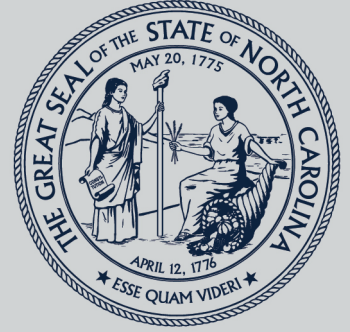




2023 GDAC Annual Report

N.C. Government Data Analytics Center

N.C. Department of Information Technology

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

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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](http://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_143B/GS_143B-1385.pdf) is available at:

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

History & Introduction

While a statewide data integration plan was developed by the state legislature in 2007, it was a high-profile criminal case in the mid-2000s that highlighted the immense benefit of disparate state systems working together to integrate and build analytic reporting capabilities for real-time access to data that would quite literally save lives. With millions of people living in and moving in and out of North Carolina, the vision for statewide data integration and business intelligence efforts being led by a dedicated body has been realized.

Initially managed by the Office of State Controller under a different name, what is now the Government Data Analytics Center (GDAC) was transferred to the Office of the State Chief Information Officer in July 2014.

Over the last 10 years, GDAC has expanded its portfolio and scope of work from criminal justice and fraud to other areas that include child and family safety, health care and performance analysis. GDAC works collaboratively with agencies to understand their business use cases, define their analytic needs, determine access to required data sources and scope the level of effort to support analytic development. The GDAC now coordinates with 15 agency partners for the development and management of more than 70+ applications.

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 2023 calendar year.

Accomplishments

The GDAC is 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.

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 2023 activities and projected 2024 activities.

Criminal Justice and Public Safety Portfolio

GDAC supports the criminal justice community by integrating and transforming data to improve public safety. A summary of the criminal justice portfolio 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
- A case management tool to aid offenders' transitions from prison to the community
- Access to real-time warrant information through the N.C. Administrative Office of the Courts' (AOC) new eWarrants system
- 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

2023 Completed Activities

- Successfully migrated CJLEADS and Case Worker ASSIST (CWA) for the first two phases of the AOC transition to the new Enterprise Justice (Odyssey) integrated case management system for five counties
- Successfully upgraded the CJLEADS application to include a modern user interface, hardware and database
- Conducted 103 CJLEADS training classes with 2,059 students, representing professionals in law enforcement, corrections and judicial fields
- Worked with third-party vendors to automate annual and ad-hoc audit tasks in CJLEADS, which support further automating other audit streams. This auditing/audit process is vital to ensure that CJLEADS users are utilizing this critical application for law enforcement purposes only according to the agency-signed License & Usage Agreement.

Planned Activities

- Implement configuration and interface changes supporting the rollout of the new AOC eCourts integrated case management system with impacts to the following GDAC applications:
 - State Crime Lab reporting
 - State Bureau of Investigation (SBI) Sex Offender Registry compliance utility
 - SBI reports

This new system will help to replace paper records held in county courthouses with a modernized, searchable electronic system.

- Develop a roadmap to modernize CJLEADS application software

Criminal Investigative Case Management (IntelShare)

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 developed and continues to upgrade a system that provides:

- Scalable case management capability
- Ability to incorporate and integrate data from existing investigations and sources
- 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
- Enhanced case management and investigative capabilities through the modern IntelShare application

2023 Completed Activities

- Released an upgraded intelligence-based investigative case management system on Aug. 22, 2023, to replace the legacy system MEMEX, implemented in 2015, and to enhance the user experience and support current and future business needs

Planned Activities

- Develop integration of prison visitors log data from the N.C. Department of Adult Correction
- Explore possibilities of CJLEADS integration for seamless data transfer
- Migration of data from retired MEMEX application to new IntelShare application
- Operations and maintenance of the IntelShare application

Crime Lab Analytics

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

2023 Completed Activities

- Modified 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

Planned Activities

- Ongoing operations and maintenance

Investigation Case Management Utility

The Fraud Control Group (FCG) within the N.C. Department of Insurance (NCDOI) combats insurance fraud. Three units comprise the FCG: the Criminal Investigations Division (CID), charged with conducting criminal investigations and supporting prosecution of individuals and entities committing insurance-related crimes; the Criminal Legal Services (CLS) Division, which prosecutes insurance fraud cases and attempts to recover damages; and the Bail Bond Regulatory Division (BBRD), which licenses bail bondsmen and investigates consumer complaints against licensed bail bondsmen.

The NCDOI's Criminal Investigations Division 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) and enables securely sharing case investigation records with the prosecution.

In addition to this current functionality, the Bail Bond Regulatory Division wanted to leverage the ICIS system for its integrated needs. GDAC developed a new application, the Bail Bond Information System. Previously, BBRD used three different systems to manage its complaints, application, license renewal and maintenance. This process was cumbersome and involved a lot of manual effort to keep systems synchronized. Integrating these business processes into ICIS system will help reduce manual efforts and coordinating efforts with CID and CLS.

2023 Completed Activities

- Implemented the first phase of the new Bail Bond Information System, a bail bond investigation case management and reporting system compliant with Criminal Justice Information Systems, on June 16, 2023, for NCDOL's Fraud Control Group
- Initiated multi-phased upgrades to the Bail Bond Information System, which will help bail bond agents better track cases, log citizen complaints and manage workflow by merging multiple systems previously unconnected

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 within NCDOL case management system to review prior complaints
- Enhance the case management workflow functionality

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 sector. This repository of data, combined with next-generation visual analytics tools on the SAS Viya platform, enables CJAC to develop program measures and provide on-demand reporting and analytical support to the N.C. Governor's Crime Commission including:

- Measures for traffic stops published in the Justice Data Portal
- Measures for N.C. Computerized Criminal History in the Justice Data Portal

2023 Completed Activities

- Integration of Department of Adult Correction data

Planned Activities

- Ongoing operations and maintenance

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

The N.C. Department of Justice Consumer Protection Division (CPD) needed an improved technology solution that satisfies the needs of its core objectives: provide information and resources to the public, promote an informal mediation program for consumers, monitor statutory compliance, investigate statutory violations and pursue state enforcement actions through civil litigation.

The CPD is partnering with GDAC to design a streamlined case management system. The complaints and case management system integrates existing business processes and communications into an electronic file (e-file). This system will manage the various types of complaints received, improve workflow functionality for assignment of complaints and document management and provide robust reporting and analytics, search capabilities and integration of communications.

2023 Completed Activities

- Scope of work finalized

Planned Activities

- Requirements gathering
- Design and develop the CPD case management system
- Validate and implement the solution

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. Currently, the ABC Commission uses disparate processes and systems for these tasks. The agency is seeking to leverage GDAC's business intelligence and data integration support to deliver information to local ABC boards and the general public in a timely, transparent and accurate manner.

2023 Completed Activities

- Scope of work finalized

Planned Activities

- Requirements gathering
- Design and develop the analytics dashboard and reporting solution
- Validate and implement the solution

State Crime Lab Portal

The N.C. State Crime Lab is partnering with GDAC to design a streamlined case management system to develop automated workflows.

Planned Activities

- Finalize the scope of work
- Requirements gathering
- Design and develop the solution

Violent Risk Model

A model is being developed to assist the N.C. Department of Adult Corrections in assessing the risk of violent behavior by prison residents.

Planned Activities

- Finalize the scope of work for the implementation of a violent risk model dashboard, which includes Prison Alerts, Housing Analysis and Threat Group Analysis
- Requirements gathering
- Design and develop the solution

Child and Family Safety Portfolio

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.

Case Worker ASSIST

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.

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:
 - Prior assessments of the child
 - Eligibility for food and 25 nutrition programs
 - Work First/Temporary Assistance for Needy Families
 - Medicaid
 - Subsidized childcare

The dashboard is now referred to as Case Worker ASSIST to support case workers caring for clients and citizens of the state of North Carolina and has approximately 4,500 users.

Completed Activities

- Ongoing maintenance and operations

Planned Activities

- Implement phase 2 of CWA, integrating Aging and Adult Services data from NCDHHS' Aging Resource Management System (ARMS)

Juvenile Justice

The NCDPS Division of Juvenile Justice and Delinquency Prevention is committed to the reduction and prevention of juvenile delinquency by strengthening families, improving public safety and effectively intervening, educating and treating youth. GDAC solutions supporting the Division of Juvenile Justice and Delinquency Prevention 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 datasets of juvenile and adult records for researchers with revised matching logic
- 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): <https://www.ncdps.gov/juvenile-justice/service-directory>
- Service Directory integration with CJLEADS

2023 Completed Activities

- Supported performance of recidivism analysis by matching Juvenile Justice with Criminal Justice data for outcomes analysis, validation and evaluation

- Implemented an automated matching process to support the evaluation and validation of Reentry to Resilience (R2R), Teen Court Programs and Youth Assessment and Screening Instrument (YASI) programs
- Provided researcher-ready de-identified datasets for the Tiered Case Coordination Return on Investment Study
- Provided researcher-ready de-identified matched datasets for the Reentry to Resilience Outcome Study

Planned Activities

- Implement NCDPS Division of Juvenile Justice Service Directory phase 7 to deliver enhancements that will allow centralized program management and maintenance for NCDPS Division of Juvenile Justice employees via a graphical user interface
- 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 by integrating needs and services beyond health care to provide more holistic care to children and their families. NCDHHS is participating in the NC InCK project, a seven-year pilot with the Duke and UNC Health Systems 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 children insured by the Medicaid and Children's Health Insurance Plan 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 health, education and juvenile justice data from Medicaid (NCDHHS Division of Health Benefits), the N.C. Department of Public Instruction (NCDPI) and the 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.

In 2022, phases 1 and 2 were implemented, including data collection from NC Medicaid and creation and integration of a risk stratification into the virtual health case management system with education and juvenile justice data. This integrated data provides primary health providers with timely information from NC InCK for decision-making.

Completed Activities

- Ongoing maintenance and operations

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 Portfolio

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 (NCDOC), NCDOI 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

Since 2013, GDAC has provided a utility focused on compliance, eligibility and overpayment. Particularly in response to the introduction of new programs and the influx of claims during the COVID-19 pandemic, GDAC has developed, implemented and enhanced advanced data analysis to support new and innovative approaches to generate alerts.

The fraud and compliance alerts generated for the NCDOC Division of Employment Security (DES) support the analysis of employers and their compliance with unemployment tax through the Unemployment Insurance Wage/Tax Analysis Alerts. The 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. Identity theft alerts and reporting dashboards that interface with DES workflows include the Enhanced Self-Service and Benefit Integrity Dashboard and the Executive Leadership Dashboard.

2023 Completed Activities

- Implemented an anti-fraud solution to detect potential instance of fraud in claims to the N.C. Office of State Human Resources' (NCOSHR) Workers' Compensation program, including an incoming quarterly claimant report, an NCOSHR fraud report and alert generations for claimants likely to be fraudulent or ineligible during any time during the claim period
- Implemented a yearly death match reporting process for the N.C. National Guard in partnership with the State Treasurer's Retirement Division. This process identifies deceased individuals from the GDAC Enterprise Deceased Master (EDM) to ensure compliance in payment and delivery of services
- Implemented a DES Fraud API to share real-time alerts with DES during the unemployment insurance claim registration process
- Implemented NCOSHR Workers' Compensation fraud match reporting to identify, alert and report likely fraudulent or ineligible claimants

Planned Activities

- Ongoing maintenance and operations

N.C. Industrial Commission Legal Case Management System

In 2014, a Worker's Compensation tab was implemented in the GDAC Portal, allowing users at the NCIC to use alerts, such as those generated by NC FACTS, to identify businesses that have failed to maintain Workers' Compensation insurance. Users can filter/search alerts on numerous employer information attributes, then tab through additional crossmatched information from other agencies. Alerts can be assigned to resources for further investigations. Employers identified as being out of compliance are at risk of being served potential civil penalties and/or criminal charges. The NCIC Legal Case Management System (LCMS) is in development as a replacement data source for reporting.

2023 Completed Activities

- Completed user acceptance testing (UAT) for the NCIC LCMS tool

Planned Activities

- Go live with NCIC LCMS

- Ongoing maintenance and operations

Employee Misclassification and Underground Economy

GDAC has developed tools for the NCIC to mitigate harm 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.

2023 Completed Activities

- Implemented changes to enable concurrent multi-agency alerts for DES and NCIC 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 for DES and NCIC personnel

Planned Activities

- Implement the NCIC LCMS data source replacement project to ensure the functional continuity of Underground Economy/Employee Misclassification (UE/EM) alerts generation due to the new LCMS data source's effect on the UE/EM application and analytics

Wage and Employer State Tax Revenue

NCDOR's partnership with GDAC has resulted in several short-term and long-term projects, including ABC Collections, 1099-K Audits and Sales Tax Reports. 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 for various DOR audits, including those for 1099-K and Individual Tax Identification Numbers (ITIN).

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.

2023 Completed Activities

- Completed end-of-year 2023 analytics updates, including updates to analytic models to enhance refund fraud and compliance detection

Planned Activities

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

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 – its 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). Reporting tools include monitoring employment of temporary employees by cabinet and Council of State agencies in support of N.C. General Statute 126-6.3(b).

2023 Completed Activities

- Completed the development of a new report for NCOSHR that enables monitoring of compliance with the 31-day break rule for Temporary Solutions employees. This report allows NCOSHR to identify employees who are out of compliance as well as proactively identify employees who are nearing the end of their compliance period.

Planned Activities

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

Health Care Portfolio

As part of NCDIT's Data Division, 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 the business unit within 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 those North Carolinians covered by Medicaid, especially the state's most vulnerable citizens – children, elderly, disabled and low-income families. In the state fiscal year 2022 (July 1, 2022 through June 30, 2023), N.C. Medicaid provided health care coverage for about 3.1 million people in North Carolina. Early in 2023, Governor Roy Cooper signed into law [a bill that allowed for Medicaid Expansion in North Carolina](#), giving coverage to an estimated 600,000 additional residents as of December 1, 2023.

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. The scope of the program has been expanded to integrate new data sources, provide data extracts for performance measurement and clinical quality measures, automate ongoing data feeds and customize reporting and analytics capabilities.

2023 Completed Activities

- Delivered monthly priority data element data extracts to Medicaid and Prepaid Health Plans to be used in quality measurement to support value-based care
- Provided Medicaid with annual extracts of clinical data elements needed to run quality measures (diabetes, hypertension, BMI measures and depression) that depend on clinical data that cannot be found in claims and encounters
- Participated in the National Committee for Quality Assurance Data Aggregator Validation program to support the Medicaid Quality Reporting Program and earned the Validated Data Stream designation

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 standardization and completeness of data needed for clinical quality measure reporting
- Develop the capability to produce digital quality measures, closer to real-time quality measures that leverage clinical data on Medicaid beneficiaries that providers can access via NC HealthConnex
- Serve as a hub for the exchange of care management data between plans, providers and NC Medicaid
- Serve as a hub for the exchange of health-related resource needs (e.g., food, housing, transportation) screening data between plans, providers and NC Medicaid
- 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
- 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 health information exchange, 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

2023 Completed Activities

Data collected within the CSRS application is available within GDAC for the development of advanced analytics. Key features developed include:

- New reports built for the N.C. Medical Board and N.C. Nursing Board
- Provided access and reports to NCDHHS Division of Public Health
- Enhancements to:
 - N.C. Medical Board reports
 - N.C. Nursing Board reports
 - Updated provider specialties
 - Audit report
 - Opioid report
- Delivered a Medicaid snapshot report

Planned Activities

- Continue working 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
- Enhancements to the Morphine Milligram Equivalents table
- Automate and enhance audit reporting
- Build reports for the N.C. State Board of Dental Examiners
- Build reports for the N.C. Veterinary Medical Board
- Work in partnership with the NCDHHS Division of Health Benefits to link Medicaid beneficiaries for reporting

NC HealthConnex (N.C. Health Information Exchange Authority)

The NC HIEA operates North Carolina's state-designated health information exchange, NC HealthConnex. 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.

In addition to health care providers, NC HealthConnex supports state agencies. Efforts include improving continuity of care for incarcerated persons with NCDPS and N.C. Department of Adult Correction and providing population health data through registries including the N.C. Stroke Registry Dashboard and the Diabetes Registry Dashboard for NCDHHS.

Historical Background

In 2015, the N.C. General Assembly passed the Statewide Health Information Exchange Act (Session Law 2015-241), establishing the N.C. Health Information Exchange Authority to oversee and manage the state-designated health information exchange, NC HealthConnex. The law requires health care providers who receive state funds, such as Medicaid or the State Health Plan, for the provision of health care services must connect and submit clinical and demographic patient data.

The deadline for providers to connect was January 1, 2023. In response to the legislative directive Session Law 2022-74, 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 N.C. Joint Legislative Oversight Committee on Health and Human Services in March 2023. In October 2023, Session Law 2023-137 moved chiropractic providers to a voluntary connection status. Other recommendations included in the report by the NC HIEA Advisory Board have not yet been taken up by the NCGA for additional legislative action.

2023 Completed Activities

- Foundation

- Held three Advisory Board meetings
- Completed comprehensive assessment for HIPAA compliance against National Institute of Standards and Technology 800-53 controls for security and privacy
- Conducted outreach to unconnected providers, sending approximately 14,162 letters and emails from February 13, 2023, to December 19, 2023
- Executed 4,367 participation agreements representing 321 facilities
- Completed onboarding for 95 new state-mandated data connections (representing 200 facilities) and 10 electronic health record systems migrations
- Attained Validated Data Stream designation through the National Committee for Quality Assurance (NCQA) Data Aggregator Validation (DAV) program for UNC inpatient and outpatient and Duke outpatient data
- Completed initial pharmacy data pilots for four pharmacies
- Improved patient matching through the integration of the Enterprise Patient Matching Index (EMPI) and NC eLink.

- Analytics/Population Health

- Released Maternal Health Alerts in July 2023 as the data partner for the five-year Accountability for Care through Undoing Racism and Equity (ACURE4Moms) study conducted by the University of North Carolina at Chapel Hill and 40 full participants in the NC HIEA, funded by the Patient-Centered Outcomes Research Institute. The ACURE4Moms study aims to improve the morbidity and mortality outcomes for Black mothers and infants
- Completed Stroke Registry Phase 2 enhancements including user interface improvements, additional advanced filtering and geographic stroke prevalence calculations

- **Notify**
 - Added 46 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
 - Integrated claims data from Medicaid Prepaid Health Plans and local management entities-managed care organizations

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 to facilitate Medicaid transformation and promote more efficient public health surveillance. Activities planned for 2024 include but are not limited to:

- **Foundation**
 - Perform system upgrade of NC HealthConnex's technical environment
 - Optimize infrastructure utilization through the implementation of data retention and data compression
 - Recertify the 2023 NCQA DAV cohort
- **Exchange**
 - Continue onboarding health care organizations in compliance with the Statewide Health Information Exchange Act, including pharmacies, as funding allows
 - Continue to support onboarding providers to electronically submit and query immunizations and lab reports to the NCDHHS Division of Public Health
 - 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)
 - Implement API Manager for Fast Healthcare Interoperability Resources (FHIR) future use cases such as exchange Social Determinants of Health (SDOH) data
 - Plan for 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 (ETOR) for the State Laboratory of Public Health, beginning with local health departments
- **Analytics/Population Health**
 - Continue as a data partner with ACURE4Moms study on maternal health
 - Continue enhancements to the N.C. Stroke Registry in partnership with the NCDHHS Division of Public Health
- **Notify**
 - Continue operations and maintenance of 400 interfaces and six value-added services (e.g., NC*Notify, registry dashboards)

Longitudinal Portfolio

GDAC's longitudinal portfolio supports 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. Involved agencies include the N.C. Community College System (NCCCS), NCDOC, NCDHHS, N.C. Department of Military and Veterans Affairs (NCDMVA), NCDPI, N.C. Independent Colleges and Universities (NCICU), NCOSHR, N.C. Pandemic Recovery Office and the University of North Carolina (UNC) System.

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

In 2018, GDAC collaborated with the N.C. Education Cabinet to create an NCLDS work group for the purpose of formalizing plans for NCLDS and guiding its mission and deliverables. A strategic plan (GS 116E-4(a)(1)) was developed in 2022 and formalized in 2023 to address the recommendations of the work group. The plan directs NCLDS – also known as the N.C. Longitudinal Data Service – to integrate data from contributor systems via a framework that, when complete, will enable efficient longitudinal analysis of student and system outcomes across the education and workforce continuum.

2023 Completed Activities

- **Governance**
 - Convened the full NCLDS Advisory Board in May and November
 - Reviewed and made the first updates to the Memorandum of Understanding that governs contributor participation in NCLDS
- **Data Quality**
 - Convened three Data Quality subcommittees (Data-Matching, Common Elements and Lexicon)
 - Established foundational data quality standards
 - Developed and released the first version of the NCLDS Data Dictionary, a dynamic online tool that will grow and expand as NCLDS grows and that, per statute (GS 116E-4(a)(4)(a)), provides an inventory of the data proposed to be accessible in the System
- **Data Access**
 - Convened a Data Governance Privacy & Security subcommittee
 - Established procedures and policies for ensuring data privacy and for securely transferring, storing and deleting data (GS 116E-4(a)(4) through 6)
- **Data Use and Analysis**
 - Convened two additional Data Governance subcommittees (Request Approval and Access & Availability)
 - Developed the NCLDS Data Request Process, criteria for evaluating those requests and policies for ensuring that NCLDS prioritizes requests with the greatest value to the state (GS 116E-4(a)(8))
 - In partnership with the data contributors, continued work on use cases designed to test and improve the system's functionality:
 - Relationships between early childhood experiences and early learning outcomes (in partnership with NCDHHS, NCDPI and an external research organization)
 - Workforce outcomes for Career and College Promise students (in partnership with several NCLDS data contributors and an external research organization)

- **Products and Publications**
 - Completed successful tests of NCLDS's on-demand data preparation service
 - Developed plans for and recruited partners for creating NCLDS's first research-ready datasets
- **Outreach**
 - Developed and published a [public-facing NCLDS website \(https://nclds.nc.gov/\)](https://nclds.nc.gov/), with information about NCLDS policies and procedures, including data privacy and security

Planned Activities

NCLDS's main planned activity for 2024 is to prepare for and execute a soft launch, in preparation for a formal, public launch in 2025. Related activities in 2024 will include:

- **Data Architecture**
 - Complete requirements for various NCLDS technical components
 - Finalize policies and procedures for addressing security concerns related to the movement of data
- **Data Access**
 - Identify initial targets for possible expansion of NCLDS data contributors
 - Continue to grow a statewide network of research and evaluation partners
- **Data Use and Analysis**
 - Continue development of key data management standards, including standards for review of externally completed analyses and products
- **Products and Publications**
 - Establish initial standards for reporting NCLDS project results
 - Advance work on current NCLDS products and services (research-ready datasets)
 - Begin work on remaining NCLDS products and services (secure, restricted access, cross-sector data analysis tools; de-identified and aggregated cross-sector data tools)

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. The Early Childhood Integrated Data System 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.

2023 Completed Activities

- Onboarded three new data sources in the NC ECIDS Data Warehouse: Early Hearing Detection and Intervention (EHDI), Home Visiting – Healthy Families America (HV HFA) and Home Visiting – Nurse Family Partnership. This brings the total number of available ECIDS data sources to 10 programs. The other seven data sources are:
 - Child Protective Services (CPS)
 - Exceptional Children (EC)
 - Food and Nutrition Services (FNS)
 - Infant Toddler Program (ITP)
 - NC Pre-Kindergarten (NCPREK)
 - Subsidized Child Care (SCC)
 - Temporary Assistance for Needy Families (TANF)
- Completed the development of the ECIDS Data Request Portal. This Data Request Portal provides a governed and secure process for state agencies, researchers and evaluators to request and receive the necessary linked and de-identified data needed to answer critical policy and research questions.

- Completed the development of three new dashboards. Two of these dashboards enable monitoring of data quality and completeness in the ECIDS Data Warehouse. The third dashboard enables monitoring of Data Request progress in the ECIDS Data Request Portal.

Planned Activities

- Provide operational support to NC ECIDS
- Incorporate NC ECIDS as a contributor to NCLDS

Common Follow-Up System

N.C. General Statute 96-30 – 96-35 directs the NCDOC Labor and Economic Analysis Division to operate the Common Follow-Up System. 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 NCDOC to develop a plan to transfer CFS's information and capabilities to GDAC. The objective of the CFS migration and modernization 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.

2023 Completed Activities

- Provided operational support to CFS

Planned Activities

- Provide operational support to CFS
- Incorporate CFS as a contributor to NCLDS

North Carolina SchoolWorks Data Selector

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 NC SchoolWorks is to enable five statewide entities to partner and share data: NCCCS, NCDPI, NCICU, UNC System and DES.

2023 Completed Activities

- Partnered with NCDPI to improve data quality associated with eScholar ID
- Provided operational support to NCSW

Planned Activities

- Provide operational support to NCSW
- Incorporate NCSW as a contributor to NCLDS

NC Community College System (NCCCS) Warehouse

2023 Completed Activities

- Created a new data warehouse for the NCCCS, which enables seamless integration with CFS and NCLDS

Planned Activities

- Perform enterprise entity resolution supporting data integration
- Incorporate NCCCS as a contributor to NCLDS
- Enable integration and data sharing with CFS

NC Department of Public Instruction – National Student Clearinghouse Warehouse

2023 Completed Activities

- Created a new data warehouse for the NCDPI National Student Clearinghouse (NSC) data.

Planned Activities

- Incorporate NCDPI NSC data in NCLDS
- Enable integration with the with CFS

N.C. Licenses and Credentials Warehouse

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

2023 Completed Activities

- Piloted the ingress of state licensure and certification data into a new data warehouse for Licensure and Certification data. The pilot phase included four data sources: Barbering, Code Officials Qualification Board, Cosmetology and Real Estate.

Planned Activities

- 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 future phases

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 the 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.

2023 Completed Activities

- Worked with the 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

Financial Transparency Portfolio

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 in 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 maintain the OpenBudget reporting portal
- 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.

2023 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 for 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. It also increases and improves opportunities for HUB participation and spending by indicating HUB certification for budget transparency.

2023 Completed Activities

- Developed and delivered N.C. Small Business Enterprise enhancements to the HUB Spending Reporting System. These enhancements will help the HUB Office track registration and participation in contracting opportunities.
- 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.

2023 Completed Activities

- Implemented school year 2021-2022 data refresh of the School Report Card in the spring of 2023

Planned Activities

- Implement school year 2022-2023 data refresh

Enterprise Solutions Portfolio

NC eLink (Formerly Enterprise Entity Resolution)

Developed by GDAC, NC eLink is an enterprise utility that links data from contributing agency systems, such as NCDHHS, NCDOC and NCDPI, to give them a more comprehensive view of the residents they serve. This enterprise solution provides a standard, reusable protocol for state agencies to match like records across systems, increasing consistency and accuracy and improving data sharing across agencies, so they can improve service delivery, operational efficiencies and decision-making.

Currently, NC eLink is being used to identify fraud, protect citizens and connect longitudinal data that informs educational and workforce policy.

Additionally, this enterprise service received the National Association of State Chief Information Officers' Award for Cross-Boundary Collaboration & Partnership in 2023.

Completed Activities

- Onboarded new Early Childhood Integrated Data System (ECIDS) data sources to NC eLink, including but not limited to Early Hearing Detection and Intervention and Home Visiting
- Integrated NCDHHS' Common Name Data Service (CNDS) cross reference data to improve the linkage accuracy of NCDHHS CNDS IDs. This additional cross reference data helped to link multiple IDS assigned to an individual by disparate DHHS systems
- Implemented a data quality report on the cleanliness, completeness and record linkage suitability for data sources

Planned Activities

- Release 4.2 – new data sources to be onboarded
 - NCDHHS Division of Aging and Adult Services (DAAS) – Aging Resource Management System (ARMS)
 - NCDPI – eScholar retired ID file
- Release 5 – modernization of NC eLink to the cloud

GDAC Modernization

The GDAC modernization initiative is a multi-phase project to upgrade the GDAC information technology infrastructure and systems to the latest cloud-based SAS Viya 4 platforms with emerging technologies.

Completed Activities

- Completed the strategy planning and roadmap for the infrastructure modernization into SAS Viya 4 platform in Azure cloud, and built and configured several environments for new projects in the cloud

Planned Activities

- Complete the first phase of infrastructure modernization and migration of existing applications into SAS Viya 4 platform in Azure cloud

Training, Operations and Workforce Development

GDAC's internal operations are aimed at modernizing its data and systems, ensuring their security, providing training and resources for their use and developing the future IT workforce of North Carolina.

Completed Activities

- Completed the transition of multifactor authentication from on-premise to Microsoft Azure authentication for all applications in the GDAC portfolio, strengthening authentication for all environments
 - Benefits include improving agility, better capacity planning and efficiency in service delivery
- Developed multiple web-based and PDF-type user guides including, but not limited to Rise and PDF guide for IntelShare, prosecution package for ICIS, entity resolution package for ICIS
- Developed documentation for N.C. Early Childhood Integrated Data System, Bail Bonds Information System and automated CJLEADS audit reporting
- Sponsored and conducted the N.C. Education Datathon in partnership with The Hunt Institute on March 6-7 by planning activities, developing publicly available datasets and mentoring nine teams of high school and college students who used publicly available data to develop solutions to educational disparities
- Participated in the Lady Cardinal Project, a four-week summer program for high school girls interested in learning more about STEM careers in state government

Planned Activities

- Ongoing operations and maintenance

Ongoing Operations and Maintenance

The following projects are no longer under development but are still subject to ongoing operations and maintenance tasks that are managed by GDAC.

N.C. Gun Purchasing Disqualifying Analytics

In 2018, 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 179,414 North Carolina offenders had been identified as ineligible for gun purchases, resulting in 1,267 denials.

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 59 county sheriffs' offices. Since 2020, approximately 2,356 offenders had been brought into compliance.

N.C. Department of Adult Correction Reporting Environment

In 2020 and 2021, GDAC developed a reporting repository for the N.C. Department of Public Safety that is now used by the NCDAC and can support user-developed ad-hoc reports.

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 efficiency and accountability by using available data to develop evidence-based decision-making. In partnership with GDAC, NCDMVA established fundamental performance criteria with an agile reporting frequency, providing actionable information for strategic decision-making.

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 2023 calendar year, in support of all GDAC-SAS hosted activities (non-NC HIEA), the state invested \$18,439,515.00, with an estimated SAS investment of approximately \$15,115,457.00.

GDAC Project Contribution by SAS	Cumulative Contract Total (12/23/2022 – 12/22/2023)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$15,554,396.00
Hosting operations [2]	\$4,229,747.00
Personnel resources	\$ 13,770,828.00
Other agreed/resources	\$0.00
Total Value for Period	\$ 33,554,972.00
State Payments	\$ 18,439,515.00
SAS Investment	\$ 15,115,457.00

[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 2023 calendar year, in support of all the SAS-hosted activities supporting NC HIEA, the state invested \$12,533,402.00, with an estimated SAS investment of approximately \$15,397,549.09.

HIEA Project Contribution by SAS	Contract Total (1/1/2023 – 12/31/2023)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$7,803,774.11
Hosting operations [2]	\$5,000,500.02
Personnel resources	\$9,469,677.45
Other agreed/resources [3]	\$5,696,317.50
Total Value for Period	\$27,970,269.08
State Payments	\$12,533,402.00
SAS Investment	\$15,397,549.09

[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 for the project, such as industry consultants and subject matter experts who do not bill hours against the project.

Appendix A – GDAC Portfolio

