NC Results First
2020 Annual Report

NC Office of State Budget & Management
www.osbm.nc.gov
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North Carolina Results First is an innovative, data-driven initiative to inform budget and policy decisions to improve societal outcomes and maximize the value of taxpayer dollars.

Under the leadership of the Office of State Budget and Management (OSBM), and in collaboration with state agencies, NC Results First inventories social programs targeting a priority policy issue and determines their effectiveness from existing research evidence. Agencies then monetize the value of the programs’ outcomes. Those program benefits can be weighed against delivery costs to identify high-return program “investments” and promising innovations.

The efforts of the initiative are documented in our NC Results First Annual Progress Report as required by S.L. 2017-57, Section 26.3.

**Highlights of this year’s program**

In 2019, OSBM and the Department of Health and Human Services (DHHS) completed an inventory and benefit-cost analyses of programs seeking to reduce chronic disease, infant mortality, and other negative birth outcomes. The final reports are now available online.

OSBM and the Department of Public Safety’s Division of Adult Correction and Juvenile Justice (DACJJ) are currently conducting benefit-cost analyses of programs aimed at reducing juvenile recidivism. Interventions that prevent justice-involved youth from recidivating ultimately reduce crime, benefiting the public (as crime victims and taxpayers), program participants, and government entities. The agency is focusing first on community-based programs funded through statewide contracts. These programs include group homes and transitional living programs, family services, and short-term residential programs including gender-specific services.

DACJJ and OSBM are developing estimates of the costs of crime in North Carolina – the criminal justice system expenses and negative societal outcomes avoided when DACJJ programs prevent crime. The model accounts for differences across crime types and the state’s unique criminal justice system operations, programs, and sentencing patterns. Once this model is complete, DACJJ and OSBM will compare the costs of delivering these community programs against the value of their recidivism reduction benefits (avoided crime costs) to estimate of the state’s return on investment. Completion of this phase is expected in late 2020.

In 2019, OSBM and the Department of Health and Human Services (DHHS) completed an inventory and benefit-cost analyses of programs seeking to reduce chronic disease, infant mortality, and other negative birth outcomes. The final reports are now available online.

Looking ahead, NC Results First will address these opportunities

On January 1, 2021, the Pew Results First Initiative will wind down their direct technical assistance, preparing leading states like North Carolina to continue using the program inventory and benefit-cost modeling tools independently. OSBM will transition to a state-maintained model continuing the positive impact of NC Results First.

OSBM will partner with DHHS to focus on programs that reduce the incidence or symptoms of mental health conditions.

DACJJ will work with OSBM to assess Teen Court programs that aim to prevent juveniles from becoming involved in the criminal justice system.

[1] All published reports, program inventories, and other related materials can be found on OSBM’s Results First page: https://www.osbm.nc.gov/results-first
Under increasing pressure to demonstrate effectiveness and do more with less, many governments are expanding their use of evidence-based programs—those shown in rigorous evaluations to be effective. Committing to such proven programs can help governments strengthen efficiency and accountability and achieve better outcomes for residents.

The Pew Results First Initiative
**BENEFIT-COST ANALYSIS**

After the program inventory is complete, OSBM, in consultation with the partner agency, identifies which programs qualify for the benefit-cost analysis. In its simplest form, the *Results First Benefit-Cost Model* calculates the monetary values of benefits and costs of a program over time. For example, if the state funds a program that improves birth outcomes for participants, the model will calculate the potential monetized benefits, such as reduced health care costs, and the costs of implementing the program.

Benefit-cost analyses conducted with the model do not directly evaluate outcomes or effectiveness for programs delivered in North Carolina. Rather, the Results First model helps us estimate the benefits North Carolina can expect if its programs have the same impact found in previous evaluations for similar or equivalent programs. The model assumes programs in North Carolina are implemented with the same level of effectiveness as those in the research.

OSBM works with partner agencies to collect cost information and customize the benefit-cost model. This information helps OSBM understand the cost-effectiveness of programs and to compare similar programs.

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**PROGRAM INVENTORY**

The program inventory is a comprehensive list of programs in a particular policy area, along with basic information on the programs’ duration, frequency, oversight agency, delivery setting, and target population. After creating an inventory, OSBM and partner agencies match these programs to those in the Results First Clearinghouse Database. [2]

The Clearinghouse Database is an online resource that provides information on the effectiveness of various interventions drawn from the existing body of program evaluation research. [3] Included programs have different levels of evidence based on the quality, quantity, and/or scientific rigor of the research.

The Clearinghouse Database helps states determine which programs are evidence-based and how potentially effective those programs are according to available research. [4] Not all programs match the Clearinghouse Database; however, this does not necessarily mean they are not effective. Rigorous evaluations may not have been conducted for some programs or programs may be too small to warrant rigorous evaluation.

Together, the list of programs and their associated level of evidence make up the program inventory.

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**ROLES**

As the lead agency in North Carolina’s Results First Initiative, OSBM facilitates and coordinates the process while providing technical expertise in the areas of benefit-cost analysis and evidence-based decision-making. OSBM works with agency staff to collect information required to build the program inventory. OSBM staff also collects data required for the benefit-cost model.

Partner agencies provide the programmatic expertise and have primary responsibility for the program inventory. Additionally, partner agencies assist with the data collection and analysis required to customize the benefit-cost analysis. Depending on the policy area, data collection can be substantial. Partner agencies then work with OSBM to estimate costs for the benefit-cost analysis and to provide other necessary data. Lastly, OSBM and partner agencies review results and use them to inform how programs are designed and how resources are allocated across programs.

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[2] Results First defines programs as systematic activities that engage participants in order to achieve desired outcomes.


[4] An evidence-based program is one that has been rigorously evaluated to demonstrate an actual cause and effect relationship between a program and its outcome.
Accomplishments to Date

Child & Family Health
For the first phase of the NC Results First Initiative, OSBM partnered with the Department of Health and Human Services (DHHS), reviewing child and family health programs designed to improve:

- Chronic disease outcomes, including obesity and type 2 diabetes
- Birth outcomes, such as reducing unnecessary cesarean sections, infant mortality, low birthweight, preterm birth, small for gestational age, very low birthweight, and Neonatal Intensive Care Unit (NICU) admissions

OSBM and DHHS completed work on the Child and Family Health policy area in May 2019. Findings from the Program Inventory and Benefit-Cost Analysis can be found on OSBM’s Results First web page.

Juvenile Recidivism
North Carolina Results First’s second initiative was with the Department of Public Safety’s Division of Adult Correction and Juvenile Justice (DACJJ). The ongoing work with DACJJ is detailed in the next section.

Advancing Evidence-Based Policymaking
OSBM has been implementing strategies to help agencies increase use of performance management and evidence-based policymaking tools. OSBM has partnered with various groups, such as universities, Results First, and J-PAL North America, offering trainings and internal consulting projects on topics such as strategic planning, designing impact evaluations, and evidence-based budgeting.

OSBM will continue this work, offering more trainings reinforcing evidence-based policymaking.

SUMMARY OF CURRENT TRAININGS

Performance Management Academy
OSBM is hosting the inaugural Performance Management Academy pilot in fall 2020. The Performance Management Academy aims to improve efficiency and effectiveness of NC government programs. Modeled after Colorado’s Performance Management Academy, our Performance Management Academy is a five-day virtual training for state agency employees to broaden understanding of performance management tools and techniques.

Modules cover:
- frameworks for assessment and use of existing evidence to create, evaluate, and improve policies/programs
- guidance on using strategic planning to support delivery of services to meet organizational goals and needs of customers/service users;
- resources, best practices, and examples of successful performance management for agencies.

OSBM plans to make the Performance Management Academy an annual training for state government employees to continue building a culture of evidence across state government.

J-PAL Training
Results First partnered with J-PAL North America to provide a customized training course for state partners interested in completing rigorous evaluations of policies and programs. J-PAL North America is a regional office of the Abdul Latif Jameel Poverty Action Lab (J-PAL), a global network of researchers who use randomized evaluations to answer policy questions.

In December 2019, OSBM organized a J-PAL training on practical design considerations for measuring impact, the mechanics of randomization, and the importance of grounding evaluation methodology in a theory of change, among other topics. About 30-40 staff from DACJJ, OSBM, DHHS, and the Fiscal Research Division attended the training.

J-PAL
ABDUL LATIF JAMEEL POVERTY ACTION LAB
NORTH AMERICA
Juvenile Justice Policy Area

Project Overview

OSBM, DACJJ, and other state partners are currently working to assess the costs and benefits of contract-funded community programs that aim to reduce juvenile recidivism. Program interventions that prevent justice-involved youth from recidivating ultimately reduce crime in the state. As a result, North Carolinians benefit from avoided crime victimization as well as lower criminal justice system utilization - a cost savings to government entities and taxpayers. Program participants avoid the negative lifetime consequences of further involvement with the criminal justice system, reflected in higher graduation rates and lifetime earnings.

DACJJ Community Programs offers a wide array of programs and services, targeting at-risk youth, diverted youth, and adjudicated youth. Given the array of programs and services DACJJ Community Programs offers, OSBM and DACJJ Community Programs will complete the Results First Initiative in phases.

The first phase focuses on programs funded through statewide contracts due to the large impact of those programs on the North Carolina juvenile population. Statewide contracts include group homes and transitional living programs, family services, and short-term residential programs including gender-specific services.

DACJJ and OSBM are currently estimating the cost of crime in North Carolina, based on the state’s unique criminal justice system operations and programs, crime type distribution, and sentencing patterns. These costs will account for the negative impact of crime on victims, the offender, and government entities.

Once this model is complete and combined with research evidence on the programs’ effectiveness, DACJJ and OSBM can compare the costs of delivering contract-funded community programs against their recidivism reduction benefits (avoided costs), providing an estimate of the state’s return on investment on a per person basis. Return on investment comparisons can be made across programs, but with care and in the proper context; programs target different population subgroups according to their risk, need, and other characteristics.

The following benefits can be realized from this first phase:

- Quantifying how much the state - including government entities, program participants, and the public - could benefit from investing in and expanding programs generating a high-return on investment.
- Identifying ways to improve current program delivery to maximize program benefits.
- Revealing high priority areas for investing in rigorous, state-specific program evaluations since the ability to conduct comprehensive benefit-cost analyses is limited by availability of research evidence on program effects.
The juvenile justice policy area is one of the more complex policy areas within the Results First model, requiring more time and data to complete the benefit-cost model than other Results First policy areas. Analyses required to model the cost of crime in North Carolina and the associated benefits (avoided costs) from reduced recidivism include:

1. **Crime Categories**: Map the state’s juvenile and adult offense codes into 7 major crime types
2. **Change in Recidivism due to Program Participation**
   - Track justice-involved juveniles through the juvenile and adult criminal justice system over 5 years to determine baseline recidivism patterns in absence of program participation
   - Determine how much each program reduces recidivism – and thus crime – from the baseline according to the available research evidence
3. **Criminal Justice Resource Costs**
   - For each major crime type, determine the probability of using a juvenile or adult criminal justice system resource and the length of resource use. Examples of resources include: prison or youth development center, jail or detention, various forms of supervision, programming, and courts
   - Estimate the per person annual costs for each resource in both the juvenile and adult criminal justice systems
4. **Victimization Costs**: For each crime type, estimate the average number of victims and the cost of victimization
5. **Participants’ Lifetime Earnings**
   - Estimate change in lifetime earnings from criminal justice involvement: Relationship between crime, educational attainment, and lifetime earnings drawn from research literature and demographic data
6. **Program Delivery Costs**: Estimate the per person cost of delivering each program of interest

To complete these analyses, OSBM and DACJJ have been working with various stakeholders throughout the state, including Administrative Office of the Courts (AOC), State Bureau of Investigation (SBI), and Government Data Analytics Center (GDAC).

OSBM and DACJJ anticipate completing the analyses and issuing a full report of findings at the end of 2020. The following sections summarize initial insights from the analyses completed to date.

**Insights from Program Inventory & Statewide Contracts**

OSBM and DACJJ completed an inventory of the selected juvenile community programs. OSBM identified similar or equivalent programs that matched in the Clearinghouse Database and the Results First benefit-cost model.

The Clearinghouse Database applies evidence rating levels to each clearinghouse’s distinct rating systems, creating a common language that allows users to quickly see each program’s level of evidence and where each program falls on a spectrum from negative impact to positive impact. As an example, to earn the highest rating of “proven effective,” a program must demonstrate a positive impact based on the most rigorous research.
DACJJ provides the following programs through statewide contracts:

1. Male Short-Term Residential Programs (Eckerd Connects)
2. Female Short-Term Residential Programs (WestCare NC)
3. Multipurpose Group Homes (Methodist Home for Children)
4. Transitional Living Programs (Methodist Home for Children)
5. Functional Family Therapy (AMI Kids, Inc.)

Through the Results First Program Inventory process, individual components or services within programs, such as individual counseling, vocational education, and support groups, are separated into distinct interventions that reduce recidivism. For example, the Male Short-Term Residential is a residential program for adjudicated males, ages 13 to 17, that provides interventions such as Cognitive Behavioral Therapy and Substance Abuse Behaviors Group. Each of these interventions are listed out as separate programs in the Program Inventory.

The Juvenile Justice Program Inventory on Statewide Contracts includes 16 programs. The program inventory yielded some insights into the effectiveness and design of selected juvenile justice community programs.

- A majority of programs (nine) are rated as effective based on the most rigorous or high-quality evidence
- Six are rated as proven effective
- Three are rated as promising
- No programs have ratings of mixed effects, no effects, or proven harmful
- Seven programs are rated as theory-based, meaning there is no research, or the research does not meet the standards of “promising” or “proven effective”

Of the 16 programs, the following programs and their variations had sufficient evidence to conduct a benefit-cost analysis.

- **Multi-purpose Group Homes & Transitional Living Programs (VBTE):**
  Multi-purpose Group Homes and Transitional Living Programs (VBTE) are non-secure, long-term residential care programs for youth ages 11-17 identified as level II or level III [5]. The programs utilize the Value-Based Therapeutic Environment (VBTE) model, which is a non-punitive treatment model concentrated on enhancing the youth’s use of appropriate social skills.

- **Cognitive-Behavioral Therapy (CBT):**
  Cognitive-Behavioral Therapy (CBT) is a psychotherapy treatment focused on cognitive restructuring delivered in both individual and group settings. Two short-term residential programs provide CBT as part of their programming to youth, ages 13-17, with disposition level II.

- **Functional Family Therapy (FFT):**
  Functional Family Therapy (FFT) is a short-term community-based therapeutic intervention for delinquent youth at risk for institutionalization and their families. With a family-based approach, FFT is designed to improve within-family attributions, family communication and supportiveness, while decreasing intense negativity and dysfunctional patterns of behavior. FFT is provided to youth, ages 10-18, with disposition level I or level II.

Insufficient evidence for a benefit-cost analysis does not mean the remaining programs are ineffective. However, rigorous causal impact evaluations are needed to identify and quantify the recidivism outcomes attributable to program participation, separate from other unrelated factors, before they can be monetized.

[5] During the intake process, DACJJ staff administers risk and needs assessments to all juveniles to assess the risk of future delinquency and to determine the individual needs of the juvenile. Risk levels range from RL1 (the lowest risk) to RL5 (the highest risk) and into low, medium, or high level for needs. Disposition level (I, II, or III) is determined based on the juvenile’s needs assessment and offense class. Level III is most severe.
The study cohort includes adjudicated juveniles at risk level 4 or 5 and disposition level I, II, or III who were placed on court-ordered supervision in FY 2013-14. DACJJ, with assistance from GDAC, collected information from case records on the number, type, and timing of recidivism events among this population group to develop a five-year recidivism “baseline.” These individuals were tracked from FY 2013-14 through FY 2018-19 across the juvenile and adult systems and provide a proxy for recidivism rates in the absence of community program intervention. For this analysis, recidivism is defined as a new juvenile adjudication or adult conviction. The study cohort was limited to juveniles who did not participate in the state’s contractually funded community-based programs but have similar characteristics to populations served by those programs. [6]

The effect of Juvenile Justice program participation – as determined by the research literature – will be applied to North Carolina’s recidivism baseline to determine the recidivism reduction attributable to the programs of interest, separate from other factors. That avoided crime will then be monetized to quantify the programs’ benefits to society. This next stage of the analysis is under development.

Within the five-year follow up period, 55% of high risk juveniles in the baseline cohort recidivate. The majority of juveniles in the cohort are disposition level I. All are risk level 4 or 5. Juveniles in disposition level II and III recidivate at a slightly higher rate.

Among high risk juveniles who recidivate, 23% of recidivating events occur in the first year, declining by 5 percentage points over the 5-year follow up period.

Recidivism events occurring during the five-year follow up period were coded into seven crime types by seriousness of offense. There were 3,544 recidivism events. Among the study cohort of high risk juveniles, more than 70% of the most serious offenses are misdemeanors, followed by property crimes at 16%.

Juveniles who recidivate do so an average of 2.4 times over the five-year follow up period. Case records do not show a significant variation in the number of crime events per recidivist across disposition levels.

[6] This baseline should be considered a close approximation of outcomes for a “counterfactual” population that does not receive the program services. However, the characteristics used to define the cohort do not account for all of the possible factors affecting program participation and program effects.
Juvenile Justice Crime Prevention Programs

Initial efforts focused on programs delivered to adjudicated youth who are involved in the criminal justice system. These programs aim to reduce subsequent recidivism and continued justice system involvement.

Next, we will work with DACJJ to review programs intended to prevent initial involvement with the criminal justice system by targeting at-risk youth and diverting low-risk offenders away from formal sanctions. Research suggests youth involvement in the juvenile justice system itself can result in negative consequences such as stigmatization or creating opportunities to learn deviant behavior through exposure to more serious offenders. How and when an individual becomes involved in the juvenile justice system may affect future behavior in distinct ways.

DACJJ partners with Juvenile Crime Prevention Councils (JCPCs) in each of the 100 counties across the state, which provide state and local funding to provide programming and address the needs of delinquent and at-risk youth. JCPCs fund a wide variety of programs, including group home care, temporary shelter, counseling, substance abuse treatment, teen court, mentoring, and vocational skills development.

Starting in late 2020 or early 2021, DACJJ will analyze certain JCPC programs, such as Teen Courts, through the Results First Initiative. Through this effort, DACJJ intends to promote knowledge sharing, best practice adoption, and innovation.

Mental Health Policy Area

As a next step, OSBM will work with DHHS’ Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSA) to assess the state’s mental health programming.

For both adult mental health and child mental health, the benefit-cost model will assess the monetized benefits and costs of programs that reduce the incidence or symptoms of mental health conditions, including anxiety disorder, major depressive disorder, and post-traumatic stress disorder (PTSD).

For adult mental health, the model will also assess programs that improve the functioning of adults with serious mental illness (SMI), including psychosis, schizophrenia, and bipolar disorder.
Mental health policy Area continued

For child mental health, the model will assess programs that reduce the incidence or symptoms of attention-deficit/hyperactivity disorder and disruptive behavior.

For both the adult and child mental health areas, the model will estimate the monetized benefits of improving these mental health outcomes, including avoided health care costs, labor market earnings, and reduction in mortality risk.

OSBM and DMHDDSA began work in spring of 2020 and anticipate completing the program inventory for adult mental health programs in fall of 2020. We will then work on completing the program inventory for child mental health programs, along with the benefit-cost model for both focus areas.

DHHS Inventory & Plan

S.L. 2020-78, Section 14.1 directs OSBM to submit a plan to conduct a benefit-cost analysis of all of DHHS’ programs funded by State appropriations.

As part of the plan, OSBM shall include an inventory of all of DHHS’ programs funded by State appropriations and an estimate of the cost to conduct the Results First benefit-cost analysis for each program.

OSBM and DHHS are now planning next steps for developing this plan and inventory. The plan is due January 15, 2021 to the Joint Legislative Oversight Committee on General Government, the Joint Legislative Oversight Committee on Health and Human Services, and the Fiscal Research Division.
The Results First Initiative, created by the Pew Charitable Trusts in partnership with Washington State’s Institute for Public Policy, was designed as a capacity building project — to provide state partners with the training, resources, and tools necessary to do this work on their own. Results First staff offered significant training and technical assistance in analysis methods and application of the tools. In 2017 North Carolina became the 27th state to join the initiative and since then has earned recognition as a “leading state.”

Starting on January 1, 2021, the Results First team will wind down their direct technical assistance, preparing leading states like North Carolina to continue using the program inventory and benefit-cost modeling tools independently. OSBM will be provided with an Excel-based version of the model to maintain, as well as other resources and training for the remainder of 2020. Pew Charitable Trusts will continue to support states in this and related evidence-based policymaking efforts through sharing of best practices and resources within the peer learning community.

OSBM has a strong foundation in the benefit-cost modeling methods and tools. Combined with our agency partners’ experience and expertise and the support of our state leaders, we are confident in North Carolina’s ability to continue using the Results First tools and approach to promote evidence-informed policymaking and ensuring value for our taxpayer dollars.

OSBM will continue to customize our own static model to assess programs in the remaining policy areas: mental health and substance abuse, adult criminal justice, child welfare, education, and general prevention.

However, model outputs are only as good as the underlying inputs. To maintain and expand our assessment capabilities over the long term, investments will be needed to produce rigorous, state-specific evaluations of our programs’ effectiveness as well as continually monitor and conduct meta-analytic evaluations of external research on similar or brand new program outcomes to determine the most effective interventions.

Data and evidence are integral for evaluating programs and policies to achieve the best possible outcomes for our citizens. It’s an effort that has become even more important in today’s economically challenging times.

Charles Perusse
NC State Budget Director