Honoring Trauma: Serving Returning Youth with Traumatic Brain Injuries Transcript

Cassy Blakely:
All right. We're going to give folks just one more minute to get logged in and we'll go ahead and get started.
Cassy Blakely:
Good morning, everyone. Welcome to the Honoring Trauma: Serving Returning Youth With Traumatic Brain Injuries presentation as part of the 2022 Second Chance Act Month events. These events are offered in partnership with the Bureau of Justice Assistance and Office of Juvenile Justice and Delinquency Prevention alongside the technical assistance and training partners. This session is brought to you by the Corrections and Community Engagement Technical Assistance Center at the American Institutes for Research. Next slide, please. Thank you so much.
Cassy Blakely:
We will be recording today's session. So, take a minute to read the recording notice. And if you do not wish to have your image or words recorded, then please just sit quietly in listen-only mode. Next slide. As mentioned, the American Institutes for Research is partnering with the Office of Juvenile Justice and Delinquency Prevention, its grantees, and the Bureau of Justice Assistance to bring you these and other Second Chance Month events. The Corrections and Community Engagement Technical Assistance Center serves as training and technical assistance providers to a number of Second Chance Act grantees, including those that you'll hear from today. Next slide, please.
Cassy Blakely:
We are excited to have you celebrate Second Chance Month. The myriad events offered are supported by the Bureau of Justice Assistance and Office of Juvenile Justice and Delinquency Prevention. Next slide. You can stay connected to all National Reentry Resource Center and Second Chance Month events using these hashtags or check...
Speaker 1:
Oh, Cassy. You're on mute. There you go.
Cassy Blakely:
Oh goodness. There we go. Well, I invited you via the chat box and through these hashtags to stay connected to all Second Chance Month activities and ongoing resources available through the National Reentry Resource Center. With that, and the next slide, I will turn today's presentation over to a fantastic Second Chance Act grantee from Florida. And I will let Denny Armington start us off. Thank you so much for being here. And Denny, the show is yours.
Denny Armington:
Okay. Thank you, Cassy. And thank you to OJJDP and the American Institutes for Research for the invitation to participate today in the month-long series of webinars on reentry and the Second Chance Act. My name is Denny Armington, and I am the president of Youth Opportunity Foundation and Co-PI of our study on decreasing recidivism among juveniles with traumatic brain injury. Before we engage in our slides, I would also like to... I always like to put a face with a voice in this age of Zoom calls. So I'd also recognize my speakers that are joining me today: Dr. Drew Nagele, who is a neuropsychologist; Dr. Michael Baglivio, who's a noted criminologist; Dr. Lance Trexler, he's somewhere among the pictures; and Steve Seder, who's also going to be joining us and explaining the study protocols we have embarked on.
Denny Armington:
So, as I mentioned, Youth Opportunity Foundation happens to be a 501(c)(3). We're four years old with the mission to provide a second chance at life for juvenile involved youth. And several years ago, we created an advisory council because one of our efforts in terms of our mission is to seek out root causes for criminality and create an advisory council of experts in various areas to focus on this. And we're fortunate enough to be funded by the Office of Juvenile Justice and Delinquency Prevention for this particular grant. Next page, please.
Denny Armington:
We obviously are dealing with very complex issue in terms of rehabilitating juveniles through this process. So we have been able to collaborate with a group of Florida agencies; most notably Florida Department of Juvenile Justice, who has partnered with us on this grant; University of South Florida, who is lending their abundant expertise to assist with this process; Youth Opportunity Investments, who also has given us access to five residential treatment facilities in the state of Florida, from which we will seek subjects to participate in our protocol; and then perhaps most notably, the Florida Division of Vocational Rehab and the Department of Education as the reentry process in terms of traction is going to be dependent on our build base to not only educate these this youth, but also gain access to valuable job opportunities. Next slide, please.
Denny Armington:

Our vision and mission for this process: a world without recidivism certainly is a laudable and wonderful goal. We think with our abilities to identify traumatic brain injury as a root cause of criminality, we certainly think that is within reach. I was impressed by Ms. Jones, acting administrator of OJJDP, and her quote. "Every child's interaction with juvenile justice system is fair, rare, and beneficial." And again, I think with focus on traumatic brain injury and the clinical efforts so we can bring to bear, and as well as the assistance in terms of their entry process, we can certainly gain that as being a beneficial process.

Denny Armington:

And our mission is to identify an effective continuum of care to address unique needs of acquired brain entry with also a goal of decreasing recidivism immediately by at least 30%. So those are our efforts with this particular study. With that being said, it's my pleasure to welcome you to this webinar this morning. And would like to turn this over to Dr. Drew Nagele.

Dr. Drew Nagele:

Thank you, Denny. Happy to be a part of this team. I'm a neuro rehabilitation psychologist. I've worked for over 40 years now to design and implement programs for youth and adults to promote productive, successful activity in schools and in their return to work. I'm fortunate to work in Pennsylvania, which is the only state so far to have a statewide school reentry program to facilitate school reentry for youth with brain injury. And that program called BrainSTEPS is currently the subject of a CDC funded research project to demonstrate the efficacy of that approach providing brain injury consulting in every public school. So, I serve as co-investigator on that grant as well as co-investigator on a National Institute of Justice grant looking at neuro resource facilitation in adult prisons. So really pleased to have the chance to work on this grant because you may be wondering how large the problem with a brain injury in youth is.

Dr. Drew Nagele:

So, brain injury as a disease and disability continues to grow. And the Centers for Disease Control tracks the epidemiology of brain injury, and they give us the statistics you see on this slide. About 2.87 million new brain injuries occur each year. These are the ones that we know about from tracking the brain injury diagnoses in hospitals and emergency rooms. And the CDC tells us that about 837,000 of these health events occur among children. So TBI contributes to 56,000 deaths. You can see that in the top of the pyramid. About 2,500 of those are among children. It results in 288,000 hospitalizations. About 23,000 of those occur among children. And in 2014, which is the last year we have full statistics for, there were about 812,000 children treated in emergency rooms for concussion or TBI. And that figure has actually increased about 54% over the last eight years.

Dr. Drew Nagele:

A greater concern to us is actually the bottom of the pyramid, that big section at the bottom, where it says unknown, other medical care, or no care. These are people who have a brain injury, but who never present for treatment. And this is thought to be a larger number than even those who present to the emergency rooms. There was a study done by the CDC with the Children's Hospital in Philadelphia a couple years ago that showed that 85% of kids with concussion, never even present to the ER. They either go to their family doctor or their pediatrician, or they don't seek treatment at all. So, this results in TBI being an under-identified, especially for certain parts of the population such as children. We did a study a couple years ago studying all children who were hospitalized with TBI, who you would expect would have significant needs such that they would be classified as TBI when they returned to school.

Dr. Drew Nagele:

And using special ed data, we found schools are only classifying 33% of the students that we would expect to be classified as TBI after a moderate to severe brain injury. So certain populations are shown to have an overrepresentation of brain injury compared with the general population. And that includes those living in poverty, people that are homeless, and incarcerated populations. And the Administration on Community Living has identified juvenile justice as a priority for states to build competency and capability. And so, Pennsylvania and Colorado and some other states have had grants from the ACL to study the prevalence of brain injury in juvenile justice involved youth. And now we have this Second Chance grant in Florida to do brain injury screening, identification of neurocognitive issues, and resource facilitation to help youth be successful as they return to school and attempt work. The next slide, please.

Dr. Drew Nagele:

What gets the most attention are traumatic brain injuries that occur as a result of falls, motor vehicle crashes, or from assaults, bullet wounds, or stab wounds to the head. But there may be just as many, if not more, non-traumatic brain injuries as there are TBIs that occur as a result of stroke, cardiac arrest, anoxia, now frequently due to unintentional overdose of opioids, tumor, or encephalitis. At the Brain Injury Association of America, we estimate that 5.3 million Americans are living with some form of acquired brain injury, either traumatic or non-traumatic in cause. Whether it be traumatic or non-traumatic, the effects are often similar resulting in cognitive, physical, behavioral, and emotional

impairments that can alter the person's ability to be successful in school, work, or relationships. Oftentimes in mild traumatic brain injury, the effects may not be immediately known or recognized either by the person themselves or by healthcare professionals. And this disconnects results in them not getting properly diagnosed or treated even when there's evidence that treatment actually can help. Next slide, please.

Dr. Drew Nagele:

The most common misperception about concussion is that it's just a ding or getting your bell rung. A concussion is a brain injury. I bet if we were to take a poll right now of our audience, we would find a large percentage of us have actually experienced concussion. Fortunately, the great majority of people who have concussion do recover fully. At least 85% are expected to recover fully. However, between 10% and 15% of people who have concussions have persistent residual symptoms of that concussion. According to Blue Cross Blue Shield data from nationwide claims in the US, the incidence of diagnosed concussion among people under age 20 has increased 71% between 2010 and 2015 among the general population, with almost twice as many concussions occurring in boys.

Dr. Drew Nagele:

5So what we know about concussion is that most are going to recover fully within two to four weeks. However, for some, the effects of even a single concussion can be long-lasting and life-altering. And our research also shows that if you sustain a single concussion, you are three times more likely to have a second concussion. And if you have a second concussion, you're eight times more likely to have a third. The effect of unresolved and untreated brain injury is cumulative. And this, my friends, is too often the story of youth involved in juvenile justice. Have the next slide, please?

Dr. Drew Nagele:

So, I know this two chart is very busy, but I'd like you to focus on the list on the right side of the screen. Because most traumatic brain injuries occur with the head moving forward hitting an object, so the most vulnerable areas of injury are the frontal and temporal lobes. So those are the lists of impairments that we see most often in our juvenile justice population. It's sort of because of the nature of how our skulls are constructed with the sharp bony orbitals that form the backs of our eye sockets, and the brain kind of rocks back and forth inside the skull and sort of raking over those bony orbitals causing bleeding and shearing of neurons. Once a neuron is damaged in the brain, it does not grow back automatically, or there's not a new one necessarily filling in for the damaged neuron. And this causes impairments and critical functions that the frontal and temporal lobes are specialized in.

Dr. Drew Nagele:

So, we see this in a lot of our justice involved youth. We see problems with initiation, problem solving, judgment, inhibition of behavior, inability to plan and anticipate or self-monitor. Problems with personality and behavior and emotions also control by the frontal lobes. And difficulties with awareness of their limitations or problems with mental flexibility, really the hallmark actually being problems with memory. Next slide, please.

Dr. Drew Nagele:

When the brain is injured, there is about a month or so where we see an initial neurologic recovery that occurs as cells that are sent to the damaged area to reabsorb the dead brain cells, all that starts to dissipate. And gradually there's more of a homeostasis established in the brain with that reduction of swelling, resumption of neural pathways that were not destroyed. So usually there are residual deficits that are significant and permanent, and it's only after the first couple of months that we start to see those residual deficits after the neurologic recovery has occurred. And then the process of rehabilitation can really begin.

Dr. Drew Nagele:

And the process of rehabilitation does not just happen naturally or automatically, but it must be orchestrated through a very complex set of therapies that each the person to relearn, actually retrains the person to do things that they used to do automatically, and that are taking advantage of strengths in the areas of brain that were not damaged. So, it's important to know both what the impairments are, but what the strengths are. And it's through this teaching of compensatory strategies that people can learn to be successful in their daily activities in school, and ultimately making that transition to adult roles in the work world.

Dr. Drew Nagele:

So, brain injury is not like a broken limb where if you set the two pieces of bone together, they'll knit new bone and it's going to end up being just as strong. It doesn't work that way in the brain. And for someone who doesn't even realize that they have a brain injury, because it wasn't properly diagnosed and they got no treatment, they're going to face even more difficulties when they try to go back to their life, and they keep running into roadblocks and failures and not really understanding why this is happening to them. Next slide, please.

Dr. Drew Nagele:

So, there are areas of function that are commonly affected after brain entry. And you see those on the screen here. For

learning and memory, we're talking about the ability to learn new information. People rarely lose capacity for old, overlearned information such as their birth date or their address, but rather they have difficulty with learning new information and recalling it at a future date when it is needed like keeping track of assignments or appointments or work assignments. And the executive functions are the most critical for success in everyday life. These are the things that determine our own success or failure in school or work, things like planning an organization, problem solving, decision making.

Dr. Drew Nagele:

So, there may be one on the list you've not heard of before. On the bottom left, anosognosia. Does anyone know what that means? It's actually a Greek word that actually means a lack of awareness of deficits. So, after a brain injury, especially if it is not one that's properly diagnosed or treated, a person with anosognosia has no way to know that their brain is work differently. They're going to keep going about trying to do their schoolwork or their job just the way they always did, and it's not going to be successful for them. So, from an organic perspective, the cognitive impairments can keep people from being able to see or understand that they now have deficits in the way their brain works. Next slide, please.

Dr. Drew Nagele:

Memory is one of the most common hallmarks of brain injury, memory impairment. And it's also one of the most complex cognitive functions. There are multiple types of memory. There's working memory, which is kind of like a buffer, like the memory that your printer has when it's holding onto the job, and then once the job is out...

PART 1 OF 4 ENDS [00:23:04]

Dr. Drew Nagele:

... has when it's holding onto the job. And then once the job is outputted, the memory goes away. So, it's just holding on while you're processing other information. Memory for new information, that's the ability to store, access and retrieve new or novel information. As I said, memory for old information, that's not so often impaired, but prospective memory, the ability to remember intentions, things that you want to do in the future that is frequently impaired because that requires memory for new information and sort of keeping track of that as time passes and remembering that you wanted to go to the grocery store today and then actually doing it, when today occurs, that's prospective. And episodic memory is recalling events, things that happen to you in your life. Next slide.

Dr. Drew Nagele:

And initiation is another frontal lobe function that is often impaired. It's the ability to start doing something. It kind of requires seeing what the possibilities are, seeing what needs to be done, making a plan about doing something and then actually starting to do it, putting that plan into action. For example, a person who wants to get dressed first must recognize that they need to get dressed, you got to think about what you're going to wear, and you got to begin gathering those clothes and then putting them on. When there are problems with initiation or intentional behavior, the person does not automatically generate ideas about what to do next. The brain simply lacks the ability to think of, to generate what should occur next, and the ability to implement that plan.

Dr. Drew Nagele:

Next slide. And this we often see as a problem in our juvenile justice youth. Disinhibition and disinhibition are also mediated by those frontal lobes. And disinhibition is the lack of self-regulation of thoughts, feelings, and actions. So, they may say, or do things without thinking, they may not know when to stop, they may dominate conversations, they may be perceived as rude, impulsivity may show up. They'll quickly finish tasks without listening or fully completing directions or instructions where they may do behaviors really quickly without forethought or reflection. And they may not think about safety. They may not follow directions or rules. So, in addition, a person with brain injury, their performance can vary from day to day, hour to hour. It could be affected by time constraints, sleep demands, expectations, environment, and emotion. And this ends up confusing a lot of people, lay people and family members because they can't figure out why the person could do a task on one day, but not do it the next day.

Dr. Drew Nagele:

The next slide, please, talks about planning and the ability to choose how to do a task and to be able to break down and list all the steps of the task. It requires you to estimate how long it's going to take you to do the steps. And for example, if a person wants to cook a meal, they've got to what they're going to cook, what ingredients they'll need, where they can get the ingredients, what time to start cooking, how much to cook. And then organization is the flip side of planning. It's the ability to put all of those steps of a task in the correct order. And it also includes changing the order of steps as needed, so to tasks can be completed.

Dr. Drew Nagele:

And another key cognitive element in organization and planning is the ability to categorize, to understand groupings.

This is a building block for planning and organization, and it's also highly correlated with success in real life. You'll also see youth with inflexibility in their thinking. They get stuck in one way of looking at things, it's called perseveration, or they have difficulty generating alternative solutions. And they may have difficulty anticipating the consequences of their actions or predicting what might result from non-action. And of course, treatment for this will consist of assisting them to break down tasks into smaller components or to reduce the demands of bigger tests into more manageable parts. Next slide please.

Dr. Drew Nagele:

Oh, I'm sorry. Could we have the next slide please? Brain injuries often considered the hidden disability that is undiagnosed. It can be the cause of cognitive problems, including poor judgment, poor memory, lack of good communication skills, behavioral and personality problems, and poor social skills. The result, people start dropping out of school, start misusing substances, failing at relationships, or may not be able to maintain a job or become a poor risk taker resulting in incarceration. Next slide.

Dr. Drew Nagele:

So, there's a lot of studies about the prevalence of TBI in the adult populations. So, Shiroma and group conducted a meta-analysis of all these studies for the CDC and they found out that on average, 60% of those incarcerated in adult prisons have a history, a lifetime history of brain injury. In addition, there are some studies in juveniles that have shown prevalence rates of anywhere from 16 to 72%. And a study done by Hughes found that young offenders who were sentenced to death, the rate of TBI was actually a hundred percent in that subpopulation. Another study in Great Britain found that on average 65% of youth offenders had a lifetime history of TBI with 46% reporting a loss of consciousness and more than 70% reporting multiple injuries. Next slide please.

Dr. Drew Nagele:

So, a longitudinal study out of Finland studied 508 psychiatric inpatient adolescents and found that adolescents with TBI had significantly more often committed crimes in 53.8% of that group compared with adolescents who had no evidence of TBI, which was 14.7%. So, it's really almost triple the prevalence in the general population. Subjects with TBI had significantly more violent crimes and the risk of any criminality after a TBI increases 6.8-fold, the risk of a conduct disorder increases 5.7 fold and the risk of both criminality and conduct disorder increases 18.7 fold. Next slide.

Dr. Drew Nagele:

A study done in New York City with adolescents in New York City detention centers showed that 67.4% report a history of at least one brain injury and the most frequent cause of brain injury in those youth were 55% assaults, 41% falls, which is different from in the regular population, it's mostly falls then struck by or against car crashes and then assaults. They also found in the New York City study that inmates with brain injury were more likely to be users of mental health services, more likely to have emotional dysregulation, impaired processing speed and of course this makes them more at risk for getting into trouble with the law. Next slide.

Dr. Drew Nagele:

In other studies, done specifically with delinquent youth, one study Perron & Howard found the lifetime prevalence of TBI continues to climb as youth enter early and middle adulthood. So, what we sort of see here is without brain injury identification and intervention, they're going to continue to commit crimes as they become adults. They also found that youth with TBI displays significantly more psychiatric distress earlier onset of criminal behavior earlier onset of substance abuse behavior and more lifetime substance abuse and suicidality. The Ray & Richardson study used the same screening tool that we're using in the Florida study to look at recidivism. And they found that those with a history of TBI really didn't vary in terms of age, race, ethnicity, educational status, from those with no history.

Dr. Drew Nagele:

They did find that those with TBI were more likely to have a psychiatric diagnosis and a greater number of prior arrests than those without TBI. And they found that those TBI experienced a larger number of arrests for person offenses, such as assault, robbery and rape and homicide. So, this is supported by prior research that actually suggests that brain injuries are associated with violence and aggression. So, we were able to conduct a demonstration project in Pennsylvania using that administration community living funding and we did brain injury screening and neurocognitive testing in two detention centers just outside of Philadelphia. And here were the findings. Next slide, please.

Dr. Drew Nagele:

Here were findings. 49% showed a lifetime history of brain injury, of those 57% showed significant evidence of cognitive impairments in memory and executive functioning. So, the percentages are high. They're almost as high as in adult research. Next slide, please. When we look specifically at how can we reduce recidivism for youth with TBI, Ahlers and colleagues found that there was some protective benefit of giving special case management to youth with TBI and that youth who got that kind of approach were more successful after they were identified.

Dr. Drew Nagele:
Next slide please. So just to summarize, when we look at the lives of youth who've had brain injuries through research, we find that they have lower educational attainment, increased rates of substance misuse, less sophistication in interpersonal skills, increased risk for psychopathology, lower levels of pro-social behavior and increased rates of aggression. And the symptoms of brain injury are actually the risk for factors of offending and the risk factors of offending are actually the symptoms of brain injury. So, we think you'll appreciate that when you see the design of our study.
Dr. Drew Nagele:
Next slide, please. So, the kinds of problems that follow brain injury are often the very kinds of characteristics that put individuals at risk in the justice system. Not thinking clearly, being impulsive, being reactive, these are the kind of things that get youth into trouble. And similarly, the kind of characteristics that impact effectiveness in defending oneself in court. Next slide. So how can we identify these individuals? Remember that bottom of the pyramid, people not diagnosed, not treated, not counted, there's a need for screening for brain injuries so that this hidden disability can be discovered and uncovered and diagnosed.
Dr. Drew Nagele:
And in our Pennsylvania project, we found that very few of the youth that we were able to identify with brain injury had ever been told that they had a brain injury. And we're actually seeing that now in the field of child abuse. The professionals in that field are very rightfully tuned into emotional trauma, but not so much about the physical effects of multiple blows to the head, shaking, smashing that's frequently not addressed. So now I'd like to introduce my colleague, Dr. Lance Drexler, who's going to talk more about what has been demonstrated in his research that shows what we can do to alter a use pathway once a brain injury is diagnosed.
Dr. Lance Drexler:
Thanks, Drew, and thanks everyone for your interest. I am a less retired than anticipated research and clinical rehabilitation neuropsychologist. Now, principally are still affiliated with the Department of Physical Medicine and Rehabilitation at Indiana University School of Medicine, and also consulting with Youth Opportunity Foundation and a co-investigator on this grant. I've spent the last 12 years taking a look at resource facilitation and traumatic brain injury surveillance as components of working to begin to think about managing a brain injury as a chronic condition. As Drew mentioned, we don't have a system of care. People fall through the cracks all over the place. And so, people aren't identified as people as having a traumatic brain injury. If we had a system that thought about this as a chronic condition, then we would be able to manage it more effectively.
Dr. Lance Drexler:
We have methods to obviously diagnose diabetes and protocols for how you follow people with diabetes, and you help them manage that condition or with congestive heart failure and a variety of other conditions. But for this, this really disabling condition, we don't have that system in place. Some of the key components include clinical surveillance. So, you need a method to measure your recovery or lack thereof, or how you're doing. We need preventative interventions for those that are high risk. We need self-management training and engagement to help them as Drew mentioned, learn how to manage their condition. And that's what rehabilitation interventions are about. And then access to specialized services around brain injury as needed.
Dr. Lance Drexler:
So, recognizing brain injury as a chronic condition has just emerged over the last couple of years. And it's beginning to really get some traction in the traumatic brain injury literature, but I'm not really beyond that. And so, this is a new study that I want to mention that we've recently wrapped up with respect to developing a surveillance model of through initially ACL funding and now we're using a new method for doing TBI surveillance. So, I'm going to turn this over to my colleague, Mr. Sutter, who I've had the pleasure of working with now for probably five or six years to help us develop this new TBI surveillance model and methodology. Steve.
Steve Sutter:
Thank you, Lance. So, I'm Steve Sutter with Create Ability Concepts. We've been in the human services technology field for about 23 years, focused on helping people with special needs, certainly including people with a brain injury. I've been the principal investigator of 35 different federal grants and some of the things I'm going to be talking about today were initially provided as the core that we started with for this project. These were funded by a section of the USDA that cares about people in rural settings, as well as NIDILRR, the National Institute on Disability Independent Living Rehabilitation Research. And then of course, the NIH.
Steve Sutter:
The DOJ grant with Florida is helping us take this to a brand-new level that I'll talk about. And if you could go back one

slide, please. Yeah, thank you. We see two parts to MyBrain, and this was named by the subjects. MyBrain is a app on the left here that is in this first phase, an avatar led assessment where the individual selects the ethnicity and the gender of the avatar, and that avatar would then interview them routinely in a frequency specified on the right by the clinical team, which also includes the dashboards for viewing data, tracking data, corresponding with the clinical team on a certain individual in the study. The target idea here was how do we make the surveillance fun? How do we make it interesting so that we can really capture that data that really helps give us a richer feedback on the treatment. Next slide, please. Thank you.

Steve Sutter:

So as the individual is completing this on a tablet, we use the Amazon Fire Kindle $50 tablet in the first study, and this let them answer in a nonjudgmental way. The avatar just would bubble its head and blink at you when you're taking a while to answer, but it had a built-in screen reading so that the individual would reduce their cognitive load in each of these questions. It's called a ecological momentary assessment where it's very quick, it's only used when needed, and it has this built-in support tools. So not only do we do these surveys of these variables selected by the clinical team, but we don't just leave you that, oh, you made it, high end depression, have a nice day, we actually can introduce interventions that would help them in the moment for those sections where they rated high risk that day. Next slide, please.

Steve Sutter:

So, for the items that Dr Nagle and Dr. Drexler have introduced on the left here, capturing those pre-injury variables, there were 11 different measures on the right here and apologize for the geek terminology, but PHQ-9, that's a measure of the individuals' depression. GAD-7 is general anxiety and other different measures again, specified by the clinical team and they not only specified, but the interval, the actual frequency that we would reassess them is specified and then delivered by the avatar at those target times. Next slide please. So, what we were able to do was come up with a way for the clinical team to have that surveillance over those critical measures that they identified. And when the individual rated high in a certain factor that was really important, such as any kind of expression of a suicidal ideation, that would send an immediate text or email to the corresponding individual.

Steve Sutter:

In one case one individual, when the clinical team immediately checked up on the individual asking them, "Really you're thinking that way?" the individual admitted that well, actually, I've always felt that way. I just felt comfortable talking to the tablet and revealing that to the tablet, knowing that it was going to notify someone urgently. They just felt that level of comfort with this approach. Next slide please. So a few of the measures that we are using, this is just a zoomed in section, showing that the system, by the way, automatically detects and computes what the reassessment interval might want to be for a certain measure, such as if you're are reading high in your anger, in the BAAQ survey, the system would automatically suggest a certain reassessment interval. Maybe...

PART 2 OF 4 ENDS [00:46:04]

Steve Sutter:

... system would automatically suggest a certain reassessment interval, may be closer to daily, weekly every two weeks. But this team can always override that and specify whatever interval of time that they need. We then auto compute the risk rating for each of these factors and then total them. And then Dr. Trexler will talk about it in a minute, how we stratify that information to be able to tailor the reaction in those areas where the people had the greatest need.

Steve Sutter:

So, another export capability is the data can be graphed or viewed in this portal that's available to the clinical team. You could also download the data and further massage that data, even in a way that the Center for Disease Control and Preventions, the CDC, they have special tools, one of them called the Epi Dashboard. Our download is compatible with that to help people slice and dice the data in a way that they need to view it, as illustrated in this next slide, please.

Steve Sutter:

Thank you. So here we see some of the complexities of TBI. This is for a specific individual over four specific measures. Somehow, in our generation of this graphic, we've overlaid a dense orbital over this, somehow blotting out some of the data, but behind there were curves. And what we see initially is that the individual had a decrease in all these different factors here, pain, anger, depression, anxiety, in July and August timeframe. And then starting in August, there was an increase in pain, associated with anger as well, anger much higher than the pain level. And then followed by a reduction in depression and anxiety later on. And then another spike in pain, which resulted in a much higher spike in anger, shown at the very top of the display here. Later, this was followed by decreasing in pain, anger, and anxiety, and followed by, again, another spike in anger, depression, and anxiety curves. So, the clinical team now has a rich set of data that they could immediately correspond their treatment and the resource facilitation that was offered to those

individuals on a very quick, fast response basis. Next slide, please.
Steve Sutter:
Here, we have an idea showing, just for cognitive functioning, one of those 11 different measures over 17 different individuals in the study, this is showing the complexity of cognitive function over time. So, from left to right we have time. And you'll see some subjects dropped out early, we didn't have any more data. But look at subject number 1433. We can see that the individual really was going in a relative high level of risk over time, as indicated by this orange and red colors, red being very high risk, green being very low risk, yellow being mild risk, and orange being moderate risk. Whereas subject number, oh, let's say, 1006 or 1257, they had quite a different story. Over time, they went from low levels of risk to higher levels and then back again. So, we can see the complexity of this over time, and why it's essential to have resource facilitation integrate with this data collection of the surveillance of the data. Next slide, please.
Steve Sutter:
After using the system for, I think it was a two-and-a-half-year timeframe, we did a satisfaction survey. Most people had a very positive experience with the MyBRAIN app on the Amazon Fire. One of the low scores to talk about, I'm going to zoom in on this in a minute, was number five, where they said, "I believe using my brain on the Kindle on a regular basis makes a difference in my recovery." Only 43% of the people indicated that was true. And we zoomed in on trying to analyze what was behind that, and I'll talk about that in a minute. But overall, it seemed to be a general idea of the repetitiveness of our first phase of questions, which we've readjusted in this future study and in the DOJ grant. Next study, please. Next slide.
Steve Sutter:
So, this is a called the post study system usability questionnaire, a geek terminology, meaning let's use, really ideally we'd want to one as an answer. That means that they strongly agree with any statement, such as, "I'm satisfied with how easy it is to use the system." A one indicating, "I strongly agree with that." And we can see in our results column that in general, people were either answering, "I strongly agree," or "agree." And our goal was we wanted to be better than somewhat agree. So, we've exceeded that goal. The numbers in parentheses were the standard deviation showing that it was pretty tight in the response rates.
Steve Sutter:
Let's go to slide number 37, please, or next slide. Thank you. So, on the left, we see that there were certain things that people really liked. And down at the bottom here, we can see receiving guidance on how to use relaxation and meditation. So, what we are talking about here is those built-in interventions. When the individual did have a high level of risk associated with a certain category like anger, aggression, depression, anxiety, it would then kick off an automatic mindfulness exercise, breathing exercise. There's a variety of different interventions that were queued up for that individual right then. On the right-hand side, you can see a couple of answers that helps us understand a little bit more about that question number five in the previous study, and really some of the sections they thought were repetitive. We wanted to add more variety or not have the same repetitive questions. Now being careful that we maintained the integrity of those questions so that we could correspond and correlate their answers with data over the last 20 years for some of these assessment tools, we wanted to make it a little bit more fun and interesting. So, would you please launch the poll question for me, please?
Steve Sutter:
In this question, please answer, what do you think if you could pick just one, what do you think would be the top thing that you think you'd like to see us do in future versions of our MyBRAIN system that would really help in that engagement? As you're answering, I'll come back with the study results, your survey results in a few minutes, but I'm going to continue now with the next slide, please.
Steve Sutter:
Overall, people thought that the clinical data was really useful by the team in managing that resource facilitation. And I apologize if your poll questionnaire popped up over the slide, you can pull that header and drag it off to the side, if you'd like. Participant satisfaction was extremely good throughout. There were a couple areas that we really want to do a better job at. And I think you're arriving at some of the same conclusions we did on the right here, as I look at your survey answers. Next slide please.
Steve Sutter:
So, in general, we found that people did want us to really make it available on a PC or smartphone or tablet, as indicated by some of your answers as well. The feedback was really rated really important that the individual could see how they're doing over time. The general philosophy here is the more things we could do to make future MyBRAIN more integrated with their lives, the more engaged they would be, and the more utility they would receive in this process. With the end goal being that we could actually reduce recidivism because they're engaged in a tool that would help them

correspond and respond to how they're feeling, how they're doing right now throughout life. Slide number 40. Thank you.

Steve Sutter:

So, this is the new look of MyBRAIN 2.0, it will run on all different mobile devices. It has surveillance, so the very top one would let you start and stop surveys if you got exhausted or tired, because fatigue is a common problem. You would have a light mode and a dark mode to help those who also have a visual impairment as associated with their brain injury. And it would help them be able to integrate with other things, such as, "I need some help right now." That would be those, "I need an intervention right now." The next one down, if you would index to the next slide, please, surveillance for those things I'm doing now. Next slide. Needing help. So, it would help them hop into some anxiety or things that help reduce their depression, or sleep right now. Next slide. And then my notes. So, this also gave us a very quick and easy way to do journaling, almost by clicking emojis, if you will, that would help them be able to articulate how they're feeling and what they're doing lately, because those are correlated together.

Steve Sutter:

Next slide. And then finally, that chat capability. So, integrating with others in your family on what it's like for them to help you, help the individual served in their care. As well as for those with similar lived experiences, that we could connect them. You can maintain your anonymity, or you could introduce what your name was within that safe chat capability, and then be able to track your progress over time. So, the results, if you can see on the screen here, mirrored exactly what we perceived as the priority. That said, we were able to do them all. We were able to integrate all of these abilities into MyBRAIN 2.0, going forward. I'll now hand off back to Dr. Trexler. Thank you.

Dr. Lance Drexler:

Thank you, Steve. Yeah. So, I'm going to summarize here also from the surveillance tool now, and the serial data that we get in terms of how people are coping and adapting to the effects of their brain injury. We now got the data from which to risk stratify our participants in the Florida studies. So, we know that there is going to be juveniles that are fairly stable, low risk. There's going to be some that are moderate risk. And then there'll be that those that are high risk, those that have traumatic brain injury with significant cognitive impairment, substance abuse, criminogenic families, et cetera. And so, we should follow them in our intervention that is resource facilitation, according to the risk that's associated with the surveillance data, just like you would manage diabetes differently if it was high versus if your sugar levels are low.

Dr. Lance Drexler:

So let me just introduce resource facilitation. It in essence is a case management kind of model, except it covers a whole bio psychosocial scope. That is, it's not medical, it's not vocational, it's not criminal justice, it's all of the above. But it's TBI or brain injury specialized and run by a bunch of brain nerds that focus on this kind of community-based intervention. Resource facilitation seeks to integrate divergent services that are typically siloed and don't cross talk and close those gaps between the silos in which our kids fall. So, you just briefly reviewed the evidence. We've been doing research in this area for about 12 years now.

Dr. Lance Drexler:

Our initial studies were looking at resource facilitation for return to work and school. We did a couple of randomized control trials. We found that those that got resource facilitation returned to work 64% of the time, versus 36% of the time. And we also found in another study that those folks return to work significantly earlier. Not only did they return to work more often, but significantly earlier, as a function resource facilitation. We've also replicated those data for those people that are acutely injured, that is within the first year, with also those folks that are nine- and 10-years post injury. We've also looked at things just basically like activities of daily living. So, people get significantly better in their ability to take care of themselves as a functional resource facilitation. We may navigate, when we find a need for someone who's got cognitive impairment, we may help them get cognitive rehabilitation. Or if they have a balance disorder, we may help them get to a physical therapist that knows how to treat balance. We may help them with transportation if they don't have transportation. If they don't have health insurance, we may help them get access to some form of reimbursement.

Dr. Lance Drexler:

We've also looked at their perception of needs, and it's a bizarre finding. What we find is that if you carefully evaluate what people need, and you find a way to help them get it, their needs are to taken care of, and they rate accordingly. So, what we found in resource facilitation is that the number of services that people ultimately use declined significantly. And we also found that the services they desired had declined significantly from baseline to follow up. So, things like, maybe we promoted access to treatment for included, just as examples, controlling alcohol or drug use, finding housing, or just increasing independence or ability to return to work.

Dr. Lance Drexler:
This study just came out. I cut my teeth in this study on what it's like to try and do intervention research in the community reentry sector with adults coming out of prison. And having been a healthcare researcher, it was really enlightening to try and implement intervention research in the community reentry world. But nonetheless, it was a huge learning experience. And we have preliminary data, pilot data showing now in this most recent publication that recidivism decreased from 53% down to 32% for those folks that got resource facilitation, which is a 21% difference. And if you use the evidence based actuarial predictions about economic impact, that represents similar, between 54 to 111 million dollars for every hundred people you study. So that's pretty encouraging data. And that's the background for our Florida study. Resource facilitation has been demonstrated to be pretty robust model in this respect in working with brain injury, in terms of getting them back to work and school, helping reduce their needs, decreasing the level of disability, and also preliminary data on recidivism. So, I'm going to turn this over to my esteemed, very clever criminologist colleague, Dr. Baglivio to drill down on our Florida study, about which we're quite excited. Michael?
Michael Baglivio:
All right. Thank you, Dr. Trexler, and thank you everyone for your participation and attendance here today. Good afternoon here on the East Coast, morning still for the rest of you guys. Want to take a minute after all of that backdrop and that evidence and explanation of MyBRAIN and resource facilitation to talk specifically about the Second Chance Act funded project that we're here for today. We like to refer to it as FRISBI, facilitated re-entry interventions subsequent to brain injury. So, we'll get to specifics of that now. Essentially, we're conducting a quasi-experimental match control trial of adjudicated youth in long term residential placement. So we're talking about juvenile justice kids, long-term residential, so not short-term overnight or a couple days detention, but long-term residential, quasi experimental because we're not randomly assigning, but we have a sophisticated matching strategy we'll talk about in a minute.
Michael Baglivio:
We've selected five pilot site residential programs throughout the state of Florida. They're all males, partly because of the higher prevalence among males for TBI and the juvenile justice system. Also, because we wanted to use the same provider, that is Youth Opportunity Investments. So I work for Youth Opportunity Investments as a behavioral health provider. I also spend about a decade working at the Florida Department of Juvenile Justice, and I'm courtesy faculty in criminology at the University of South Florida. So these five all male facilities in Florida are our pilot sites. That ensures consistency of policies, practices, training, approach, rehabilitation, philosophy towards treating youth, by using the same providers programs. So the project is going to screen youth for a lifetime history of brain injury, conduct neurocognitive assessment to assess the cognitive impairment for those with indicated histories of the brain injury, and provide resource facilitation, which we just talked about, and Dr. Trexler just showed you was a promising strategy, building evidence from each discussive study on reducing recidivism. That's the project intervention we're going to provide.
Michael Baglivio:
So the study here is rather unique, and we're very excited about it for a few different components. One is we moved beyond simple screening for potential brain injury. A lot of studies you'll see in the criminology literature show, here's a group that had self-reported history of brain injuries, here's a group that didn't, look how different they are in reoffending. We're moving beyond just the screening of lifetime history to get into the neuro neurocognitive assessment, so assessing cognitive impairment. Is there a cognitive impairment related to those injuries? And what is the impairment in? Which we can talk about a little bit later. And the second component is we provide a brain injury specific intervention, which is resource facilitation to assist these individuals.
Michael Baglivio:
And the third component, we believe is a novel approach, is RF intervention. The resource facilitation intervention begins in the residential facility while the youth is still in there for the last couple months of placement, and then continues for one year post-release for each youth. So after discharge, they're followed for an entire year with a dedicated resource facilitator that are grant funded positions that we've trained as well. So they get help while in the program, and they get help on the outside. We'll talk about how that all works here in a second.
Michael Baglivio:
But before we get into that, I really wanted to share this slide. This is what sold the project for me when we discussed it and we looked into it. As a criminologist, as somebody who's worked in juvenile justice for close to 18 years or so, attended the Florida Department of Juvenile Justice, and now with a behavioral health provider, we're intimately familiar with risk needs assessments. And everybody who works with juvenile justice or justice involved individuals knows about risk assessments, assessing risk to reoffend. For juveniles, it can be the PACT, or the YASI, or the

YLS/CMI, pick your favorite brand name tool, they all have domains or risk factors that they assess youth on to get an overall risk to reoffend. If you look at Florida's tool there on the left, it's called the Residential Assessment for Youth, the RAY assessment.
PART 3 OF 4 ENDS [01:09:04]
Michael Baglivio:
It's called the residential assessment for youth, the RAY assessment. Has domains like school, talking about performance and attendance, use of free time, employment, peer associations, family problems, substance abuse, et cetera. Those are the things that criminologists believe are the strongest predictors of re-offending behavior, but now, if you look at the right hand side, you see symptoms that are associated with brain injury. Post-brain injury, these are things that could occur. Cognitive deficits, decreased engagement, lack of ability, so option generation is a problem. These youth require accommodations in school or work. Susceptibility to peer influence increases, increased frustration, low frustration tolerance.
Michael Baglivio:
All of these factors on the right hand side are symptoms of brain injury. They pair up 100%, almost evenly, word for word, with what we're calling risk factors for recidivism. Essentially, the project is demonstrating that risk to re-offending is actually symptoms of brain injury for those youth that have these brain injuries and related impairment. The project is simply backward chaining the causative factors of offending to the brain injury.
Michael Baglivio:
For those of you involved in juvenile justice, trauma-informed care has been a big thing in the recent decade. If a youth has substance abuse issues and a ton of abuse, neglect, that kind of emotional trauma that Dr. Nagele had talked about, there's a big focus on the emotional trauma stuff, extensive adverse childhood experiences. Just providing substance abuse treatment without dealing with the underlying trauma is less likely to get youth to stop self-medicating and taking substances. I have to deal with them both in tandem.
Michael Baglivio:
That's the same thing with these risks for offending for kids that have brain injury. I can't focus on and stop and think and provide cognitive behavioral therapy if the brain injury has caused neurological impairment related to impulsivity, for example. I have to treat the brain injury as well. I have to myself, as a provider in the juvenile justice system, I have to learn about and then teach youth and staff strategies and accommodations to address those symptoms of brain injury.
Michael Baglivio:
Of course, all of this was predicated on the fact that I have to know which kids have a brain injury and which ones have impairment related to those injuries. Unfortunately, the vast majority of juvenile justice providers have no clue which kids under their care have had a brain injury, and more importantly, which ones have cognitive impairment that is actually changing the way that they learn, the way that they think, the way they remember things and all of that.
Michael Baglivio:
If prior work is any indication, like Dr. Nagele and Dr. Trexler have talked about, about one in five, maybe even as high as one in four, youth in deep-end residential facilities will have a brain injury with related impairments, meaning focusing simply on these risks to re-offend factors without focusing on the brain injury or knowing about the brain injury, we're going around in circles. We're not going to get any of the results that we believe we're going to get, which could be part and parcel for why recidivism rates have remained so high over the years in spite of moving to quote unquote evidence-based practices, trauma-informed care, and all of the other juvenile justice reforms that have occurred over the years, because there's been no focus on those one in four, one in five kids that have a brain injury.
Michael Baglivio:
How are we going to do it for this particular project? I mentioned we're going to screen all youth and I'll get into the flow chart in a minute. When you get a positive screen of a youth for a brain injury, then we want to look at whether that brain injury has resulted in cognitive impairment. Ideally, everyone in the juvenile and of course criminal justice system would be screened for a history of brain injury using a validated screening tool. If an individual screen's positive, he or she would then receive a neuropsychological screening or assessment to determine a level of impairment.
Michael Baglivio:
This level of assessment that we're using here for neurocog assessment identifies the specific areas of function that are impaired relative to established validated norms for similarly aged individuals, allowing for specific strategies to be implemented, individualized to each affected youth's unique impairments. I may have memory deficits where somebody else may have other deficits that are totally different even though we both have brain injuries. It doesn't mean that the effects of those brain injuries are the same. The level of neurocog assessment that we're doing gets to pinpoint where the areas of deficit are.

Michael Baglivio:
Additionally, unlike simple screening for a potential brain injury, this level of assessment also meets criteria to establish eligibility for brain injury specific resources from other state agencies, such as, in Florida, the Division of Vocational Rehabilitations, who's also a project partner on this, we talked about at the beginning, for things like pre-employment transition services, pre-ETS, ETS, is one such program.
Michael Baglivio:
We made sure that the neurocognitive report that's going to come from these assessments that our staff have been trained to do is fashioned to generate a report that actually meets criteria for voc rehab to establish eligibility. There's a question on who these types of assessments and what type of results can have to come forward. We had to make sure that the results that are coming forward from these assessments actually meet criteria to establish the juvenile is having a disability or a level of impairment that other state agencies would recognize.
Michael Baglivio:
Eligible youth are referred based on these neurocog assessment results to vocational rehabilitation while they're in the residential program to get services started, and then they can follow. They transfer the youth back to their home community anywhere in Florida, as it's a large state agency.
Michael Baglivio:
Importantly, who receives resource facilitation, the intervention of the project. Youth who screen positive for a history of brain injury and then show indicated impairment based on the neurocognitive assessment in the borderline or extremely impaired range, relative again to those validated norms, advance to facilitation, the intervention, if they're going back to our catchment area, and that's where the quasi-experimental part comes into that I will now talk about in a second. You have to screen positive, you have to have impairment, and you have to go back to a specific area.
Michael Baglivio:
Here's a flow chart, and it's probably a hard to see so I'll break it down. Every single youth entering one of the five pilot sites is screened for lifetime history of brain injury. Every single one of them. The youth who screen positive and consent to the study get neurocognitive assessment. If the neurocog indicates there's no impairment, they move on to business as usual, they're not in the study. If they have impairment but they're not returning to a catchment area, which I'll show you in a second, they're in a control group which we use for matching. They get business as usual, and they get every three month follow-up when they're discharged for certain data points related to quality of life, recidivism, and such like that.
Michael Baglivio:
If they have a lifetime history and they have cognitive impairment, they're returning to a catchment area, then they're in the treatment group. They get the resource facilitation intervention while in the program, they get resource facilitation one-year post-discharge, they get the MyBrain app either on their phone, if they don't have a phone, a tablet is provided to them. Data collection has happened at the frequency that Steve Sutter had mentioned about increasing the frequency based on the clinical care management team and all of the outcome measures. We're looking at re-arrest, re-adjudication, re-incarceration, quality of life as well as vocational independence and school measures up to one-year post-discharge from the facility.
Michael Baglivio:
I mentioned catchment areas. Here, you have a map of Florida. The ones that are colored in are the counties that are in our catchment areas. What this does is allows us to capture about 50% of all youth returning from these five pilot sites. As you can tell, some of those are larger cities, but we can control for the census track the youth is returning back to, so we can control for urban or rural differences, percent poverty levels of community disadvantage like single-headed households, mean family income, things like that. That sets up the quasi-experimental nature, where we have a treatment group and a control group where we can match on them to look at whether resource facilitation has led to the changes in the outcome measures.
Michael Baglivio:
Our call to action, of course. The project fits in line with the Florida DJJ mission. The children and families of Florida live in safe, nurturing communities that provide for their needs, recognize their strengths, and support success. The mission is to increase public safety by reducing delinquency through effective prevention, intervention, and treatment services. This is a multi-agency project, obviously. Unfortunately, in general school settings, there aren't too many school psychologists that are looking at brain injury and looking at cognitive impairments, doing neurocog assessment on youth in high schools.
Michael Baglivio:
Voc rehab is obviously paramount for us because they're going to be serving our youth for the pre-ETS and for

employment programs, and once the youth graduate, they could benefit from supportive employment and certainly Florida DJJ probation officers. You could imagine state attorneys, you could imagine judges would be much more interested in knowing whether Johnny has a brain injury or Johnny has cognitive impairment related to that, and that may differ in where the youth end up. Of course, our ultimate goal, if this is determined effective in this pilot study, would be to push upstream, to focus more on prevention strategy to keep kids out of residential placement to begin with or out of the juvenile justice system to begin with. Wouldn't that of course lead to better outcomes if we knew about that?

Michael Baglivio:

At that point, that's about all that I'm personally selling. I think you can move on to questions or however you want to field those.

Cassy Blakely:

Beautiful. Thank you so much to all of our speakers. We do have quite a list of questions and Lance has been doing his best to answer some of those in the chat box, so thank you for dumping in some of those answers. Similarly, a number of our speakers have shared their contact information if we should not get to your question by the end of today's conversation. I'm going to start working down the list and y'all can take these as long as you want, but I'm going to ask these last two questions, Michael, as they relate directly to what you just shared first.

Cassy Blakely:

I've got an individual who is curious about how long the study will take and how they can follow the research that you all are doing regarding the youth and long-term placement facilities and brain injuries.

Michael Baglivio:

Great question. The study is funded for three years. Because of COVID and some other issues we're going to get a no-cost extension, so it's about three years from current is where we're going to do it. We're starting to enroll youth this month and doing screening. All of the clinical directors at the sites have been trained in a neurocognitive assessment process from Dr. Nagele. He's done fidelity monitoring of those individuals to make sure we're comfortable in administration of those neurocog assessments. A report has been developed of those neurocog assessments we're going to be able to provide to voc rehab.

Michael Baglivio:

Essentially, starting now followed through, Denny can probably speak letter better than I can about ongoing communication, perhaps, on the progress of the grant. Obviously, OJJDP gets follow-up monthly deliverables as well as annual reports on that. We may look at publishing something or looking at putting some stuff out based on just prevalence rates to see if the prevalence in Florida Juvenile Justice residential programs matches the prevalence rates that Dr. Trexler and Dr. Nagele have shown you throughout other states, just to see where we're at, would be pretty interesting as well.

Cassy Blakely:

Thank you so much, Michael. As we're talking about some of those prevalence rates and the statistics, there were a number of statistics shared in the chat, so thank you for that, but also a couple of follow-ups to those. I'll let y'all decide who wants to take these questions. The first is looking at gender and race and ethnicity breakdown, and some of the youth crime data provided at the early part of the presentation.

Dr. Drew Nagele:

I'll take that. What the studies show is that there really isn't a difference between gender, race, and ethnicity in terms of youth with TBI and how often they're involved in the juvenile justice system.

Cassy Blakely:

Wonderful. Similarly, could you talk about any longitudinal studies that have been done to track youth with TBI as they transition to adulthood?

Dr. Drew Nagele:

Yeah. I think both the Finland study that I mentioned that looked at youth, that was a longitudinal study, and also the Perron and Howard study. They looked at youth, and I think the takeaway here is that as youth get older, they're at continued risk for having more and more brain injuries and for getting into trouble with the law. In our adult work in Pennsylvania, we found that when we looked at adults with brain injury in prisons, they didn't have just one, but they had an average of 4.1 injuries per offender and that 75% of those injuries had occurred before the age of 21. That's what got us to want to look into youth with brain injury in justice settings and in our ACL grant there, we found the average was 3.0 brain injuries per offender. The longer it goes on unidentified, the more the chance of another brain injury, the more the chance of re-offending.

Dr. Lance Drexler:

Drew, I'd like to add a comment to that, too, if I could. I think the other thing that's important to recognize is that when you're talking about brain injury in children, even if they get neuropsychological assessment, the effect of those injuries may not be obvious initially because they haven't acquired those brain functions yet anyway. We all know our kids don't have the same executive functions, problem solving, judgment, et cetera, and we developed those up through age 25. What happens over time in childhood injury is the disparity between them and their peers, their cohorts, it grows with time. They appear to get worse over time if you follow them longitudinally, but most of the time, of course, people don't know they've had a brain injury and all of a sudden, they wake up one day and say, "My goodness, what the heck is wrong with Johnny? Johnny's not functioning right," not linking that failure to acquire the cognitive functions that they would have acquired through normal neurodevelopment.

Cassy Blakely:

Thank you so much, and Drew, we have someone who's interested in where the information on the race and ethnicity and age, gender differences, that you mentioned might be noted. Where can I find that information?

Dr. Drew Nagele:

I'll put that in the chat.

Cassy Blakely:

... so much. We're going to talk a little bit more about... You mentioned, Lance, some of the executive functioning. We've got a handful of questions that look at functioning and the impact TBIs have on that. First is in regard to emergency situations. In an emergency situation, how difficult is it for a TBI juvenile to react in a crowded situation?

Dr. Lance Drexler:

Overstimulation is the worst environment possible for a person with brain injury, and density of stimuli. Imagine that you haven't slept for three days, you just get to sleep, and someone runs in and wakes you up and says, "Gee, do you want to talk to your good friend that you haven't talked to in two minutes?" You're going to throw the telephone right out the window out of rage and anger. In brain injury, your brain is tired. Your brain is easily fatigued, so overstimulation, crowds, big-box stores, noisy game rooms, et cetera tax that tired brain even more, therefore increasing the cognitive deficits, increasing irritability and impulsivity, and setting the stage for outbursts. It's certainly a bad idea.

Michael Baglivio:

Put that in a... If they were a poorly managed residential facility that was really loud, that had a lot of fights going on, that wasn't very trauma-informed where you're trying to rehabilitate juveniles. Now it's loud and there's a lot of commotion, exactly what Dr. Trexler said. Look at that in a juvenile justice field and as we talk a lot in this project is should kids with brain injury even end up in residential facilities? Is that the most effective thing? Is it for anybody, but is it really for...?

Cassy Blakely:

Thank you for that practical application there, and Michael, it is hopefully something to think about as we look at specializing centers and our populations reducing across the country, how can we do better for these targeted populations? Speaking similarly to functionality, we have an audience member who works with young people who have been involved in fire setting behaviors. During your TBI studies, has this activity been documented and if so, what is the best rehab process?

Dr. Drew Nagele:

I'll give that a try. I'm not aware of it being documented as a group in a formal way, but in our ACL study we had a fire setter as one of the youth in the detention center that we were studying. I think it's interesting because it illustrates that... This was actually a case where if you'd just done a cutoff score for neurocognitive testing, this youth would not have been identified as a youth with brain injury, but it turns out that he was a gifted youth. His attention and concentration scores were in the low average range compared with all his other scores, which were in the superior range after his brain injury, so the difference, the discrepancy between his attention skills and his other intellectual abilities was causing a terrible problem for him and nobody understood why he was having such difficulties in school. He ended up setting his school on fire and causing a multimillion-dollar fire, and this was a case of undiagnosed brain injury up to that point.

Cassy Blakely:

Thank you. So really a challenge to look deeper at what might be going on underneath those behaviors, because often it may be a different traumatic brain injury we need to look at. One real quick question and then we'll close our discussion for today, and that goes with diagnosing. Is it correct that only a TBI clinic or professional can properly diagnose traumatic brain injury?

Dr. Drew Nagele:

Oh, my goodness. Colleagues, who wants to take this? Such a thorny issue. There are concussion laws in every state of the country and the purpose of these laws is to get coaches to pull youth from play if there's even the suspicion that

there's been a concussion. Then what they're supposed to do is not do sideline assessment, but rather refer that youth to a professional who has training and experience in working with people with brain injury. That should be the standard, and we see that happening in some areas of youth sports and we still get parents calling us saying, "I think that kid had a concussion, and the coach did nothing." I don't know if that answers your question or if anybody else wants to tackle it.
Dr. Lance Drexler:
Drew, I'm going to add to that. I think a variety of people can diagnose it. I think the question is do they have TBI brain injury training? A physician obviously can diagnose it, but not all physicians are trained in traumatic preinjury diagnosis. Some psychologists can diagnosis this but not all psychologists are trained in diagnosis of brain injury, so I think it's maybe not so much the issue of the profession, be it physician or psychologist or whatever, but do they have specific training in that domain, if that makes sense.
Cassy Blakely:
Absolutely does. Thank you so much, and I apologize to those folks whose questions we weren't able to answer but invite you to reach out to our speakers as they shared their information in the chat box. We will post this recording and the associated PowerPoint to the National Reentry Resource Center website in early May. If you enjoyed this event, I encourage you to check out the other offerings, both live webinars and resources and stories of local Second Chance Month activities available on OJJDP's website, and don't forget that the fiscal year '22 Second Chance Act solicitation for young people is available and open for applications right now. That link is in the chat box.
Cassy Blakely:
Again, join me in thanking our speakers for a very informative and amazing presentation. I know as a trading and technical assistance coach; I feel very honored to get to work with this grantee and look forward to hearing about the findings and the impacts of this effort. Thank you again to our speakers, thank you again to our audience for your dedication to young people, and enjoy the rest of your afternoon.
Dr. Drew Nagele:
Bye all.
PART 4 OF 4 ENDS [01:31:51]

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