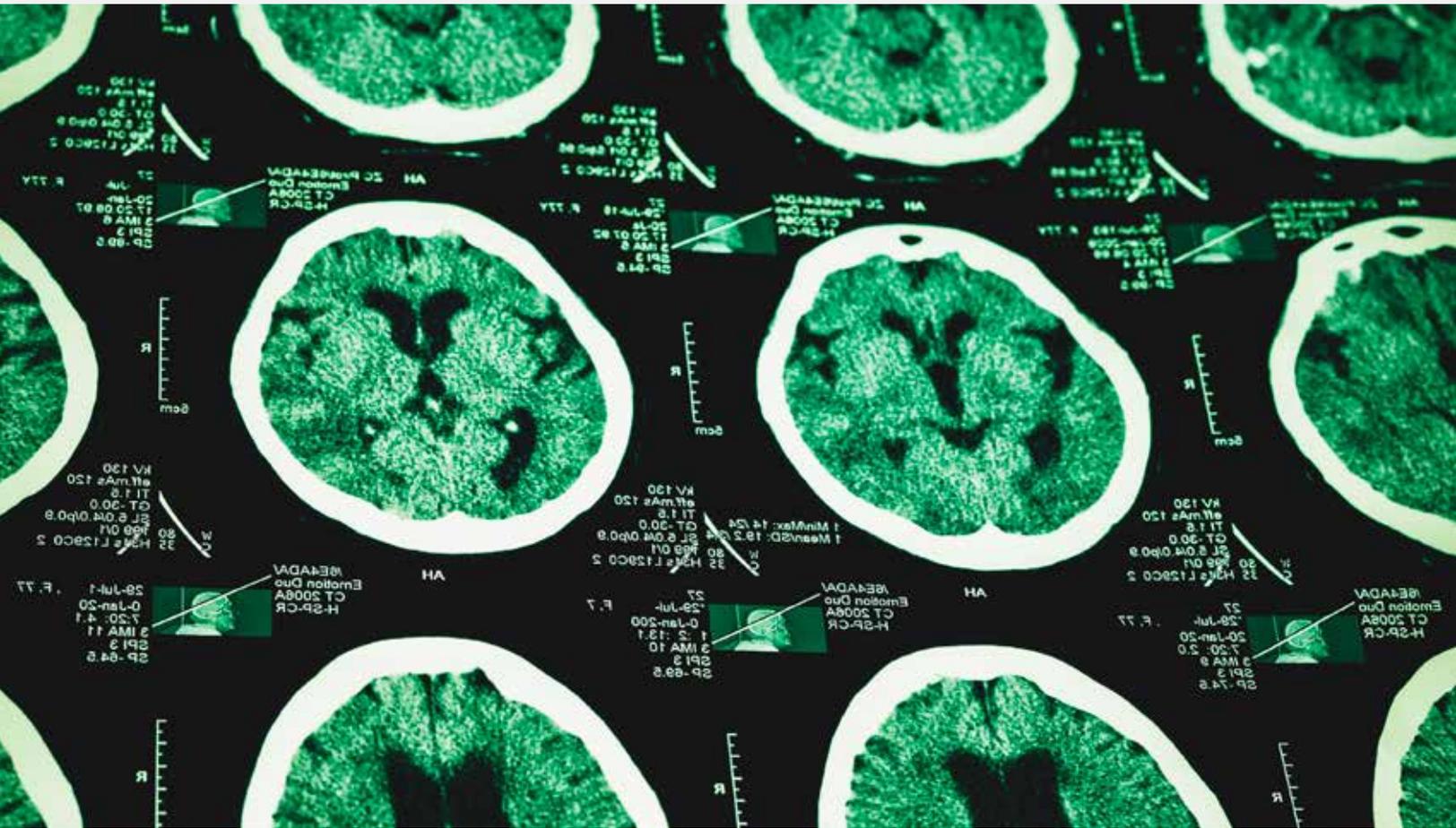


State Approaches for Addressing Traumatic Brain Injuries in the Juvenile Justice System



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BY ANNE TEIGEN AND KRISTINE GOODWIN

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Introduction

Traumatic brain injury (TBI) is a serious public health problem, with 2.8 million new TBIs each year leading to more than 2.5 million emergency department visits, 282,000 hospitalizations and 50,000 deaths.¹ Depending on the seriousness of the injury, the effects can be permanent, affecting a person's health, well-being, behavior, cognitive function, and ability to succeed in school, work and relationships. For juveniles involved in the juvenile justice system, TBI—which is both common and often unrecognized—can be a barrier to youths' rehabilitation and successful reentry back to their homes and communities.

This report examines the issue and prevalence of traumatic brain injury among justice-involved juveniles. It highlights steps that policymakers, researchers and public officials in four states—Colorado, Minnesota, Pennsylvania and Virginia—are taking to identify and support young people who have sustained a TBI and who are involved in the justice system.

Overview of Traumatic Brain Injury

TBI is **caused** by a bump, blow or jolt to the head that disrupts brain functioning. TBIs range from mild, sometimes with brief disruptions in consciousness (as is the case with many concussions), to severe, which often involve prolonged periods of unconsciousness. While a majority of the TBIs that occur each year are mild, many are severe and can lead to permanent disability or death. According to the [Centers for Disease Control and Prevention \(CDC\)](#), TBI is a major cause of death and disability in children, accounting for 30% of all injury deaths in the United States.

TBIs can have long-lasting and profound effects on a person's health and well-being. In a 2017 study cited in the *Journal of Head Trauma and Rehabilitation*, researchers found that the "cognitive and psychological consequences of TBI are well documented and commonly involve impaired memory-processing speed, emotion dysregulation, and executive dysfunction, which can have a devastating impact on daily functioning."²

Children less than age 4 and adolescents ages 15 to 19 are not only among those at highest risk for TBI, they are also more susceptible to injury given that their brains are still developing. Moreover, the earlier in life the brain injury, the greater the risk for adverse outcomes. A 2010 study found that those with a history of TBI enter the justice system up to four years earlier and have longer and more frequent stays in custody. This research also revealed that young offenders who reported having a TBI had significantly more convictions than those who had not experienced a TBI.

Potential Effects from Traumatic Brain Injuries

While TBI may be viewed by providers and insurers as an "event," researchers **point out** that serious brain injuries trigger a chronic disease process, with effects that can last for months, years or a lifetime. Although individuals with mild injuries may recover completely from their initial symptoms, others do not and experience longer-term effects. According to the [CDC](#), a TBI can result in a wide range of short- or long-term problems that can affect:

- Cognitive function (attention and memory).
- Motor function (extremity weakness, impaired coordination and balance).
- Sensation (hearing, vision, impaired perception and touch).
- Behavior (emotional regulation, depression, anxiety, aggression, personality changes).

Beyond its health consequences, a TBI's effects on a person's well-being are far-reaching. According to the [CDC](#), "the consequences of severe TBI can affect all aspects of an individual's life, including relationships with family and friends, the ability to progress at school or work, doing household tasks, driving, or participating in other daily activities."

TBI and the Juvenile Justice System

While recently attention has been focused on TBI in [athlete](#) and veteran populations, increasingly, researchers and policymakers are examining TBI within juvenile justice systems. The more than 30 studies with data on the prevalence of TBI found that an average of 41% of youth within the juvenile justice system had experienced one or more TBIs.³ More information on the prevalence of TBI in juvenile justice settings is discussed in the state profiles below.

Any link between TBI and criminal behavior in juveniles is complicated and multifaceted. But researchers see a relationship between TBI and youth involvement in the justice system. They believe the injury's effects on the brain, including impaired decision-making, executive function and risk assessment, may result in a reduced capacity to detect unsafe situations.

TBI and Criminality in Juvenile Offenders: Findings from a 2017 Study of the Texas Juvenile Justice System

In 2017, a team of researchers from the Mount Sinai Injury Control Research Center in New York studied the relationship between TBI and psychological and behavioral problems, including delinquent behavior, among incarcerated youth in Texas.⁴ Researchers also examined whether youth engagement with the criminal justice system occurred before or after their first TBI.

Researchers surveyed more than 4,000 juvenile offenders (ages 16-22) using the [Brain Injury Screening Questionnaire](#) (BISQ) to assess participants' lifetime history of TBI and current head injury symptoms. Researchers screened participants during their routine intake assessment at state youth correctional facilities and county-level juvenile probation facilities. (Because the state and county systems collect and report data differently and through separate data systems, researchers reported separate findings for state and county facilities.)

FINDINGS

The study found that 22% of youth in state facilities and 41% in county facilities met the criteria for at least one TBI. Assaults, falls, sports-related injuries and vehicle crashes were the most common causes of TBI. "These high rates of TBI are consistent with previous studies citing a significantly greater incidence of TBIs among juveniles on probation or incarcerated than among same-aged peers," researchers concluded. Given the juvenile offenders' young age at the time of the study, researchers expected that the prevalence of TBI among this high-risk population would increase as they age.

Researchers also highlighted a "disturbing finding" related to the timing of the brain injury: For most individuals who participated in the study, the brain injury preceded the person's first criminal offense. For those in county facilities, about 79% reported having a brain injury before committing their first offense. For those in state correctional facilities, about 56% reported having a brain injury before committing their first offense. Researchers also found the group in the state setting had more cognitive symptoms (e.g., memory and attention problems), aggression and impulsivity than their peers who experienced their first brain injury after entering the justice system. They also committed more crimes that were violent, sexual or person-related than those whose first criminal offense occurred before their brain injury.

From the study's findings that TBI preceded criminal offenses in a majority of cases, one cannot conclude that the injury causes criminality; however, researchers concluded that "it does provide strong evidence that TBI and subsequent criminal behavior are significant factors that contribute to arrest that are separate from other pre-morbid factors."

IMPLICATIONS AND RECOMMENDATIONS

Researchers noted the lack of any specialized interventions or education for the juvenile justice-affiliated youth who have sustained a TBI. They recommended further research to identify effective interventions for reducing recidivism among this population as well as the need to learn more about relationships between TBI and criminal behaviors. Moreover, the study highlights the importance of screening for TBI among individuals in the juvenile justice system. "[S]creening for TBI after the onset of criminality is not

State Policy Approaches for Addressing TBI in Justice-Involved Juveniles

Addressing TBI in the juvenile justice system involves policies that cut across health, criminal justice, human services, education and other policy domains. State lawmakers play a critical role in overseeing and funding health care programs that may serve justice-involved juveniles and families, including TBI programs and Medicaid. State legislative responsibility for juvenile justice can include facilitating collaboration within justice systems, promoting public safety and improving outcomes for young people.



States have [introduced or enacted legislation](#) to appropriate funds to TBI prevention, rehabilitation and community-based services, including information and referral services and service coordination. They have also proposed or enacted laws requiring insurers, hospitals and health maintenance organizations to provide insurance coverage for cognitive rehabilitation for TBI survivors.⁶ In addition, between 2009 and 2019, all 50 states and the District of Columbia have passed “return to play” laws to address sports-related concussions for youth athletes. According to NASHIA, 23 states have passed laws to designate funding sources—e.g., traffic fines or vehicle registration surcharges—to support programs and services for individuals with TBI. A few states provide appropriations to supplement these funds or are the only source of TBI funding.

As shown in the four state examples that follow, state policymakers, officials and researchers have adopted a variety of approaches to study the prevalence of TBI among justice-involved juveniles, provide screening and assessment to better detect TBI, and provide services and interventions that help individuals with TBI attain their potential.

State TBI System Challenges and Considerations

NASHIA [identifies](#) the following systems-level challenges and guidance for state TBI programs in supporting youth involved with the juvenile justice system.

- Not all states have an array of TBI services and supports to assist juvenile justice/corrections systems or provide services once youth/adults are released.
- Juvenile justice and correctional systems also differ from state to state, with multiple stakeholders involved (e.g., state and community residential or detention centers; aftercare programs; judges, problem-solving courts and law enforcement).
- Collaboration among juvenile justice, corrections, TBI state and community programs, and other state agencies is necessary to address TBI-related disability needs among adjudicated youth or incarcerated adults.
- Resources and funding to support juvenile justice and corrections systems over the long term are needed to provide appropriate services and accommodations.
- States must understand the implications of identifying an adjudicated youth as having a TBI-related disability and decide who should receive that information (e.g., parents, attorneys, judges).
- States must have the ability to collect outcome data to determine if screening, identification and provision of services are reducing the rate of recidivism and improving community reintegration.

Source: Adapted from NASHIA, “Traumatic Brain Injury: Criminal Justice,” 2016.

Colorado

Partnering to Identify and Treat TBI in Juvenile Justice

MINDSOURCE Brain Injury Network, Colorado's brain injury program administered by the Department of Human Services, received funding from HHS' ACL TBI State Partnership Grant. In 2014, MINDSOURCE partnered with University of Denver (DU), the Brain Injury Alliance of Colorado, county jails, the Colorado Judicial Branch and other stakeholders to develop and implement a screening, identification, support and referral protocol for adults and juveniles involved in the criminal justice system. The four-year project aimed to:

- Develop, implement, evaluate and disseminate a best-practice protocol for screening, identifying and assessing TBI within the adult and youth corrections populations.
- Provide professional training for corrections and judicial personnel.
- Provide information about TBI to the families of justice-involved youth with TBI.
- Develop, implement and evaluate strategies that provide access to service providers for corrections populations.

The project screened about 4,000 adults and juveniles for lifetime history of brain injury, with about 38% of all youth screening positive. Individuals screening positive for a brain injury were referred to DU for further neuropsychological screening, which identified a need for case management support for about 200 individuals who exhibited brain injury and serious cognitive deficits. The pilot highlighted several important lessons. For example:

- To address staff turnover in the juvenile corrections setting, it is important to provide ongoing training and consultation.
- The pilot's step of delivering the secondary, neuropsychological screens is costly and may not always be necessary.
- When individuals connect with a case manager before they are released from the juvenile justice system, they are more likely to follow through with community-based supports after they are released.

Colorado's legislature has helped partners sustain their efforts. In 2019, the General Assembly passed **SB 114**, which appropriated \$450,000 in state general funds to support a probation pilot program administered by DHS' brain injury program.

Minnesota

Leveraging Federal Funds to Improve TBI care

Minnesota was awarded the federal HHS' ACL TBI State Partnership Grant in 2006, 2010 and 2018.

The 2006-2010 grant assessed the prevalence of TBI in the state's correctional facilities and developed strategies to successfully transition individuals back to the community. Using the Traumatic Brain Injury Questionnaire (TBIQ) to survey offenders in adult correctional facilities and juvenile detention centers, researchers found that 49 of 50 juvenile males at one facility reported a TBI, according to the **Brain Injury Alliance of Minnesota**. The state developed three online training modules for corrections staff, including training on release planning and TBI resources.

The state's 2010 award helped partner agencies build on their earlier efforts by hiring a project psychologist and release planner to support the needs of offenders with significant needs relating to TBI.⁷

MEDICAID HOME AND COMMUNITY-BASED WAIVERS

In 1992, Minnesota first received approval from the U.S. Centers for Medicare & Medicaid Services (CMS) for a home- and community-based services (HCBS) waiver, also known as a Section 1915(c) waiver, to provide services to people with brain injuries. The waiver must be renewed every five years, with current CMS approval valid through 2020. The HCBS waiver is used to obtain Medicaid matching federal funds to deliver long-term services and supports to people in community-based settings instead of institutions.⁸

Minnesota is one of at least 22 states using a [Medicaid HCBS waiver](#) to extend benefits and services to children and adults who have an acquired, traumatic or degenerative brain injury. According to Minnesota DHS, an average of 1,190 people each month were served through the state's [brain injury waiver](#) in 2018. In addition to services provided under the general Medicaid benefit package, the HCBS waiver makes available a wide range of services, including consumer-directed community supports, crisis respite and case management. Minnesota also administers a TBI trust fund program, from which the majority of the funds are used to contract with the Minnesota Brain Injury Alliance, a nonprofit organization, for a network of supports, including information and referral services and resource facilitation.

Pennsylvania

Improving TBI Screening and Treatment in Juvenile Detention Centers

To address the needs of youth in juvenile detention centers—as well as detention center staff who serve them—the Pennsylvania Department of Health partnered with the Brain Injury Association of Pennsylvania (BIAPA) in 2014.⁹ With a federal ACL TBI State Partnership Grant Program, DOH and BIAPA implemented the Brain Injury Education, Training and Consultation Project in two juvenile detention centers. The project sought to screen detainees, provide neurocognitive assessment for those screening positive, and connect juveniles with resources and supports, both in the detention setting and back in their community.

By 2017, more than half (53%) of juveniles screened in two detention centers were determined to have experienced an event that could have caused a brain injury. Of the 133 juveniles who went on to receive neurocognitive testing, 74—or 56%—showed evidence of impairment.¹⁰ One-quarter of youth in the Loysville Youth Development Center screened positive for TBI. The pilot project revealed several important lessons that inform the state's ongoing work. For example, BIAPA learned that:

- Because there is not a single statewide system, implementation must be tailored to juvenile justice systems in each county.

Key Features of Pennsylvania's Approach

■ **Purpose:** To “identify and support youth in juvenile justice facilities with TBI, through the education and training of staff who are likely to come into contact with them.”

■ **Settings:** The pilot project took place in two juvenile detention centers in Bucks and Montgomery counties, as well as the Loysville Youth Development Center and at Butler County Juvenile Probation. By 2018, the project expanded to five youth development centers.

Key Components:

■ **Screening** for TBI at admission and/or at any point through adjudication. Screeners used a valid and standardized screening tool, known as the Ohio State University Traumatic Brain Injury Method.

■ **Neurocognitive assessment and testing** as soon as possible after a person screens positive for TBI. The results can determine whether a person may have challenges in school, work and independent living, and can suggest strategies to compensate for challenges.

■ **Referral and follow-up** with a facilitator who provides brain injury education and counseling, and links youth and families to resources for school reentry through the state's [BrainSTEPS](#) program, medical care and vocational rehabilitation.

■ **Training and education**, which BIAPA provides to staff about TBI, its impacts in the juvenile justice setting and available resources. BIAPA also educates youth about TBI and learning strategies through injury education and support groups.

- Youth may deny their head injury history because they are afraid of having to stay at the detention center longer, making it important to learn how to best engage youth.
- Obtaining partnerships with all stakeholders is difficult, but necessary for implementation. Future outreach should involve judges and county juvenile probation offices, as they play a key role in developing youth service plans.
- Youth are more likely to receive interventions if they are going back to the community than if they are being placed at another juvenile justice facility. Moreover, the privacy protections relating to the youth population can make it difficult to follow them through placement in services.
- Lack of knowledge, skepticism, and hesitation about TBI and its effects are challenges. Staff may not understand that a brain injury is causing impairments.

BIAPA and DOH adopted several strategies to sustain—and build upon—the education, training and consultation project. To promote long-term sustainability, project partners adopted a range of strategies by 2018, such as:

- Conducting TBI research and disseminating results to state and national audiences.
- Training nurses to take over screening if BIAPA no longer has funding to support screening. By 2018, screening had been incorporated within the nursing roles at one juvenile detention facility.¹¹
- Focusing on youth in probation rather than at detention sites.
- Providing technical assistance and guidance to support other interested counties.

Virginia

Supporting evidence-based interventions for juveniles with TBI

Virginia’s experience demonstrates the various ways that state lawmakers have initiated and supported TBI initiatives that address the needs and challenges within the juvenile justice population.

Virginia’s General Assembly in 2008 [directed](#) the secretary of public safety to analyze the incidence of TBI in the adult and juvenile offender populations. The director of the Department of Juvenile Justice (DJJ) convened a work group representing various state agencies, Virginia Commonwealth University (VCU) and TBI advocates. In its 2008 [report](#), the work group found insufficient data to quantify the prevalence of TBI in Virginia’s offender populations; however, the available data suggested a “significant portion of the incarcerated population may have a history that suggests the possibility of TBI.”

The work group recommended funding to support research to examine the scope of the problem and to develop a best practices model with a focus on juveniles committed to the state’s juvenile correctional centers.

In 2010, the [Commonwealth Neurotrauma Initiative](#) (CNI) advisory board awarded a grant to VCU to study screening, evaluation and intervention programs for youth with brain injury in Virginia’s DJJ facilities. The project used grant funds to formulate guidelines for brain injury screening, evaluation and intervention. The grant provided the cash match to a federal grant.

Researchers from VCU and DJJ screened individuals entering the juvenile justice system using tests that measured memory, attention, concentration, visual perception and visual construction. They also conducted interviews and reviewed medical charts to gather additional information on lifetime incidence of TBI. Researchers found that more than half (53%) of youth admitted to the juvenile justice system reported a history of sustaining at least one TBI.

To increase awareness about the prevalence of TBI and its effects on individuals in the juvenile justice system, BIAV and VCU collaborated on a series of [videos to educate DJJ front-line staff](#) about brain injury.

A [2016 report](#) by the Disability Law Center of Virginia noted that a positive outcome stemming from Virginia’s efforts with juveniles has included the development of a Brain Injury Screening Tool that reliably eval-

uates juveniles entering the DJJ system. More information on the development and use of the brain injury tool is available through a [2019 webinar](#).

Conclusion and Looking Ahead

The needs of justice-involved youth have led policymakers and practitioners to respond with a variety of policies aimed at prevention, screening and identification, as well as tailored, evidence-based interventions for juveniles who have sustained a brain injury. States also have taken steps to collect data to better understand the prevalence of TBI among justice-involved youth and foster collaboration between the various agencies and stakeholders involved in the juvenile justice system.

While their approaches differ, the states profiled in this report suggest that the following steps can address TBI's challenges among justice-involved juveniles:

- Collect and analyze data to understand the prevalence and effects of TBI in the juvenile justice system.
- Using standardized screening tools, screen and identify justice-involved juveniles to detect TBI, followed by functional assessment to document each affected youth's specific challenges that need addressing within the juvenile justice system.
- Train the workforce to help juvenile justice system professionals understand TBI's effects, how to recognize TBI, and how to support those screening positive for TBI.
- Facilitate resource sharing to connect affected juveniles and their families to appropriate services and supports, including state TBI programs and HCBS waivers.

Moving forward, states can learn from the experiences and lessons learned in states that are addressing TBI in the juvenile justice system. In addition, states can consider ways to prevent and intervene early, especially in schools, in connecting youth to needed services when TBIs occur, before they enter the juvenile justice system. A forthcoming resource guide by the Mount Sinai Injury Control Research Center notes significant opportunity "to break the chains of events triggered by TBI" by identifying the problem through screening at the first encounter with the juvenile justice system. It further recommends "providing simple accommodations and services to help youths with TBI cope better within the system and to live healthier lives afterwards."

Appendix 1

Questions Legislators Can Ask

At the state policy level, the examples profiled in this appendix highlight a wide array of policy decisions that can support TBI systems and affect outcomes for juveniles affected by a traumatic brain injury. The table below highlights questions policymakers might ask their state agency leaders and other key stakeholders as they consider ways to facilitate rehabilitation for youth and adolescents.

Policy Goal or Desired Outcome	Questions, Considerations and Policy Options to Meet Policy Goals
<p>Understanding the TBI Landscape: Data Collection and Analysis</p>	<ul style="list-style-type: none"> • While the current literature provides insight about the prevalence of TBI in juvenile populations, including those who are justice-affiliated, what is known about TBI’s impacts on affected juveniles and the individual and state costs associated with it? Is further research or assessment needed to answer key questions? • What efforts are already underway to address TBI in the juvenile justice system? Which stakeholders are involved and what have they learned about the prevalence of TBI and its impacts on justice-involved juveniles? What is still unknown about TBI and its effects? • What state policies are in place that can be extended to support juvenile justice-involved youth with TBI? For example, states have adopted sports-related concussion legislation and “return to learn” policies for individuals reentering school after suffering a TBI and many states have passed laws directing their Medicaid agencies to request a federal TBI waiver. • Beyond state policies, what current resources are available to support TBI screening and intervention in juvenile justice settings? For example, does the state fund a brain injury program or have an HCBS waiver to support individuals and families affected by TBI? • Does the state have a TBI advisory board or council that can convene stakeholders to address the issues and make recommendations?
<p>Screening and Intervention</p>	<ul style="list-style-type: none"> • Are juvenile justice settings administering standardized screening and providing specialized interventions or education for juveniles who screen positive for a TBI? • What is known about TBI’s effects on recidivism or probation completion? • What steps would need to be taken to integrate screening and follow-up assessment as part of juvenile justice intake procedures? • What current resources are available to support TBI screening and intervention in juvenile justice settings? For example, does the state fund a head injury program or have an HCBS waiver to support individuals and families affected by TBI?

Policy Goal or Desired Outcome	Questions, Considerations and Policy Options to Meet Policy Goals
<p>Evaluating and Overseeing State Initiatives and Investments</p>	<ul style="list-style-type: none"> • Is there a mechanism—e.g., legislative report—by which legislators can review outcomes for the juvenile justice population? Do legislators have enough data to assess whether current investments are achieving their intended results? • If data are insufficient, are there opportunities to partner with researchers to examine TBI in the juvenile justice system? • Are there low-cost ways to sustain effective practices within juvenile justice settings—such as training nursing staff to administer TBI screening as part of intake examinations?
<p>Developing Workforce Capacity</p>	<ul style="list-style-type: none"> • To what extent are juvenile justice system workers trained in understanding and recognizing TBI and supporting the needs of affected individuals? • Could existing initiatives, such as the federal State TBI Partnership Grants (awarded to about half the states), support workforce development? • Are there opportunities to develop specialized skills for staff members to identify resources, make referrals and link juveniles to a case manager prior to release? Can juvenile justice systems integrate TBI in existing training curriculums that may address mental health and substance use issues?

Notes

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