the data file extracts received from OSC;
- Provide access to the OSHR data stores to the OSHR team to support ad hoc reporting needs.

Planned Activities

- Continue maintenance and operations

Covidsafe Dashboard

GDAC supports OSHR and Cabinet agencies with an online secured online reporting tool assisting them in monitoring vaccine and testing requirements for State employees outlined in EO 224.

Completed Activities

- Implemented the COVIDSafe Reporting Dashboard (CSRD) that provided information regarding employee vaccination status, exemptions, and mandatory testing status with the below features
 - Integrated required vaccine and testing data from CovidSafeNC (Red Hat - RH) with NC Beacon to support requirements
 - Role-based security (administered by agencies) to restrict access to appropriate State agency staff
 - An Executive Summary Dashboard for those that only need to access aggregate reports (i.e. Gov's Office)

Planned Activities

- Continue maintenance and operations

Financial Transparency Systems

GDAC supports financial transparency through the development and expansion of the NC Open Budget, Historically Underutilized Business Spending Report System (HUB SRS) and the Department of Public Instruction Business Systems Modernization initiatives.

Governmental Budgetary Transparency/Expenditures Online

Session Law 2015-241 §7.17 directs the state controller, the Office of State Budget and Management (OSBM), and the state chief information officer (SCIO) to establish a state budget transparency internet web site to provide information on budget expenditures for each state agency for each fiscal year beginning 2015-2016.

Session Law 2017-257, Section 37.2.(c) directs the Department of Information Technology to fully implement the government transparency initiative, including the collection of all financial information from all state government agencies, public universities, community colleges, counties, and local school administrative units, with the option for full government participation (with cities encouraged, but not required).

OpenBudget Portal is available to the public at <http://www.nc.gov/government/open-budget>. The following information is available utilizing the GDAC platform and SAS Visual Analytics:

- State Budget Detail
- State Grants Detail
- State Vendor Payments Detail
- Statewide and Agency Contracts
- State IT Contracts
- State Transportation Contracts
- State Bulk Budget Download

Completed Activities

- HUB (Historically Underutilized Businesses) spending reporting system platform is used by all state agencies to track and increase and/or improve opportunities for HUB participation and spending;
- Reports associated with HUB reporting system is available in the OpenBudget reporting portal;
- Upgraded to new reporting platform with enhanced user interface.

Planned Activities

- Continue to refine and operate OpenBudget and HUB reporting.
- Upgrade HUB Spending Report System to support reporting for NC SBE program established as a result of Executive Order 143
- Migrate OpenBudget portal, HUB system to new NC Financial backbone data model

E-Procurement

The replacement of the E-procurement system includes the development of an advance reporting environment to support the access to detailed historic and current procurement information.

Completed Activities

- Implemented an advanced reporting repository with proper data governance to allow for the query of historical purchasing system data including orders, receipts, attachments;
- Integrated the new e-procurement system data to provide a comprehensive reporting capability.

Planned Activities

- Continue to refine and operate.
- Migrate eProcurement reporting to new NC Financial backbone data model

Department of Public Instruction Business System Modernization

Session Law 2017-57 §7.16(a-d) directs the Department of Public Instruction (DPI) through the GDAC to provide for a common reporting system and analytics system. The purpose of the project is to support the effort to modernize state and local education financial, human capital, and school information systems.

Completed Activities

- Integrated Operational Data Store (IODS)
 - Aligned IODS data schema with Common Education Data Standards (CEDS) data
 - Onboarding of two foundational data sources, Educational Directory and Demographic Information Exchange (EDDIE) and Student Information System (SIS);
 - Maintenance of existing state operational data store (SODS)
- Maintenance of School Financial Dashboard (Public Reporting)
- School Report Card (Public Reporting)
 - Migrated the School Report Card to GDAC environment
 - Enhanced reporting to include state-level page [North Carolina School Report Card \(sas.com\)](https://sas.com)
- Educator Preparedness Program (EPP) Dashboard (Public Reporting)
 - Migrated the to the GDAC environment
 - Enhanced reporting to improve user experience.

Planned Activities

- Continue to refine and operate State Operational Data Store (SODS);

- Implement data refreshes (2018-19 and 2019-20) for School Finance Dashboard;
- Continue enhancements and 2019-20 data refresh for School Report Card;
- Continue data onboarding into Integrated Operational Data Store (IODS) ;
- Maintenance of Educator Quality Dashboard.

Enterprise Entity Resolution

This enterprise solution provides a standard protocol to match like records across entities for consistency and accuracy. The goal of Enterprise Entity Resolution (EER) is to provide reusable cross-match capability to standardize matching and improve data sharing across entities.

Completed Activities

- Developed an infrastructure with common inputs/outputs allowing for entity resolution across disparate data;

Planned Activities

- Continue to add new data sources into the EER integration model;
- Develop advanced analytics to learn and measure EER performance and tuning model to support the changing dynamics of the data quality and match rules.
- Develop an API to enable the sharing of common keys for analytic use.

GDAC Public Private Partnership

The State of North Carolina and the SAS Institute have a public-private partnership for the hosting, licensing, application development and services to support the GDAC program and infrastructure. For each contract period SAS has committed to contribute a minimum of \$5,000,000.

NC GDAC Portfolio (excluding HIE)

During the 2021 calendar year, in support of all GDAC/SAS hosted activities (non- Health Information Exchange) the state invested \$19,185,658.00 with an estimated SAS investment of approximately \$21,206,469.00.

NC GDAC Project Contribution by SAS	Cumulative Contract Total (12/23/2020 – 12/22/2021)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$15,554,396.00
Hosting operations [2]	\$5,444,671.00
Personnel resources	\$19,393,060.00
Other Agreed /Resources	\$0.00
Total Value for Period	\$40,392,127.00
State Payments	\$19,185,658.00
SAS Investment	\$21,206,469.00

[1] The 2021 Non-discounted software licensing fees have been audited for standard, limited use software fees and use of SAS Fraud Framework modules for all other GDAC analytic initiatives.

[2] Includes hardware and IT personnel required to support the NC GDAC environments and solutions.

NC GDAC Portfolio (HIE, NC HealthConnex)

During the 2021 calendar year, in support of all the SAS-hosted activities supporting the Health Information Exchange Network the state invested \$10,521,124.00 with an estimated SAS investment of approximately \$12,272,747.00

It is important to note that the federal government invested \$10,973,400.00 in payments for the build of live data feeds between health care facilities and NC HealthConnex and development of the NC*Notify service in partnership with the N.C. Department of Health and Human Services Division of Health Benefits (NC Medicaid) per 90/10 Health Information Technology for Economic and Clinical Health (HITECH) Act funding for HIEs. The state's funding request for this work was approved by the Centers for Medicare and Medicaid Services (CMS) on June 1, 2017, with updates approved October 2020. The federal program sunset September 30, 2021. The last payments were dispersed October 2021.

NC HIE Project Contribution by SAS	Contract Total (12/23/2020– 12/22/2021)
Knowledge transfer and education activities	0.00
Software licensing [1]	\$6,586,183.00
Hosting operations [2]	\$6,353,461.00
Personnel resources	\$19,867,748.00
Other Agreed /Resources [3]	\$959,880.00
Total Value for Period	\$33,767,272.00
State Payments	\$10,521,124.00
IAPD Funding	\$10,973,400. \$00
SAS Investment	\$12,272,747.00

[1] Non-discounted software licensing fees for unlimited enterprise usage of SAS and unlimited enterprise usage for all other GDAC - HIE analytic initiatives.

[2] Includes hardware and IT personnel required to support the NC GDAC - HIE environments and solutions.

[3] Other Agreed/Resources include resources leveraged on the project, such as industry consultants and subject matter experts, who do not bill hours against the project.

Appendix A - Legislation

The full text of N.C.G.S. 143B-1385 can be found here:

http://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_143B/GS_143B-1385.pdf

Appendix B - GDAC Portfolio

