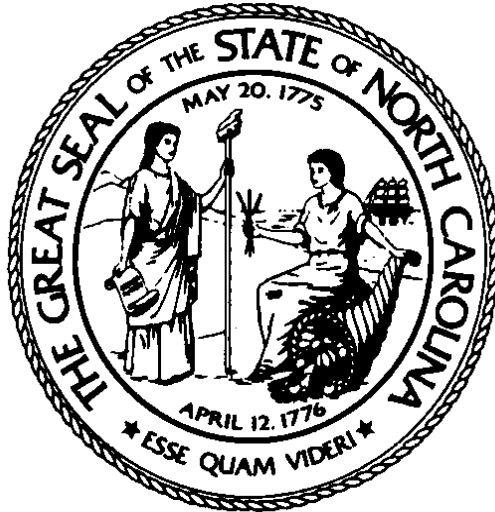


**N.C. Department of Information Technology
Government Data Analytics Center Annual Report**



**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**

**James A. Weaver
Secretary and State Chief Information Officer**

April 26, 2023

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Legislative Request

The N.C. Department of Information Technology (NCDIT) submits this report pursuant to N.C. General Statute 143B-1385(F), which directs the State Chief Information Officer (State CIO) to report annually on the activities of the N.C. Government Data Analytics Center (GDAC), including:

- The funding, expenditures, cost savings, cost avoidance, efficiency gains, process improvements and major accomplishments
- The contribution of funds or resources by those private entities that are participating in public-private partnerships within 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 GDAC's enabling legislation is available at:

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

Introduction

The mission of NCDIT's GDAC is to transform data into information to facilitate decision support, increase operational efficiencies and improve outcomes for the people of North Carolina by integrating and sharing data assets.

This report details GDAC's activities during the 2022 calendar year.

Accomplishments

The GDAC program has become a trusted state partner for enabling the sharing of data assets by implementing a strong data governance model that ensures privacy, proper access and use of data. Since 2008, GDAC has supported the integration of data and developed analytics to support business needs associated with criminal justice, child safety, fraud, compliance, health care and performance analysis.

The NCDIT GDAC team collaborates with numerous partners, including but not limited to state agencies, local governments and the health care community. Each year, GDAC continues to deliver new analytic solutions and provides increasing data-driven intelligence to agencies and partners.

Appendix A provides a summary of calendar year 2022 activities and projected 2023 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.

Criminal Justice Law Enforcement Automated Data Services (CJLEADS)

The Criminal Justice Law Enforcement Automated Data Services (CJLEADS) is a foundational cornerstone of GDAC. This application supports criminal justice professionals by providing access to criminal records on any device at any time, around the clock and throughout the year. With a user base exceeding 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

Completed Activities

- Conducted a data and impact analysis of CJLEADS associated with the planned upgrade of the N.C. Administrative Office of the Courts' (AOC) eWarrants system and integrated case management systems
- Completed user acceptance testing to support the AOC eCourt migration. Integrated the new AOC warrant system called eWarrants within the CJLEADS tool to provide real-time warrant information for law enforcement officers
- Developed a utility to support the State Bureau of Investigation (SBI) to identify the court cases associated with Senate Bill 562/Session Law 2020 ("Second Chance Act")
- Developed an offender reentry tool to support offender reentry from prisons into the community
- Pursuant to Session Law 2020-47/House Bill 511 (2020), GDAC conducted a statewide study to identify gaps in data for use by law enforcement, judicial officials, policymakers and other stakeholders and to identify solutions for improving the availability and accessibility of data available to policymakers to inform public policy. This report was finalized and submitted to the N.C. General Assembly.

Planned Activities

- Develop a repeatable process to manage and streamline the rolling implementation plan for counties in the new AOC eCourt integrated case management system
- Implement the first two phases of AOC eCourt integrated case management system
- Implement changes and reconfigurations supporting the AOC eCourt integrated case management system and the impacts to the following GDAC applications:
 - State Crime Lab reporting
 - SBI Sex Offender Registry compliance utility
 - SBI reports
 - Alcohol law enforcement reporting
 - Juvenile justice recidivism reporting
- Design and develop a user query tool providing criminal justice professionals with self-service reporting capabilities utilizing the CJLEADS integrated data
- Upgrade CJLEADS application infrastructure
- Develop a roadmap to modernize CJLEADS application software

N.C. Gun Purchasing Disqualifying Analytics

In partnership with the SBI and AOC, GDAC developed the N.C. Gun Purchasing Disqualifying Analytics, which identifies and reports North Carolina offenders who have a conviction for an offense that disqualifies them from gun purchases. North Carolina offenders 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. At the time of this report, approximately 72,052 North Carolina offenders had been identified as ineligible for gun purchases, resulting in 922 denials.

Planned Activities

- Continue operations and maintenance

Criminal Investigative Case Management (MEMEX)

Session Law 2015-241 §7A.2© directed the State CIO through GDAC to manage and coordinate the deployment of an intelligence-based investigative case management system. Working with the SBI's N.C. Information Sharing and Analysis Center, GDAC has completed the development of a system that 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

- Upgrade existing application into a new and modern platform, Tactical Activity Reporting System (TARS), providing enhanced case management and investigative capabilities

Planned Activities

- Operations and maintenance of the MEMEX system
- Develop integration of N.C. Department of Adult Correction (NCDAC) prison visitors log data
- Implement a new TARS investigative case management and investigation tool
- Explore possibilities for CJLEADS integration for seamless data transfer

Crime Lab Analytics

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

Planned Activities

- Operations and maintenance
- Modify State Crime Lab reports to integrate the new AOC integrated case management system

Investigation Case Management Utility

The N.C. Department of Insurance's (NCDOI) Criminal Investigations Division (CID) is charged with conducting criminal investigations and supporting the prosecution of individuals and entities committing insurance-related crimes. To support its investigative operations, CID required a secure environment that supports investigative case management functions, including advanced reporting and analytics, search capabilities and built-in case activity monitoring and tracking. This environment is known as the Insurance Crimes Investigation System (ICIS).

Completed Activities

- Enhanced the ICIS to include a prosecution reporting capability to securely share case investigation records with the 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

Sex Offender Compliance Alerting Program

Partnering with the 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 North Carolina sex offender registration information. The program also identifies out-of-state sex offenders who may be subject to registration due to their North Carolina presence. As of January 2021, this program had been implemented by 48 county sheriffs' offices. Since 2020, approximately 595 offenders had been brought into compliance.

Planned Activities

- Operations and maintenance
- Modify Sex Offender Compliance Alerting to integrate the new AOC integrated case management system

N.C. Department of Adult Correction Reporting Environment

GDAC has developed a reporting repository for NCDAC that can support user-developed ad-hoc reports.

Planned Activities

- Operations and maintenance

Governor Crime Commission – Criminal Justice Analysis Reporting Warehouse

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

Completed Activities

- Develop new measures for Traffic Stops Data and publish it in the Justice Data Portal
- Develop new measures for N.C. Computerized Criminal History data and publish it in the Justice Data Portal

Planned Activities

- Integration of NCDAC data

Child and Family Safety

The NCDPS Division of Juvenile Justice and N.C. Department of Health and Human Services (NCDHHS) Division of Social Services (DSS) are working with GDAC to integrate data to improve access to information for social services case workers and juvenile court counselors in the development of appropriate care plans.

Child Protective Services

Session Law 2014-100 §12C.1.(e) directed NCDHHS to coordinate with GDAC to establish and implement a Child Protective Services Pilot Program to enhance coordination of services and information sharing. The law also appropriated a sum of \$300,000 to assist in supporting the program's development and implementation. Session Law 2015-241 §12C.11.(a) (House Bill 97) directed continued collaboration between NCDHHS and NCDIT to enhance the pilot, including:

- 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/Temporary Assistance for Needy Families, Medicaid and subsidized child care
- Rebrand the Child Protective Service Pilot as the Child Welfare Accessing and Searching Sensitive Information through Technology (CW ASSIST) in the fourth quarter of calendar year 2016
- Successfully roll out the Child Welfare ASSIST (CWA) application to county and state child protective services staff in early 2017; currently, there are approximately 3,500 active users

Completed Activities

- Implemented phase 2 of CWA, integrating Child Care and Child Welfare data from NCDHHS' N.C. Families Accessing Services through Technology (NC FAST) system

Planned Activities

- Implement phase 3 of CWA, integrating Aging and Adult Services data from NCDHHS' Aging Resource Management System (ARMS)

Juvenile Justice

The NCPDS Division of Juvenile Justice 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 the Division of Juvenile Justice include:

- Recidivism dashboards – integration of juvenile record data with adult criminal courts and probation records for the generation of various metrics associated with recidivism
- Researcher-ready datasets – preparation of matched and de-identified researcher ready datasets
- 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

- Maintained the Service Directory and reports
- Developed recidivism dashboards
- Revised matching logic used for juvenile and adult records to provide matched datasets for researchers

Planned Activities

- Implement NCPDS Division of Juvenile Justice Service Directory phase 7 to deliver enhancements that will allow centralized program management and maintenance for NCPDS Division of Juvenile Justice employees via a graphical user interface
- Provide researcher-ready deidentified datasets for the Tiered Case Coordination Return on Investment Study
- Provide researcher-ready deidentified matched datasets for the Reentry to Resilience Outcome Study
- Test and release recidivism dashboards

N.C. Integrated Care for Kids (NC InCK)

N.C. Integrated Care for Kids (NC InCK) is an innovative model to promote child and family well-being in central North Carolina that aims to integrate needs and services beyond healthcare to provide more holistic care to children and their families. NCDHHS is participating in the NC InCK project, which is a seven-year pilot with Duke and the University of North Carolina that utilizes grant funds from the U.S. Centers for Medicare and Medicaid Services (CMS) to improve the integration of medical and social services care, reduce out-of-home placement and improve health outcomes for Medicaid and Children's Health Insurance Plan-insured children in five North Carolina counties: Alamance, Orange, Durham, Granville and Vance.

To identify services to meet the participants' needs and the pilot's objectives, the NC InCK Pilot will utilize data from Medicaid (NCDHHS Division of Health Benefits), education (N.C. Department of Public Instruction) and juvenile justice (NCDPS Division of Juvenile Justice) 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 NC InCK Pilot.

Completed Activities

- Implemented phase 1, including data collection from Medicaid and creation of a risk stratification, which was integrated into the virtual health case management system and provided primary health providers with timely information from NC InCK team for decision-making.
- Implemented phase 2, upgrading and integrating the risk stratification file with education and juvenile justice data

Planned Activities

- Implement phase 3 to incorporate service integration level updates, CMS file updates, kindergarten readiness metrics, reporting and research paper development

Fraud and Compliance

The N.C. Financial Accountability and Compliance Technology System (NC FACTS) is an alert and lead generation tool that prioritizes opportunities based on risk and recovery modeling. Currently, GDAC has partnered with the N.C. Department of Commerce (DOC), NCDOT, N.C. Industrial Commission (NCIC) and N.C. Department of Revenue (NCDOR) to assist in fraud identification and opportunities prioritization.

Unemployment Tax and Benefits Compliance

The NCDOT's Division of Employment Security (DES) fraud and compliance alerting supports both employer unemployment tax and individual unemployment benefit analysis. Unemployment Insurance Wage/Tax Analysis Alerts support the analysis of employers' and their compliance with unemployment tax. Unemployment Insurance Claimant and Benefit Analysis and Alerts support the analysis of benefit claims data and identification of suspect claims associated with possible identity theft and eligibility compliance.

Since 2013, GDAC has provided a utility focused on compliance, eligibility and overpayment. The nation's response to the COVID-19 pandemic 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 innovative approaches to manage the alerts generated.

Completed Activities

- Developed an identity theft alerting report/dashboard and interface to DES workflows
- Extended, enhanced and automated existing claim fraud and identity theft detection measures
- Enhanced Self-Service and Benefit Integrity Dashboards with additional flags and links
- Developed the Executive Leadership Dashboard for suspicious claimant alert activity
- Implemented email notifications on suspicious thresholds
- Completed the development of real-time API fraud alerts to integrate with the Unemployment Claimant Interface
- Updated the Undocumented Succession and Fictitious Business Fraud rules to align with legislation and investigative workflows

Planned Activities

- Implement a DES Fraud API to share real-time alerts with DES during the unemployment insurance claim registration process
- Implement N.C. Office of State Human Resources (NCOSHR) Workers Compensation fraud match reporting to identify, alert and report likely fraudulent or ineligible claimants

N.C. Department of Insurance – Industrial Commission

NCIC leverages the data and analytics within 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

- Completion of initial development activities for the NCIC Legal Case Management System (LCMS) data source replacement project

Planned Activities

- Continue maintenance and operations

Employee Misclassification and Underground Economy

GDAC has developed tools to mitigate harms from the underground economy, or 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.

Completed Activities

- Implemented changes to enable concurrent multi-agency alerts management
- Developed new DES alerts for the investigation of potential Pandemic Unemployment Assistance fraud by claimants with unreported income without N.C. unemployment insurance tax accounts
- Enhanced and automated tip and lead entry

Planned Activities

- Implement the NCIC LCMS data source replacement project to ensure the functional continuity of Underground Economy/Employee Misclassification alerts generation due to affected analytics and application process updates

Wage and Employer State Tax Revenue

NCDOR's partnership with GDAC has resulted in several short-term and long-term projects. N.C. General Statute 105-259 precludes NCDOR from providing specific details regarding the data and standards used to determine the selection of audit candidates.

Improving both operational efficiency and return on investment is a shared project objective of both NCDOR and GDAC. GDAC projects continue to assist in the automation of manual functions, reducing the 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 to enhance NCDOR's ability to determine identity theft prior to issuance of a refund check.

Completed Activities

- Completed updates to analytic models to enhance refund fraud and compliance detection
- End-of-year 2022 analytics updates

Planned Activities

- Continue to implement enhancements to meet yearly NCDOR requirements
- Continue to accommodate all annual tax changes in analytic models

Health Care

As part of NCDIT's Data Division, the GDAC has a growing health care portfolio and supports several divisions within NCDHHS in providing information to support the delivery of their services. Additionally, the N.C. Health Information Exchange Authority (NC HIEA) is a business unit in the Data Division that operates the state-designated health information exchange, NC HealthConnex.

Medicaid Analytics

NCDHHS 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 the state fiscal year 2021 (July 1, 2020, through June 30, 2021), N.C. Medicaid provided 2.3 million people in North Carolina with health care coverage.

Session Law 2015-241 §12A.17.(b) directed NCDHHS to coordinate with 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 local management entity/managed care organization (LME/MCO) patient population. Session Law 2016-94 § 12A.17. (b1) directed NCDHHS 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:

- Integrate new data sources, such as Medicaid beneficiary files, Health Effectiveness Data and Information Set quality measure data and LME/MCO encounter data
- Automate ongoing data feeds to support operational requirements
- Customized reporting and analytics capabilities

Completed Activities

- Provisioned an annual extract of the clinical data elements necessary to run hybrid quality measures (diabetes, hypertension, BMI measures and depression screening supported in 2022)
- Developed an interface to receive Medicaid claims and encounter data from managed care plans
- Developed a monthly extract of priority data elements to Medicaid and Standard Plan Prepaid Health Plans to support clinical quality measurements, including:
 - Comprehensive diabetes care
 - Controlling high blood pressure
 - Screening for depression and follow-up

Planned Activities

- Expand the monthly extracts of priority data elements to support clinical quality measures for Behavioral Health Intellectual and Developmental Disabilities Tailored Plans
- Work with Medicaid on data quality initiatives to enhance the collection of data needed for clinical quality measure reporting
- Partner with the NCDHHS Division of Health Benefits as they architect the Medicaid Enterprise System (MES) with oversight from CMS, including certifying NC HealthConnex as a future module in MES
- Participate in the National Committee for Quality Assurance Data Aggregator Validation program to support the Medicaid Quality Reporting Program
- Continue operations and support for Medicaid dashboards, and measure reporting

Controlled Substance Reporting System

The NCDHHS Division of Mental Health Developmental Disabilities and Substance Abuse Services manages the N.C. 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 2015-241 directed the integration of the CSRS with the state-designated HIE, NC HealthConnex. The integration was completed in 2020 and provides an alternative pathway for health care providers and pharmacists to check the system prior to prescribing or dispensing controlled substances per their STOP Act requirements.

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

- Enhancement and automation of reports under General Statute 90-113.74
- Development and utilization of advanced analytics to achieve the purposes specified in General Statute 90-113.71
- Aggregation of relevant data sources, including those available within GDAC
- Enhancement of NCDHHS’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 GDAC for the development of advanced analytics. Key features developed include:

- Enhanced internal dashboards to support CSRS STOP Act compliance requirements
- Provided public health access to controlled substance data for population health purposes
- Work in partnership with the NCDHHS Division of Mental Health, Duke University and the University of North Carolina at Chapel Hill for deidentified reporting

Planned Activities

- Work in partnership with NCDHHS Division of Public Health for additional reporting
- Define the scope and prioritize and implement advanced analytic reports
- Enhance 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 (N.C. 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 the State Health Plan.

Historical Background

In 2015, the N.C. General Assembly passed legislation establishing a state-managed health information exchange authority to oversee and administer the statewide health information exchange (N.C. Session Law 2015-241 Section 12A.5, as amended by N.C. Session Law 2015-264). NC HIEA was subsequently created within NCDIT's Data Division and assumed control of the statewide health information exchange in March 2016.

North Carolina law requires that certain health care providers who receive state funds for the provision of health care services (e.g., Medicaid, Health Choice, State Health Plan) connect and submit patient clinical and demographic data by January 1, 2023. In response to a legislative directive in [N.C. Session Law 2021-26](#), the NC HIEA's Advisory Board submitted a report, [Recommendations to Support Enforcement of the Statewide Health Information Exchange Act and a Summary Report on Provider Connectivity and Recent Outreach Efforts](#), to the Joint Legislative Oversight Committee on Health and Human Services in March 2022. The report outlines the efforts undertaken by NC HIEA to create, from disparate sources, a comprehensive list of all providers and entities subject to the Statewide Health Information Exchange Act and to conduct outreach to those who have not yet connected. Additionally, the NC HIEA Advisory Board made recommendations on "appropriate features or actions to support enforcement" of the Statewide Health Information Exchange Act.

Completed Activities

- Conducted four quarterly Advisory Board meetings
- Launched a [NC HealthConnex promotional video](#)
- Conducted outreach to unconnected providers, sending 28,395 letters and emails from February 14, 2022, to March 7, 2022
- Executed 665 participation agreements representing 2,120 facilities
- Executed participation agreements with NCDPS and the future NCDAC expanding access to the medical records of incarcerated persons to provide enhanced continuity of care
- Added 3,195 facilities to the NC HealthConnex network since January 2022
- Added three states to the Patient Centered Data Home network and two via the eHealth Exchange network
- Added 26 participants to NC*Notify, a subscription-based service that notifies providers on admission, discharge and transfer data from patients they choose to monitor to enhance care coordination between providers
- Performed a data integrity audit for patient matching
- Developed and deployed the population health Stroke Registry Dashboard with the NCDHHS Division of Public Health
- Delivered record linkage for NCDHHS, allowing broader insights across their population
- Completed user acceptance testing with NC eLink, an enterprise entity resolution utility, for enhanced patient matching in NC HealthConnex

Planned Activities

NC HIEA remains focused primarily 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 NCDHHS agencies to facilitate Medicaid transformation and promote more efficient public health surveillance. Activities planned for 2023 include but are not limited to:

- Continue onboarding health care organizations in compliance with the Statewide Health Information Exchange Act, as funding allows
- Perform system upgrade of NC HealthConnex’s technical environment
- Integrate claims data from commercial and independent pharmacies and all Medicaid Prepaid Health Plans and local management entities-managed care organizations
- 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 electronic health care records vendor)
- Continue enhancements to the Stroke Registry in partnership with the NCDHHS Division of Public Health
- Plan for and/or build an integration with the NCDHHS 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, beginning with local health departments (its highest utilizers)
- Continue to support onboarding providers to electronically submit and query immunizations and lab reports to the NCDHHS Division of Public Health as well as the NC*Notify service for care coordination
- Continued operations and maintenance of 400 interfaces (more than 10,000 facilities) and more than 50 custom services (e.g., NC*Notify, registry dashboards)
- Implement a production process with NC eLink to enhance patient matching for NC HealthConnex

Longitudinal Performance

GDAC's longitudinal and performance portfolio supports a multitude of educational institutions and state agencies by providing access to data for use in evidenced-based policy analysis and performance management for programs and services provided to North Carolinians. This includes NCDHHS, NCDOC, N.C. Department of Public Instruction (NCDPI), N.C. Community College System (NCCCS), University of North Carolina (UNC) System, N.C. Independent Colleges and Universities (NCICU), N.C. Pandemic Recovery Office, NCDPS, NCDAC, NCOSHR and N.C. Department of Military and Veterans Affairs (NCDMVA).

N.C. Longitudinal Data System

N.C. General Statute 116E defines the N.C. 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 to support the analysis of educational programs, performance and longitudinal outcomes.

GDAC is charged with developing an implementation plan for and providing general oversight and direction of this enterprise system. Data contributors to NCLDS include:

- N.C. Early Childhood Integrated Data System (NC ECIDS) – provides integrated early childhood education, health and social service data from participating agencies and is administered by NCDHHS
- N.C. SchoolWorks – provides access to data from early learning to workforce and is administered by NCDPI
- Common Follow-Up System (CFS) – provides a repository of workforce and education data and is administered by the NCDOC Labor and Economic Analysis Division

In 2018, in response to a request from the Governor to formalize plans for NCLDS, GDAC collaborated with the N.C. Education Cabinet to form a NCLDS work group to guide the mission and deliverables of the NCLDS modernization road map for the NCLDS Study. The study identified eight priority recommendations, including that NCLDS be defined and set up as a system that links data across the data systems identified above. GDAC is addressing this recommendation by integrating data from its contributor systems via a framework that, when complete, will efficiently enable longitudinal analysis of student and system outcomes across the education and workforce continuum.

Completed and In-Progress Activities

- Onboarded the NCLDS executive director
- In partnership with the data contributors, revised, updated and expanded the initial draft learning goals (research agenda), which support the prioritization of NCLDS data requests and the formation of research-practice partnerships by incorporating direct connections to each contributing agency's formally identified cross-sector and longitudinal research and policy needs (when available)
- Supporting work on several use cases designed, in part, to test and improve the system's functionality. Use cases in 2022 included:
 - An investigation of the relationships between early childhood experiences and early learning outcomes – in partnership with NCDHHS, NCDPI and an external research organization
 - A review of workforce outcomes for Career and College Promise students – in partnership with several NCLDS data contributors and an external research organization
 - Development of post-COVID education recovery dashboards – in partnership with the N.C. Pandemic Recovery Office and the Office of the Governor
- Established a draft strategic plan that coordinates a four-phase NCLDS rollout period with seven categories of short- and longer-term actions:
 - Establish and maintain the NCLDS Advisory Board structure
 - Design the NCLDS data architecture environment
 - Establish standards and processes for ensuring data quality
 - Provide data access and privacy governance

- Provide data use and analysis governance
- Generate NCLDS products and publications
- Expand outreach
- Completed actions in each category of the strategic plan:
 - Establish and maintain the NCLDS Advisory Board Structure
 - Transitioned NCLDS oversight to an advisory board comprising of representatives of each data contributor, as required by Executive Order 249
 - Design the NCLDS data architecture environment
 - Established a bedrock architectural framework for NCLDS development
 - Establish standards and processes for ensuring data quality
 - Identified membership for and convened a Data Quality advisory committee, as required by Executive Order 249
 - Provide data access and privacy governance
 - Identified membership for and convened a Data Governance advisory committee, as required by Executive Order 249
 - Provide data use and analysis governance
 - Established initial learning goal (research agenda) areas of focus
 - Began the development of a statewide network of research and evaluation partners committed to addressing elements of the learning goals (research agenda)
 - Generate NCLDS products and publications
 - Received NCLDS Advisory Board approval to move forward on the development of four main NCLDS products and services: 1) secure, restricted-access cross-sector data analysis tools for data contributors and select practitioners; 2) publicly available tools for reviewing de-identified and aggregated cross-sector data; 3) research-ready, linked datasets for board-approved and -monitored research and evaluation projects; and 4) a data preparation and linkage service for board-approved and -monitored research and evaluation projects whose data needs are not met by the prepared datasets
 - Expand outreach
 - Began capitalizing on opportunities to share the NCLDS's vision and information with a wider stakeholder audience, including policymakers, agency and program leaders, external researchers and education and workforce practitioners

Planned Activities

- Establish and maintain the NCLDS Advisory Board structure
 - Determine representation in the NCLDS data request approval process for data from sources other than those governed by current contributors (e.g., credentialing data)
- Design the NCLDS data architecture environment
 - Review all existing data-matching procedures/pathways, and resolve cross-sector data-matching challenges identified in the review
 - Establish technical requirements for various NCLDS technical components (e.g., a data selector/project management interface)
 - Identify and begin to resolve any data security concerns related to the movement of data
- Establish processes for ensuring data quality
 - Begin development of a dynamic data dictionary and a cross-contributor lexicon of data quality
 - Develop standard definitions of common cross-sector data elements
- Provide data access and privacy governance
 - Document each contributor's current data request procedures and incorporate them into the development of a standard NCLDS request process
 - Identify the data request tool design needs for each target NCLDS user audience
 - Continue to grow the statewide network of research and evaluation partners
- Provide data use and analysis governance

- Incorporate stakeholder input into a revised and expanded set of NCLDS learning goals (research agenda)
 - Establish a proposed project approval hierarchy, and review criteria
 - Begin the identification of key data management standards
 - Incorporate stakeholder feedback into the preliminary development of specifications for NCLDS public aggregated data tools
- Generate NCLDS products and publications
 - Complete work on in-progress use cases
 - Establish initial standards for reporting NCLDS project results
- Expand outreach
 - Design an NCLDS public website
 - Develop a proposed schedule for the release of recurring NCLDS products

N.C. Early Childhood Integrated Data System

The NCDHHS Division of Child Development and Early Education partnered with GDAC to develop a system that integrates early childhood data from selected education, health and social services programs. NC ECIDS is designed to help practitioners and researchers access the data needed to answer key program and policy-related questions, inform practice and improve outcomes for North Carolina’s children.

Completed Activities

- Completed development and deployment of five NC ECIDS dashboards
- Continued development of modernized NC ECIDS Data Requester, Approver and Administrator applications
- Completed four ad-hoc data requests using the interim data requests process
- Integrated NC ECIDS data into GDAC’s enterprise entity resolution tool (NC eLink)
- Used integrated NC ECIDS data sources in NC eLink to backfill and validate missing individual identifiers for NC ECIDS to enhance data matching

Planned Activities

- Integrate three new data sources: Early Hearing Detection and Intervention, Home Visiting and Head Start
- Complete development, testing and deployment of the NC ECIDS Data Requester, Approver and Administrator applications
- Continue to partner with NCDHHS to modernize NC ECIDS as a component of NCLDS

Common Follow-Up System

N.C. General Statute 96-30 – 96-35 directs the NCDOL Labor and Economic Analysis Division to operate the CFS. This system evaluates the performance and effectiveness of the state’s job training, education and placement programs by measuring participants’ presence in the workforce.

Session Law 2014-100 directed NCDOL to develop a plan to transfer CFS’s information and capabilities to 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 advanced data analysis capabilities associated with workforce and educational program operation and performance.

Completed Activities

- Used integrated CFS data sources in NC eLink to backfill and validate missing individual identifiers for CFS to enhance data matching for the analysis of education and training outcomes

Planned Activities

- Modernize CFS as a component of NCLDS
- Maintain and support the CFS operational environment

North Carolina SchoolWorks (P20W) System

In June 2012, the U.S. Department of Education awarded a \$3.6 million grant to NCDPI to undertake the P20-W System Statewide Longitudinal Data System project (SLDS Project), named NC SchoolWorks. The objective of the NC SchoolWorks is to enable five statewide entities to partner and share data: NCDPI, NCCCS, UNC System, NCICU and the NCDOC Division of Employment Security.

Completed Activities

- Expanded the NCDPI eScholar ID data validation program

Planned Activities

- Continue to partner with NCDPI to modernize NC SchoolWorks as a component of NCLDS
- Maintain and support the NC SchoolWorks operational environment

N.C. Licensure and Credential Repository

In partnership with NCDOC, NCCCS and NCDPI, GDAC is developing a centralized Licensure and Credential Repository, which will be used to help inform the state on the relationship between education and training programs, workforce credentials and employment outcomes.

Completed Activities

- Identified and conducted outreach to four licensing agencies to participate in the pilot of the N.C. Licensure and Credential Repository: N.C. Board of Barber and Electrolysis Examiners, N.C. Board of Cosmetic Arts, NCDPI Code Enforcement Qualifications Board and N.C. Real Estate Commission
- Initiated data transformation of licensure data from one provider

Planned Activities

- Complete remaining two data sharing agreements for the pilot group
- Design and develop data transformations to support the transfer of licensure data into the repository
- Perform enterprise entity resolution supporting data integration
- Continue outreach with priority participants in phases 2, 3 and 4 (scaling to approximately 25 agencies and 60 credentials)

COVID-19 Education Recovery Dashboards

North Carolina received funding from the Governor's Emergency Education Relief Funds (GEER) under the Coronavirus Aid, Relief and Economic Security Act and GEER II under the Coronavirus Response and Relief Supplementary Act. Both GEER I and GEER II are administered at the federal level by the U.S. Department of Education. The Governor has directed GEER II funds to GDAC to develop and publish an Education Recovery Dashboard (ERD) in collaboration with N.C. Pandemic Recovery Office. The ERD is intended to help the state assess how the pandemic has affected North Carolina's pre-kindergarten through college (P-20) education pipeline and track progress toward recovery from the pandemic at the local, regional and state levels across the P-20 pipeline.

Completed Activities

- Worked with N.C. Pandemic Recovery Office to identify priority metrics
- Identified and imported publicly available data for use in the dashboards

Planned Activities

- Complete the development of the dashboard datasets for each of the identified priority metrics

N.C. CovidSafe Reporting Portal and Dashboard

Executive Order 224 required North Carolina cabinet agency workers to report that they are fully vaccinated or that they have been recently tested for COVID-19. The CovidSafe Reporting Portal provided by Red Hat was used by the cabinet agencies to collect vaccine and testing data, and GDAC was tasked with creating the CovidSafe Reporting application, which summarizes the vaccination, testing, exemptions and compliance status of the cabinet agency workforce.

Completed Activities

- Developed and deployed a cabinet agency dashboard to facilitate the validation and awarding of booster leave in support of Executive Order 257
- Successfully decommissioned the CovidSafe Reporting Portal, and archived all the data and artifacts

Human Asset Resource Platform

NCOSHR's mission is 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 the state's greatest asset – employees. GDAC continues to support NCOSHR executive leadership in the provisioning of an analytical infrastructure and reporting environment for improved decision-making, called the Human Asset Resource Platform (HARP).

Completed Activities

- Updated extract, transform and load to import new data fields
- Developed code and reporting tools to assist NCOSHR in monitoring employment by temporary employees of cabinet and Council of State agencies in support of N.C. General Statute 126-6.3(b)

Planned Activities

- Test and deploy Temporary Solutions reporting tools
- Continue maintenance and operations of existing HARP reporting tools
- Work with NCOSHR and OSC to identify and bring in additional data useful for enhancing existing reporting tools

Veteran Information Portal

NCDMVA, working with the communities around military bases, helps military families and veterans get the support and services they need and helps connect veterans with jobs. NCDMVA's goals are consistent with assisting military members, veterans and their families and promoting economic opportunities for the state and its citizens.

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

Planned Activities

- Operations and maintenance of these NCDMVA programs

Financial Transparency

GDAC supports financial transparency through the development and expansion of the N.C. Open Budget, Historically Underutilized Business Spending Report System and NCDPI Business Systems Modernization initiatives.

Governmental Budgetary Transparency/Expenditures Online

Session Law 2015-241 §7.17 directed the state controller, N.C. Office of State Budget and Management (OSBM) and State SCIO to establish a state budget transparency website to provide information on the budget expenditures of each state agency for each fiscal year beginning 2015-2016.

Session Law 2017-257, Section 37.2.(c) directed NCDIT 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 to participate).

The 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 details
- State grants details
- State vendor payments details
- Statewide and agency contracts
- State IT contracts
- State transportation contracts
- State bulk budget downloads

Planned Activities

- Continue to refine and operate OpenBudget reporting
- Implement the N.C. Financial System (NCFS) data source replacement for N.C. Accounting System (NCAS), affecting OpenBudget reports.

E-Procurement

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

Completed Activities

- Continued to maintain the e-procurement reporting system
- Began high-level planning, requirements gathering and initial analysis of the impact of the statewide NCAS-to-NCFS migration project on e-procurement

Planned Activities

- Continue general maintenance of the e-procurement reporting system
- Implement required changes to e-procurement related to the statewide NCAS-to-NCFS migration project

Historically Underutilized Reporting System

The Office for Historically Underutilized Businesses (HUB Office) in the N.C. Department of Administration advocates and promotes the utilization of HUB organizations in the purchase of goods and services, including construction, certification and monitor reporting requirements to determine compliance in accordance with N.C. General Statute 143-48 and Executive Order #143.

The HUB Office partnered with GDAC in the implementation of a reporting mechanism that is currently used by all state agencies, ensuring that these agencies receive full credit for HUB participation and increasing and improving opportunities for HUB participation and spending by indicating HUB certification for budget transparency.

Completed Activities

- Developed and delivered N.C. Small Business Enterprise enhancements to the HUB Spending Reporting System
- Supported ongoing HUB system change requests and enhancements to meet their legislative commitments

Planned Activities

- Continue to refine and operate HUB reporting
- Implement NCFS data source replacement for NCAS, affecting e-procurement and HUB reports

N.C. Department of Public Instruction Business System Modernization

Session Law 2017-57 §7.16(a-d) directs NCDPI through 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 systems' financial, human capital and school information systems.

Completed Activities

- Implemented school year 2021-2022 data refresh

Planned Activities

- Implement school year 2022-2023 data refresh

NC eLink (Formerly Enterprise Entity Resolution)

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

Completed Activities

- Implemented phase 2.3, adding NC ECIDS and CWA data sources
- Implemented phase 3.1, integration with the NCDHHS Business Intelligence Data Platform supporting NCCARE360 supporting North Carolina health care and human services

Planned Activities

- Implement phase 4.0, adding:
 - An NCDHHS DAAS data source
 - An NCDHHS Common Name Database Services (CNDS) Crosswalk for inclusion of merged/deprecated CNDS IDs correlating with existing active CNDS IDs
 - Data quality improvements
 - An enhancement to isolate single data sources for data removal/replacement

New Initiatives Planned for 2023

N.C. Community College System Data Sharing Repository

NCCCS is partnering with GDAC to design a streamlined secure process to support its data sharing commitments.

Planned Activities

- Finalize the scope of work
- Design and develop a data sharing repository for NCCCS

Case Management System – N.C. Department of Justice Consumer Protection Division

The N.C. Department of Justice Consumers Protection Division (CPD) is partnering with GDAC to design a streamlined case management system.

Planned Activities

- Finalize the scope of work
- Design and develop a the CPD case management system

Analytics Dashboard for the N.C. Alcoholic Beverage Control Commission

The NCDPS Alcoholic Beverage Control Commission is partnering with GDAC to design an operational system and open data portal providing liquor availability, inventory, shipping and delivery information to local ABC boards.

Planned Activities

- Finalize the scope of work
 - o Design and develop the analytics dashboard and reporting solution
 - o Validate and implement the solution

GDAC Public-Private Partnership

The state of North Carolina and 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.

GDAC Portfolio (Excluding NC HIEA)

During the 2022 calendar year, in support of all GDAC-SAS hosted activities (non-NC HIEA), the state invested \$17,948,700.00 with an estimated SAS investment of approximately 15,544,195.50.

GDAC Project Contribution by SAS	Cumulative Contract Total (12/23/2021 – 12/22/2022)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$15,554,396.00
Hosting operations [2]	\$ 3,771,401.00
Personnel resources	\$ 14, 167,098.50
Other agreed/resources	\$0.00
Total Value for Period	\$ 33,492,895.50
State Payments	\$ 17,948,700.00
SAS Investment	\$ 15,544,195.50

[1] The 2022 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 GDAC environments and solutions.

GDAC Portfolio (NC HIEA, NC HealthConnex)

During the 2022 calendar year, in support of all the SAS-hosted activities supporting NC HIEA, the state invested \$15,894,860, with an estimated SAS investment of approximately \$10,427,610.75.

-HIEA Project Contribution by SAS	Contract Total (12/23/2021– 12/22/2022)
Knowledge transfer and education activities	0.00
Software licensing [1]	\$ 7,712,121.00
Hosting operations [2]	\$ 4,773,206.00
Personnel resources	\$ 13,131,543.75
Other agreed/resources [3]	\$ 795,600.00
Total Value for Period	\$ 26,412,470.75
State Payments	\$ 15,894,860.00
SAS Investment	\$ 10,427,610.75

[1] Non-discounted software licensing fees for audited for use of InterSystems – Base Platform and Health Insight, Audacious Inquiry, Galen Software Licensing Fees and Secure Exchange Solutions Inc.

[2] Includes hardware and IT personnel required to support the GDAC-NC HIEA 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 – GDAC Portfolio

