

Federal Judicial Center
Off Paper - Episode 9
Neurodevelopment, Adversity, and Trauma: What Research Tells Us
and Why it Matters for Criminal Justice Professionals

Mark Sherman: From the FJC in Washington, D.C., I'm Mark Sherman. And this is *Off Paper*. Today we explore research in neurodevelopment, adversity and trauma, and how a deeper understanding of this subject matter among criminal justice professionals can inform their practice and improve outcomes for justice-involved individuals, their families, and their communities.

My guest, Dr. Robert Kinscherff, is a clinical and forensic psychologist and attorney with more than 30 years of experience in forensic mental health. Between 2015 and 2017 he was a senior fellow in Law and Neuroscience at the Project on Law and Applied Neuroscience, a collaboration between the Center for Law, Brain and Behavior at Massachusetts General Hospital and the Petrie-Flom Center for Health Law Policy at Harvard Law School. He's currently associate vice president of William James College in Newton, Massachusetts, and is on the Doctoral Clinical Psychology Program faculty there.

Dr. Kinscherff also has broad governmental experience having held senior state government positions in Massachusetts administering inpatient forensic mental health services, juvenile and court clinic operations and diversion programs; as

well as specialty courts for persons with mental illness and significant addiction, trauma, and multisystem involvement. Dr. Kinscherff has been involved for many years with teaching and training both nationally and internationally for judges, court teams, probation, pre-trial services, parole and juvenile justice system and clinical professionals. So stay tuned folks because the doctor is in the house.

Robert Kinscherff, welcome to the program.

Robert Kinscherff: Good to be talking with you, Mark.

Mark Sherman: It's great to have you here. I want to begin with a discussion of adolescent neurodevelopment and what it means behaviorally both in adolescence as an individual moves into adulthood. So Robert, my first question is what's going on in the typical adolescent brain physiologically and how does that development manifest generally in terms of an individual's behavior. Then my second question is what typically happens both physiologically and behaviorally as an individual moves into adulthood.

Robert Kinscherff: Those are great questions and questions that would've been impossible to answer without recent developments in neuroimaging which have continued to inform us about the really remarkable transition between the onset of adolescence at puberty and early young adulthood. But basically what's happening, Mark, is that there are two major periods of

pronounced brain developments in the human lifecycle. One is fetal and early childhood, infancy to early childhood brain development, and the second is with the onset of puberty. Just as with the kinds of brain development that we see in utero and then in infancy and early childhood, with the onset of puberty, the teen brain begins essentially a process of reconstructing itself.

I'll get to that in a moment, but first let me tell you a little bit about how this process of reconstruction works. With the onset of puberty, the teen brain begins to mature. It does so from back to front, that is to say in the same progression as it develops during fetal development and infancy and very early childhood. So starting at the back of the brain, the back of your head which is responsible for things such as automatic functions like maintaining your heart rate, maintaining your body temperature and the like, in stages the teen brain will mature - first from the back area of the brain, then through the midbrain, and then finally to the prefrontal cortex which is the part of the brain that allows us to be at our most human in terms of our ability for controlling and directing our behavior, anticipating alternative futures and making decisions about how to get to those futures, to think abstractly, to accurately assess risks and the like.

The way that this happens is that the brain has overproduced synapses and gray and white matter. What's going on is the process of pruning, that is to say these brain connections are increasingly about the business of organizing themselves into systems that allow parts of the brain to be more efficient at what they do but also to connect across the hemispheres from side to side and the lobes within each hemisphere.

The gray matter, which really are information processing units if you will, are increasingly interconnected. This process really gains speed during adolescence. These interconnections continue to form, and form themselves in the system on through the mid-20s. The white matter, the synapses and axons that comprise these neural networks, they comprise about 60 percent of the fully-formed adult brain. The white matter is really the connection, the wiring if you will, between the gray matter information processing system.

Starting at the onset of puberty, there is the pruning of networks in the prefrontal cortex. That begins and is slowly staged through the course of adolescence. There is enhanced sensitivity of dopamine receptors which is the reward system of the brain. So adolescents, as compared to adults, tend to experience things with kind of an enthusiasm and an intensity that reflects the reward system. It also contributes to their

interest in novelty and in what we might think of as thrill-seeking or sensation-seeking behavior.

What is occurring is as the brain continues to develop from back to front, the midbrain which contains the amygdala - which is the emotion center or part of a critical emotion network in the brain - and the hippocampus which is responsible for functions like memory and learning and if you will, kind of file searching in your brain so you can organize things that you've learned in a way that you can retrieve them. These mature first and so there is a period of time during adolescence in which the midbrain is more mature than the frontal lobes are. That's where we see some of this imbalance or be more balanced as they mature into adulthood. We begin to see this reflected in adolescent behavior because they have not yet completely organize the system of emotional, and social, and cognitive controls in brain systems across the brain.

What does this tell us? Before the era of neuroimaging, we really didn't have many opportunities to see what was going on inside of a living brain. Since that time we've been able to literally look inside the functioning brains of many, many adolescents. While the science isn't good enough to let us take an fMRI for example, a brain scan of a particular adolescent and kind of get a neural fingerprint, we can group all of these data

together and get in broad strokes what's going on through the period of adolescent brain development.

The first thing that we now know is that adolescent brains are different than adult brains both functionally and structurally. That is not only how they're built but also how they work. Adolescent brains are literally sponges. They are wired for stimulation, credence, preference for the immediacy of perceived rewards and to be responsive to novelty. In fact, in some research, adolescents are much more likely than adults to pick a completely new and novel solution to a problem over solutions that they have had experience with and might have a better idea of whether or not it'd be likely to work.

As the frontal cortex matures in mid-adolescence - 16, 17, 18 and on into the early 20s - you see improved self-control as executive functions improve. Executive functions refer to things like the ability to control impulses, to set up goal-directed behavior, to look at choices and to forecast increasingly more reliably what the likelihood of those goals will be achieved, and to process information at an abstract level so that we can see patterns across situations, across people, across social environments, across physical environments and the like.

Now what this means is between the onset of puberty and especially mid to later adolescence we see a sharp jump in

impulsivity, but that declines with age. There is a sharp increase in sensation seeking and preference to novelty. Thankfully, that will also decline with age. There is a period of time in the mid-adolescence where preferences for risky but high impact sensation seeking behavior goes up at exactly the same time that their ability to accurately assess and apply that risk to themselves goes down.

Now this is a little bit complicated because if you were to ask most 14 or 15-year-olds are you safer or less safe if you're in a car wearing a seatbelt, they'll look at you as though you've lost your mind and will say, well, of course you're safer with a seatbelt. Are you likely to be healthier or less healthy if you smoke tobacco products every day? They'll do the same thing and they'll say but of course I'm healthier if I'm not smoking tobacco products every day. Are you safer or less safe if you wear a helmet while you are skateboarding? They will say, well, what's wrong with you? Of course I'm safer if I wearing a helmet.

So on a cognitive level they can identify risky and less risky behaviors. But compared to adults, they're much less likely to actually apply that information to themselves and their personal circumstances. In later adolescence, this ability to perceive risk and apply it to yourself increases. I'll talk about that in just a minute more because there's

really fascinating process by which adolescents use and process information across different kinds of circumstances.

As they mature they're able to be more future-oriented, they're more able to delay gratification. This will decline initially in adolescence, and then increases with age the ability to put something off in order to achieve goals. Every parent, for example, knows that kids need to be reminded of things that they need to mindfully construct in order to achieve their goals. For example, if I ask my son when he is a freshman in high school did he plan to go to college, he would always say yes quite genuinely. But that didn't necessarily mean that in the moment he is going to choose doing his homework over sitting with the Xbox or being out with his friends. It would take some time for him to actually put into behaviors the things that he would need to do in order to achieve outside of that moment a future goal like going to college.

Mark Sherman: Robert, if I could, I wanted to just ask you. We certainly can all remember our own adolescent existence. For those of us who may be the parents of adolescents, I'm reminded of this concept of invincibility. Oh, my son or my daughter, he or she thinks they're invincible. Is that sort of what we're talking about here in terms of, yes, they know that wearing a seatbelt is the safer thing to do but they don't do it for themselves? Or they know that wearing a

helmet when they're on a bicycle or on a scooter, that's the safer thing to do. But they don't do it for themselves because of course they think they're invisible. I'm sorry, invincible. Is that what we're talking about here?

Robert Kinscherff: That's one of the ways in which it shows itself. Pretty common. So on a cognitive level they can assess the risk, but they're poorer than adults are. And of course there's a huge range of ways in which different individual adolescents will respond. But as a group, adolescents are worse than adults in actually personalizing risks that they may be assuming in their actual conduct. So adolescents know that if you're a new driver and you're driving fast at night on an unfamiliar road you're more likely to have an accident. Insurers know that too. But an adolescent is much more likely to take driving risks partly out of lack of practice but partly because they really can't see themselves as being involved in a major accident.

Mark Sherman: Fascinating. It also reminds me that we, before we get into any conversation about criminal behavior - and we'll do that later on in the conversation - it's important for us all to recognize just sort of what the normal neurodevelopment is of individuals at an early age before we can get into a conversation about trying to understand the drivers of criminal behavior. So any final thoughts about sort of this

topic of neurodevelopment in adolescence and the move into adulthood before we move to a break?

Robert Kinscherff: Sure. And maybe a good way to approach this is in two ways. Because I do want to explain briefly how it is that adolescents can actually make good decisions normatively as well. But ask yourself at what age did you begin constructing a life of your own that you did not always make your parents or guardians privy to; when did you begin constructing your own life that had privacy separate from the life you have within your family with your parents; how many of us have done something at least once during adolescence where, had things gone a little more badly than they did, there could have been a terrible and negative outcome; or, something that we did or participated in where we still haven't told our parents and probably never will what we did on that particular weekend with those particular friends.

We do know that the presence of peers shapes their behaviors greatly. We do know that when they are emotionally aroused or highly stimulated, that will shape their behavior greatly. That will play more in criminal behaviors as we talk further. They also appreciate novelty and exploration, and we like that especially when it's in prosocial ways. I do want to say however that by the time adolescents are about 16, 17 they are about as good as most adults in making medical-informed

consent decisions for example or participating as defendants in a legal proceeding. So that same adolescent who went out on a Saturday night drinking too much beer in a car with friends who's participating in making terrible decisions, if they're in what's called a cold cognition context where they got time, they can talk to people, they can think things through, that same adolescent might be able to make rational and very complicated medical-informed consent decisions.

I'll close this part of our conversation by the following illustration. A colleague of mine has a son who is very gifted in physics; honors list at a major university; a very, very studious; in freshman year making dean's list studying physics. They were immensely surprised to discover in April when they received a phone call from a local constabulary in Florida that their son had been arrested entirely intoxicated with several of his friends running naked through a marina while they were on spring break. That kind of behavior on a spring break is a good illustration of where the vulnerabilities of adolescents, even high functioning and high achieving adolescent, reflects where they are developmentally. Although this is the same kid who's going to go back from spring break and score A's on physics exams. So this is sort of the normative world of the adolescents as their brain develops more.

Mark Sherman: We're talking with Dr. Robert Kinscherff of William James College and the Center for Law, Brain and Behavior at Massachusetts General Hospital. We'll be back after a short break. You're listening to *Off Paper*.

Male Voice: In an effort to assist officers and judges in keeping up with the latest legal and practice developments and empirical research relevant to pretrial work, the FJC is pleased to offer pretrial decision-making for magistrate judges and pretrial services officers. FJC educators and peer faculty facilitate this one-day in-district program. The curriculum provides opportunities for scenario-based experiential learning and interactive discussions among judges, officers and faculty focusing on topics such as the Bail Reform Act, evidence-based pretrial risk assessment, and alternatives to detention. In-district delivery of the program allows it to be customized to the needs of the district. For more information, just go to FJC.dcn's Probation and Pretrial Services Education page and click on in-person and blended programs.

Mark Sherman: We're back with Dr. Robert Kinscherff. So Robert, you've described normative adolescent brain development and what it means behaviorally for an individual both in adolescence and adulthood. Now I want to move beyond that to discuss what can happen in terms of brain development and behavior when a person during adolescence endures intense

prolonged exposure to adversity and stress. I mention this because recently I watched a TED talk by Dr. Nadine Burke Harris who's a pediatrician and founder of the Center for Youth Wellness in San Francisco. Her topic was how childhood trauma affects health across a lifetime. In that talk, she referred to what she called adverse childhood experiences, or ACEs for short. Interestingly the term adverse childhood experiences may sound self-explanatory and maybe not all that serious, but Dr. Burke Harris made it clear that they can be very significant.

She didn't really get into how those experiences can lead to behavior that could drive an individual into the criminal justice system, but she certainly raised points that could and should make criminal justice professionals think about that. So can you describe, Robert, what adverse childhood experiences or ACEs are and how they might influence behavior in a negative way?

Robert Kinscherff: Sure. Maybe a place to begin is to just acknowledge that one of the ways human beings develop normatively is to learn how to handle stressors that come their way. One way to think about this is that all human beings will face stress and adversity in our lives. That's just a part of the human condition. But these might have different developmental impacts depending upon the nature of the adversity

and the buffers and resources available to a child experiencing adversity.

So at one level we have what I would characterize as developmentally normative stressors and adversities. Children have to learn how to separate to go to day care, for example. They need to be able to engage with new people who come into their lives. Things that maybe transiently stressful but also give them experiences from which they can learn.

Children may also be exposed to stressors that would be more difficult for them to handle by themselves. So there are some children who are more sensitive to changes in their environments or transitions. The question then becomes is there an adult - usually a parent or other caretaker - who helps buffer them as they go through these adverse experiences and help them learn to cope with them, to manage them, and to experience them in a way that actually contributes to their continued growth.

For example, the best predictor of the outcome of a small child when the family has been in a major natural disaster like a hurricane or a tornado - anything along those lines - is not how severe the weather was or what was destroyed. The house, the block, sometimes even whole cities. The most valuable predictor of how a young child will adapt after a disaster like that is how the caregiver, usually the parent, responded. If

the parent responds with calm and the ability to kind of maintain basic scheduling is reassuring to the child, that child is going to fare much better than a parent who is anxious and panicked and distraught and seems to be unable to cope themselves.

When there is a failure of that protective capacity, children may then have overwhelming experiences of anxiety and distress. So when we talk about adversities, it's important to distinguish between adversities that contribute to a child's growth or can be managed in ways that contribute to their growth and those that become traumatizing. We need to keep those two concepts separate because trauma is different than adversity although adversity may give rise to trauma.

When a child is distraught like that, it activates the body's fight/flight system. A lot of things go on in the child's metabolism, and hormones, and brain that are really evolutionary responses to a sense of imminent serious threat. When children are in environments where they are chronically being hyper aroused and distressed like that, one of the terms that people have used to describe that is toxic stress. The child's biology is being constantly challenged by a sense of imminent threat. So a child, for example, who is in a house where there's chronic and severe domestic violence or a child

who experiences multiple losses of attachment as they move through early childhood.

With that in mind, let's jump to what would at first seem a little unrelated but we'll see how it comes back together. The Centers for Disease Control and the Kaiser Permanente medical system in Southern California some years ago were interested in discovering who are the adults that come into medical care early in their adult lives with chronic or difficult to manage medical conditions that you usually don't see until later in life. So who are the people showing up in their 20s and early 30s with difficult to manage aggressive hypertension? Who are the people that are showing up in the 30s and 40s with cirrhotic livers or chronic obstructive pulmonary disease, COPD? Who are the people that are showing up with difficult to manage type II diabetes and the like?

So this was a medical study and the purpose was to try and identify people who soak up a lot of resources in the healthcare system, more than most average adults who are in insurance pools. There were two physicians in this study who believed that the answer was not going to lie in a careful examination of the medical histories. So they convinced the researchers to include, as they interviewed and look at the records of literally tens of thousands of people in the Kaiser Permanente medical care system, ten questions. The question was really did

any of these or did these happen to you prior to the age of 18. What they asked about were all intrafamilial events for the most part. They were not given enough questions to ask other things we might care about, like were you ever seriously bullied in school, did you ever witness a serious injury or a homicide in your community. That sort of thing. There's not even a question about natural disasters or dislocations of the family.

But they did ask about emotional abuse, physical abuse, sexual abuse, emotional and physical neglect; whether or not the maternal caretaker female caretaker, usually the mother, had been the victim of domestic violence; whether one or both parents were substance abusers; whether one or both parents had a mental illness or had attempted suicide or completed a suicide during child before age 18; whether or not biological parents had separated or divorced prior to age 18, and were the parents incarcerated.

They ran this data. They were really kind of tapping in here to toxic forms of chronic stress or trauma like severe or chronic neglect or chronic exposure to family and caretaker violence, multiple disruptions of caretaker attachment, and child maltreatment especially in preschool years. What they discovered was quite surprising which was that the people who had higher ACEs scores, the higher your ACEs score, the more likely you were to show up in adulthood with these more serious

and persisting medical conditions. That these folks were disproportionately represented amongst the people who were consuming resources inside of the healthcare system.

So at the very beginning we had something of a puzzle which was the higher your adversity in childhood, the more likely you were to be an ill and expensive and chronic medical patient in adulthood and to die earlier. But we didn't know what the connections were.

Since that time we've learned that there is a pattern. I want to emphasize that this is risks, that it's not fate. There are people who will have high ACEs scores then who would also have resiliency and protective factors that have prevented them from developing along this whole pathway. But what we learned was that children who were exposed to chronic stressors or toxic stress multiple adversities in childhood were early adopters of health risk behaviors. So the next connection was made between the ACEs, the Adverse Childhood Experiences score, and things like starting to smoke tobacco products earlier, starting to drink earlier, starting to have unprotected sex earlier. For reasons we don't understand, the higher the ACEs score, the more likely you are to be the victim of a crime in adulthood; the more likely you are to have difficulties with maintaining employment or stable relationships and the like. So all of

these risk factors were kind of bundled in a trajectory towards problems with physical health later in adulthood.

The next piece of the puzzle was to back that up. We learn that many of the people who were adopting health risk behaviors earlier were also struggling as children. They were more likely to have difficulties in school. They were more likely to come into contact with child protective services, more likely to have earlier and more extensive involvement in juvenile justice. It was up to the neuroscientists to help us complete this picture. So the picture now looks like the higher your exposure to adverse childhood experiences that result in toxic stress, the more likely you are to show disruptive neurodevelopment.

This neurodevelopmental disruption includes emotional regulation centers of the brain like the amygdala, centers of the brain like the hippocampus that are critical for efficient and effective learning, and the prefrontal cortex. So the picture now looks like the higher the ACEs score, the more likely to have disruptive neurodevelopment. That in turn contributes to problems in social, emotional, and cognitive functioning that contribute to things like social difficulties, academic failure at school, greater likelihood of impulsive behaviors, greater likelihood of child protection. Then juvenile justice involvement, special educational involvement and the like which we then turn to a higher risk of adopting

these health risk behaviors and then showing up later. Because obviously if you've started smoking cigarettes when you were nine, you're going to show up with COPD earlier. If you started drinking heavily when you were 11, you're going to show up with problems with your liver earlier. All these sorts of things.

Many of the social problems that they have, especially substance use, are likely to also contribute to academic failure and employment compromise but also contact with juvenile and adult criminal justice system. So what does this mean for us? What it means is the higher the individuals' ACEs score, the more likely they are to pick up substance abuse, risky behaviors, be victimized by crime. And also to have precipitated earlier a more extensive psychiatric history. This might include post-traumatic stress disorder but it includes mood disorders like depression, anxiety disorders, and the precipitation earlier of psychotic episodes if somebody has a vulnerability to psychotic disorder like schizophrenia.

The higher the ACEs score, the more likely they are to experience school failure and underachievement or early pregnancy. Interestingly enough they are at more risk of self-harm or self-risking behaviors and history of aggression to others. If they have juvenile court involvement, they're more likely to have probation failures that move them more deeply into the juvenile justice system.

Even if they had started with relatively stable, even privileged family circumstances, they're more likely to experience social drift downwards as they fail to achieve in school and in work and find themselves in - for want of a better term - criminogenic environments high, crime neighborhoods, high turnover neighborhoods, income instability, housing instability and the like. They're more likely to penetrate earlier the criminal justice system on both minor and major charges and then to show up in adulthood, as we've seen at the beginning of this puzzle we've been solving, with medical conditions in adulthood.

Mark Sherman: So Robert, that really brings me to my next question. We hear a lot in the news media about something called the school-to-prison pipeline which especially, not surprisingly, disproportionately affects kids who live in low-income communities. As you were describing the impact just now of high adversity and toxic stress during adolescence, I couldn't help thinking that if communities - meaning schools, community health clinics, law enforcement, et cetera - were better able to identify these issues and intervene earlier, we might see some significant improvements in the situation. So can you describe what you yourself have seen in this regard as both a clinician and a lawyer?

Robert Kinscherff: Yes. Having done this now for some 30 years and having had the chance to see both rural and urban

communities as well as suburban communities, I think the research is overwhelming and is borne out in facts on the ground - which is the more intense the poverty especially if it involves populations of color, the more likely there is to be kind of the social challenges that come with poverty, income instability, housing instability and the like, criminality in the neighborhood and so forth.

So on the one hand, children under those circumstances are more likely than other children to pick up earlier involvement with child protection systems and special ed systems and then juvenile justice and so on. That being said, even for these children or for most of them, if they have protective adults in their lives, parents or other caretakers who buffer them from the adversities they face and equip them with a sense of skill and competence, that allows them to transition adolescence into an adulthood where they can have stable relationships, stable work and the like. Most kids, even kids who've gotten themselves in trouble, will figure it out.

So quite literally about the time that a youth's brain turns on - 18, 19, 20, and to the mid-20s - you see this sharp self-desistance of misconduct amongst adolescents, delinquent misconduct, substance abuse and the like for so long as they have had opportunities to be buffered and guided through their adversities and given opportunities to succeed in communities in

ways that they find meaningful and are also legal. So again I don't want to describe this as fate, but there is definitely an arc of risk that begins with exposures to adversity that you're much more likely to see in impoverished communities especially if they are also communities of color. You're not going to be wildly surprised to hear that there are more higher ACEs scores in some schools than in others, in more courthouses than in others, and it correlate strongly with social supports and social disadvantages.

Mark Sherman: My guest is Dr. Robert Kinscherff from William James College and Massachusetts General Hospital Center for Law, Brain and Behavior. After our break I'll talk with Robert about ways criminal justice professionals, especially probation and pretrial services officers and judges, might use the information we're discussing here in their daily practice when it comes to things like pretrial and presentence investigation, community supervision, the bail decision and sentencing. I'm Mark Sherman, and this is *Off Paper*.

Male Voice: Individuals with histories of trauma, mental health, and substance abuse disorders are among the criminal justice system's most significant challenges. Learning how to help and deal with them correctly requires knowing the science behind the most effective treatments for these individuals. To help judges and probation and pretrial services officers

understand the role of science in federal and criminal case recommendations and decisions, the FJC is offering a workshop on science-informed decision making. The program is a collaboration between the FJC, the Center for Law, Brain and Behavior at Massachusetts General Hospital, and the Petrie-Flom Center for Health Law Policy Biotechnology and Bioethics at Harvard Law School.

Participants in the two-and-a-half day workshop will learn from some of the leading clinicians and researchers in the country about effective interventions at key criminal case decision points, including initial appearance, violation, presentence investigation, and sentencing. The program is highly interactive with district teams working through case studies grounded in actual federal court case scenarios. Each participating team works through the case studies with assistance from workshop faculty and clinical fellows who are experts in forensic psychiatry, psychology, and neuroscience. To learn more about this upcoming workshop offering, visit the probation and pretrial services education page at FJC.dcn.

Mark Sherman: Dr. Robert Kinscherff is my guest. Robert, let's talk about how criminal justice professionals can take the information we've been discussing here and apply it to their daily work. I know you're aware that in the federal system, probation and pretrial services have been making a lot of

progress in the use of evidence-based practice in terms of implementation of the risk needs and responsivity framework for supervision. Particularly on the post-conviction side of things, we've learned that among the most important dynamic risk factors that officers need to target in their supervision of high-risk individuals are things like antisocial attitudes, antisocial friends and peers, and antisocial personality patterns. Then those are followed closely by things like family and marital factors, lack of education, poor employment history, lack of prosocial leisure activities, and substance use issues.

It seems to me though that if we work backward from post-conviction, there must be things pretrial and probation officers can do earlier in the process to incorporate knowledge about ACEs trauma and toxic stress into their work - such as the development of the bail report or the presentence report - which in turn might improve outcomes. So first, what are your thoughts about that? Second, what can judges do with this knowledge in terms of their roles in making bail and sentencing decisions?

Robert Kinscherff: I think there's a lot that can be done actually that does not have to wait until the processing supervision, and certainly doesn't have to wait until a person may be returning from a term of post-sentencing incarceration. But let me go back up one step and say that there will be folks

who come into the court system who seem to have done quite well developmentally and then kind of fallen off the truck at some point when they are in adolescence. They may have been involved quite extensively in criminal misconduct. Most of them are going to catch the wave of self-desistance and kind of figure out their lives. They've had an opportunity to experience stable attachments and success and things like education and so forth, and so I think of them as rehabilitation. We try to get them back developmentally to where they were and help them develop the competencies and skills that they would have had they not gotten involved in the criminal misconduct toward addiction or some other problems that derailed them.

There will be some people whose history of adversity, however it has been chronic, dates to early childhood who have never really have the opportunity to experience a benign and supportive attachments and supports even inside their own family. Or to have been successful socially or academically in other domain of their life and where the adversities have just continued to pile up as they move through. I don't think of them as rehabilitation so much as habilitation in the first place. These are folks where we may want to take a little bit different limbs on understanding their experience and how they're going to experience their contacts with us.

Many of the people who have had chronic exposures to adversity that date back to childhood, especially if they have not have protective and buffering factors, have a very strong negative self-attribution. That is to say they carry a lot of anger themselves, a sense of failure about themselves, shame about themselves. They often have the expectation that they will fail at anything that they try no matter what it is that they do. They may not even articulate it clearly in quite that way, but there's this kind of fundamental feeling in their minds that they're not going to succeed.

They've been betrayed by people who said I'm here to help you or feel betrayed by them and so there's often a distrust of people, especially people who assert that they're there to help them to be successful. They don't really expect to be protected by other people. They don't think that they will have recourse to understanding, or social justice, or assistance and sort of managing their need to retribute against others for perceived or real transgression against them. Quite frankly, they view themselves as both inevitably failing and going to be inevitably victimized by any system or individual with whom they come in contact so they are often very, very wary folks.

If we understand that these are the folks that at least some of whom are going to show up in court systems and we layer on top of that adversity challenges with addictions and

diagnosable and treatable mental health conditions, they're really going to constitute a different population. I think in order to work effectively with them, we need to know about their histories of adversity and we need to know how that history has shaped their functioning so we can fine-tune supervision at the pretrial presentencing and post-sentencing phases at the course of the case.

Some of the strategies that people have adopted is to begin to learn about and to incorporate histories of adversity. In some places even using the ACE's tool or other tools that catalog adversities to make sure that all of the questions are asked. I was recently in a federal district where it was routine to ask about things like parental criminality, or parental addiction, or mental illness. It was routine to talk about histories of physical or sexual abuse. But it wasn't routine to ask did you live in a family where you believe that at least one of the people taking care of you thought you were special and lovable and deserving. That is to say we're tapping into emotional abuse which research tells us at least is not more toxic than physical abuse for example.

So one of the things that understanding this history of adversity can help us do is identify what were the resiliency and protective factors that they relied upon. If in fact they've had periods of time in their lives when they more

successful, how can we identify those to build on them or what can we target for and prioritize for support in helping somebody begin to believe in themselves as a successful project, if you will, as a human being over the course of their lives?

We know that the system tends to build on itself. That, for example, success at pretrial might lead to a sentence that minimizes incarceration or results in a probation sentence that keeps the individual community with access to community-based services that would not be available in prison. We know that whenever possible, consistent with public safety, people over time - especially if they are still relatively young, in their teens up to their mid-to-late 20s - tend to do better if they are maintained in communities where they can access community-based services, community-based responsibilities like jobs and develop more prosocial social networks in order to help them succeed.

There's not a whole lot that is particularly optimistic about the outcomes of prolonged incarceration for a person especially if that incarceration begins earlier in the lifecycle, when they are late teens or early 20s. There is an emerging movement in state and federal courts to begin to build this kind of information in to how people are considered. So at one end is the federal district where probation information is under consideration about whether or not to begin collecting the

ACEs information at the time of intake and to continue to flush that information out as the person moves through the legal proceedings in which they are involved. A federal jurisdiction which now includes for presentencing reports information on ACEs.

In New Jersey they include information regarding pretrial performance and ACEs in the presentencing report, kind of moving this information down the line for consideration by a sentencing judge if it gets to that point. In New Jersey they've also been looking to increase awareness at all phases in probation and amongst the sentencing judges about what the Bureau of Prisons can and cannot do in terms of its actual capacities for providing psychiatric treatment, or substance use treatment, or co-occurring treatment since the new normal is that many people coming into our court system will have both a co-occurring behavioral health mental disorder and a substance use disorder.

The Northern District of Florida has been using ACEs information at the pretrial interview and intake process where if the defendant scores a seven or higher on the ACEs score, which is a possible of 10, this automatically triggers a referral for mental health evaluation because these are people who are most likely to present with challenging co-occurring disorders as I just described.

At the other end of the process, there is a very interesting and innovative Deferred Sentencing Program in the Federal District of Rhode Island which has been operating for a little over a year in which I've been privileged enough to join as a clinical consultant and team member since July. They have been using an ACEs-informed approach to looking at people who otherwise would have had pretty significant incarceration time and are showing what I would certainly characterize as initial success with some pretty challenging cases. They are choosing cases that are not cherry-picked, that are not the easiest and lowest risk people who probably would have done well no matter what we did with them.

So I guess what I'm trying to convey is there are things that we can do at all points in the system that we know can help inform us in what to expect and how to construct opportunities for people to succeed. For example, we know that addiction is a chronic disease. People are increasingly comfortable with tolerating at least some number of dirty urine and relapses before violating people permanently and incarcerating them because we know we just need to build relapse in. We've come to appreciate that you don't go from addiction to abstinence overnight. What we're really looking for is a progress of fewer and fewer lapses. When people do lapse, this is an event which

triggers an effort to seek assistance rather than binging and violating conditions of probation until they get reeled in.

We've learned that we want to prioritize and have fewer conditions of probation and to avoid wherever possible violations on technical conditions of probation. We know that piling on conditions of probation on people who are often functionally quite impaired is really setting them up for failure. So we need to think very clearly from the beginning what our strategic goals here, how do we help them succeed, and ACEs information can often help inform that decision.

We've also learned that incarceration is required for sanction. I just want to emphasize this is not about avoiding accountability. This is about trying to generate programs of accountability, like graduated sanctions that are proportionate, likely to help somebody succeed rather than punitive and likely to drive them further into the system. But we've learned for example that if somebody comes up with a dirty urine than they had the year before and you told them that the next time they do that they'll have to spend some time behind bars, you get the same mileage out of incarcerating them over a weekend as you do incarcerating them for 30 days or 60 days or 90 days. The goal is to impose a sanction that allows them to continue to learn rather than isolating them from the community whenever that might be possible.

Some probation departments have really taken this to heart. One example of that is the state probation department in Multnomah County which is the area of Portland, Oregon where they have devised probationary practices that range from the way in which they physically arrange their office space to make it look less forbidding and more welcoming and helpful to people who are coming into their physical space to using motivational interview techniques in order to become supervising collaborators with the defendants who are before them either pretrial or on community-based supervision.

So I guess in short form, Mark, there are a lot of things that people can do. There are few with any places that have become entirely ACEs-informed or trauma-informed from the moment of arraignment to the moment of reentry. But there are certainly pockets of promising practice in both state and federal systems that give us a lot to think about and a lot of ideas that we might be able to apply locally.

Mark Sherman: Robert, you said a lot there obviously. But one of the things that really strikes me is thinking about how the research in criminology, which has really advanced to this state where we've got the risk needs responsibility framework and evidence-based practice, is being used both in the federal and state systems increasingly. The combination of the criminology research and the neuroscience research and how it really seems

to be coming together here based on what you've just sort of described, it's very striking because this is really about sort of trying to achieve a more responsive criminal justice system which means improved accountability on the part of the justice-involved individual and certainly on the part of the system but also recidivism reduction. Moving toward that goal of improved recidivism reduction because we know that so much of the problem within our criminal justice system has to do with - quote/unquote - repeat offenders. Right?

So I'm just struck by how these two areas of research seem to be coming together in order to improve the way our system works and actually the importance of thinking about it systemically from beginning to end. We have a colleague, you and I, who says constantly that reentry begins at arrest. So thinking about it systemically from the beginning. Arrest through post-incarceration supervision if incarceration is involved and the importance of, if we can, keeping people in the community so that they can get the services that they need which they are probably not going to get in a prison environment. Depending on where they're imprisoned and all of the variables that go along with it. So in our final couple of minutes here, any reactions to that?

Robert Kinscherff: I think that's entirely right. I think this is one of the points where research in criminology,

research in the developments of adolescents and young adults up through their 30s, and the neuroscience is coming together. If we can agree that the best form of outcome for us is driving down our intolerably high recidivism rates and we think of that as future victim prevention, this is something that I think anybody who looks at the science can agree is our goal. Whether I'm a prosecutor or a defender, a judge or probation officer, somebody in the community and law enforcement. Whatever will work to drive down recidivism, especially violent recidivism, is something we should be able to get on board simply because we know that we can get better outcomes from doing business differently than we have over the past couple of decades.

I'll just close on an observation by a colleague of mine. I'm sure you're familiar with him Vincent Schiraldi. At one point he and I were talking and he said that in his many years of being an officer - a probation officer and then probation administrator in D.C., the District of Columbia, and then in New York - forced him to the conclusion that you can either rigidly enforced compliance or you can support positive change but you can't do both at the same time. So I think just as parents need to make judgments about accountability amongst their own children depending upon the child, the circumstances of misconduct, the nature of misconduct, we have to empower probation staff and judges and others to be able make these

distinctions amongst the individuals that are coming before them.

In medicine the more complicated the case, the more individualized the treatment plan has to be. I would argue that in criminal justice, the more complicated the individual, the more adverse their history, the more individualized our response has to be to achieve the common outcome of reduced recidivism.

Mark Sherman: Robert Kinscherff, thank you so much for talking with us.

Robert Kinscherff: A pleasure and a privilege, Mark. Thank you.

Mark Sherman: My guest has been Dr. Robert Kinscherff, a clinical and forensic psychologist and attorney who serves currently as associate vice president at William James College in Newton, Massachusetts. Between 2015 and 2017 he was a senior fellow in Law and Neuroscience at the Project on Law and Applied Neuroscience, a collaboration between the Center for Law, Brain and Behavior at Massachusetts General Hospital and the Petrie-Flom Center for Health Law Policy at Harvard Law School.

Off Paper is produced by Paul Vamvas. The program is directed by Craig Bowden. I'm Mark Sherman. Thanks for listening. See you next time.

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