Vermont’s Data Infrastructure and Integration Plan

Submission June 30, 2020

All states have a deliverable in their NCJRP Phase III agreements to create a data infrastructure and integration plan to support planning, implementation, and evaluation efforts related to each state’s selected reform effort. Below is Vermont’s Data Infrastructure and Integration Plan.

**Introduction**

The State of Vermont was one of five states to be selected as a participant in the National Criminal Justice Reform Project (NCJRP). The focus of this work was to improve the state’s pretrial justice system through state and local collaboration to increase public safety, improve access to substance use and mental health disorder treatment, strengthen data integration between law enforcement and public health, protect the constitutional and statutory rights of defendants, and protect the statutory rights of victims. As part of the NCJRP, Vermont established the Vermont Pretrial Advisory Committee (“Advisory Committee”) to oversee this work.

One of the goals of the Advisory Committee has been to develop high-quality services that are informed by evidence-based principles and delivered in a consistent manner in all counties. The Committee focused on creating standardized policies for pretrial screening, risk assessments, monitoring, as well as working on an integrated data plan that is outcome-based and provides data access to partner agencies.

Focusing on the integrated data plan, Vermont has relied on the traditional approach of transaction-based information systems for capturing and reporting data. This model consists of disparate silos of data and functionality, resulting in numerous problems ranging from the inability to access the right data, to lengthy delays in obtaining much needed data for analysis and decision making. For example, the data systems that are used in pretrial services and bail reform are segregated as individual silos of information in the Department of Corrections, the Courts, the Attorney General’s Office, and individual providers’ offices. This perpetuates inefficiencies and compromises the effectiveness of criminal justice practitioners as they try to navigate these systems. Obtaining relevant data in Vermont has also been challenging due to a lack of information-sharing or inability to share data. Not only are there challenges in identifying data but there are also nuances in data fields that make it difficult, and in some cases harmful, to draw conclusions, for example, in the case of failure to appear when actually the defendant was incarcerated. The Vermont integrated data plan is designed to begin to address these issues.

1. **Evaluation Data Requirements (Formative and Outcome): To be completed by project lead/designee**
   1. Briefly summarize the purpose of or the policy questions to be addressed through the formative and outcome evaluations.

How effective is the Pretrial Safety Assessment Tool (PSA) in determining pretrial release outcomes in Vermont?[[1]](#endnote-1)

* 1. Describe the criteria your state will use for the evaluations.

The PSA measures three outcomes: failure to appear, new crime whilst on bail, and new crime of violence whilst on bail. In our retrospective study and outcome evaluation, we will measure the success of the tool at predicting the outcomes for the population. We will also evaluate if the tool works equally well for subsets of defendants including comparing outcomes based on race, sex, and underlying crime.

* 1. Provide a list of the data categories or elements necessary to conduct your formative and outcome analysis and which entities/stakeholders will need to provide the data.

For the retrospective study, criminal histories are being used to score the PSA and check for its accuracy, and to determine if the PSA accurately predicts who would and would not fail to appear, commit a new crime, or a new violent crime.

If the Arnold PSA is found to work with the Vermont pretrial population, CRG will amend the data integration plan to include data elements from the outcome evaluation for the pilot sites. CRG will also consider the ongoing formative evaluation efforts including, for example, ensuring the tool is being administered correctly and the results are used in decision making, among other critical issues in implementation.

1. **Governance and Policies: To be completed by project lead/designee**
   1. Describe the decision-making body or committee established to ensure stakeholder involvement, support, and resources allocation to enable timely and effective data analysis.

There are two bodies important to this work. The first is the NCJRP Advisory Committee which is the decision-making body and the second is a group of IT specialists and business leaders from the various criminal justice departments. The IT specialist team has met once to review the Arnold data integration plan requirements. We anticipate that this team will meet on a quarterly basis. This group will share changes being made in their systems that will impact any work being done by others and work through data sharing processes and agreements.

The Vermont NCJRP Advisory Committee decided by consensus the scope of the retrospective study: all persons entering the criminal court.

Following the results of the retrospective study, the Advisory Committee will determine whether to implement the PSA in two pilot sites and will need to decide:

* + - 1. Who will be screened
      2. How the screener will get the names of the people to be screened
      3. How the PSA score will be delivered to the parties
      4. Where the screener will be housed so they can have access to all criminal histories.

Prior to Covid 19, CRG was in the process of convening a meeting with the Chief Administrative Judge, the Department of State’s Attorneys, and the Defender General’s Office to select two pilot sites. Because of Covid 19, this meeting was postponed while all agencies are dealing with the fall out of the pandemic. If the results of the retrospective study are positive and the pilots move forward, the small team mentioned above will review all sites available and determine which two sites have judges, prosecutors, and defense attorneys who are the early innovators willing to take on the pilot implementation. In addition, if the PSA is a “go,” the staff conducting the PSA will be hired and trained, the teams in the pilot sites will be trained, and the process to get the PSA scores to the local pilot sites will be determined. The PSA Implementation Kit will be an invaluable source of information for the formative evaluation process. Simultaneously, CRG will design the outcome evaluation plan with input from the Advisory Committee and the pilot sites including a data collection process.

If it is determined the retrospective study is not useful on Vermont’s criminal justice population, CRG will draft a report with reasons why the PSA did not work on Vermont’s pretrial population. In addition, CRG will draft a report for researchers on how to access out of state criminal histories which will be a major advancement for criminal justice researchers across the country.

* 1. Describe the involvement of the SAC, academic research partners, and other relevant parties in data infrastructure capacity building.

The SAC via Crime Research Group (CRG) is conducting the research and is taking the lead on access to out-of-state criminal histories via NLETS and getting them into an analyzable form. Vermont criminal histories are accessible to researchers under 20 V.S.A. § 2056b and with approval of the Director of the Vermont Crime Information Center. CRG has obtained the Vermont criminal histories for projects in the past. Out-of-state criminal histories are obtained from the FBI via NLETS. CRG has received the FBI IRB approval to obtain the data and is awaiting CJIS approval. All elements of the Arnold PSA are scored using the criminal histories. CRG will be the first SAC to do this and will set up the process for future researchers to include this valuable information in their research studies. CRG is currently working with SEARCH to complete this part of the work.

DPS will convene the IT specialists and appropriate business leaders from the Department of Public Safety, the Judiciary, the State’s Attorneys’ Office, the Department of Corrections, and the Attorney General’s Office which houses Pretrial Services. The State of Vermont, Agency of Digital Services, has recently hired a new Chief Data Officer, Kristin McClure, who has accepted an invitation to be part the committee to develop a data infrastructure plan. If the Arnold PSA is found to work with the Vermont offender population, DPS and CRG will amend the data integration plan to include data elements from the outcome evaluation of the pilot sites.

* 1. Briefly describe the capabilities and competencies of key participants (organizations and individuals).

The **Department of Public Safety (DPS)** is the SAC in Vermont and contracts with Crime Research Group (CRG) to provide SAC services. DPS houses the Vermont Crime Information Center, the state repository for criminal history data, and maintains the CAD/RMS for half the law enforcement agencies in the state. The purpose of DPS/CRG as the SAC is to provide information to a diverse group of customers within the justice system. DPS is the SAA in Vermont, CRG and DPS have a strong partnership and have developed systems and processes that facilitate communications, the exchange of data, and other work necessary for the success of joint projects. **Crime Research Group, Inc. (CRG)** is a non-profit organization formed in 2014. Prior to 2014, CRG staff comprised the SAC under a different name. CRG staff are experienced in the criminal justice field, crime analysis, and Vermont priorities, having over fifty years of experience collectively. CRG has incorporated the use of R and Tableau as additional software for analysis and data visualization while continuing to use SPSS in a limited way for everything from developing contingency tables and testing levels of statistical significance to creating regression models and utilizing discriminate analysis to predict recidivism.

**Christopher Herrick**, Deputy Commissioner of DPS.

**Darwin Thompson**, Director of Information Technology in the Agency of Digital Services embedded with the DPS.

**Robin Joy, J.D., Ph.D**., joined the SAC in 2005 and since 2014 when DPS became the SAC and contracted with CRG, she been the Director of Research. She is responsible for all aspects of research and evaluation for CRG including program evaluation, research design, developing new ways to merge and analyze administrative records data, as well as developing new data sets, and conducting analysis. Dr. Joy earned a Juris Doctorate from the University of California at Berkeley and a Ph.D. from Northeastern University. She started her career as a public defender in California.  She returned to Boston and handled Criminal Justice Act (CJA) appeals for the First Circuit as well as state appellate work for the Committee for Public Counsel Services.

**Karen Gennette,** executive director of CRG since its inception in 2014, has spent the last 25 years working to improve community safety outcomes at the local and state levels. In this role, Karen manages the non-profit organization, develops research partnerships, manages projects, and writes and manages grants. For the prior ten years, she worked for the Vermont Judiciary developing evidence-based alternatives to the traditional criminal justice system. Karen earned her B.A. in sociology at the University of Vermont, read the law in Vermont, and passed the bar in 1994.

**Department of Corrections**. The Vermont DOC is an executive agency charged with overseeing correctional facilities, supervising probationers and parolees, and serving in an advisory capacity in the prevention of crime and juvenile delinquency. It is a part of the Vermont Agency of Human Services. In partnership with the community, DOC supports safe communities by providing leadership in crime prevention, repairing the harm done, addressing the needs of crime victims, ensuring offender accountability for criminal acts, and managing the risk posed by offenders.

**Monica Weeber** - is the Administrative Services Director with the Vermont Department of Corrections. In this role, she directs the administrative services functions for the department including, policy and legislative development, planning, research, and information technology. Prior to joining Vermont DOC, she served as the Director of Planning and Organizational Development at the United Way of Chittenden County. She has over 20 years of experience in creating, implementing, and managing systems and projects to promote more effective organizations and departments. Monica is a certified Result Based Accountability (RBA) trainer with experience leading multiple trainings with government and non-profit organization. She received her B.A. from Rutgers, The State University of New Jersey and her M.P.A from the University of Vermont.

**Willa Farrell** serves as the Court Diversion and Pretrial Services Director in the Vermont Attorney General's Office. Since joining the AGO in 2006 she has aimed to bring a strength-based and collaborative approach to her work with community justice providers. Her experience ranges from providing direct services to administering programs within the fields of education, domestic violence, transitional housing, and community mental health, and has taught at the college level. She holds a B.A. from Queen's University in Kingston, Ontario, and an M.P.A. from the University of Vermont, Burlington, Vermont.

* 1. Describe if and how the governance body has or plans to address any anticipated challenges or limitations and mitigation strategies to accessing the data. Are these related to stakeholder policies, technology shortcomings, staff capabilities/capacity, etc.?

One of the challenges to accessing the data has been the changes made in IT systems with little or no notice to the end users. Part of this is due to the lack of understanding about the use of the data once it has been transferred. Convening the team of IT specialists from the various criminal justice departments will allow this conversation to happen and is the first step in the data sharing integration process. We anticipate that the IT team will meet on a quarterly basis. This group will share changes being made in their systems that will impact any work being done by others and work through data sharing processes and agreements. Our hope is to implement a cross-jurisdiction configuration management/change control process. This process exists in some areas, but changes are not readily shared with all partners.

Much of the criminal justice data in Vermont is located in separate data systems with no data exchange capacity. Very little data is public and data sharing agreements are necessary. The process to obtain the data sharing agreement and the to access the data can be quite lengthy and can include the data sharing agreement and possibly an Interagency Security Agreements and any other documentation required for data sharing. Convening the IT specialists, business owners, and general counsel will assist with this process.

For the research portion of the work, CRG is CJIS compliant, has detailed security policies, and are familiar with handling of sensitive PII data. CRG data sharing agreements with VCIC for criminal history records, with the courts for criminal case data, with DOC for specific projects, and with all law enforcement agencies for a limited set of data for the past five years.

Should the pilots be implemented, the process by which the PSA scores are shared is still a question that needs to be worked through. It is anticipated that the screener(s) will be housed in the DPS/VCIC office which is NCIC and CJIS compliant. Transfer of the scores to the court/prosecutor/defense counsel, if known, and the protocols to transfer the scores still need to be worked out.

Should the pilots not be implemented, if the PSA is found not to apply to the Vermont pretrial population, the data infrastructure planning process would continue. This has been an important topic beyond this project with criminal justice stakeholders and the legislature. With the addition of the Chief Data Officer to the data infrastructure planning group and the importance of communication among the business officers and IT staff, this group would continue to meet indefinitely. CRG will document the process as part of the formative evaluation.

1. **Data Sharing Architecture: To be completed by technology lead/IT support staff**
   1. Describe the process your state will employ to provide the data for the analysis, including a description of the following applicable components:

* + 1. Methods to generate/extract data from origination source –

Study participants were identified via the court adjudication database that CRG maintains regularly. A query for all defendants who were arraigned in the relevant years was made. This database has the names and dates of birth of the

defendants. The names and DOB were then sent to VCIC who forwards them onto the criminal history vendor. The vendor queries their database and returns the criminal histories for those defendants they have records for.

* + 1. Transport means: email, shared repository, file transport protocol, GRA Web services, SOAP, REST: Data for the study is transferred through an FTP. Data for the pilot is still to be worked out but will probably be an FTP.
    2. Data structure and format, e.g., .csv, XML, SQL: Data for the study is in XML format and is then translated into a data frame for analysis in R.

* + 1. Data transformation techniques: For the retroactive study and any outcome evaluation the data will be transformed in R using Tidyverse principles.
    2. Frequency and duration of data sharing: For the studies, there are 5 data sharing events. 1) CRG -> VCIC 2) VCIC -> CRG 3) CRG -> NLETS 4) NLETS -> CRG All data sharing protocols are CJIS compliant. Data frequency and sharing for the pilot would be on a near daily basis. CRG has established that NLETS can provide XML access to out-of-state criminal histories in a batch format. The batch format requires CRG to submit the FBI number for the individuals. VCIC’s vendor was able to change the output of Vermont XML criminal histories to include the FBI number. CRG will extract that number from the Vermont criminal histories, securely transfer that to NLETS who will return the requested criminal histories in XML form.
    3. Security methods to ensure data integrity: Policies for the pilot have yet to be determined, however, CRG maintains confidential information on individual desktop or laptop computers. It is required that these computers and the information contained therein be protected from unauthorized access to maintain confidentiality and integrity of the computers and the data. CRG must protect confidential data, including CJI and CHRI data, court data, and any other data obtained during the course of business, from loss or unauthorized use. The intent of this policy is to avoid unnecessary risk to CRG, staff, and our customers; to improve productivity through efficient use of resources; to comply with applicable policies and law; and to minimize disruptions to services and activities.

1. **Data Management Environment: To be completed by technology lead/IT support staff**
   1. Describe the technology stack you plan to implement in order to organize, manage, and analyze data including any of the following applicable components.

For the retrospective and outcome studies, no technology stack is needed. If there is a pilot site, the person doing the PSA will be given a database to record/score the assessment. The database will either be MSAccess or another that is approved/licensed by Vermont. CRG will create the database for the assessor. That database will form the basis for an outcome evaluation.

During this process it has become clear that there needs to be more communication between criminal justice agencies and the end users of their data. For example, the courts changed the way they recorded probation sentences in their database and did not share that information to any outside users. This in turn made the extracts that both CRG, DOC, and VCIC received incorrect/incomplete for over a year. In Vermont there is not a data user’s group for criminal justice data where end users can discuss the effects of changes in the IT systems on downstream users of the data.

1. **Data Curation: To be completed by technology lead/IT support staff**
   1. Please explain how you will organize, manage, and normalize data. This process may include the following components:
      1. CRG conducted an audit of the criminal histories in 2017 and found them to have a low discrepancy rate. Court Data Court data for 2015 contained 24,842 charges disposed. A total of 690 cases were audited. The court data exhibited a high level of accuracy in these audited cases. Out of the 690 charges in the criminal histories, Out of the 690 charges in the criminal histories, 54 had a different charge code than the courts. The discrepancy rate for the statutes was 7%. For the 94,101 Arrest/Arraignment Entries in 2013, the largest percent of missing data was for charge description (14%) and charge severity (20%). Because most charges come to the attention of VCIC through a criminal case filing, many arrest events may not be populated with specific charge information. Researchers need to use caution when using this information. <http://www.crgvt.org/uploads/5/2/2/2/52222091/2015_bjs_criminal_history_audit_final_report_september_2017.pdf>
      2. CRG conducted a Law Enforcement Data Quality Assessment: Of the 3,781 data fields reviewed, 4.23% were discrepant with the information provided in the police report for that incident. Discrepancy rates for data elements ranged from 0% to 26.3%. Information regarding bias motivation, weapons information, and drug data were the most accurate (0% discrepant). Reporting regarding the age, sex, and race of offenders (vs. arrestees) were discrepant 4.3% of the time. Information regarding descriptions of stolen property was the most inaccurate (26.3% discrepant). <http://www.crgvt.org/uploads/5/2/2/2/52222091/law_enforcement_data_quality_assessment_december_2017_final_report.pdf>
      3. The criminal histories will be matched using the FBI number.
2. **Data Analysis: To be completed by technology lead/IT support staff/research partners**
   1. Please provide a simple description of the how the research partner will conduct the data analysis process.

CRG will use appropriate statistical analysis to determine if the PSA is an appropriate tool for Vermont. Analysis will include how well the PSA predicts the outcomes of FTA, New Crime and New Crime of Violence. Additionally, the analysis will break out defendants by race, sex, and other variables to see if the PSA is consistent in predicting results.

* 1. Who are the Individuals responsible for analysis? Robin Joy, J.D. Ph.D.
  2. Describe what tools, techniques, resources will be used to conduct the analysis. For example, R, Python, SQL queries, STATA, access via user interfaces, dashboards, etc.

Most analysis will be conducted in R. Some visualizations for reports/dashboards will be produced in Tableau.

1. It should be noted that this plan was completed in June 2020 anticipating the quick passage of the coronavirus pandemic (COVID-19) and the full implementation of a retrospective study and potential pilot implementation of the Pretrial Safety Assessment (PSA) in two Vermont jurisdictions. As a result of the impact of COVID-19 and other variables, a respective analysis was not completed, initial findings were inconclusive, and pilot implementation of the PSA was not possible. This plan is made available as an artifact of the project and example for other states. [↑](#endnote-ref-1)