Washington State
Minority and Justice Commission

2023 Supreme Court Symposium

Beyond the Bench: Exploring How a Judge's Decisions Can Impact Health

***Salus Populi*, presented by Northeastern University Center for Health Policy and Law**

Salus Populi Judicial Education Program
Learning Objectives Washington State & NCREFC Conference

UNIT 1
INTRODUCTION TO THE SOCIAL DETERMINANT OF HEALTH AND PUBLIC HEALTH FRAMEWORKS

9:00AM PST	Introductions and Overview of Course Schedule
10:10AM PST	*Short Break (about five to ten minutes)*

UNIT 2 and UNIT 3
POVERTY & RACISM AS SOCIAL DETERMINANTS OF HEALTH

1. Understand how poverty works as an upstream social determinant of health.
2. Analyze how poverty can impact and shape individual and population health through a case regarding child custody.
3. Analyze how racism can impact and shape individual and population health through a case study on racism and common challenges experienced by people.
4. Recognize the strengths and limitations of research that documents the impacts of SDOH.

10:20AM PST	Unit 2: Poverty as a Social Determinant of Health
11:05AM PST	*Short Break (about five to ten minutes)*
11:15AM PST	Unit 3: Racism as a Social Determinant of Health *Two six-minute videos will be played at the top of this section.*
12:00PM PST	End of program.

Salus Populi Judicial Education Program
Learning Objectives Washington State & NCREFC Conference

UNIT 1
INTRODUCTION TO THE SOCIAL DETERMINANT OF HEALTH AND PUBLIC HEALTH FRAMEWORKS

1. Increase understanding of individual and population health.
2. Be able to describe the social determinants of health (SDOH) and their impact on individual and population health.
3. Understand the socio-ecological model of health.
4. Understand the range of factors that impact individual and population health.
5. Understand the ways that SDOH and other population level factors impact individual and population health.
6. Understand how legal decisions can impact SDOH and hence population health.
7. Understand how social epidemiologists understand and study causation.

UNIT 2 and UNIT 3
POVERTY & RACISM AS SOCIAL DETERMINANTS OF HEALTH

1. Understand how poverty works as an upstream social determinant of health.
2. Analyze how poverty can impact and shape individual and population health through a case regarding child custody.
3. Analyze how racism can impact and shape individual and population health through a case study on racism and common challenges experienced by people.
4. Recognize the strengths and limitations of research that documents the impacts of SDOH.

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I. Cases and Scholarship Referenced in Salus Populi Judicial Education Program

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II. Additional Relevant Scholarship

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b. Law and Social Determinants of Health

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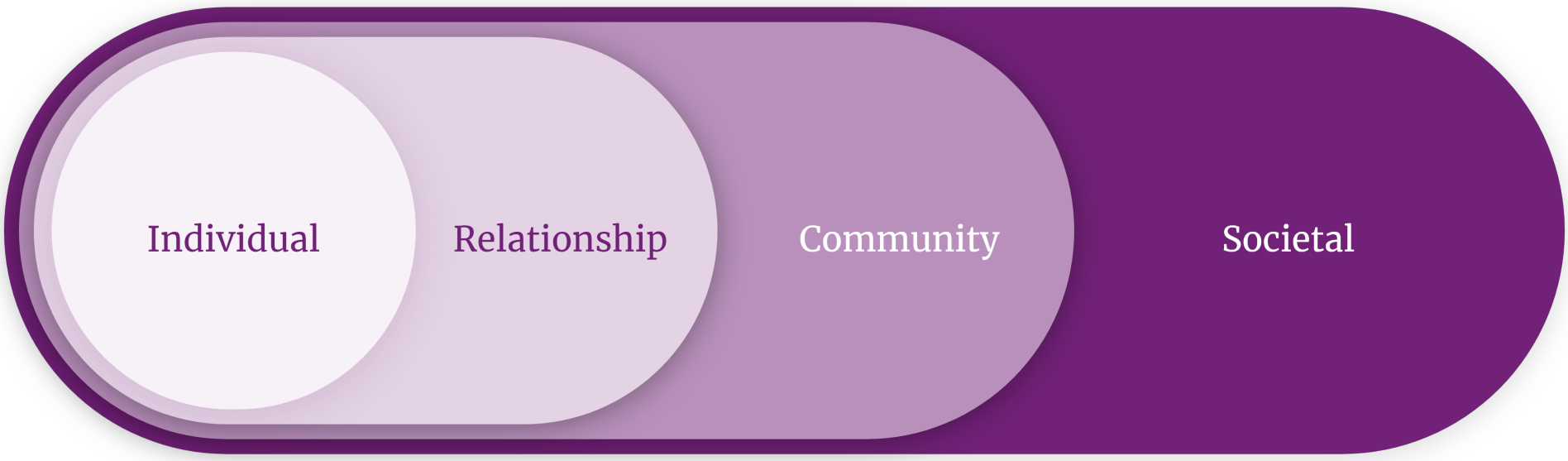
Violence Prevention

Violence Prevention

The Social-Ecological Model: A Framework for Prevention

CDC's goal is to stop violence before it begins. Prevention requires understanding the factors that influence violence. CDC uses a four-level social-ecological model to better understand violence and the effect of potential prevention strategies.



This model considers the complex interplay between individual, relationship, community, and societal factors. It allows us to understand the range of factors that put people at risk for violence or protect them from experiencing or perpetrating violence. The overlapping rings in the model illustrate how factors at one level influence factors at another level.

Besides helping to clarify these factors, the model also suggests that in order to prevent violence, it is necessary to act across multiple levels of the model at the same time. This approach is more likely to sustain prevention efforts over time and achieve population-level impact.

Individual

The first level identifies biological and personal history factors that increase the likelihood of becoming a victim or perpetrator of violence. Some of these factors are age, education, income, substance use, or history of abuse. Prevention strategies at this level promote attitudes, beliefs, and behaviors that prevent violence. Specific approaches may include conflict resolution and life skills training, social-emotional learning, and safe dating and healthy relationship skill programs.

Relationship

The second level examines close relationships that may increase the risk of experiencing violence as a victim or perpetrator. A person's closest social circle-peers, partners and family members-influences their behavior and contribute to their experience. Prevention strategies at this level may include parenting or family-focused prevention programs and mentoring and peer programs designed to strengthen parent-child communication, promote positive peer norms, problem-solving skills and promote healthy relationships.

Community

The third level explores the settings, such as schools, workplaces, and neighborhoods, in which social relationships occur and seeks to identify the characteristics of these settings that are associated with becoming victims or perpetrators of violence. Prevention strategies at this level focus on improving the physical and social environment in these settings (e.g.,

by creating safe places where people live, learn, work, and play) and by addressing other conditions that give rise to violence in communities (e.g., neighborhood poverty, residential segregation, and instability, high density of alcohol outlets).

Societal

The fourth level looks at the broad societal factors that help create a climate in which violence is encouraged or inhibited. These factors include social and cultural norms that support violence as an acceptable way to resolve conflicts. Other large societal factors include the health, economic, educational, and social policies that help to maintain economic or social inequalities between groups in society. Prevention strategies at this level include efforts to promote societal norms that protect against violence as well as efforts to strengthen household financial security, education and employment opportunities, and other policies that affect the structural determinants of health.

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Page last reviewed: January 18, 2022

ECONOMY

Study: Boys Report PTSD When Moved Out Of Poverty

March 12, 2014 · 5:00 AM ET
Heard on Morning Edition

4-Minute Listen

PLAYLIST Download Transcript

In the 1990s, the federal government launched a program to get single mothers out of public housing and into more affluent areas. David Greene talks to Ronald Kessler, the lead author of the study.

RENEE MONTAGNE, HOST:

In the 1990s, the U.S. government embarked on an ambitious social experiment to try to help people get out of poverty. The Moving to Opportunity Program gave housing vouchers to single mothers so they could raise their kids in areas with better job prospects and better schools. The hope was the families would thrive.

DAVID GREENE, HOST:

Now, a new study in the Journal of the American Medical Association finds that boys from these families did not thrive. They found that the move took a toll on their emotional well-being, a toll not experienced by girls. Ronald Kessler is a professor of health care policy at the Harvard Medical School, and a lead author of the study.

Professor Kessler, welcome to the program. Thanks for coming on.

RONALD KESSLER: My pleasure.

GREENE: So can you start by telling me about the children who were part of this study?

KESSLER: Well, they originally lived in innercity public housing, in very high poverty areas. The kids who were studied in this report were no older than 8 when the intervention started, but the average age was 3.

GREENE: And was the expectation that these families, and these kids, would do better in more affluent areas?

KESSLER: Well, the hope was, originally, that the educational opportunities for the kids would increase because of better schools; that the opportunities for the parents finding jobs would increase because they moved to places where there were higher employment rates so that in the long run, the kids - as they moved out - would have better socioeconomic achievement than they would have otherwise.

GREENE: But you found these problems, as years passed. Describe to me what, exactly, you found.

KESSLER: Well, we found something that we hadn't expected; which was the effect of the intervention was quite positive for girls, but boys had the opposite effect. Boys were more depressed. They were more likely to have post-traumatic stress disorder, they were more likely to have conduct problems, if they were in families that were offered vouchers than in the control group that wasn't involved in any kind of move.

GREENE: What could explain that young men who made this move to a more affluent neighborhood tended to be more depressed and had more mental health problems, compared to kids who stayed behind in poverty-stricken areas?

KESSLER: Well, it's important to say at the onset that the experiment's job was to see would there be effects, does neighborhood make a difference? And we showed experimentally that it clearly does. Why the effect exists is not something the experiment was designed to give us definitive evidence for. However, we were fortunate that we had field workers go into neighborhoods, observe what was going on; and they have some insights into why they think these differences exist.

And their thought is that little girls were embraced by the neighborhoods and seemed to have better interpersonal skills, whereas the boys somehow were thought to be a threat by the community, so they were pushed away and in fact in some cases, had worse things happen to them. So they had more exposure to fights and so forth than they might have had otherwise.

GREENE: And do you see that in general, in other ways, that boys are less able to adjust happily to sort of new environments, compared to girls?

KESSLER: Well, the kinds of qualitative evidence that our research team came up with certainly seem to suggest that that's the case, at least in this population. Now, that doesn't mean that if a different intervention were developed, if there were some supports given to these boys - preparation, or some kind of counseling programs - that they couldn't make a really good adjustment. We just don't know because it wasn't one of the things we had prepared ourselves for at the beginning.

GREENE: It sounds like what you're suggesting is not to look at this as a failed policy when it comes to these boys, but to really learn from it and look - you know, look

ahead to how best the government should be spending money and doing housing programs.

KESSLER: It seems clear that with the kind of money that we're talking about that the government spends on this - $37 billion a year is invested in public housing in America - we've got to do a better job than we're doing now of not just using that money to put a roof over somebody's head, but to figure out how to maximize the benefit. And that has to mean developing programs that help these new families integrate optimally into better neighborhoods.

GREENE: Professor Kessler, thanks very much for taking the time to talk to us. We appreciate it.

KESSLER: My pleasure. Thanks very much.

[835 NYS2d 829]

In the Matter of Brittany T., a Child Alleged to be Neglected. Shawna T. et al., Respondents.

Family Court, Chemung County, February 23, 2007

[redacted]

APPEARANCES OF COUNSEL

Weeden Wetmore, *County Attorney*, Elmira (*Peter Finnerty* and *Scott Fierro* of counsel), for Chemung County Department of Social Services, petitioner. *Steven Roe*, Elmira, for Shawna T., respondent. *Joshua Navone*, Elmira, for Robert T., respondent. *Sullivan Trail Legal Services*, Elmira (*Louise Johns* of counsel), *Law Guardian*.

OPINION OF THE COURT

DAVID M. BROCKWAY, J.

This court is called upon to once again ultimately determine whether it is in the best interest of a morbidly obese child, who also suffers from numerous comorbidities, to be removed from parents who have consistently failed to address her severe medical concerns and who have also failed to ensure her proper school attendance. No reported case law exists in New York on this issue. For the reasons set forth below, the court decides that removal is appropriate and necessary.

An (amended) petition was filed March 23, 2006 by the Chemung County Department of Social Services.[1] The department seeks to have the court find the respondents, Shawna T. and Robert T. (hereinafter the respondents) in willful violation of this court's order of disposition dated August 4, 2003, which was subsequently extended on June 24, 2004, February 14, 2005 and February 7, 2006 (the latter for a period of one year, which is currently pending extension). The petition also seeks placement of the child with the department.

By way of history, the court's records reflect that the initial 90-day progress report[2] included several serious concerns about the respondents' lack of progress. The court therefore returned the matter for review on November 24, 2003. At that appearance, the respondents consented to the immediate placement of the child, Brittany T. (date of birth 1994) with the department through a kinship foster care placement with a maternal aunt. The court granted the placement due to serious and continuing health concerns related to the child's morbid obesity and the parents' lack of consistency and commitment in addressing both her medical and physical needs as well as school attendance issues. On April 19, 2004, the child was returned to the parents but reentered foster care by order of this court dated October

1. The original child neglect petition was filed February 21, 2003.
2. Dated November 5, 2003

19, 2004. On October 21, 2004 the department filed a violation petition against the respondents. The violation petition resulted in a six-month adjournment in contemplation of dismissal (ACD) being granted on February 14, 2005. Conditions of the ACD included the parties consenting to the child remaining in (kinship) foster care and a requirement that they continue to follow the original terms and conditions. The child was returned to the parents' care and custody on or about September 5, 2005. From the credible court records and evidence, it can be concluded that during these periods, the child's weight underwent significant changes, which can be summarized as follows:

Appx Date(s)	Residence	Appx Age	Appx Weight
Oct 2002	Parents	8.8	237
Nov 2003	Consent Removal	9.9	261
April 2004	Returned to Parents	10.2	252
Oct 2004	Removal	10.8	255
Nov 2004	Started @ Geisinger	10.9	256
Sept 2005	Returned to Parents	11.7	238
Mar 2006	Instant Violation	12.1	263
May 2006	With Parents	12.3	266

Department's Case

The instant petition alleges that the respondents have again willfully and without just cause violated terms and provisions of the court's dispositional order by, inter alia, failing to ensure that the child attend school on a regular basis and on time, failing to take the child at least two to three times per week to the gym, failing to actively and honestly attend and participate in a nutrition and education program, failing to cooperate with the referred programs, and failing to sign necessary releases of information. Specifically, it is alleged that the respondents violated terms 18, 21, 22 (incorrectly referred to as number 24 in the petition), 23, 26 and 27. Several days of fact-finding occurred over a period of many months.

Terms 18 and 21

Term 18 requires the respondents to "sign all releases of information for themselves and the child requested by the Department in order that the Department may monitor the Respondent's [*sic*] progress and attendance in all programs to which they are referred." Term 21 requires the respondents to "cooperate with the Department of Social Services and all programs to which they are referred."

Karen Carlyle, a senior caseworker for the department, credibly testified that she was assigned to respondents' case in October of 2005 and has since encountered much resistance and numerous difficulties with the respondents. She has been cursed at, threatened with arrest and harangued over the telephone by both of the respondents. Ms. Carlyle also testified that the respondents have refused to sign releases of information when requested by her.

Term 22 and 27

Term 22 provides that the respondents "shall use all resources available to ensure the mental, physical and emotional well-being of the child"; term 27 requires that the parents "buy a membership in a local gym and take the child to this gym at least two to three times a week."

Mark Monichetti, director of Elmira Fitness Center, testified regarding Brittany's enrollment at the center and her attendance thereat. Records of attendance are made through an identity card with a bar code on it. Based upon logs for the period August 12, 2005 through February 27, 2006 and created through the use of the child's card, the credible evidence establishes that Brittany did not attend the gym two to three times per week. Nor were any valid explanations for said failure adduced at hearing.

Term 23

Term 23 requires the respondents to

> "take all actions necessary to ensure that the children [*sic*], if of appropriate age, attend school regularly and complete all homework assignments. The respondents shall communicate and cooperate with the children's [*sic*] school to ensure the children [*sic*] are in an appropriate classroom setting. The Respondent shall account for all absences or tardies with a note personally provided by the Respondents to the appropriate school official. Absences of three or more days in succession shall be accounted for by a note from a health care provider personally provided by the Respondent to the appropriate school official."

With respect to this requirement, the department presented the testimony of Rose Kramarik, principal of Broadway Middle School. Ms. Kramarik testified that from the commencement of the 2005-2006 school year through March 23, 2006, the child was absent 18 days and was tardy on 25 days out of a possible

68 days. Ms. Kramarik testified that in order for an absence to be considered "excused" the parent simply needs to supply the school with a note explaining the reason for the child's absence. Seventeen absent days were "excused" and one day of absence was "unexcused." The child was illegally tardy (late coming to school) 25 times from the beginning of the school year until March 23, 2006, when the instant petition was filed. In summary, she said the child was either absent or tardy 48 out of 68 school days. The department also introduced the child's attendance logs documenting the aforesaid absences and tardies.

Term 26

This term requires the respondents to

> "actively and honestly attend and participate in a nutrition program education program [*sic*] approved by the Department. They shall actively and honestly follow any and all recommendations, attend all meetings until successfully discharged and fully comply with any recommended after care and/or discharge plans. The respondents shall utilize the skills and techniques taught in said program during contact with the child."

Bruce Brennan, a registered dietician employed by the Nutrition Clinic in Elmira, New York, testified that Shawna and Brittany T. first became involved with the clinic in August 2005 and with him personally in January 2006. His first appointment with them was scheduled for January 12, 2006. Respondent Shawna T. did attend the first session and thereafter cancelled the following three appointments. Brennan testified that one appointment was cancelled due to weather and one appointment was cancelled due to Mrs. T. ostensibly being treated at the emergency room. No explanation was offered for the third cancelled appointment. Ms. Carlyle during her testimony on this point had also expressed concern over Brittany's weight increasing from 238 pounds to 263 pounds during the relatively short period of time from October 2005 until April 2006, despite involvement with the nutrition clinic.

Also generally testifying on behalf of the department, and probably most compelling, was Dr. William J. Cochran. Cochran is a board certified pediatric gastroenterologist and nutritionist. He is currently the director of the pediatric weight management program and vice-chairman of the department of pediatrics at Geisinger Health Systems (Danville, Pa). Cochran was formerly on the faculty of the Baylor College of Medicine (Houston, Tex)

and has lectured and written extensively (including a book) on pediatric obesity.

Cochran had first started working with the child and respondents by doing an evaluation in November 2004. Extensive testing, interviewing and teaching has been done with Brittany, and he has been monitoring her weight management program. Genetic and psychiatric disease syndromes were ruled out by Cochran; rather, he deemed the obesity as simply due to excessive caloric intake and a sedentary lifestyle.

Cochran credibly testified that the child currently suffers from morbid obesity and associated comorbidities. One is considered morbidly obese in medical literature and by practitioners when one's body mass index (BMI) exceeds 40. An ideal BMI is 18—25; Brittany's BMI is 50. Comorbidities are other disorders or diseases accompanying a primary diagnosis. In Brittany, these include those typically found with morbid obesity: gallstones, excessive fat in her liver with resultant fatty liver disease (which, he said, could eventually develop into nonalcoholic cirrhosis of the liver), sleep apnea, intermittent high blood pressure, pain in her knee joints, insulin resistence (indicating an increased risk of developing diabetes) and acanthosis nigricans (darkening and thickening of the skin around her neck associated with insulin resistance). Additionally, he testified as to the significant social and psychological impact such morbidity has. This is accentuated for females. According to the doctor, Brittany had, indeed, recently been exhibiting signs of depression.[3]

The program in which Brittany has participated through Cochran is a multidisciplinary one. It consists of 15 sessions, and involves behavior modification, lifestyle changes, dietary assistance, and exercise therapy. Cochran expressed his concern that after two and a half years, the attempts to deal with Brittany and the parents regarding her obesity have, overall, been "unsuccessful." Very much concerning to Cochran was that in the fall of 2005 (when the child left his program and was returned to the respondents), she weighed 238; by February of 2006 (when she was ordered to reenter it), she weighed in at 261, a gain of approximately five pounds per month. This all occurred while a weight loss of one to two pounds per month had been achieved and was a realistic expectation for the future.

3. As discussed below, it also likely explains much of her school attendance deficiencies.

She returned to the program having gained "twenty (20) some odd pounds more than when she left," the "exact opposite of where she should be." Cochran opined that in his expert opinion, if the child does not receive the necessary and proper attention for her morbid obesity she would be expected to have continued weight increase and her health would deteriorate further and that these medical concerns were "life-limiting." Moreover, her risks are exacerbated by the family history of hypertension, heart disease, stroke and diabetes.

Cochran, who testified April 7, 2006, had a personal discussion with Brittany and the mother regarding caloric intake, proper foods, and the need for vigorous exercise[4] and lifestyle changes. He testified that it is important that the parents be role models regarding lifestyle and weight reduction habits. Typical of his concerns was an incident he described in November of 2004. He testified that he had just spent a long session with Brittany and Mrs. T. regarding Brittany's health, including appropriate eating and foods, regarding which the mother said she understood. Right after the appointment, he went to an eating establishment across from the hospital. There, he saw Brittany eating french fries and a "hamburger or something of that nature." This, he said, "would not have been the type of foods I would have hoped her to be consuming after sitting down and just talking about the problem." More recently, he noted, food logs continue to reflect regular ingestion by the child of foods he would certainly not recommend, including "lots of chicken nuggets, lots of pop tarts, hot dogs and pizza."

The Respondents' Case

Dr. Kenneth Sobel, a pediatrician employed by Southern Tier Pediatrics has been the child's pediatrician since May 2006, after taking over for another pediatrician in his office. Sobel testified that he has seen Brittany approximately three or four times since becoming Brittany's primary pediatrician. He testified credibly that he has recently seen improvement in the child's latest blood cholesterol tests, which show a reduction in the child's lipid levels. Brittany's apnea issues also seem to be stabilized at this point. Nevertheless, he added that he is greatly concerned about the child's morbid obesity and believed that weight loss was a realistic expectation. He concluded that Brittany is "one young lady who has got some significant medical

4. Dr. Cochran remarked that the Centers for Disease Control recommend one hour of vigorous activity daily in such situations.

issues and who will have more over time if things do not improve" (transcript, June 23, 2006, at 160).

Testifying on behalf of Shawna T. was Nancy Coldiron, who testified June 23, 2006. She is a school counselor at Broadway Middle School. Coldiron testified that she has been Brittany's counselor since September 2005. She described Brittany as a bright young lady who is currently maintaining a passing academic average. She also testified that she has been working with the respondents on Brittany's tardiness and attendance problems. Coldiron stated that she has seen some progress in Brittany's grades and attendance. The court notes this has only been since February 2006.

Testifying on behalf of respondent Robert T. was Carolyn Hodges, director of the Sol Stone Center for Eating Disorders in Elmira and also a director of the nutrition clinic. Hodges is a clinical dietician with a Master's from Marywood College. She testified that she is familiar with Brittany's participation in the program and had seen some improvement in Brittany over time.[5] Hodges testified that it is essential for the parents to actively participate with the child in the nutrition program in order for the program to be effective. Hodges explained that Brittany suffers from a significant amount of emotional distress related to her excessive weight and concurred with the other experts' testimony that Brittany's excessive weight has a detrimental effect on her physical and emotional well-being. During the period she has worked with the family, she felt that Brittany was making progress. She opined that she knew of no children removed from their homes due to weight and that she felt that being with any parent was better than being with no parent at all.

The respondents testified on their own behalf. Court records indicate the father (date of birth 1966) is now approaching 41 years of age. He is confined to a wheelchair and, he testified, suffers from cardiomyopathy, muscular dystrophy, arthritis and scoliosis. He asserted that "all" the family follow a dietary regime. He further testified that Brittany bowls weekly, has attended school dances and has walked to school once. Much of Brittany's tardiness, he said, was because he thought school started at 8:15, not 8:00. He also proffered that Dr. Sobel had told the parents that Brittany's average physical "health has been fine."

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5. The record is unclear as to what periods of time Ms. Hodges was actually directly involved in working with Brittany and Shawna T.

The mother, according to court records, is soon to be 32 years of age (date of birth 1972). The court has observed throughout the past four years that Mrs. T. herself is very obese (the April 6, 2006 DSS 30-day report to the court indicated that her weight at the nutrition clinic on April 5, 2006 was 436 pounds). Moreover, at least fairly recently, the court has observed that the mother suffers from some very audible breathing difficulties. The mother expressed during testimony (as she had to Dr. Cochran several years earlier) a seeming understanding of caloric intake, the keeping of accurate food logs, the importance of exercise and the like. She offered that there were numerous difficulties during the period of supervision including such things as weather and transportation troubles and a hospital stay for herself for gallstones. She was aware that Brittany often had snacks after school and after dinner in the evening and that the child was known to "sneak food" at home. She also attributed some of the compliance difficulties to Brittany getting "frustrated" at "all she needs to do" and that the child "hates all of what the court has ordered the parents to do." On a positive note, the mother indicated that Brittany was now enjoying and doing better in school, to which she or her husband regularly drive her the half mile.

Distilled to its essence, the parents disagreed with particular dates and times, but did not refute that there have been missed appointments, missed school days and numerous tardies. While not disputing that they have not thoroughly complied with the court's dispositional order, they indicated they had tried their best. Essentially, however, they each offered numerous excuses for their noncompliance and argued that the child has not been negatively impacted by their noncompliance. The court frankly finds the respondents' explanations regarding their inability to comply with the terms to be spurious, unpersuasive and largely lacking credibility.

Law on Violation

A petition alleging a violation of an order of supervision can be sustained if the court is satisfied by competent proof that the violation was done "willfully and without just cause." (Family Ct Act § 1072.) Not statutorily specified, however, is the level of proof needed. Family Court Judge Marilyn O'Connor in *Matter of L.M.* (12 Misc 3d 1198[A], 2006 NY Slip Op 51619[U] [Fam Ct, Monroe County 2006]) discusses this statutory void. As she notes, "[t]he degree of proof required in a particular type of

proceeding 'is the kind of question which has traditionally been left to the judiciary to resolve.' *Woodby v INS,* 385 US 276, 284 [1966]." (2006 NY Slip Op 51619[U] at *3.) She points out that the Third Department (*see Matter of Elizabeth T.*, 299 AD2d 748 [3d Dept 2002]) has "applied the 'clear and convincing' evidence standard to a violation issue without discussing why that standard was used or citing authority for its use." (*Id.* at *3.) She also notes that in another matter (rising out of this court), the Third Department seems to conclude that "ample evidence" of such a violation might be all that is required (*id.*). (*See Matter of Linda FF.*, 301 AD2d 887, 889 [3d Dept 2003].) Judge O'Connor concludes (properly, in this court's opinion) that "[s]ince a respondent faces the potential of a jail term and loss of freedom for a violation of an order of supervision" a "clear and convincing evidence" standard must be met in order to establish a willful violation of an order of supervision under Family Court Act § 1072 (*id.*).

Additionally, it is well established that terms to be enforced must sufficiently apprise a respondent what is required of him, her or them. Here, the terms are very clear. Moreover, it is equally clear that a willful violation is supported by one's failure to regularly attend and meaningfully participate in programs, as it indicates an unwillingness or inability to take the steps necessary to assume responsibility for one's children. (*Matter of Marquise EE.*, 257 AD2d 699 [3d Dept 1999].)

Discussion and Conclusions as to Violation

With respect to the alleged violation of term 26, the court finds that several of the missed appointments at the nutrition clinic may have been with just cause and thus so much of the violation of term 26 as is based thereon, is not sustained. With respect to the rest of term 26 and all of the other terms, however, their willful violation is sustained by competent, credible evidence which is ample, clear and convincing. The respondents' failures regarding those established to have been violated are further found, by equally clear and convincing evidence, to have been without just cause. All of this has convincingly and patently had a very negative physical, emotional and mental impact on Brittany. (*Nicholson v Scoppetta*, 3 NY3d 357 [2004].)

In arriving at these conclusions, it is startling to read the original neglect petition of February 21, 2003 (when Brittany was about to turn nine). That petition alleged, inter alia, that

> "Brittany T. has a severe weight problem and weighs in excess of 240 pounds. Brittany has been seen by a variety of doctors and all of the physicians involved are very concerned about her health due to the fact that she is morbidly obese. Despite these doctors' concerns, Mr. and Mrs T. have been uncooperative with service providers and have shown a lack of follow through with these services. [Physicians] have made numerous recommendations to Mr. and Mrs. T. in the past and none of these recommendations were ever followed through with. . . . It has been determined by [the physicians] involved that Brittany's weight problems are not organic in nature and are the result of poor parental modeling and control of food intake. Physicians have seen a pattern of alarming behavior on the part of Mr. and Mrs. T. regarding their attitude toward Brittany's morbid obesity and her extremely poor attendance in school. Brittany has had attendance problems at school ever since she began kindergarten. Many of these absences have been unexcused absences and the family refuses to ensure that Brittany attend school, even [on] a semi regular basis. . . . When Robert and Shawna have enrolled Brittany in programs in the past, they have not continued with these programs and have multiple excuses as to why they do not continue. . . ."

Shockingly, it is truly as if nothing (except weight gain) has changed in the past three-plus years. This court on many, many occasions has expressed its concern with respect to the lack of commitment and motivation demonstrated by the respondents in effectively and wholeheartedly addressing their daughter's school issues (at least until the eve of trial) and her morbid obesity. The latter concern continues unabated, along with its concomitant health complications. It is inconceivable to this court that the respondents continue to disregard the medical and other advice of their experts. This is despite the myriad services which the department has actively and repeatedly urged. Furthermore, CASA, too, has been intimately involved with and assisted the family since its assignment in October 2004. Even more incredible is that this has continued in spite of respondents' knowing that their jailing and/or their daughter's removal from home were more immediate likelihoods than Brittany's probable premature death.

The long history of this unfortunate case demonstrates that the respondents have unequivocally evinced an unwillingness to

follow doctors' and others' advice, so as to justify a finding that they willfully violated the terms of the order of disposition. The respondents' continued noncompliance in ensuring Brittany's regular school attendance and in assuring their active and diligent cooperation with, and participation in, programs designed to aggressively address the child's morbid obesity, only amplifies the willfulness of their violation. The court recognizes the physical limitations of the respondents but finds that this neither excuses nor prohibits them from executing their parental and court-ordered responsibilities.

Law on Disposition of Violation

Pursuant to Family Court Act § 1072, when the court is

> "satisfied by competent proof that the parent . . . has violated the order of supervision willfully and without cause, the court may (a) revoke the order of supervision . . . and enter any order that might have been made at the time the order of supervision was made [pursuant to Family Ct Act § 1052], or (b) commit the parent . . . who willfully and without just cause violated the order to jail for a term not to exceed six months."

Family Court Act § 1052 (a), in turn, authorizes the court to (i) suspend judgment pursuant to Family Court Act § 1053, (ii) release the child to the custody of the parent or other person legally responsible in accord with Family Court Act § 1054, (iii) place the child in accord with Family Court Act § 1055, (iv) make an order of protection in accord with Family Court Act § 1056, or (v) place the respondents under supervision in accord with Family Court Act § 1057. In making a dispositional order, the court's order must reflect a resolution consistent with the best interests of the child after consideration of all the relevant facts and circumstances, and must be supported by a sound and substantial basis in the record. (*Matter of Alaina E.*, 33 AD3d 1084, 1087 [3d Dept 2006].) In making a determination of placement, the court must consider not only the custodian's ability to provide adequate shelter, but all the facts and circumstances relevant to the child's best interests. (*Matter of Harriet U. v Sullivan County Dept. of Social Servs.*, 224 AD2d 910, 911 [3d Dept 1996]; *Matter of Megan G.*, 291 AD2d 636 [3d Dept 2002]; *Matter of Belinda B.*, 114 AD2d 70 [4th Dept 1986].)

In regard to removal of a child due to morbid obesity and its related health concerns, the court has found no similar reported

cases in this state. In a very similar matter (involving a 461-pound 16 year old), the Court of Common Pleas of Northumberland County, Pennsylvania (Charles Saylor, J.) found that because of the parent's limitations and the lack of attention in addressing the child's medical appointments and schooling, it was clear that best interests required the continued placement of the child in foster care until such time as the parent could "demonstrate the ability to offer the required assistance and support to her son," and until "new eating habits, education and exercise programs become more ingrained and of a habitual nature" (*In re D.K.*, 58 Pa D & C 4th 353, 360 [Pa Ct CP 2002]).[6] Courts in several other states (California, Iowa, Indiana, New Mexico and Texas) have also recognized morbid obesity as an actionable issue. (*See*, Patel, *Super-Sized Kids: Using the Law to Combat Morbid Obesity in Children*, 43 Fam Ct Rev 164 [2005].) The Iowa case appears to involve a child strikingly similar in age, height and weight to Brittany. Removal was ordered in that case as well. (*In Interest of L.T.*, 494 NW2d 450 [Iowa Ct App 1992].)

Discussion and Conclusions as to Disposition

It is clear in New York that a child is neglected when his or her "physical, mental or emotional condition has been impaired . . . as a result of the failure of his or her parent to exercise a minimum degree of care in supplying the child with adequate . . . education . . . or medical . . . care, though financially able to do so." (Family Ct Act § 1012 [f] [i] [A].) The respondents, due to their continued failures with respect to Brittany's educational and medical needs, have not provided that minimum degree of care, which is measured against the behavior of reasonable and prudent parents faced with the same circumstances. (*Matter of Alaina E.*, 33 AD3d 1084 [3d Dept 2006].)

This court is cognizant of potential concerns regarding the power of the State to drastically intervene in the regulation of family affairs with respect to morbid obesity. It is also very aware of the emotional impact that disruptions in the parent-child relationship may have. This court also agrees and holds that state intervention would generally "not be justified . . . simply because a child was overweight, or did not simply engage in a healthy and fit lifestyle." (*In re D.K.* at 358.) However, where, as here, there are clear medical standards and convinc-

6. Interestingly, Dr. Cochran appears to have rendered testimony in that case as well (see decretal paragraph 16 therein at 362).

ing evidence that there exist severe, life-limiting dangers due to parental lifestyle and persistent neglect, removal is justified. This is no less a cause for determining neglect and ordering removal than is a matter where a child is at risk of life-limiting consequences due to malnourishment, inadequate supervision or other heretofore well-established bases for removal. Indeed, "the obesity must be of a severe nature reaching the life threatening or morbid state, which has also manifested itself in physical problems, such as those present here, or mental problems." (*In re D.K.* at 358.)

In so deciding, of course, the court notes that less drastic remedies should generally be attempted first. In the instant matter, as noted above, absolutely every thing and every effort has been attempted—not for months, but for years. The court finds that Brittany's continued residency in the home is contrary to her health, welfare and safety and that the best interest of the child warrants her removal from the care and custody of the parents and placement once again with the department. The court finds that the department has employed not only reasonable but, indeed, extraordinary efforts to prevent or eliminate this need.

Therefore, it is hereby ordered that the respondents are found in willful violation of this court's dispositional order dated April 24, 2003 (as subsequently extended by this court); and it is further ordered that the child Brittany T. shall, pursuant to section 1055 of the Family Court Act, be placed in the custody of the Commissioner of the Chemung County Department of Social Services within seven court days of the entry of this order; and it is further ordered that the parents shall be authorized to jointly visit the child at the Human Resources Building, or where the child might be placed, or other fitting place chosen by the department, twice per week, totaling no less than four hours per week, provided it is in keeping with the department's service objectives and placement goals; and it is further ordered that the respondents, pursuant to Social Services Law § 409-e (3), shall be notified of any and all planning conferences, of their right to attend the conference(s), and of their right to have counsel or another representative or companion with them; and it is further ordered that the court specifically prohibits any trial discharge without court leave; and it is further ordered that, subject to future petitions or hearings, return to parents is the permanency goal, provided that the child obtains and maintains a healthy weight and lifestyle before returning home

and further provided that one or both parents can actually demonstrate an ability to provide appropriate home, school and community supports so as to so maintain the child, including indicia of consistently affording an environment conducive to healthy eating habits, exercise regimens and to meeting educational attendance requirements; and it is further ordered that the prior disposition is revoked, but the same terms and conditions of supervision are hereby reimposed on this violation, for a period of 12 months.

[redacted]

SOCIAL DETERMINANTS OF HEALTH

Through an increased understanding of the Social Determinants of Health, judges and court leaders can be more aware of how social context affects families and are able to have a more comprehensive picture of the barriers and limitations to resources and supports that court-involved families experience.

The Constitution of the World Health Organization defines health as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[1] While access to quality medical care is critical to good health, medical care itself accounts for only 10-20% of health outcomes for populations.[2] The Social Determinants of Health (SDOH) are of more influence, impacting 80-90% of health outcomes.[3]

The SDOH is a place-based framework that extends beyond individual health behaviors to the social, physical, and environmental factors[4] that can have a causal role in health outcomes.[5]

The Centers for Disease Control and Prevention (CDC) defines the SDOH as the conditions in the environment where people are born, live, learn, work, play, worship, and age that affect a wide range of health functioning and quality of life outcomes and risks. The Social Determinants are the non-medical conditions that impact physical, mental, and social well-being.[6]

Identifying and understanding the direct and indirect impact of the SDOH on outcomes helps communities select strategies that create conditions where individuals, children, and families thrive.

Social Determinants of Health Domains[7]

Economic Stability

The connection between financial resources and health, including key issues such as employment, income, expenses, and debt.

Education Access and Quality

The connection between learning and development and health and well-being, with a focus on literacy, language, early childhood education, and higher education.

Healthcare Access and Quality

The connection between people's access to and understanding of health services and their health, including key issues such as access to primary care, health insurance coverage, and health literacy.

Neighborhood and Built Environment

The connection between where a person lives and their health and well-being, with a focus on quality and availability of housing, access to transportation, water quality, and neighborhoods free of violence.

Food Security

Physical, social, and economic access to adequate and healthy food.[8]

RISK FACTORS

Characteristics that may increase the likelihood of experiencing a negative event.

PROTECTIVE FACTORS

Characteristics associated with lower likelihood of negative outcomes or that reduce the impact of a risk factor.

The SDOH and Risk of Child Maltreatment

The SDOH coincide with individual, family, and community risk and protective factors for child maltreatment. When the SDOH are deficient, risk factors for child maltreatment may exist, namely, isolation, poverty, and limited educational and employment opportunities. When the SDOH are addressed, they can become protective factors against child maltreatment, such as steady employment, social support networks, and safe and stable housing.

Addressing structural factors and inequities across the SDOH and improving community supports can prevent families from experiencing the adverse conditions that increase the likelihood that they will come into contact with the child welfare system.

The SDOH as Drivers of Health

Across the SDOH, one of the greatest influences of health is where a person lives and works. Housing, education, support services, access to healthcare, and opportunities for employment are all directly related with neighborhood.[9]

Low-income neighborhoods, especially high-poverty minority neighborhoods, are more likely to have social and environmental conditions that expose residents to multiple social risk factors that contribute to poor health outcomes.[10]

Middle- or high-income neighborhoods with economic opportunities, access to medical care and mental health services, and strong social connections, are likely to experience conditions that promote, support, and sustain health.[11]

Further, where people live often has generational ties. Those who have lived in neighborhoods with pervasive inequity are more likely to be "stuck in place" and less likely to have economic and social mobility opportunities.[12]

The Impact of Economic Stability on Physical Health, Mental Health, and Well-Being

Socioeconomic adversity impacts health and development across the lifespan and contributes to the generational transmission of disadvantage.[13]

- Children raised in high-poverty neighborhoods are more likely to become adults with low economic status.[14]
- The chronic stress of poverty can reduce psychological resources and cognitive functioning, impact long-term decisionmaking[15], and cause developmental and mental health problems that can create an intergenerational cycle of poverty and poor health.[16]
- The stress of poverty can diminish access to social supports that might otherwise buffer stress.[17]
- A families' social class is the greatest predictor of their child's educational attainment.[18]
- Being uninsured is a barrier to accessing preventive healthcare, increases poor health, disability, and mortality rate, decreases annual earnings because of sickness and disease, and can result in an advanced stage of illness by the time a medical diagnosis occurs. The uninsured are typically poor, young and represent groups identified as racial and/or ethnic minority.[19]
- Low-income neighborhoods are less likely to have safe outdoor spaces for children to play.[20]
- Children in low-income neighborhoods where their parents did not feel safe are over two times more likely to be obese.[21]

- For mothers with children in the child welfare system there is a significant relationship between perceptions of neighborhood danger, depressive symptoms, increased likelihood of harsh and negative parenting, and increased negative social-behavioral outcomes in young children.[22]
- Perceptions about neighborhood safety can lead to increased feelings of powerlessness, mistrust, and social isolation.[23]

Addressing Inequities in the SDOH

Distribution of resources across the SDOH and access to opportunities that promote healthy behaviors impact whether individuals, children, and families live in conditions that support, sustain, or undermine physical health, mental health, and well-being.

Unequal distribution of power and historical and present-day oppression of groups results in inequitable access to the resources necessary for health[24], thereby creating health inequities that unfairly impact groups and communities that have been marginalized.

Addressing inequities across the SDOH cannot happen within the confines of any one system – it requires multi-sector collaboration and targeted, place-based, community-driven solutions.

The Way Forward

The interaction between the SDOH and outcomes for families is complex, but it is possible to improve the trajectory of families facing risk factors that negatively impact health.

Efforts to address the underlying social conditions that impact health should take a multi-sector approach focused on transforming the structures, institutions, resource flows, policies, practices, and program decisions that have often systemically oppressed and marginalized those most at risk of poor health outcomes and contributed to the conditions that increase risk and harm to children, families, and communities, particularly communities of color.

Courts are well-positioned to be conveners of the multi-sector approach, but the real power to change the conditions comes from the community and the entities providing services to them. The following steps offer recommendations for how multi-sector approaches can begin to address gaps and inequities in the SDOH.

1. Meaningfully Engage the Community

Collectively, those most impacted and closest to the issues have the expertise, wisdom, historical context, and knowledge of community strengths, resources, and challenges. Meaningful and authentic engagement of diverse community stakeholders helps to identify root causes and community-driven solutions. Taking an assets-based approach and focusing on the strengths of the community and its members recognizes the ability of individuals and communities to be drivers of change.[25]

Building trust among stakeholders requires self-awareness, mindfulness, empathy, and shared decision-making,[26] which in turn requires sharing of information and vulnerability. Strong collaborative relationships take time to develop; however, community collaboratives that work to establish strong trusting relationships are better positioned to successfully tackle complex issues.

2. Understand Community Context

There can be vastly different outcomes between groups by identity, neighborhood, and zip code. Communities should use multiple sources of information to understand:

- Who lives in the community
- Distribution of resources and opportunities between neighborhoods and groups
- Distribution of social risk factors such as housing instability, unemployment, and mental health needs
- Root causes for the unequal distribution of resources, opportunities, and social risk factors
- Disparities in physical health, mental health, and well-being
- Conditions that protect health and distribution of protective factors
- Neighborhood historical and cultural context

3. Commit to a Community-Driven Action Plan

The collective group of multi-sector leaders and representatives and community members should aim to document a concrete action plan with responsibilities assigned to individuals, timelines, communication expectations, and an evaluation component. There should be a plan for coordinating resources to support the efforts, including administrative support for scheduling meetings and taking notes.

All stakeholders should be given the opportunity to apply their skills, influence, formal or informal power, and social networks to contribute to and execute the community-driven action plan.

Every stakeholder should ask themselves, how am I connected to this community? How can I contribute? And who can I ask for help?

Conclusion

The SDOH have a strong impact on the health, safety, and well-being of children, families, and communities. Focusing efforts, resources, and community partnerships on strengthening the SDOH can positively shift outcomes.

The aim of these efforts is not only on incremental improvements that benefit the community in the short-term, but also on sustainable long-term transformation of the systems and institutions that directly influence the SDOH.

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UPSTREAM
Strengthening Children and Families through Prevention and Intervention Strategies:
A COURT AND COMMUNITY-BASED APPROACH

White Paper on the Science of Late Adolescence

A Guide for Judges, Attorneys, and Policy Makers

Neuroscience continues to be a rapidly evolving domain of research. This document reflects at the time it was produced the mainstream of developmental neuroscience of adolescence, late adolescence, and emerging young adulthood.

Contact
Robert Kinscherff, Ph.D., J.D., CLBB Executive Director
MGH Center for Law, Brain & Behavior
Department of Psychiatry
55 Fruit Street, Bulfinch 351
Boston, Massachusetts 02114

CLBB contact information: (617) 237-0656, contact@clbb.org, clbb.mgh.harvard.edu

CENTER FOR LAW BRAIN & BEHAVIOR
MASSACHUSETTS GENERAL HOSPITAL

Mass General Brigham

HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

Authorship and Acknowledgements

Center for Law, Brain & Behavior White Paper Project Team

Catherine Insel,* PhD
Postdoctoral Research Fellow, Zuckerman Institute, Columbia University

Stephanie Tabashneck,* PsyD, JD
Forensic Psychologist; 2022 Senior Fellow in Law and Applied Neuroscience, joint Fellowship of CLBB and Petrie Flom Center, Harvard Law School

Francis X. Shen, JD, PhD
Professor of Law and McKnight Presidential Fellow, University of Minnesota Law School; CLBB Faculty Member

Judith G. Edersheim, JD, MD
Attending Psychiatrist, Massachusetts General Hospital; Assistant Professor of Psychiatry, Harvard Medical School; CLBB Founder and Co-Director

Robert T. Kinscherff, PhD, JD
Professor, Doctoral Clinical Psychology Program at William James College; CLBB Executive Director

***First authors**

Manuscript Reviewers

Arielle Baskin-Sommers, PhD
Associate Professor of Psychology and of Psychiatry, Yale University

Mariah Bellamoroso
Student, Harvard Law School

Lisa Feldman Barrett, PhD
University Distinguished Professor of Psychology, Northeastern University; CLBB Chief Scientific Officer

Hon. Jay D. Blitzman, JD
First Justice-Massachusetts Juvenile Court, Middlesex Division (Ret.); CLBB Faculty Member

BJ Casey, PhD
Professor of Psychology, Affiliated Professor of the Justice Collaboratory and Interdepartmental Neuroscience Program, Director of the Fundamentals of the Adolescent Brain Laboratory, Yale University

Alexandra Cohen, PhD
Postdoctoral Fellow, Department of Psychology and Center for Neural Science, New York University

Adriana Galván, PhD
Professor, Jeffrey Wenzel Term Chair in Behavioral Neuroscience, Department of Psychology, University of California at Los Angeles

Melanie Grad-Freilich, BS
Lab Manager for the Affective Neuroscience and Development Lab, Harvard University

Hon. Nancy Gertner, JD, MA
Senior Lecturer on Law, Harvard Law School; Judge (Ret.), United States District Court for the District of Massachusetts; CLBB Managing Director

Adam Haar Horowitz, PhD Candidate
Massachusetts Institute of Technology Media Lab; CLBB Advisory Board Member

Marsha Levick, Esq
Chief Legal Officer, Juvenile Law Center

Shobha L. Mahadev, JD
Children and Family Justice Center, Bluhm Legal Clinic at Northwestern Pritzker School of Law

Bruce H. Price, MD
Chief, Department of Neurology, McLean Hospital; Associate Professor in Neurology at Harvard Medical School; CLBB Founder and Co-Director

Leah H. Somerville, PhD
Professor of Psychology and Director of the Affective Neuroscience and Development Laboratory, Harvard University; CLBB Faculty Member

Elyssa A. L. Spitzer, JD
2021 Senior Fellow in Law and Applied Neuroscience, joint Fellowship of CLBB and the Petrie-Flom Center, Harvard Law School

Center for Law, Brain & Behavior Research Assistants

Elizabeth Escalante, BS
Cognitive Science, Tufts University

Katherine Fang
Student, Yale Law School

Ian Hayes
Student, Harvard College

Annie Ilsley
Student, Duke University

Shreyas Iyer
Student, Harvard College

Clarissa Kimmey
Student, Yale Law School

Sarah Lagan, BA
Neuroscience, Harvard College

Layla Malamut
Student, Yale Law School

Fenella McLuskie
Student, Harvard Law School

Najet Miah, BA
Psychology, Queens College, City University of New York

Madeleine Muller, BA
Psychology, Northwestern University

Jennifer Near
Student, Harvard College

Kailey Nicholson
Student, Harvard College

Job Okeri
Student, University of Minnesota Law School

Ifeoma Okoli, BA
Psychology, Harvard College

Erin Shortell, JD, MPH
Student, Harvard Law School and Harvard T.H. Chan School of Public Health

Leonard Alexander Walker III
Student, Harvard Law School

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Errata Corrected: February 2, 2022

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Executive Summary

The United States Supreme Court decision in *Jones v. Mississippi* (2021)[1] almost certainly signals the end of further expansion at this time by SCOTUS of Eighth Amendment protections to juveniles.[2] *Jones v. Mississippi* held that a sentencing court need not make a specific finding that a youth is "permanently incorrigible" or even articulate a specific *Miller v. Alabama* rationale for a sentencing decision guided by factors provided in *Miller v. Alabama*.[3] It was enough that the sentencing judge understood that he or she had discretion to consider the *Miller* factors and made an individualized sentencing decision—a very low bar.[4]

In addition, the legal framework established by the *Roper-Graham-Miller-Montgomery* line of SCOTUS cases in barring execution for juvenile capital offenses,[5] Life Without Parole (JLWOP) for juvenile non-homicide cases,[6] and mandatory LWOP for juvenile homicide cases[7] has been incorporated to varying degrees into state statutes and case law and offers at least the possibility for a more robust application of *Miller*. The *Miller* approach also remains viable for pursuing expansion of those categorical protections to age 18 and beyond, and perhaps for raising the age of full criminal culpability.

The *Miller* framework's focus on "transient immaturity" also offers a way of asserting protections for young offenders in individual cases.[8] Arguably, shifting the focus from "permanent incorrigibility" (which cannot be predicted in a scientifically reliable manner) to "transient immaturity" (which is already established by robust developmental research and neuroscience) may provide opportunities for counsel and courts at trial/sentencing phases and upon appellate review. It may also encourage prosecutors to consider research-based diversion and community-based intervention programs as alternatives to traditional charging decisions and sentencing recommendations.

Similarly, the explicit reliance in these SCOTUS cases upon developmental neuroscience and behavioral science offers models for using science to advance broad evidence-based law and policy reforms regarding juveniles and emerging young adults. This White Paper reports the latest developmental and brain science to inform judges, attorneys, and policy makers about

1 *Jones v. Mississippi*, 141 S. Ct. 1307 (2021).
2 For purposes of this White Paper, the following terms are used to describe young people of different ages: (a) *juveniles*: broadly, persons between 13–17; (b) *early adolescents*: persons ages 10–13; (c) middle adolescents: persons ages 14–17; (d) *late adolescents:* persons ages 18–21; and (e) *young adults*: persons ages 22–25.
3 *Jones*, 141 S. Ct. at 1311.
4 *Id*.
5 *Roper v. Simmons*, 543 U.S. 551 (2005).
6 *Graham v. Florida*, 560 U.S. 48 (2010).
7 *Miller v. Alabama*, 567 U.S. 460 (2012); *Montgomery v. Louisiana*, 577 U.S. 190, 211 (2016) (extending *Miller* retroactively).
8 *Miller*, 567 U.S. at 479.

critical research developments.[9] This White Paper is intended to facilitate science-informed decision-making and application of updated research findings in law and public policy bearing upon adolescence and criminal proceedings.

In the landmark case *Miller v. Alabama* (2012), the United States Supreme Court eliminated mandatory life-without-parole sentences for murders committed by youth under age 18.[10] This decision was informed by an evolving understanding of adolescent brain development and behavioral research. Since then, scientific research has emerged which reinforces the reasoning of the *Miller* decision and, if its implications are accepted, extends much of the science that resonated with the *Miller* court to late adolescents (ages 18–21).

Maturation of brain structure, brain function, and brain connectivity continues throughout the early twenties.[11] This ongoing brain development has profound implications for decision-making, self-control and emotional processing. For example, new neuroscience research reveals that during emotionally charged situations, late adolescents (ages 18–21) respond more like younger adolescents (ages 13–17) than like young adults (ages 22–25) due to differences in brain maturation.[12]

Compared to young adults above age 21, late adolescents (ages 18–21) also take more risks and engage in more sensation-seeking behavior.[13] Due to differences in brain development, late adolescents are more likely than young adults to respond to immediate outcomes and are less likely to delay gratification.[14] The presence of peers can intensify these behaviors, and the brains of late adolescents are more responsive to peer involvement than those of young adults.[15] Late adolescents are also more easily swayed by adult influence and coercion than their adult counterparts.[16] These developmental differences in behavior have direct implications for legal decision-making, including waiving *Miranda* rights, susceptibility to false confessions, and making ill-advised trial decisions (e.g., plea decisions).

9 *See* Appendix A for a foundational review of the science. For an extensive review of brain and socio-behavioral research and its policy implications, *see also* National Academies of Sciences, Engineering, and Medicine, The Promise of Adolescence: Realizing Opportunity for All Youth. (2019), https://doi.org/10.17226/25388; Institute of Medicine and National Research Council, Investing in the Health and Well-Being of Young Adults (2015), https://doi.org/10.17226/18869.

10 *Miller,* 567 U.S. at 480.

11 Leah Somerville, *Searching for Signatures of Brain Maturity: What Are We Searching For?*, 92 Neuron 1164, 1164–67 (2016).

12 Alexandra O. Cohen et al., *When Is an Adolescent an Adult? Assessing Cognitive Control in Emotional and Nonemotional Context*s, 27 Psych. Sci. 549 (2016); Marc D. Rudolph et al., *At Risk of Being Risky: The Relationship Between "Brain Age" Under Emotional States and Risk Preference*, 24 Developmental Cognitive. Neurosci., 93, 93–106 (2017); B. J. Casey et al, *Development of the Emotional Brain*, 29 Neurosci. Letters 693 (2019).

13 Laurence Steinberg, *Adolescent Brain Science and Juvenile Justice Policymaking*, 23 Psych., Pub. Pol'y, & L. 410 (2017).

14 Michelle Achterberg et al, *Frontostriatal White Matter Integrity Predicts Development of Delay of Gratification: A Longitudinal Study*, 36 J. Neurosci. 1954 (2016); Samuel Hawes et al, *Modulation of Reward-Related Neural Activation on Sensation Seeking Across Development*, 147 Neuroimage 763 (2017).

15 Dustin Albert, Jason Chein & Laurence Steinberg, *The Teenage Brain: Peer Influences on Adolescent Decision-Making*, 22 Current Directions Psych. Sci. 114 (2013); Ashley Smith et al, *Age Differences in the Impact of Peers on Adolescents' and Adults' Neural Response to Reward*, 11 Developmental Cognitive Neurosci. 75 (2015).

16 Hayley Cleary, *Applying the Lessons of Developmental Psychology to the Study of Juvenile Interrogations: New Directions for Research, Policy, and Practice*, 23 Psych., Pub. Pol'y, & L., 118, 118–130 (2017).

Adversity, racism, and poverty also have a profound impact on health, quality of life, and criminal justice involvement.[17] As discussed below, adolescents who have experienced adversity, racism, and poverty are significantly overrepresented in juvenile and criminal justice systems. However, while these experiences pose developmental challenges, they do not dictate fate, as late adolescents are also remarkably resilient, and their developing brains are poised for positive learning through interventions and rehabilitation.[18]

For late adolescents engaged in criminal behavior, research consistently indicates that most will not continue to offend and become adult repeat offenders through their twenties, thirties, and beyond.[19] This has significant implications for both policy and the legal system. For example, this high rate of desistance from even serious or persistent adolescent offending as youth move into their early to mid-twenties renders it impossible to reliably predict, based on current science, which individual youth will continue to offend into adulthood and which will desist as they mature. There is certainly no basis in science to reliably determine that an individual youth at the time of sentencing in adolescence is incapable of rehabilitation (or even unlikely to achieve it) over the course of a lifetime.

While *Jones v. Mississippi* (2021) held that a sentencing court need not make a formal finding of "permanent incorrigibility" in considering a JLWOP sentence,[20] the *Miller* factors remain applicable and key to articulating the "transient" nature of adolescence generally and applying those factors in the individual case before the court. Science cannot divine which "rare" adolescent may be "permanently incorrigible," but it can identify the characteristically "transient characteristics" of adolescence.

One inherent challenge to incorporating science into litigation and decision-making lies in the application of research developed in studies on groups of subjects to the circumstances, conduct, and developmental trajectories of individual persons before the court. This is sometimes referred to as the "Group to Individual" conundrum. For example, developmental brain science can provide "on average" group-level descriptions of brain development and maturation which can be supplemented by consideration of the specific individual characteristics at issue in the legal context. This, of course, is a challenge that is familiar in the practice of medicine, where physicians must apply research based upon groups to diagnose and treat individuals.

In cases involving adolescents and late adolescents, research applied in individual cases must be derived from studies in multiple domains including neuroscience, social determinants of misconduct, peer affiliations and social networks, developmental trajectories, and individual characteristics (e.g., cognitive capacities, physical maturation, emotional charac-teristics, learning style, family dynamics).

17 Scott Lorch & Elizabeth Enlow, *The Role of Social Determinants in Explaining Racial/Ethnic Disparities in Perinatal Outcomes* 79 Pediatric Rsch. 141 (2016).

18 B.J Casey et al, *Making The Sentencing Case: Psychological and Neuroscientific Evidence for Expanding the Age of Youthful Offenders,* 5 Ann. Rev. Criminology (forthcoming 2022).

19 Off. Juv. Just. Delinq. Prot., *Law Enforcement & Juvenile Crime: Arrests by Offense, Age, and Gender,* U.S. Dept. Just. (Oct. 21, 2019), https://www.ojjdp.gov/ojstatbb/crime/ucr.asp?table_in=1 [https://perma.cc/T6H7–3LWX].

20 *Jones v. Mississippi*, 141 S. Ct. 1307, 1309 (2021).

This Guide is intended to support attorneys and judges in familiarizing themselves with the contours of the relevant science and how it can be applied to individual cases. A working knowledge of developmental and brain science allows attorneys and judges to make best use of what a juvenile defendant's life course, circumstances of an alleged offense, and expert evaluations and opinions can tell them to assist in understanding a defendant.[21] For attorneys, this facilitates preparing a case, educating the legal finder of fact, and making optimal use of expert testimony. For judges, this facilitates science-informed decision-making at all trial and appellate phases of a case involving a juvenile or young adult.[22]

The goal is to position each individual young defendant within a developmental trajectory comprised of biological, psychological, and social domains. A significant majority of cases will ultimately reflect "transitory immaturity," a feature of adolescence which will resolve as adolescents mature, resulting in desistance from criminal misconduct. Science-informed decision-making and evidence-based interventions can guide rehabilitation and reduce recidivism (thereby improving community safety) while avoiding or minimizing the negative impact of common responses (such as overuse of detention and incarceration) that can inadvertently compromise positive youth development and increase recidivism.

A better understanding of late adolescent brain and behavioral development can transform how the legal system and policy makers respond to late adolescents who offend. By educating decision-makers and advocates, this White Paper informs the criminal justice system and policy makers through providing an updated research perspective on late adolescence and supporting public safety by reducing recidivism through developmentally aligned accountability and empirically based processes and interventions.

21 Readers conducting forensic evaluations or using these evaluations in legal proceedings can find guidance in generating or relying upon them from sources including Antoinette Kavanaugh & Thomas Grisso, Evaluations for Sentencing of Juveniles in Criminal Court (2020).

22 For a review of aspects of "developmental evidence" and application of the *Miller* factors, see Thomas Grisso & Antoinette Kavanaugh, *Prospects for Developmental Evidence in Juvenile Sentencing Based on Miller v. Alabama,* 22 Psych. Pub. Pol'y & L. 235, 235–249 (2016); *See also* Thomas Grisso, *Three Opportunities for the Future of Juvenile Forensic Assessment,* 46 Crim. Just. & Behav. 1671 (2019), https://doi.org/10.1177/0093854819883671

Juveniles	Ages 13–17
Early Adolescence	Ages 10–13
Middle Adolescence	Ages 14–17
Late Adolescence	Ages 18–21
Young Adults	Ages 22–25

Age Ranges Defined for Purposes of this White Paper

Introduction

In a series of landmark decisions starting in 2005, the United States Supreme Court ruled that no one can be put to death,[23] receive a sentence of Life Without Parole for a non-homicide offense,[24] or receive a sentence of mandatory Life Without Parole for an offense committed prior to age 18.[25]

In drawing the line at age 18, the Supreme Court continued a tradition of raising the age at which Eighth Amendment protections against cruel and unusual punishment are applied. As Justice Stevens recognized in his concurring opinion in *Roper v. Simmons*, the holding reaffirmed the principle that "evolving standards of decency … have driven [the Court's] construction of this critically important part of the Bill of Rights," and recognized that "[i]f the meaning of that Amendment had been frozen when it was originally drafted, it would impose no impediment to the execution of 7-year-old children today."[26]

Jones v. Mississippi (2021) held that the requirements of *Miller v. Alabama* (2012) are satisfied if a juvenile's sentence of Life Without Parole (JWOP) is imposed after an individualized hearing. Notably, the *Jones* majority did not reinforce the *Miller* court's view that this sentence should be "uncommon" and reserved for the "rare" youth deemed "permanently incorrigible." Indeed, the *Jones* decision held that a sentencing judge need not make a specific finding that a juvenile is "permanently incorrigible" or even make formal findings of fact in support of a discretionary sentencing decision. However, SCOTUS did not explicitly strike down the *Miller* factor framework, acknowledged that states may set their own standards and protections more stringently than the *Jones* approach[27] (which many states have), and left undisturbed the concept of the "transient immaturity" of youth reflected in decisions from *Roper* (2005) through *Montgomery v. Louisiana* (2016).[28]

23 *Roper v. Simmons*, 543 U.S. 551 (2005).
24 *Graham v. Florida*, 560 U.S. 48 (2010).
25 *Miller v. Alabama,* 567 U.S. 460 (2012).
26 *Roper*, 543 U.S. at 1205.
27 *Jones v. Mississippi*, 141 S. Ct. 1307, 1322 (2021).
28 *Montgomery v. Louisiana,* 136 S. Ct. 718 (2016)

The *Jones* court abandoned any consideration of "evolving standards of decency" that might lead to the abolition of JLWOP outright, although case law and statutes in many states since *Miller* have taken that step. Other states have established minimum sentences[29] to be served before juvenile homicide offenders are afforded the requirement set by the *Miller* court for a "meaningful" opportunity to demonstrate that they have achieved rehabilitation.

The *Jones* court paid scant attention to the scientific foundations of the *Roper* through *Montgomery* line of cases. By contrast, prior to the dilution by *Jones* of protections afforded to juvenile offenders, SCOTUS Eighth Amendment rulings about sentencing youthful offenders had drawn heavily from advances in social sciences and neurodevelopmental research.[30] The Court cited scientific publications when it ruled that the Eighth Amendment prohibits the death penalty for those under age 18 at the time of their capital offense;[31] prohibits life without the possibility of parole (LWOP) for non-homicide offenders under age 18 at the time of their offense;[32] and prohibits *mandatory* life imprisonment without parole for those under age 18 at the time of the offense, even for homicide offenses.[33]

From those scientific studies it cited, the Court reached the conclusion that youth are less morally culpable, more susceptible to peer pressure, and more amenable to positive change. Indeed, SCOTUS had absolutely barred for juveniles as a class both execution and life without possibility of parole for non-homicide offenses, reflecting a strong "children are different" approach to Eighth Amendment constitutional doctrine.

The *Miller* majority stepped back from this categorical "children are different" approach when it barred mandatory LWOP but permitted it for a presumably very small number of "permanently incorrigible" youth based on a judge's discretion following an individualized sentencing hearing. In doing so, however, the *Miller* Court reaffirmed the law's recognition that "relevance of youth as a mitigating factor derives from the fact that the signature qualities of youth are transient; as individuals mature, the impetuousness and recklessness which may dominate in younger years can subside."[34]

Although the *Jones* majority did not focus upon the "transient immaturity" of youth, legislative and case law developments among the states implementing *Miller* suggest the concept of "transient immaturity" may be central to incorporating into litigation and policy advocacy the continuing developments in science. While there is no scientifically reliable basis to predict that a youthful offender is "permanently incorrigible," there is a robust scientific basis, as described

29 Litigation continues to clarify at what point a lengthy minimum mandatory sentence for a juvenile offender violates the *Miller* requirement there be afforded a "meaningful" opportunity to demonstrate achievement of rehabilitation. The disparity among states of minimum mandatory terms to be served range from less than two decades to four or more decades, resulting in a problematic "justice by geography" situation where sentenced youthful offenders may serve sentences for the same offenses that differ by decades before a putatively "meaningful" case review.

30 *See, e.g., Miller*, 567 U.S. at 471 (noting relevance of studies in Am. Psychologist and other journals for the reasoning in *Roper* and *Graham*).

31 *Roper v. Simmons*, 543 U.S. 551 (2005).

32 *Graham v. Florida*, 560 U.S. 48 (2010). *Graham* held that states must provide "meaningful opportunity to obtain release based on demonstrated maturity and rehabilitation." *Id.* at 75.

33 *Miller* 567 U.S. at 460.

34 *Id.* at 1195–96 (internal citations omitted).

in this Guide, to identify the "transient immaturity" of youth and emerging young adults and the normal process of self-desistence from criminal misconduct that occurs with maturation. The *Miller* factors still serve as a framework for organizing and explaining this research and as a means for accounting for the hallmarks of youthful immaturity, the circumstances of their offenses, and their greater prospects for self-desistence with maturation alone or with the support of empirically-based interventions.

This White Paper reviews recent scientific research establishing that these same "signature qualities of youth" extend into the period of *late adolescence* (ages 18–21). Since the Supreme Court decided *Miller v. Alabama* in 2012, more than one hundred new publications have explored the brain's development throughout late adolescence. Over 1,000 legal cases have referenced the same or similar neuroscience to that discussed in *Miller*, with many citing newer scientific articles as well.[35] Roughly half of these cases concerned individuals who were 18 years old or older at the time of the offenses for which they were charged.

In addition to their implications for legal challenges, the scientific findings reported in this White Paper are relevant for criminal justice policy. Late adolescents (ages 18–21) and young adults (ages 22–25) make up approximately 10–12% of the U.S. population,[36] yet this age group accounts for 23% of all arrests.[37] Late adolescents also make up 20% of incarcerated persons.[38] Youth of color are disproportionately represented,[39] as half of incarcerated 18–24

35 Francis X. Shen, et al., *Justice for Emerging Adults after* Jones: *The Rapidly Developing Use of Neuroscience to Extend Eighth Amendment Miller Protections to Defendants Ages 18 and Older*, 97 N.Y.U. L. Rev. Online (forthcoming 2022) (examining how the science proffered in *Miller* has been cited in subsequent cases).

36 Population estimates vary depending upon demographic data sources and years the samples were derived. *See* Just. Policy Inst., Improving Approaches to Serving Young Adults in the Justice System 3 (2016) (9.9% of U.S. population); *see also* Annie E. Casey foundation, *Kids Count Data Center https://datacenter.kidscount.org/* (last visited April, 17, 2021) (similar). Alternatively, one could calculate this percentage by combining population data sources: for example, the U.S. Census Bureau projected a total U.S. population of 326,971,407 on January 1, 2018. U.S. Census Bur., *Census Bureau Projects U.S. and World Populations* (Dec. 28, 2017), https://www.census.gov/newsroom/press-releases/2017/new-years-2018.html [https://perma.cc/8MKP-FUHU]. The Center for Education Statistics estimated a population of 30,600,000 18- to 24-year-olds for the same date. Nat'l Ctr. For Ed. Statistics, *Indicator 1: Population Distribution* (Feb. 2019), https://nces.ed.gov/programs/raceindicators/indicator_RAA.asp [https://perma.cc/9XZQ-YRY9] (last visited Dec. 12, 2020). 30,600,000 divided by 326,971,407 equals about 9.36%.

37 *See* Office of Juvenile Justice and Delinquency Prevention, *Estimated number of arrests by offense and age group*, U.S. Dep't of Justice (2019), https://www.ojjdp.gov/ojstatbb/crime/ucr.asp?table_in=1 [https://perma.cc/T6H7–3LWX] (last visited Apr. 18, 2021). To calculate the percentage of offenses committed by those between 18 and 24 for each year between 2015 to 2019, add total offenses for the 18 to 20 age group and the total offenses for the 21 to 24 age group, then divide that total by the total number of offenses for all ages. Results are (rounded to the hundredths place): 19.88% for 2019, 21.69% for 2018, 23.15% for 2017, 24.62% for 2016, and 25.67% for 2015. Averages for the past five years of data were derived by adding these five percentages together and then dividing by 5 to get 23.002%. A five-year annual average was used to reflect continuity. Worth noting, however, is the declining trend: Each year from 2015 to 2019, the percentage of crimes committed by those between 18 and 24 decreased. Alternatively put, in 2019, 19.88% of all arrests in the U.S. were for offenses committed by individuals from 18 to 24 years old, a percentage slightly less than in the previous four years. This arrest data was cross-checked with FBI data available for 2016 (last available year) which also resulted in an arrest rate calculation of 24.62%. *See* Crim. Just. Servs. Div., *2016 Crime in the United States*, Fed. Bur. Investigation (2016), https://ucr.fbi.gov/crime-in-the-u.s/2016/crime-in-the-u.s.-2016/tables/table-20 [https://perma.cc/NWQ2-HYGW] (last visited Dec. 12, 2020).

38 Just. Policy Inst., *Improving Approaches to Serving Young Adults in the Justice System* 1 (2016), http://www.justicepolicy.org/uploads/justicepolicy/documents/jpi_report_summary_improving_approaches_to_serving_young_adults_in_the_justice_system.pdf [https://perma.cc/NPU6-YUYR] (last visited Apr. 18, 2021).

39 *Id.* at 2 ("The data show … that young adults of color are disproportionately impacted by the justice system.").

year-olds are people of color.[40] Additionally, many of these incarcerated late adolescents and young adults face long sentences. Almost 40% of the individuals serving the longest prison sentences in the United States were incarcerated before age 25, and 56% of those serving the longest sentences are Black.[41]

Research in neuroscience, psychology, and law have contributed to an evolving understanding of both behavioral and brain development during adolescence. This contemporary research has direct implications for juvenile justice policy and practice.[42] This White Paper assembles and synthesizes both foundational and recent scientific developments to provide an updated overview of the science of late adolescence.

Foundational background information summarizing contemporary research on adolescent brain development is presented in Appendix A for readers who would benefit from a primer or refresher on the basic neuroscience.[43] This paper presents a synthesis of the brain and behavioral science most relevant for understanding legal and policy implications of these areas of research. The science is organized by the distinguishing characteristics of youth identified as critical factors by SCOTUS in *Miller* and is subsequently reflected, further developed, or limited.

Post-*Miller* activity involving juvenile defendants[44] and defendants ages 18 and older largely reflects actions taken by state courts and legislatures.[45] We anticipate that, particularly following the *Jones* decision in Spring 2021, most legal and legislative activity in this area will continue to occur at the state rather than federal level. The *Miller* factors have made their way into state case law and policy debates and so continue to be relevant. The *Miller* factors that serve as the organizing factors for the science presented in this paper are:

Immaturity, Impetuosity, and Risk-taking The "hallmark features" of adolescence include "immaturity, impetuosity, and a failure to appreciate risks and consequences."

40 *Id.* at 1.

41 Urban Inst., *A Matter of Time: The Causes and Consequences of Rising Time Served in America's Prisons* (2017), https://apps.urban.org/features/long-prison-terms/demographics.html [https://perma.cc/CQ6V-QP3L] (last visited Apr. 18, 2021).

42 B.J. Casey et al, *Healthy Development as a Human Right: Insights from Developmental Neuroscience for Youth Justice,* 16 Ann. Rev. L. & Soc. Sci. 9.1 (2020); B.J. Casey et al, *Making the Sentencing Case: Psychological and Neuroscientific Evidence for Expanding the Age of Youthful Offenders*, 5 Ann. Rev. Criminology (forthcoming 2022); Leark, R. A. (2021). *An Introduction to the Special Issue on the Death Penalty Among Teen-Aged Offenders.* 7 J. Pediatric Neuropsych. 1–2 (2021).

43 The authors acknowledge that contemporary neuroscience increasingly focuses upon neural circuit connections and extraordinarily complex interactions among brain regions rather than merely attribution of functions to "lobes" or other specific brain areas. However, the published research often references structure and function of specific brain areas and so the reporting of brain research will often make references to specific brain areas.

44 By 2020, courts or legislatures in at least 19 states had barred Life Without Parole for juvenile defendants. *See, e.g.*, *Diatchenko v. Dist. Att'y for Suffolk Dist.*, 1 N.E.3d 270 (Mass. 2013); *State v. Bassett*, 428 P.3d 343 (Wash. 2018). For a review of post-*Miller* actions by state courts and legislatures, see Gina Kim, *State-by-State Abolition of Juvenile Life without Parole Sentences in the United States since Miller v. Alabama (2012)*, (2019) (Ph.D. dissertation, Columbia University; available through Academic Commons, Columbia University Libraries).

45 For a review of post-*Miller* use of neuroscience in litigation involving late adolescents, see Francis Shen et al, *Justice for Emerging Adults after* Jones*: The Rapidly Developing Use of Neuroscience to Extend Eighth Amendment Miller Protections to Defendants Ages 18 and Older,* 97 N.Y.U. L.Rev. Online (forthcoming 2021).

Peer Involvement/Influence "[T]he family and home environment that surrounds him—and from which he cannot usually extricate himself—no matter how brutal or dysfunctional . . . the circumstances of the homicide offense, including the extent of his participation in the conduct and the way familial and peer pressures may have affected him."

Understanding Legal Proceedings Deficits in legal understandings were described as: "the incompetencies associated with youth" including an "inability to deal with police officers or prosecutors (including on a plea agreement)" and "incapacity to assist his own attorneys."

Greater Potential for Rehabilitation The greater potential of adolescents for rehabilitation was first recognized in *Roper.* This greater potential for positive change and the absence of a scientific basis to reliably identify that "rare" youth whose "permanent incorrigibility" warrants LWOP continue to present a challenge to sentencing courts.

Jones v. Mississippi (2021) held that a separate finding of "permanent incorrigibility" is not required in a discretionary sentencing to LWOP.[46] However, opportunities to inform sentencing procedures and decisions with the science presented in this White Paper remain due to: (a) the long-standing recognition of the "transient immaturity" of youth" resulting in diminished culpability; (b) the common self-desistance from misconduct as youth mature; and, (c) law requiring analysis using the so-called *Miller* factors in these cases. The science is also relevant to adolescents older than the current "bright line" of age 18 for criminal culpability.

Especially in state cases, there are opportunities to inform legislatures, sentencing procedures, and individual case sentencing decisions with the science presented in this White Paper, particularly in state proceedings. Each of these distinguishing characteristics are discussed below for middle to late adolescents in light of broadly accepted leading research.

Readers who want further description of foundational neuroscience are directed to Appendix A at page 47 for a summary.

46 *Jones v. Mississippi*, 141 S. Ct. 1307, 1311 (2021).

Section I: Miller Factor 1 Immaturity, Impetuosity, Risk-taking

First Miller factor: The "hallmark features" of adolescence include "immaturity, impetuosity, and a failure to appreciate risks and consequences."

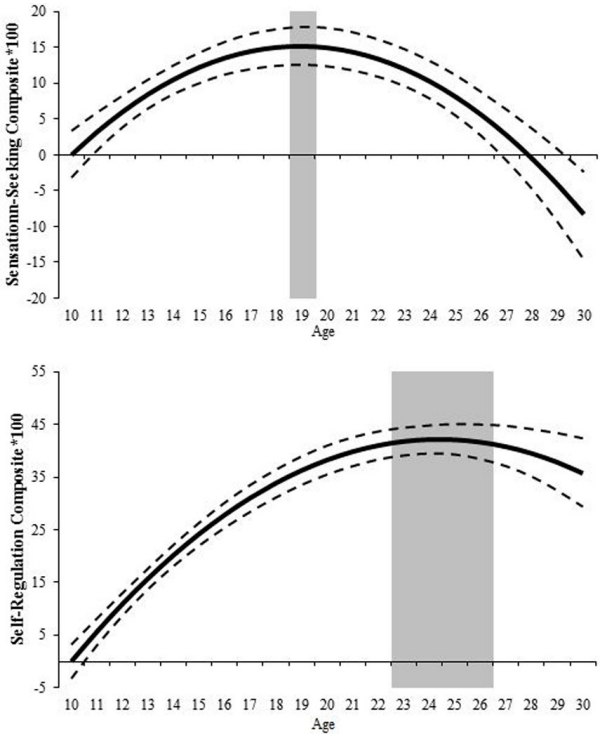

Figure 1: Steinberg et al. 2017. Age differences in sensation seeking (top) and self-regulation (bottom). Sensation seeking peaks in late adolescence. Self-regulation stabilizes in young adulthood.

Adolescence is a dynamic lifespan period characterized by changes in brain structure and brain function. In *Miller v. Alabama*, the United States Supreme Court explicitly referenced adolescents' tendency toward immaturity, impetuosity, and irresponsibility.[47] The predisposition for sensation seeking, hypersensitivity to immediate rewards, and present-focused decision-making peaks in middle to late adolescence and then declines in young adulthood. Further, capacities for self-regulation also improve with age and stabilize in young adulthood (Figure 1).[48] This is in part due to changes in brain function and connectivity and to improved executive functioning as the prefrontal cortex matures.

47 *Miller v. Alabama,* 567 U.S. 460, 472 (2012).

48 Laurence Steinberg et al, *Around The World, Adolescence Is a Time of Heightened Sensation Seeking and Immature Self-Regulation* 21 Developmental Sci. 10.1111 (2018).

The brain continues to be malleable throughout the lifespan, and this malleability may be enhanced during adolescence as compared to adulthood. This means that the adolescent brain can change in response to experiences and is developmentally primed to do so. When an adolescent is subjected to positive influences, this can have advantageous implications for brain development and for positive personal development as manifested by enhanced sensitivity to social and emotional information that promotes learning about oneself, one's peers, and societal norms.[49]

Adolescents exhibit increased impulsivity and risk-taking, as compared to adults. Elevations in risk-taking decisions and behaviors are found among adolescents across cultures. Enhanced risk-taking is developmentally normative and can be adaptive in certain contexts.[50] For example, risk-taking in academic or social contexts can promote positive outcomes such as exploring new intellectual pursuits, skills and interests, or forming new healthy friendships. However, enhanced risk-taking can also lead to negative outcomes such as health risk behaviors or legal risks.

Compared to adults, middle adolescents and late adolescents are more likely to engage in behaviors that risk their lives and wellbeing.[51] Many health risk behaviors peak in late adolescence and young adulthood. This includes risk-taking behaviors and risk-related outcomes such as reckless driving, unprotected sex, and unintentional injuries.[52] Further, overdose deaths and substance misuse peak in late adolescence and early adulthood.[53]

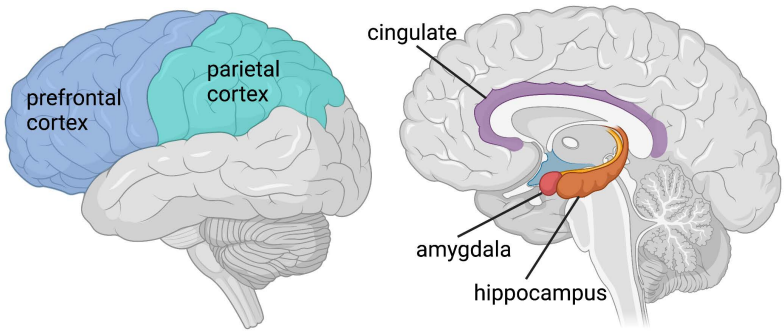

Figure 2: Brain Anatomy. Left image depicts a lateral view of the brain (side view from the outside). Right image depicts a medial view of the brain (side view from the middle inside).

49 Crone, E. A., & Dahl, R. E. *Understanding Adolescence as a Period of Social–Affective Engagement and Goal Flexibility*, 9 Nature Rev. Neurosci. 636, 636–650 (2012).

50 Natasha Duell & Laurence Steinberg, *Positive Risk-Taking in Adolescence,* 13 Child Development Perspectives 48, 48–52 (2019).

51 Laurence Steinberg, *A Social Neuroscience Perspective on Adolescent Risk-Taking*, 28 Development Rev. 78 (2008).

52 Teena Willoughby et al, *Examining the Link Between Adolescent Brain Development and Risk-Taking From a Social–Developmental Perspective (Reprinted)*, 89 Brain & Cognition 70 (2014).

53 Andrea Stone et al, *Review of Risk and Protective Factors of Substance Use and Problem Use in Emerging Adulthood,* 37 Addictive Behav. 747, 747–775 (2012).

Executive Functioning

The term "executive function" is used to describe the cognitive processes of controlling and regulating behavior and encompasses working memory, inhibitory control, and cognitive flexibility.[54] Connections within the prefrontal cortex and across more distributed brain networks (including the parietal cortex and subcortical regions) facilitate executive function, self-control, and emotion regulation. These connections continue to develop through early adulthood.[55] Therefore, behaviors associated with executive functions continue to develop throughout the transition from adolescence and into adulthood. This explains why late adolescents can be more impulsive in certain contexts and why their self-control abilities are vulnerable to disruption from emotional cues or heated contexts.[56]

"Working memory" is a type of executive function which continues to develop during adolescence. Working memory is a type of short-term memory that allows individuals to actively hold information in mind. It is important for remaining cognizant of present actions, past actions, and future actions. It is also important for processing conversations and social contexts, understanding instructions, creative thinking, charting a course of action, decision-making, and problem-solving.[57] Working memory allows us to take in new information and incorporate that information when devising a plan and considering alternatives to a plan. Parts of the prefrontal cortex (including the middle and inferior frontal regions) and regions within distributed brain networks (including subcortical regions), support working memory. The developmental fine-tuning of this circuitry facilitates improvements in working memory over time.[58]

Basic working memory abilities mature before adolescence, but more complex and challenging working memory capacities associated with continued brain development continue to mature through late adolescence[59] and into young adulthood. Compared to adults, working memory capacities are still developing through late adolescence, which can create vulnerabilities to interference and disruption. Specifically, emotional contexts can transiently disrupt working memory in late adolescence and young adulthood.[60] Research findings demonstrate that

54 In scientific and medical literatures, the terms "executive function" and "cognitive control" are both used to describe higher order behaviors that are important for self-control, decision-making, and complex thinking. We use the phrase "executive function" in this White Paper because the term is used regularly expert testimony and appears in hundreds of legal cases. *See* Akira Miyake et al, *Assessment of Executive Functions In Clinical Settings: Problems And Recommendations,* 21 Sem. Speech & Language 0169 (2000).

55 Jennifer Silvers et al, *vlPFC–vmPFC–amygdala Interactions Underlie Age-Related Differences in Cognitive Regulation of Emotion*, 27 Cerebral Cortex 3502 (2017).

56 B. J. Casey, *Beyond Simple Models of Self-Control to Circuit-Based Accounts of Adolescent Behavior*, 66 Ann. Rev. Psych. 295 (2015).

57 Working memory: The state of the science (Robert Logia, Valeria Camos, & Nelson Cowan eds., 2020).

58 Monica Rosenberg et al, *Behavioral and Neural Signatures of Working Memory in Childhood*, 40 J. Neurosci. 5090 (2020).

59 Theodore Satterthwaite et al, *Functional Maturation of the Executive System During Adolescence*. 33 J. Neurosci. 16249, 16249–16261 (2013).

60 Madeline Lee Pe et al, *Interference Resolution Moderates the Impact of Rumination and Reappraisal on Affective Experiences in Daily Life*, 27 Cog. & Emotion 492, 492–501 (2013); Lanciano Curci et al, *Negative Emotional Experiences Arouse Rumination and Affect Working Memory Capacity.* 13 Emotion 867, 867–880 (2013); Alan Anticevic et al, *Resisting Emotional Interference: Brain Regions Facilitating Working Memory Performance During Negative Distraction*, 10 Cog., Affective, & Behav. Neurosci. 159, 159–173 (2010)

individuals ages 20–30[61] have more disrupted working memory during periods of emotional stimulation, suggesting that emotional contexts can compromise their cognition, but the influence of emotional context is less disruptive for older adults.[62]

Hot/Cold Cognition and Reward Sensitivity

Decision-making Middle adolescents and late adolescents are more likely than adults to change how they make decisions when they are faced with emotional contexts as compared to more neutral conditions where they are given time to think through a problem. Adolescents are cognitively similar to adults in certain contexts, like how by age 16 they perform comparably to adults when they are given adequate time for reasoned and thoughtful deliberation to consider consequences and make decisions.[63] However, during adolescence, youth experience a hypersensitivity to emotional content while still developing the purposeful problem-solving that comes with adulthood. Because adolescents exhibit different responses in the brain during decision-making, while exerting self-control, and when engaging emotion regulation, adolescent behavior is highly sensitive to emotional contexts. This renders adolescents susceptible to emotionally driven decisions, impulsive behavior, and poor judgment.[64]

Self-Control Behavioral studies demonstrate that adolescents are hypersensitive to emotional contexts, and this sensitivity to emotional information can interfere with self-control. Researchers have tested the ability of adolescents and adults to engage in self-control in emotional contexts by utilizing the Emotional Go/NoGo test. The Emotional Go/NoGo test is a test of cognitive control in which participants are instructed to press a button in response to target images (e.g., calm faces) but withhold responses to other types of images (e.g., happy faces). Research shows that adolescents are worse than adults at inhibiting responses to emotional stimuli, but they perform similarly to adults when neutral stimuli are presented.[65] Adolescents, more so than children and adults, show impaired self-control when inhibiting responses to negative and positive emotional cues.[66] For example, adolescents are more likely to make a self-control error when seeing a happy smiling face, compared to a neutral calm face. Notably, emotional cues continue to influence self-control through the mid-twenties.[67]

61 The age ranges for the sample group were 20–30 years and 60–75 years.

62 Susanne Scheibe & Fredda Blanchard-Fields, *Effects of Regulating Emotions on Cognitive Performance: What Is Costly for Young Adults Is Not So Costly for Older Adults*, 24 Psych. & Aging 217 (2009).

63 Brend Figner et al, *Affective and Deliberative Processes in Risky Choice: Age Differences in Risk-Taking in the Columbia Card Task,* 35 J. Experimental Psych.: Learning, Memory & Cog. 709 (2009).

64 Steinberg, *supra* note 51 ("This account is consistent with a growing body of work on structural and functional changes in the prefrontal cortex, which plays a substantial role in self-regulation, and in the maturation of neural connections between the prefrontal cortex and the limbic system, which permits the better coordination of emotion and cognition. These changes permit the individual to put the brakes on impulsive sensation-seeking behavior and to resist the influence of peers, which, together, should diminish risk-taking.").

65 Leah Somerville et al, *Frontostriatal Maturation Predicts Cognitive Control Failure to Appetitive Cues in Adolescents*, 23 J. Cog. Neurosci. 2123, 2123–2134 (2011); Nim Tottenham et al, *Behavioral Assessment of Emotion Discrimination, Emotion Regulation, and Cognitive Control in Childhood, Adolescence, and Adulthood*, 2 Frontiers Psych. 39 (2011).

66 Casey, *supra* note 12.

67 Dienke Bos et al, *Distinct and Similar Patterns of Emotional Development in Adolescents and Young Adults,* 62 Development Psychobiology 591, 591–500 (2020).

Research also indicates that middle adolescents and late adolescents are more sensitive to sustained emotional arousal states than older adults. This vulnerability to emotional context has been found to persist through early adulthood.[68] In research studies, late adolescents had diminished cognitive abilities under sustained negative emotional arousal relative to adults age 22–25, but late adolescents performed similarly to 22–25 year-olds in neutral and positive emotional arousal conditions.[69] For example, during "threat states" in which individuals anticipated the possibility of hearing an aversive sound, late adolescents (ages 18–21) exhibited patterns of brain activity that were more similar to the adolescent group (ages 13–17) than the adult group (ages 22–25). This included reduced connectivity between distributed brain regions that are activated when exerting self-control, including the prefrontal cortex.[70]

Social and Emotional Regulation The impact of enhanced emotional influence on adolescent behavior is also observed within the context of peer interactions. As adolescents mature, they are better able to inhibit emotionally-driven impulses that arise in the presence of peers.[71] This means adolescents are more likely to react impulsively when faced with potential social rewards or friendly peers. This can be seen, for example, in middle and late adolescents' more frequent unprotected sex. [72]

The ability to use effective cognitive strategies to regulate emotion in social situations increases with age into the mid-twenties and helps to explain why the ability to regulate emotions for social cues develops over time.[73] Studies of explicit emotion regulation ask participants to use cognitive strategies to change their emotional responses, such as by reinterpreting a situation or imagining the situation to be farther away in time or space. These studies have reported developmental differences in the use of effortful self-regulatory strategies to manage strong feelings. Research indicates that the strategies individuals use to regulate their emotions change throughout development, and that adolescents use less beneficial or less helpful emotional regulation strategies than adults.[74]

Long-term Planning and Future Oriented Decision-making

Middle and late adolescents evaluate risks and benefits differently than those in their late twenties and thirties. While adults tend to integrate potential consequences of decisions, middle adolescents and late adolescents exhibit less future-oriented decision-making. These age-related differences in behavior are associated with ongoing development of structural and functional connectivity between the prefrontal cortex, a region important for self-control, and the striatum, a region important for reward processing.

68 *See, e.g.,* Cohen, *supra* note 12.

69 The three comparison groups included adolescents (age 13–17), late adolescents (age 18–21), and young adults (age 22–25). *Id.*

70 For a more complete discussion of functional connectivity, *see infra*, Section II on page 18.

71 For additional information on the effect of peer influence, *see infra*, Section IV page 38.

72 Willoughby, *supra* note 52.

73 Jennifer Silvers et al, *Age-Related Differences in Emotional Reactivity, Regulation, and Rejection Sensitivity in Adolescence*, 12 Emotion 1235 (2012).

74 Kalee De France & Tom Hollenstein, *Emotion Regulation and Relations to Well-Being Across the Lifespan*, 55 Development Psych. 1768 (2019).; Oliver John & James Gross, *Healthy and Unhealthy Emotion Regulation: Personality Processes, Individual Differences, and Life Span Development*, 72 J. Personality 1301 (2004).

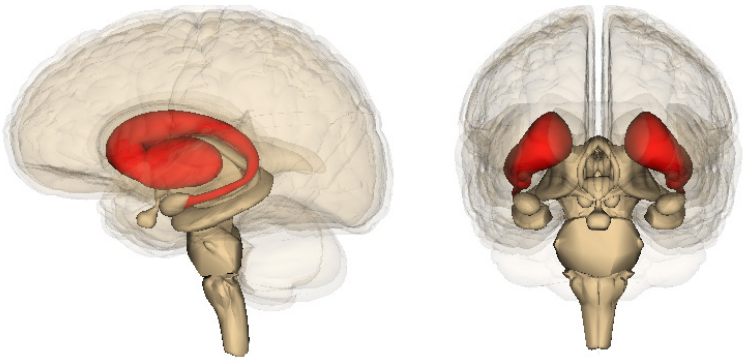

Figure 3: Striatum. The striatum is illustrated in red, showcasing a view from the side (left) and from the front (right) of the brain.

Relative to adults, late adolescents tend to plan for the short-term rather than the future. Future orientation increases with age. However, compared to adults both middle adolescents and late adolescents are more focused on immediate gains and rewards rather than potential long-term consequences.[75] These age groups are also less likely than adults to identify and consider potential future consequences of their actions.[76] Late adolescents are especially susceptible to making poor decisions due to privileging short-term rewards over future risks.

To explore the capacity to delay gratification, researchers ask individuals to decide between receiving a small reward sooner or a larger reward later. This measures how much a person devalues a reward based on how long they must wait to receive it. The tendency to delay gratification (choose larger but later rewards) increases with age.[77] Middle and late adolescents particularly often struggle with delaying gratification. A large-scale study of 900 individuals found that adolescents are more likely to prioritize immediate rewards over long-term outcomes, and delay of gratification improves continuously from age 14 to 22.[78]

Adolescents who are worse at delaying gratification are more prone to real world risk-taking, such as experimentation with drugs like tobacco, alcohol, and marijuana.[79] This may also account for why middle adolescents and late adolescents are more likely to engage in risky behaviors that lead to immediate rewards, such as reckless driving, unprotected sex, and dangerous behavior resulting in unintentional injuries.[80] [81]

This age-related preference for more immediate rewards is associated with developmental differences in brain function. In a research study conducted in individuals ages 11–31, delay of gratification increased with age and middle and late adolescents were more likely to choose

75 Laurence Steinberg et al, *Age Differences in Future Orientation and Delay Discounting*, 80 Child Development 28 (2009).
76 Daniel Read & Nicoleta Read, *Time Discounting Over the Lifespan*, 94 Org. Behavior. & Human Decision Proc. 22, 22–32 (2004).
77 Steinberg, *supra* note 75.
78 Daniel Romer et al, *Can Adolescents Learn Self-Control? Delay of Gratification in the Development of Control Over Risk-Taking*, 11 Prevention Sci. 319, 319–330 (2010).
79 *Id.*
80 Steinberg, *supra* note 51.
81 Willoughby, *supra* note 52.

immediate rewards than adults. Older individuals (ages 25–31) were more likely to simultaneously activate both the striatum and prefrontal cortex, which was associated with a decreased tendency to prefer immediate rewards.[82]

One interpretation of this effect is that the development of the prefrontal cortex is associated with reduced impulsivity, which, in turn, enhances the ability to make decisions that adequately weigh future outcomes. Developing connectivity between the striatum and prefrontal cortex may also influence future-oriented decision-making. For example, adults ages 25–30 exhibit enhanced brain connectivity between regions in the prefrontal cortex and striatum, and they are better at delaying gratification than both middle and late adolescents.[83] Longitudinal research testing of individuals ages 8–26 demonstrates that the strengthening of white matter connections between the prefrontal cortex and striatum may also account for why individuals are better able to delay gratification as they age.[84]

As a result of strengthening connections, adults may be more likely than adolescents or late adolescents to use the prefrontal cortex to regulate reward-related regions and decrease impulsive responses to reward. Ongoing development of functional and structural connectivity can also explain why future-oriented decision-making increases with age from ages 10 to 25.[85] The ability to delay gratification continues to develop during adulthood.

While adolescents typically privilege immediate rewards over long-term consequences, there are cases where adolescents can be more patient than adults. For example, when faced with a decision that requires an individual to integrate evidence over time, adolescents are more willing to wait for information before making a choice when a high-value reward is at stake.[86] This suggests that reward motivation may actually render adolescents less impulsive in certain situations.

82 Anastasia Christakou et al, *Maturation of Limbic Corticostriatal Activation and Connectivity Associated With Developmental Changes in Temporal Discounting*, 54 Neuroimage 1344 (2011); Wouter van den Bos et al, *Adolescent Impatience Decreases with Increased Frontostriatal Connectivity*, 112 Proc. Nat'l Acad. Sci. E3765 (2015).

83 Christakou, *supra* note 82.

84 Michelle Achterberg et al, *Frontostriatal White Matter Integrity Predicts Development of Delay of Gratification: A Longitudinal Study*, 36 J. Neurosci. 1954 (2016).

85 Bos, *supra* note 82.

86 Theresa Teslovich et al, *Adolescents Let Sufficient Evidence Accumulate Before Making a Decision When Large Incentives Are at Stake*, 17 Development Sci. 59, 59–70 (2014).

Section II: Miller Factors 2 and 3 Family and Home, Peer Influence

Second and third Miller factors: "the family and home environment that surrounds him—and from which he cannot usually extricate himself—no matter how brutal or dysfunctional . . . the circumstances of the homicide offense, including the extent of his participation in the conduct and the way familial and peer pressures may have affected him."

Impact of Adversity on Late Adolescent Brain Development

A growing body of research demonstrates that the early life environment significantly influences the developing brain. Middle and late adolescents involved in the criminal justice system have experienced childhood adversity and trauma at higher rates than the general population.[87] Some research estimates that up to 90% of justice-involved youth have experienced at least one adverse experience and that more than 20% meet criteria for post-traumatic stress disorder (PTSD).[88] This far exceeds the prevalence of PTSD in the general population in which approximately 5% of adolescents and 3.6% of adults meet criteria for post-traumatic stress disorder.[89]

These experiences influence behavioral development and have consequences for brain development.[90] Additionally, environmental social determinants, including racism and poverty, have a profound impact on health, quality of life, and criminal justice involvement.[91] For example, while nearly 4 out of every 10 children are poor for one year or more before they reach the age of 18, justice-involved youth are even worse off and are much more likely to be raised in poverty.[92] While many youth are resilient and childhood adversity does not set a determined destiny, exposure to stress and adversity during childhood and adolescence can produce long-term changes in both brain and behavior.[93]

87 Jessica Craig et al, *A Little Early Risk Goes a Long Bad Way: Adverse Childhood Experiences and Life-Course Offending in the Cambridge Study*, 53 J. Crim. Just. 34 (2017); Michael Baglivio et al, *The Prevalence of Adverse Childhood Experiences (ACE) in the Lives of Juvenile Offenders*, 3 J. Juv. Just. (2014).

88 Carly Dierkhising et al, *Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network*, 4 Eur. J. Psychotraumatology 20274 (2013).; Karen Abram, et al, *PTSD, Trauma, and Comorbid Psychiatric Disorders in Detained Youth*. OJDP Juv. Just. Bulletin (U.S. Dept. Just. Off. Juv. Justice & Delinquency Prev., Washington, D.C.), June 2013.

89 Nat'l Inst. Health, *Post-Traumatic Stress Disorder (PTSD)* (2019), https://www.nimh.nih.gov/health/statistics/post-traumatic-stress-disorder-ptsd [https://perma.cc/M53J-QDD7].

90 Jenifer Siegel et al, *Exposure to Violence Affects the Development of Moral Impressions and Trust Behavior in Incarcerated Males*, 10 Nature Comm. 1 (2019).

91 Lorch & Enlow, *supra* note 17.

92 Caroline Ratcliffe, *Child Poverty and Adult Success* (Urban Inst., Washington, D.C.) September, 2015 at 855–902.

93 Panagiota Pervanidou & George Chrousos, *Metabolic Consequences of Stress During Childhood and Adolescence*. *Metabolism,* 61 Clinical & Experimental 611, 611–619 (2012); Lisa Eiland & Russel Romeo, *Stress and the Developing Adolescent Brain*. 249 Neuroscience 162, 162–171 (2013); Lovallo, W. R. (2013). *Early Life Adversity Reduces Stress Reactivity and Enhances Impulsive Behavior: Implications for Health Behaviors.* 90 Int. J. Psychophysiology 8*,* 8–16.

Neurobiological changes during adolescence enhance vulnerability to the maladaptive effects of stress and adversity, and these effects can influence cognitive processes such as emotion regulation, impulsivity, and executive function.[94] Early life stress can impact the development of emotional regions, including the amygdala and striatum, and self-control regions, such as the prefrontal cortex. Exposure to early adversity is also associated with impaired reward processing, and youth who report early life adversity exhibit differences in the brain's structural connections that are important for learning from rewards.[95]

However, while adversity results in increased risk of poor outcomes, exposures to adversity do not dictate a fate.[96] Adolescence is a dynamic period of the lifespan that is shaped by interactions with both environmental and social factors.[97] Most adolescents' brain and behavioral responses can adapt to the many challenges that they face.[98] Moreover, the effects of psychosocial stress on the brain are not permanent, and these temporary changes in brain function can be reversed after reductions of stress occur.[99] As discussed further below, many young adults positively adapt despite adversity during childhood because they also have individual characteristics (e.g., intelligence, adaptability, ready engagement with others) or access to social circumstances (e.g., family stability and care, access to quality education, medical and behavioral health care, positive community activities) that buffer them from exposures to adversity and/or support a high degree of resilience.

Adversity comes in many forms and can result in psychological trauma, violence, poverty, neglect, and maltreatment.[100] These negative experiences during development increase the risk for psychopathology in late adolescence.[101] The extent of the impact on brain and behavioral development depends on the number and severity of adverse events that an individual encounters during early life.[102]

94 Nim Tottenham & Adriana Galván, *Stress and the Adolescent Brain: Amygdala-Prefrontal Cortex Circuitry and Ventral Striatum as Developmental Targets*, 70 Neuroscience & Biobehavioral Rev. 217 (2016).

95 Bryan Kennedy et al, *Accumbofrontal Tract Integrity is Related to Early Life Adversity And Feedback Learning.* 46 Neuropsychopharmacology 2288, 2288–2294 (2021).

96 *See generally* Emmy Werner, *What Can We Learn about Resilience from Large-Scale Longitudinal Studies?, in* Handbook of Resilience in Children 87–102 (S. Goldstein & R. B. Brooks ed., 2013).; Caitlin Cowan et al, *The Lasting Impact of Early-Life Adversity on Individuals and Their Descendants: Potential Mechanisms and Hope for Intervention*. 15 Genes, Brain, & Behavior 155, 155–168 (2015).

97 Courtney Simmons et al, *Responsible Use if Open-Access Developmental Data: The Adolescent Brain Cognitive Development (ABCD) Study*. 32 Psych. Sci. 866 (2021).

98 *Id.*

99 Conor Liston et al, *Psychosocial Stress Reversibly Disrupts Prefrontal Processing and Attentional Control.* 106 Proc. Nat. Acad. Sci. 912, 912–917 (2008).

100 Ronald Kessler et al, *Childhood Adversities and Adult Psychopathology in the WHO World Mental Health Surveys*, 197 Brit. J. Psychiatry 378 (2010); Lucy Fitton et al*, Childhood Maltreatment and Violent Outcomes: A Systematic Review and Meta-Analysis of Prospective Studies.* 21 Trauma, Violence, & Abuse 754, 754–768 (2020).

101 R. C. Kessler, K. A. McLaughlin, J. G. Green, M. J. Gruber, N. A. Sampson, A. M. Zaslavsky & C. Benjet, *Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys*, 197 Brit. J. Psych. 378 (2010).

102 Joan Luby et al, *Association Between Early Life Adversity and Risk for Poor Emotional and Physical Health in Adolescence: A Putative Mechanistic Neurodevelopmental Pathway*, 171 JAMA Pediatrics 1168, 1168–1175 (2017).

Contemporary psychological models[103] have classified early life adversity along two dimensions: exposure to *threat* and exposure to *deprivation*. Exposure to threat includes exposure to violence or abuse. Exposure to deprivation encompasses exposure to poverty, lack of resources, lack of access to mental stimulation and/or diminished parental or social support.[104] These different types of adversity (threat and deprivation) are associated with distinct effects on brain development and behavior.

Exposure to threat has the greatest impact on the brain processes that are involved in detecting threats, learning from emotional information, and regulating emotions.[105] This includes subcortical regions (such as the amygdala and striatum) as well as connections between subcortical systems and the prefrontal cortex. A 2019 study assessed differences between adolescents who were and were not exposed to child abuse.[106] When viewing emotional images, children who had been abused exhibited enhanced co-activation between the amygdala and the ventromedial prefrontal cortex, regions important for emotional regulation. Differences in brain activity in abused children also predicted the presence and severity of psychiatric symptoms two years later.

Exposure to deprivation most often influences the development of brain systems important for language development and executive function, such as the prefrontal and parietal cortex. Deprivation can be a result of growing up in an impoverished environment. Researchers found that youth growing up in poverty tended to display differences in the development of brain structure. Youth living in low socioeconomic environments are more likely to have smaller volume in subcortical regions such as the hippocampus (a region important for memory formation).[107]

A large-scale study of individuals ages 3–20 found that cortical development is also influenced by parental education and family income.[108] Adolescents from disadvantaged backgrounds have less cortical surface area in regions important for language, memory, and executive function. These differences in the brain could account for why underprivileged youth as a group exhibit worse cognitive performance than peers from high-resource backgrounds. Socioeconomic status also relates to differences in functional recruitment of the prefrontal cortex during tasks testing executive function.[109]

103 Katie McLaughlin et al, *Childhood Adversity and Neural Development: A Systematic Review*, 1 Ann. rev. Developmental psych. 277 (2019). *But see* Karen Smith & Seth Pollak, *Rethinking Concepts and Categories for Understanding the Neurodevelopmental Effects of Childhood Adversity,* 16 Persp. psych. sci. 67, 67–93 (2021) (presenting an alternative neurodevelopmental model of early life adversity).

104 McLaughlin, *supra* note 103.

105 Katie McLaughlin et al, *Mechanisms Linking Childhood Trauma Exposure and Psychopathology: A Transdiagnostic Model of Risk and Resilience*, 18 BMC Med. 1 (2020).

106 Matthew Peverill et al, *Atypical Prefrontal–Amygdala Circuitry Following Childhood Exposure to Abuse: Links with Adolescent Psychopathology*, 24 Child Maltreatment 411 (2019).

107 Natalie Brito & Kimberly Noble, *Socioeconomic Status and Structural Brain Development*, 8 Frontiers in Neuroscience 276 (2014).

108 Kimberly Noble et al, *Family Income, Parental Education and Brain Structure in Children and Adolescents*, 18 Nat. Neurosci. 773 (2015).

109 Emily Merz et al, *Socioeconomic Inequality and the Developing Brain: Spotlight on Language and Executive Function*, 13 Child Development Persp. 15 (2019).

It is critical to note that these changes in the brain may actually serve *adaptive* purposes which help adolescents function in their current environment.[110] Therefore, certain changes may be beneficial for adapting to a low-resource environment, but these same changes may pose challenges when individuals are placed in different contexts or are faced with new circumstances.[111] It is also important to appreciate there are many complexities surrounding the relationships between brain development and socioeconomic status. For example, external factors such as nutrition, exposure to toxins, safety, and even the frequency of verbal conversations in the home may contribute to these effects.[112] This means that many of the conditions affecting brain development that arise from poverty may be transient or remediable.

When early life adversity leads to psychological trauma, it has profound effects on brain and behavioral development. However, there is considerable individual variability.[113] A new frontier of research is investigating what factors foster childhood resilience in the face of adversity. For example, there is evidence that capacities for emotion regulation can buffer the effects of adversity. Individuals with a history of maltreatment who exhibit better emotion regulation skills, and who exhibit enhanced activity in the frontoparietal regions of the brain, are less likely to report symptoms of depression.[114]

The social environment can also confer resilience in youth. The presence of supportive caretakers/mentors and an emotionally warm and supportive family context can buffer the effects of stress and adversity in youth.[115] The research on resilience, while in its infancy, offers potential targets for intervention to support the healthy development of children and adolescents exposed to adversity.

Impact of Adversity on Late Adolescent Behavioral and Health Outcomes

Trauma is a potential consequence of adversity,[116] and there are many definitions of trauma. For example, one definition of trauma includes events that pose a "significant threat (physical, emotional, or psychological) to the safety of the victim or loved ones/friends and are overwhelming and shocking."[117] The Diagnostic and Statistical Manual of Mental Disorders provides the following threshold definition of trauma as Criteria A of post-traumatic stress disorder: "The person was exposed to: death, threatened death, actual or threatened serious injury, or actual

110 *Roper v. Simmons*, *supra* note 97.
111 *Id*.
112 Brito, *supra* note 107.
113 Emily Cohodes et al, *Influences of Early-Life Stress on Frontolimbic Circuitry: Harnessing a Dimensional Approach to Elucidate the Effects of Heterogeneity in Stress Exposure*, 63 Developmental Psychobiology 153 (2020).
114 Alexandra Rodman et al, *Neurobiological Markers of Resilience to Depression Following Childhood Maltreatment: The Role of Neural Circuits Supporting the Cognitive Control of Emotion*, 86 Biological Psych. 464 (2019).
115 Adriana Leak & Jennifer Silvers, *Neurobiological Markers of Resilience to Early Life Adversity During Adolescence*, 6 Biological Psych. Cog. Neurosci. & Neuroimaging 238, 238–247 (2020).
116 Valery Krupnik, *Trauma or adversity?* 25 Traumatology 256, 256–261 (2019).
117 Am. Psychl. Ass'n, *Clinical Practice Guideline for Treatment of Posttraumatic Stress Disorder (PTSD) in Adults,* February 24, 2017 https://www.apa.org/ptsd-guideline/ptsd.pdf (last visited December 20, 2021).

or threatened sexual violence, in the following way(s): direct exposure; witnessing the trauma; learning that a relative or close friend was exposed to trauma; indirect exposure to aversive details of the trauma, usually in the course of professional duties (e.g., first responders such as police or medics)."[118] As we've learned over the past several decades, adverse events that can overwhelm the individual and become psychologically traumatic events are not confined to clearly catastrophic contexts like war or natural disaster but can and do occur in everyday settings including schools, families, and communities.[119]

The Adverse Childhood Experiences Study (ACES) was a landmark study of over 17,000 individuals with health insurance through their employers and showed how adverse (e.g., potentially traumatic) events early in life have profound long-term deleterious effects on the physical and mental health of adults. The ACES study was limited to ten categories of trauma. These included caretaker maltreatment as a child, parental substance abuse or serious psychiatric illness, family violence, and parental incarceration.

However, other difficult childhood adversities such as exposure to community violence are associated with increased risk of emotional and behavioral dysregulation, learning difficulties, conduct problems, court involvement (child protection, status offender, delinquency, early criminal justice involvement), and future violence.[120] Even among this relatively well educated and employed population, exposure to childhood adversity was linked to increased risk of poor life outcomes including earlier onset of risk-taking behaviors, substance misuse, psychiatric diagnoses, smoking, earlier onset of medical conditions and earlier death, and sexual practices resulting in early or unintended pregnancy.[121] This study clearly demonstrated that the greater the number of childhood exposures, the greater the risks of negative life outcomes.

118 American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders 5 (2013); Trent et al, *The Impact of Racism on Child and Adolescent Health*. 144 Pediatrics 2144 e20191765 (2019).

119 Jeong-Kyun Choi et al, *Neighborhood Disadvantage, Childhood Adversity, Bullying Victimization, and Adolescent Depression: A Multiple Mediational Analysis*, 279 J. Affective Disorders 554, 554–562 (2021).

120 Kristen McCabe et al, *The Relation Between Violence Exposure and Conduct Problems Among Adolescents: A Prospective Study.* 75 Am. J. Orthopsychiatry 575, 575–584 (2005); Suzanne Estrada et al, *Individual And Environmental Correlates of Childhood Maltreatment and Exposure to Community Violence: Utilizing a Latent Profile and a Multilevel Meta-Analytic Approach.* 51 Psychol. Med. 1 (2021).

121 *See, e.g.*, Robert Anda et al*, The Enduring Effects of Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from Neurobiology and Epidemiology*. 256 Eur. Archives Psych. & Clinical Neurosci 174 (2011); Centers for Disease Control and Prevention, *About the CDC-Kaiser ACE study: Homepage.* https://www.cdc.gov/violenceprevention/aces/about.html (last visited December 20, 2021).

Social Determinants of Late Adolescent Wellbeing

Compared to earlier generations, late adolescents today face more challenges when removing themselves from difficult home environments.[122] While late adolescents who come from resource-rich families are often able to remove themselves from the family environment by pursuing a college education and living away from home, disadvantaged late adolescents (ages 18–21) are more likely to have fewer options when deciding where and with whom to reside. This can be disadvantageous when the home environment is high conflict or inattentive, criminogenic, dangerous, or otherwise toxic.

Like nearly all children in mid-adolescence who have limited choice about where and with whom they live, disadvantaged late adolescents may have no other option but to remain in a dysfunctional family environment[123] or in a turbulent neighborhood. Multilayered environmental stressors, including poverty, lack of access to resources and education, and unstable housing all contribute to a lack of agency. These factors work to substantially diminish or preclude an adolescent's ability to "extricate" oneself from a negative home or community situation. Each of the factors identified above has significant consequences for behavior, brain development, and future life outcomes.[124]

Racism, a social determinant[125] of poverty and health/educational inequality, also influences how youth of color are treated by the criminal justice system and society at large. For example, research indicates that beginning at age 10, youth who are Black are more likely to be mistakenly viewed as being older.[126] This can have significant implications for interactions with law enforcement and subsequent treatment by the court. Studies indicate that discrimination and racism also contribute to negative mental health for late adolescents,[127] including increased symptoms of anxiety and depression[128] and increased alcohol use.[129]

122 Jeffrey Arnett, *Emerging Adulthood: A Theory of Development from the Late Teens Through Early Twenties.* 55 Am. Psych. 69, 69–480 (2000); Jeffrey Arnett, *Does Emerging Adulthood Theory Apply Across Social Classes? National Data on a Persistent Question.*" 4 Emerging Adulthood 227, 227–35 (2020); Seth Schwartz, *Turning Point for a Turning Point: Advancing Emerging Adulthood Theory and Research,* 4 Emerging Adulthood 307, 307–17 (2016); James Côté, *The Dangerous Myth of Emerging Adulthood: An Evidence-Based Critique of a Flawed Developmental Theory*, 18 Applied Developmental Sci. 177, 177–88 (2014); Sara Sandberg-Thoma et al, *Exiting and Returning to the Parental Home for Boomerang Kids,* 77 J. Marriage & Family 806 (2015); Lei, Lei & Scott J. South, *Racial and Ethnic Differences in Leaving and Returning to the Parental Home: The Role of Life Course Transitions, Socioeconomic Resources, and Family Connectivity*, 34 Demographic Rsch. 109, 109–42 (2016).

123 Alison De Marco & Stephanie Berzin, *The Influence of Family Economic Status on Home-Leaving Patterns During Emerging Adulthood.* 89 Families in Society 208, 208–218 (2008).

124 Despite the challenges faced by disadvantaged adolescents, most young people are resilient and largely overcome adversity as they mature into early young adulthood, particularly if they are in environments or relationships that buffer them from long-term impact of adversities and foster resilience.

125 Social determinants may be highly contextual such as whether or not a youth resides in an area heavily surveyed by law enforcement or in a school system where school resource officers more commonly respond to students in crisis with arrest as opposed to de-escalation.

126 Phillip Goff et al, *The Essence of Innocence: Consequences of Dehumanizing Black Children.* 106 J. Personality & Soc. Psych. 526 (2014).

127 Donte Bernard et al, *Making The "C-ACE" for a Culturally-Informed Adverse Childhood Experiences Framework to Understand the Pervasive Mental Health Impact of Racism on Black Youth*. 14 J. Child & Adolescent Trauma 233, 233–247 (2020).

128 Regina Miranda et al, *Perceived Discrimination, Ruminative Subtypes, and Risk for Depressive Symptoms in Emerging Adulthood*. 19 Cultural Diversity & Ethnic Minority Psych. 395 (2013).

129 Noelle Hurd et al, *Does Perceived Racial Discrimination Predict Changes in Psychological Distress and Substance Use Over Time? An Examination Among Black Emerging Adults.* 50 Developmental Pscyh. 1910 (2014).

Further, discrimination has implications for physical health outcomes. A study of Black adolescents found that individuals who experienced higher levels of discrimination between the ages of 16–18, had higher levels of stress hormones[130] (e.g. cortisol, epinephrine, and norepinephrine), higher blood pressure, more inflammation, and higher body mass index by the age of 20.[131] Structural racism compounds difficulties for Black and Latino adolescents who are more likely to lack equal access to high quality education, employment (especially higher income jobs), safe housing, credit, and good health care.[132]

Specifically, Black children are less likely to be given the benefit of the doubt with regards to perceptions or judgments about their innocence and are more likely to be viewed as adults while White children are more often granted the presumption or privilege of innocence and are viewed as less culpable. In one study, perceptions of innocence for Black children ages 10–13 were equal to those for non-Black children ages 14–17 while perceptions of innocence for Black children ages 14–17 equaled those for non-Black subjects ages 18–21. In another study, Black felony suspects were perceived as being 4.5 or more years older than their actual age.[133] A similar disparity was also found in a study of police officers, where officers tended to overestimate the ages of Black and Latino children but not overestimate the ages of White children.[134]

Racial bias also influences the perception of threat.[135] In a study examining threat detection, researchers found that study participants were worse at correctly perceiving threat and neutral cues in Black faces as compared to White faces.[136] In a study of prospective teachers, Black children were incorrectly perceived as angry more often than White children.[137] This is consistent with other research which found that, while young age in general may moderate general threat associations, race-based threat associations persist throughout the lifespan, even when the individual is a young Black child.[138] Overall, these disparities together with research consistently finding disproportionate rates of arrest and incarceration of Black and Latino youth indicate that these youth do not receive the same community responses or protections as White children from the severity of juvenile and young adult consequences for misconduct.

130 Cortisol is a "stress hormone" that regulates the body's metabolic and immune responses, and high levels enhance alertness during stress. Epinephrine is a hormone that cues up the sympathetic nervous system by increasing heart rate and respiration rate during stress. Norepinephrine is released during times of stress, and its release stimulates action, arousal, and alertness.

131 Gene Brody et al, *Perceived Discrimination Among African American Adolescents and Allostatic Load: A Longitudinal Analysis With Buffering Effects*. 85 Child Development 989, 989–1002 (2014).

132 David Williams et al, *Racism and Health: Evidence and Needed Research.* 40 Ann. Rev. Pub. Health 105, 105–125 (2019).

133 Goff, *supra* note 126.

134 *Id.*

135 Jason Okonofua et al, *A Vicious Cycle: A Social-Psychological Account of Extreme Racial Disparities in School Discipline.* 11 Persp. Pscyh, Sci. 381, 381–398 (2016); Jason Okonofua & Jennifer Eberhardt, *Two Strikes: Race and the Disciplining of Young Students*. 26 Psych. Sci*.* 617, 617–624 (2015); Jennifer Eberhardt, Biased: Uncovering the Hidden Prejudice That Shapes What We See, Think, and Do (2020). Jennifer Eberhardt et al, *Seeing Black: Race, Crime, and Visual Processing*. 87 J. Personality & Soc. Pscyh 876, 876–893 (2004).

136 Glasgow, S., Imbriano, G., Jin, J., & Mohanty, A, *Is Threat Detection Black and White? Race Effects in Threat-Related Perceptual Decision-Making*. 20 Emotion 1495 (2020).

137 Amy Halberstadt et al, *Racialized Emotion Recognition Accuracy and Anger Bias of Children's Faces.* 8 Emotion (2020).

138 Andrew Todd et al, *Does Seeing Faces of Young Black Boys Facilitate the Identification of Threatening Stimuli?* 27 Psych. Sci. 384, 384–393 (2016).

Late Adolescent Sensitivity to Peer Influence

In addition to environmental influences, social influences in general and specifically peer involvements are more powerful for adolescents than adults. This has significant implications for adolescent decision-making, impulse control, and risk-taking behavior. In general, late adolescents are more likely to take risks in the presence of peers than when they are alone or when an adult is watching.[139] This is why many crimes committed by adolescents involve peers.

Why are adolescents more likely to engage in criminal behavior in the presence of peers?[140] Peer involvement results in greater risk-taking behavior and is associated with changes in brain responses during adolescence.[141] For example, middle and late adolescents elicit more brain activity in reward centers when receiving monetary incentives if a peer is present, compared to when they are alone. Specifically, peer presence enhances responses in a brain region that is important for motivation and reward processing (striatum). However, peer presence does not modulate neural responses to reward in adults ages 25–35.[142] This effect of peer presence on reward-related activity in the brain relates to enhanced risk-taking behavior. During a risk-taking task, adolescents ages 14–19 showed more activity in the striatum while peers were present than when they were alone, and this boost in brain activity was related to increased risk-taking behavior.[143]

Sensitivity to peer influence has direct consequences for real world behavior. Peer presence and social influence can contribute to risk of substance misuse during late adolescence. For example, when in a bar-like setting, late adolescents are more likely to imitate the drinking habits of their peers even without direct pressure to do so.[144] Similar effects have been reported for cigarette smoking—merely observing a peer smoke increased the chances that an individual would also smoke more than if they were explicitly asked to smoke.[145] This demonstrates that mere peer presence can result in imitative behavior which can be adaptive when modeling positive behavior or decision-making or maladaptive when involving health risks or poor decision-making.

139 Karol Silva et al, *Adolescents in Peer Groups Make More Prudent Decisions When a Slightly Older Adult is Present*, 27 Psych. Sci. 322 (2016); Raymond Bingham et al, *Peer Passenger Norms and Pressure: Experimental Effects on Simulated Driving Among Teenage Males.* 41 Transportation Rch. Part F, Traffic Psych & Behaviour 124, 124–137 (2016).

140 F. E. Zimring, American youth violence. (Oxford University Press on Demand 2020).

141 Albert, *supra* note 15.

142 Ashley Smith et al, *Age Differences in the Impact of Peers on Adolescents' and Adults' Neural Response to Reward*, 11 Developmental Cognitive Neurosci. 75 (2015).

143 Jason Chien et al, *Peers Increase Adolescent Risk-Taking by Enhancing Activity in the Brain's Reward Circuitry*, 14 Developmental Sci. F1 (2011).

144 Sander Bot et al, *Sociometric Status and Social Drinking: Observations of Modelling and Persuasion in Young Adult Peer Groups*. 35 J. Abnormal Child Psych. 929, 929–941 (2007).

145 Zeena Harakeh & Wilma Vollebergh, *The Impact of Active and Passive Peer Influence on Young Adult Smoking: An Experimental Study.* 121 J. Drug & Alcohol Dependence 220, 220–223 (2012).

Studies of decisions made during simulated driving exercises demonstrate that late adolescents and young adults take more risks when driving with peers.[146] The presence of peers at one point while driving persists in increasing risk-taking even when a participant later drives alone.[147] This sensitivity to peer influence is more pronounced in late adolescents than in adults. In a study of individuals ages 18–22, research participants were significantly more likely to engage in risk-taking when a peer was present, even if the participant was told the peer was unknown to them and observing from another room.[148] In another study, 18-year-olds were more likely to increase speeding behavior based on peer influence and peer pressure than individuals in their late twenties.[149] Digital communication can also influence risk-taking among late adolescents. Late adolescents were more likely to make risky decisions when exchanging brief, text-like communications with a peer than when alone or when a peer was passively observing them.[150]

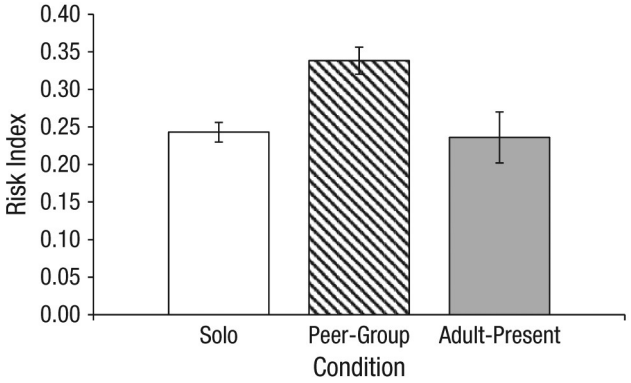

Figure 4: Silva et al. 2016. Risk-taking behavior when the late adolescent was alone (Solo), with four age 18-22 peers (Peer-Group), or with 3 18-22 peers and one young adult age 25-30 (adult present).

The specific composition of peer groups also influences risk-taking behavior. Notably, the presence of adults can reduce risky decision-making for late adolescents.[151] In a study testing late adolescent males ages 18–22, participants completed a set of risk-taking tasks either alone, in the presence of four 18–22 year old peers, or in the presence of three 18–22 year old peers and

146 Bruce Simons-Mortion et al, *The Observed Effects Of Teenage Passengers on the Risky Driving Behavior of Teenage Drivers*, 37 Accident Analysis & Prevention 973 (2005); Rui Pei et al, *Neural processes during adolescent risky decision-making are associated with conformity to peer influence*. 44 Developmental Cognitive Neuroscience 100794 (2020); Bingham, *supra* note 139; Christopher Cascio et al, *Buffering Social Influence: Neural Correlates of Response Inhibition Predict Driving Safety in the Presence of a Peer*. 27 J. Cognitive Neurosci, 83, 83–95 (2015). Marie Claude Ouiment et al, *The Effect of Male Teenage Passengers on Male Teenage Drivers: Findings From a Driving Simulator Study.* 58 Accident Analysis & Prevention 132, 132–139 (2013).

147 J. L. Shepherd et al, *Susceptible to Social Influence: Risky "Driving" in Response to Peer Pressure 1*, 41 J. Applied Soc. Psych.773 (2011).

148 Alexander Weigard et al, *Effects of Anonymous Peer Observation on Adolescents' Preference for Immediate Rewards*, 17 Developmental Sci. 71 (2014).

149 Mette Møller & Sonja Haustein, *Peer Influence on Speeding Behaviour Among Male Drivers Aged 18 and 28*, 64 Accident Analysis & Prevention 92 (2014).

150 R. Ross MacLean et al, *Digital Peer Interactions Affect Risk-Taking in Young Adults.* 24 J. Rsch. Adolescence 772, 772–780 (2014).

151 Silva, *supra* note 139.

one adult between ages 25–30. When only similarly aged peers were present, late adolescents exhibited more risk-taking behavior than when they were alone or when an older adult was present (Figure 4)[151]. Specifically, when peers were present, individuals made riskier decisions on a delay discounting task, meaning they were less likely to delay gratification.

While peer influence can promote maladaptive risk-taking behaviors, the presence and influence of peers can also reduce risk-taking or serve a prosocial function. For example, when presented with risky economic decisions, adolescents are just as likely to conform to peers whether they make risky or safe decisions.[152] Moreover, late adolescents as compared to early adolescents are more prosocial (sharing, giving) towards their friends than with less familiar peers.[153]

Notably, both health-risk behaviors (such as substance misuse) and prosocial behaviors (such as giving to or helping a peer) peak in late adolescence.[154] Together these findings demonstrate that peer influence can have both positive and negative impacts on decision-making.

Summary

Late adolescents are more influenced by their environment and by peers than are adults. Adolescents facing difficult circumstances in their home and community face challenges to their emotional and physical wellbeing, which can influence behaviors such as decision-making and self-control. These factors can lead to involvement with the criminal justice system. Despite these challenges, the vast majority of individuals over time will be successful and demonstrate resilience as they grow and mature (please see Section II at page 18 for additional discussion on resilience). This is most likely to be the case for late adolescents who are given positive social supports and have access to adequate resources (social, community, housing, health, educational, leisure, vocational).

152 Barbara Braams et al, *Developmental Patterns of Change in the Influence of Safe and Risky Peer Choices on Risky Decision-Making*, Developmental Sci. e12717 (2018).

153 Berna Güroğlu et al, *Sharing and Giving Across Adolescence: An Experimental Study Examining the Development of Prosocial Behavior,* 5 Frontiers Psych. 291 (2014).

154 Neeltje Blankenstein et al, *Behavioral and Neural Pathways Supporting the Development of Prosocial and Risk-Taking Behavior Across Adolescence*, 91 Child Development e665-e681 (2020).

Section III: Miller Factor 4 Understanding Legal Proceedings

Fourth Miller factor: "the incompetencies associated with youth" including an "inability to deal with police officers or prosecutors (including on a plea agreement)" and "incapacity to assist his own attorneys."

The decision of whether to invoke *Miranda* rights is often critical to the trajectory of a criminal case.[155] In 2019, law enforcement conducted more than 10 million arrests.[156] Many of these arrested individuals were subject to police interrogation. Decades of research suggests that many children and adolescents do not fully comprehend their *Miranda* rights or the implications of waiving *Miranda* rights.[157] For those in the age range of 18–21, the "temporal discounting" discussed in the previous sections may lead late adolescents to waive their rights in the heat of the moment, without fully appreciating the resulting consequences.[158] For example, despite future ramifications, a late adolescent may elect to waive their right to counsel and then provide or agree with information or statements consistent with an officer's expectations during interrogation in an attempt to end the interrogation.

Research indicates that like early/middle adolescents, late adolescents are more easily swayed by adult influence and coercion than their adult counterparts.[159] This vulnerability has unique implications for late adolescents' ability to effectively navigate interactions with law enforcement, including decisions about whether to assert *Miranda* rights and whether to disclose information or make a statement during police interrogation. Both susceptibility to adult influence and developmentally-based future discounting has implications for how late adolescents interface with the legal system, including judgments during plea bargaining and the extent to which they are able to meaningfully assist their defense attorneys. Additionally, due to racial profiling and cultural stereotypes that promote inaccurate perceptions of Black criminality, late adolescents who are Black are more likely to have had negative experiences with law enforcement and expect to be treated unfairly during interrogation, which can alter the decisions they make during interrogation.[160]

155 *Miranda* rights are 5th Amendment rights that attach when a person is taken into police custody and during custodial interrogation, including the right to remain silent and the right to an attorney.

156 Federal Bureau of Investigation, *FBI Releases: 2019 Crime Statistics* (2020) https://www.fbi.gov/news/pressrel/press-releases/fbi-releases-2019-crime-statistics., FBI (last visited Sep. 28, 2020) [https://perma.cc/V76M-QNZ6].

157 *See* Thomas Grisso, *Juveniles' Capacities to Waive* Miranda *Rights: An Empirical Analysis*, 68 Calif. L. Rev. 1134, 1166 (1980).

158 Late adolescents with cognitive or learning impairments are at heightened risk of misunderstanding *Miranda* rights. A review of over 350 juvenile *Miranda* warnings across the United States found over half of *Miranda* warnings required an eighth grade reading level or above. Richard Rodgers et al, *Juvenile Miranda Warnings: Perfunctory Rituals or Procedural Safeguards?* 39 Crim. Just. & Behavior 229, 229–249 (2012).

159 Cleary, *supra* note 16.

160 Cynthia Najdowski et al, *Stereotype Threat and Racial Differences in Citizens' Experiences of Police Encounters*, 39 L. & Human Behavior 463 (2015).

Neurocognitive Processes Underlying Late Adolescent Decision-making

Future Oriented Decision-Making

Compared to adults, late adolescents are more likely to prioritize immediate outcomes over long-term consequences.[161] Overvaluing immediate consequences has direct implications for waiving *Miranda* rights, making plea decisions, and susceptibility to falsely confessing.[162] As discussed in Section I (page 10), neuroscientists and psychologists have studied how future-oriented decision-making changes with age. Researchers measured a form of future-oriented decision-making, referred to as temporal discounting, by asking individuals to decide between accepting a smaller reward sooner or waiting longer to receive a larger reward (e.g., $5 today or $25 in four weeks). The ability to delay gratification and prioritize later outcomes continues to develop during adolescence and through young adulthood.[163]

Age-related changes in temporal discounting have been linked to the development of the prefrontal cortex,[164] a brain region that is important for thinking abstractly and making decisions about future outcomes. Future-oriented decision-making is associated with enhanced communication between the prefrontal cortex and subcortical regions that are responsive to rewards. Importantly, these connections continue to strengthen during late adolescence,[165] which can account for why late adolescents prioritize immediate outcomes and make more impulsive decisions.[166]

Because of this preference for immediate reward, adolescents may be more likely to comply with an authority figure with the goal of escaping an uncomfortable situation as quickly as possible. These differences in adolescent future orientation have implications for police interrogations.[167] For example, because adolescents may perceive the ability to go home as an immediate reward, adolescents may face increased pressure to make both true and false confessions,[168] including situations in which officers assure the youth or young adult that they will be permitted to go home if they will "just tell the truth" or "help us understand your involvement" in an alleged offense.

161 Grace Icenogle et al, *Adolescents' Cognitive Capacity Reaches Adult Levels Prior to Their Psychosocial Maturity: Evidence for a "Maturity Gap" in a Multinational, Cross-Sectional Sample,* 43 L. & Human Behavior 69 (2019).

162 Scientist Action and Advocacy Network, *Scientific Support for a Developmentally Informed Approach to Miranda Rights* (May 2, 2018) https://scaan.net/docs/20180607-MirandaReport.pdf (last visited December 20, 2021).

163 Eveline Crone & Nikolaus Steinbeis, *Neural perspectives on cognitive control development during childhood and adolescence.* 21 Trends in Cognitive Sci. 205*,* 205–215 (2017); Christopher Holmes et al, *Peer Influence, Frontostriatal Connectivity, and Delay Discounting in African American Emerging Adults,* 14 Brain Imaging & Behavior 155, 155–163 (2020).

164 Laurence Steinberg & Jason Chein, *Multiple Accounts of Adolescent Impulsivity*. 112 Proc. Nat. Acad. Sci. 8807, 8807–8808 (2015).

165 Michelle Achterberg et al, *Frontostriatal White Matter Integrity Predicts Development of Delay of Gratification: A Longitudinal Study.* 36 J. Neurosci. 1954, 1954–1961 (2016).

166 Bos, *supra* note 82.

167 Cleary, *supra* note 16.

168 Lindsay Malloy et al, *Interrogations, Confessions, and Guilty Pleas Among Serious Adolescent Offenders,* 38 L. & Human Behavior 181 (2014).

Decision-making Under Stress

A large body of research has demonstrated that acute stress impairs decision-making.[169] For example, evidence across multiple studies has shown that future-oriented decision-making is significantly impaired during highly stressful situations, and this effect is heightened in late adolescents and young adults.[170] The effect of stress on decision-making is especially pronounced when individuals are faced with social stressors, and when they are required to make decisions about uncertain outcomes.[171] For example, an adolescent or young adult defendant's capacities for considering likely future outcomes may be compromised in situations where police insist "that you talk with us right now and we'll put in a good word for you with the prosecutor" or they are informed that "the plea deal needs to be done right now" or the offer will be withdrawn and harsh sentencing recommendations will be offered to the court if the defendant is later convicted after a trial.

Interactions with law enforcement and authorities induce heightened stress and arousal in youth.[172] Research has demonstrated that adolescents experience heightened physiological stress responses when speaking in front of authorities or when being evaluated by adults.[173] When feeling stressed, both middle and late adolescents are more likely to make risky decisions.[174] A study evaluated risky decision-making and self-control performance when adolescents ages 14–21 were experiencing low and high stress life events. Results indicated that when adolescents were highly stressed, they made more risky decisions when they were presented with choices about uncertain financial outcomes. This suggests that when stressed, adolescents are more likely to pursue immediately rewarding outcomes without factoring in the potential costs of their actions and less likely to weigh the consequences of their decisions. This research again demonstrates the vulnerability of adolescents when making substantive decisions during arrest, interrogation, or high-stress moments throughout subsequent legal proceedings.

Stress influences activity in the prefrontal cortex,[175] and stress can alter communication between the prefrontal cortex and subcortical regions that are responsive to emotional and salient information.[176] A recent study testing adolescents and young adults found that the extent of structural connectivity between the prefrontal cortex and the striatum, a region

169 Anthony Porcelli & Mauricio Delgado, *Stress and Decision-Making: Effects on Valuation, Learning, and Risk-Taking,* 14 Current Opinion Behavioral Sci .33, 33–39 (2017).

170 Sherecce Fields et al, *The Relationship Between Stress and Delay Discounting: A Meta-Analytic Review*. 25 Behavioural Pharmacology 434, 434–444 (2014).

171 Oriel FeldmanHall et al, *The Effects of Social Context and Acute Stress on Decision-Making Under Uncertainty,* 26 Psych. Sci 1918, 1918–1926 (2015).

172 Cleary, *supra* note 16.

173 Jessica Seddon et al, *Meta-Analysis of the Effectiveness of the Trier Social Stress Test in Eliciting Physiological Stress Responses in Children and Adolescents*. 116 Psychoneuroendocrinology 104582 (2020).

174 Adriana Galván & Kristine McGlennen, *Daily Stress Increases Risky Decision-Making in Adolescents: A Preliminary Study*, 54 Developmental Psychobiology 433, 433–440 (2012).

175 Reinoud Kaldeqaij et al, *Frontal Control Over Automatic Emotional Action Tendencies Predicts Acute Stress Responsivity,* 4 Biological Psych.: Cognitive Neurosci. & Neuroimaging 975, 975–983 (2019).

176 J. Van Oort et al, *How the Brain Connects in Response to Acute Stress: A Review at the Human Brain Systems Level.* 83 Neurosci. & Biobehavioral Rev. *281,* 281–297 (2017).

responsive to rewards, was associated with risky decision-making during stressful conditions.[177] Individuals with weaker connectivity were more likely to make risky decisions during highly stressful situations. Because these connections continue to develop during adolescence and into young adulthood, the late adolescent brain may be especially vulnerable to the effects of acute stress.[178]

Development of the prefrontal cortex can also influence how late adolescents respond in vigilant states when they are anticipating potential threats.[179] When faced with acute threats, late adolescents (ages 18–21) respond more impulsively than young adults (ages 22–25). This enhanced impulsivity is associated with decreased recruitment of the prefrontal cortex. Notably, late adolescents' brain responses look more like those of middle adolescents (ages 13–17) than those of young adults (ages 22–25). Together, these findings demonstrate that adolescent decision-making and impulsivity may be more vulnerable to psychosocial stress than young adults, which can have implications for how late adolescents proceed when faced with interrogation. This includes impulsively confessing during an interrogation or providing information in the heat of the moment that an adult would be less likely to disclose.

Interrogation also uniquely impacts the physiological and biological arousal of late adolescents when confronted with coercive interrogation techniques. For example, the condition of *actual* innocence produced "immediate and fundamental" differences in suspects when examining systolic and diastolic blood pressure and various respiratory measures.[180] This translated to a significantly lower level of physiological arousal. Researchers hypothesized that this lower level of arousal contributed to the failure of innocent suspects to perceive the potential dangers of continuing to participate in an interrogation.

This, in turn, increased the likelihood that innocent participants would waive their *Miranda* rights because they naively believed that they would be able to convince police of their innocence. This physiological under-arousal and failure to assert their *Miranda* rights contributed to prolonged interrogation and increased the risk of false confession. For late adolescents, interrogation of both suspects who are innocent and who are guilty prompt different but powerful physiological responses which increase likelihood of false confession. Innocent subjects often fail to appreciate the jeopardy they are in and continue interrogation in the misguided belief that they can convince the interrogators of their innocence. Guilty subjects may fail to assert *Miranda* rights due to a stress-driven desire to promptly get out of an acutely anxiety-provoking encounter by appearing cooperative and perhaps acknowledging aspects of the allegations in an effort to mollify the interrogators.

177 Jessica Uy & Adriana Galván, *Individual Differences in Accumbofrontal Tract Integrity Relate to Risky Decisions Under Stress in Adolescents and Adults,* 45 Developmental Cognitive Neuroscience 100859 (2020).

178 Tottenham, *supra* note 94.

179 Cohen, *supra* note 12.

180 Max Guyll et al, *Innocence and Resisting Confession During Interrogation: Effects on Physiologic Arousal*. 37 L. & Human Behavior 366–75 (2013).

181 *J.D.B. v. North Carolina*, 564 U.S. 261 (2011).

Decision-making in Legal Contexts

The United States Supreme Court acknowledged age-related susceptibility to adult influence within the context of *Miranda* rights and in the landmark case *J.D.B. v. North Carolina*.[181] At the time of the interrogation, 13-year-old special education student J.D.B. was suspected of two break-ins. Without being provided with his *Miranda* warnings, J.D.B. was questioned by a uniformed police officer at school behind closed doors. While J.D.B. initially denied involvement in the burglaries, J.D.B. confessed after the officer encouraged him to tell the truth and threatened him with the possibility of juvenile detention. It was only then that the officer informed the student that he could refuse to answer questions or leave. Over the course of 30 to 45-minutes, J.D.B. verbally and in writing provided details of the crimes.

In remanding the case to state court, Justice Sotomayor observed:

"It is beyond dispute that children will often feel bound to submit to police questioning when an adult in the same circumstances would feel free to leave. Seeing no reason for police officers or courts to blind themselves to that commonsense reality, we hold that a child's age properly informs the *Miranda* custody analysis."[182]

In broadening the "in custody" test to include a consideration of the suspect's age, the majority reasoned that children and adults experience their surroundings differently and that certain settings are inherently more coercive to youth. This was a significant shift in the *Miranda* custody analysis. Post-*J.D.B.*, a child's age can be an important factor in determining whether a juvenile suspect was "in custody" and thus entitled to *Miranda* protections. However, despite the developmental similarities between late adolescents and middle adolescents, thus far, state appellate courts and the United States Supreme Court have declined to extend *J.D.B.*'s consideration of age to late adolescents.[183, 184]

182 *Id*. at 264–65.

183 *See, e.g., United States v. Eaton*, No. CR1801795TUCJGZBGM, 2019 WL 2135878, at *7 (D. Ariz. May 16, 2019) ("Defendant points to his age as a factor noting that 'a reasonable child subjected to police questioning will sometimes feel pressured to submit when a reasonable adult would feel free to go.' Mr. Eaton was twenty-one (21) at the time of the incident, and although a young adult he was not a child. In fact, Mr. Eaton is a father. The Court finds that Mr. Eaton's age is not a factor invalidating his consent.") (citations omitted); *People v. McCullough*, No. 311083, 2013 WL 195607, at *5 (Mich. Ct. App. 2013); *United States v. Hunter*, 912 F. Supp. 2d 388, 399 (E.D. Va. 2012); *State v. Wentzel*, No. A15–1495, 2016 WL 3884417, at *2 (Minn. Ct. App 2016).

184 Some courts have determined that both youth and race must be taken into account in determining reasonableness under the 4th Amendment seizure principles. *See, e.g., Commonwealth v. Tykorie Evelyn*, 485 Mass. 691, 152 N.W.3d 108 (Mass. 2020). ("Going forward, however, the age of a juvenile suspect, if known to the officer or if objectively apparent to a reasonable officer, will be part of the totality of the circumstances relevant to whether the juvenile was seized under art. 14 of the Massachusetts Declaration of Rights....With respect to the defendant's arguments on race, we have examined the continued relevance of our reasoning in *Commonwealth v. Warren*, 475 Mass. 530, 540 (2016), on the question of reasonable suspicion. In that case, we concluded that an innocent African-American man in an urban area might flee from police for fear of racial profiling, and therefore the weight of the inference properly given to flight should be less when the individual is African-American. *See id.* We conclude that this reasoning remains pertinent to the reasonable suspicion analysis and should be extended to other types of nervous or evasive behavior in addition to flight.")

False Confessions

As indicated previously, late adolescents are less equipped to appreciate long-term consequences and make complicated decisions when in emotionally-driven contexts where they are given very limited time to decide on a course of action.[185] These deficits are exacerbated in high stress situations. Arguably, few experiences are more stressful than interrogation by armed uniformed police officers. Research has established a connection between coercive techniques, such as feigned eyewitnesses and promises of leniency, and false confessions.[186] According to the National Registry of Exonerations, the false confession rates for adolescents are three times higher than the rates for adults.[187]

Many of the developmental factors discussed in earlier sections also contribute to increased risk of false confessions in late adolescents. Due to the impact of peer influence and heightened allegiance to peers, as discussed in Section II (page 18), late adolescents may be more likely to be hesitant to expose a peer's behavior even if the disclosure mitigates the extent of their own involvement in the crime or exonerates them. They may even take responsibility for acts they did not commit out of misplaced loyalty to a peer.

There are two main causes of false confessions. The first category emanates from coercive interrogation techniques including coercive questions, comments, and conduct. The second category includes mental states where the defendant's mental status creates vulnerabilities to suggestibility or disruptions of deliberative decision-making due to mental illness, cognitive impairment, or substance use.[188]

False Self-Incrimination

In 1996, the first experimental study on false confessions was conducted using late adolescent college students who were instructed not to hit the ALT key on a computer keyboard.[189] In this study, after being accused of having hit the ALT key, nearly 70% agreed to sign a confession falsely admitting they had hit the ALT key while typing. Approximately 39% were led to believe they had actually pressed the key and nearly 10% offered corroborating facts and details. Notably, in a test condition where participants were instructed to type at a more rapid speed and where confederate witnesses were present to support the accusation, 100% of

185 Casey, *supra* note 12; Willoughby, *supra* note 52; Bernd Figner et al, *Affective and Deliberative Processes in Risky Choice: Age Differences in Risk-Taking in the Columbia Card Task*. 35 J. Exp. Psych: Learning, Memory & Cognition 709 (2009); Erik de Water, et al, *Distinct age-related differences in temporal discounting and risk-taking in adolescents and young adults*, 85 Child Development 1881, 1881–1897 (2014).

186 *See, e.g.,* Melissa Russano et al., *Investigating True and False Confessions Within a Novel Experimental Paradigm*, 16 Psychol. Sci. 481, 482 (2005).

187 Samuel Gross & Rob Warden, *Exonerations in the United States, 1989 through 2012,* Rep. from Nat.l Reg. Exonerations (U. Mich./Nw U. L. Center on Wrongful Convictions), 2012; *see generally* Barry Field, Kids, Cops, and Confessions: Inside the Interrogation Room (2012).

188 There are significant ethical barriers to conducting comparison research studies of coerced false confessions, as inducing harm to research subjects is prohibited and inhibits the research replication of strong-arm tactics. As researchers over the years have attempted to move away from theoretical study and replicate the psychological pressure of the interrogation room while avoiding harm to research subjects, they have developed alternative ways to study coercion.

189 Saul Kassin & Katherine Keichel, *The Social Psychology of False Confessions: Compliance, Internalization, and Confabulation*, 7 Psychol. Sci. 125, 125 (1996).

participants gave a false confession. This experiment, and subsequent studies, demonstrated that when late adolescent populations are confronted with false incriminating evidence, a common technique used by police, individuals may falsely confess to actions and may even come to believe they had acted in ways they did not.

This pattern of false confessions was observed again when researchers conducted a study of late adolescents that created an environment more analogous to police interrogation. Social scientists orchestrated a "cheating" experiment where 330 undergraduate students were assigned to complete individual and joint problem-solving activities with a confederate who posed as a participant.[190] Each undergraduate student was then told they had identical wrong answers on a problem and that a professor had been made aware of the situation and was upset about the sharing of answers and so was weighing appropriate consequences. Research subjects were then interrogated and given a statement to sign that indicated they had cheated. They were also told that if they did not sign the statement, the professor would be called into the laboratory to address the situation with the implication being this would make things worse for the student.

Without interrogation, confession rates were 46% for guilty participants and 6% for innocent participants. The use of two interrogation techniques—promises of leniency ("Things could probably be settled pretty quickly") and minimization ("I'm sure you didn't realize what a big deal it was")—elevated the confession rate to 87% for guilty participants and 43% for innocent participants. The high rate of confessions by innocent participants offered leniency demonstrated that people without mental illness or cognitive impairment, and particularly those in the late adolescent age range, can be led to confess when they believe that asserting their innocence could lead to a potentially worse outcome.

False Memory and Peer Influence

Late adolescents are also more vulnerable to false memory formation than adults. Researchers compared youth ages 16–23 with adults ages 29–58 using a classic false memory task.[191] Compared to adults ages 29–58, youth ages 16–23 were more likely to report recalling that they saw a word that had just been implied but never actually shown to them previously. This study suggests that late adolescents and young adults are more likely to form false memories than adults. Similar research showed that the tendency to report false memories increases during adolescence from ages 11 to 21.[192] This body of research indicates that late adolescents are more prone to false memory formation. This also has implications for statements made by late adolescents during interrogation, particularly when inaccurate information is intentionally or inadvertently introduced or implied during interrogation.

190 Melissa Russano et al., *Investigating True and False Confessions Within a Novel Experimental Paradigm*, 16 Psychol. Sci. 481, 482 (2005).

191 L. Meusel et al, *Youth Are More Vulnerable to False Memories Than Middle-Aged Adults Due to Liberal Response Bias.* 21 J. Can. Acad. Child & Adolescent Psych. 289 (2012).

192 Katherine McGuire, Kamala London & Daniel Wright, *Developmental Trends in False Memory Across Adolescence and Young Adulthood: A Comparison of DRM and Memory Conformity Paradigms*, 29 Applied Cognitive Psych. 334, 334–344 (2015).

Adolescent memory is also susceptible to peer influence. When late adolescents are given information attributed to a friend, they are more likely to be influenced by the friend's statement.[193] In one research study, the impact of social influence was consistent from ages 11 to 21. This demonstrates that late adolescents are just as susceptible to peer influence as early to middle adolescents.

During interrogation, adolescents are also more likely to selectively share information to protect their friends. This tendency is especially strong in late adolescence and can have implications for false confessions. Middle and late adolescents are more prone to prosocial risk-taking than young adults, but they are also more likely to take a risk to benefit a peer because they underweight the personal risks at stake.[194] For example, middle and late adolescents (ages 16–21) are more likely to engage in high-cost prosocial behaviors to defend friends and family members compared to strangers.[195] Further, research on late adolescence has demonstrated that friendship closeness can predict the willingness of an individual to take the blame for a friend's offense.[196] This means that late adolescents are willing to compromise their own reputations and perhaps even their liberty to benefit their close friends despite negative personal consequences.

Contextual Influences and Individual Differences

Lastly, an additional consideration is that late adolescents held in jail pending trial are more likely to face a difficult environmental context, which could lead them to be at increased risk of falsely confessing to a crime as a means of being released from jail. Incarceration challenges for this population include increased exposure to potentially traumatizing adversities including rape and physical assault.[197] This population is also more likely to be held in solitary confinement, which is uniquely emotionally stressful for late adolescents due to this population's heightened need for social interaction.[198] This may lead to individuals within this age group (more so than adults) confessing to crimes or accepting plea bargains when they otherwise would maintain their innocence.

193 Katherine McGuire, Kamala London & Daniel B. Wright, *Peer Influence on Event Reports Among Adolescents and Young Adults,* 19 Memory 674, 674–683 (2011).

194 Kathy Do et al, *But Is Helping You Worth The Risk? Defining Prosocial Risk-Taking in Adolescence.* 25 Developmental Cognitive Neurosci. 260, 260–271 (2017).

195 Laura Padilla-Walker et al, *Longitudinal Change in High-Cost Prosocial Behaviors of Defending and Including During the Transition to Adulthood,* 47 J. Youth & Adolescence 1853, 1853–1865 (2018).

196 Willard, J., & Burger, C. (2018). *Willingness to Falsely Take Blame Among Friends: Closeness, Reporting Wrongdoing, and Identity,* 39 Deviant Behavior 981 (2018).

197 Listwan, S. J., Daigle, L. E., Hartman, J. L., & Guastaferro, W. P. (2014). *Poly-victimization Risk in Prison: The Influence of Individual And Institutional Factors.* 29 J. Interpersonal Violence 2458 (2014).

198 *See, e.g.,* J. Lee, *Lonely Too Long: Redefining and Reforming Juvenile Solitary Confinement*. 85 Fordham L. Rev. 845 (2016).

Overall, developmental neuroscience, social science, and behavioral health research over recent decades has established that late adolescents as a group can make sound decisions when in circumstances supporting calm reflection with opportunities to communicate with others about the decisions to be made. However, when they are exposed to certain coercive and/or emotionally charged circumstances where they feel pressured to make specific statements or acknowledgements, feel as though they have limited options, and are under time pressures to decide or take action, late adolescents are vulnerable to making decisions that undermine their exercise of fundamental Constitutional protections.[199]

199 *See, e.g.,* Field, *supra* note 188.

Section IV: Miller Factor 5
Greater Potential for Rehabilitation

Fifth Miller factor: The greater potential for rehabilitation of youth, the limits of risk assessment, and the high likelihood of desistance from misconduct with maturation

Adolescent Brains Are Poised for Learning

Late adolescents exhibit enhanced neural sensitivity to rewards, as compared to children and adults,[200] which enhances the vulnerabilities for risk-taking described above, but also creates a window of opportunity for prosocial learning and adaptation.[201] A longitudinal learning study tested individuals ages 8–25 and found that increased activity in a key reward region in the brain (striatum) that receives inputs from dopamine centers supports learning improvements during late adolescence.[202] Developmental changes in the dopamine system increase plasticity in the brain. "Plasticity" is the term describing the brain's ability to change and adapt in response to experience. The prolonged period of plasticity during adolescence through young adulthood is also a time during which youth are neurologically primed to learn from experience.[203,204]

During late adolescence, connections between the striatum and prefrontal cortex strengthen. These developing connections support goal-directed behavior,[205] and stronger connections between the prefrontal cortex and the striatum are associated with adaptive learning strategies. Relative to children and early-middle adolescents, late adolescents ages 18–21 are more likely to update and refine their decision-making strategies after receiving rewards for "successful" decisions. This change in learning strategy is associated with enhanced connectivity between

200 Barbara Braams et al, *Longitudinal Changes in Adolescent Risk-Taking: A Comprehensive Study of Neural Responses to Rewards, Pubertal Development, and Risk-Taking Behavior.* 35 J. Neurosci 7226, 7226–7238 (2015).

201 Samantha DePasque & Adriana Galván, *Frontostriatal Development and Probabilistic Reinforcement Learning During Adolescence*, 143 Neurobiology Learning & Memory 1 (2017); Juliet Davidow et al, *An Upside to Reward Sensitivity: The Hippocampus Supports Enhanced Reinforcement Learning in Adolescence,* 92 Neuron 93 (2016).

202 Sander Peters & Eveline Crone, *Increased Striatal Activity in Adolescence Bene its Learning*, 8 Nature Communications 1 (2017).

203 Surjeet Mastwal et al, *Phasic Dopamine Neuron Activity Elicits Unique Mesofrontal Plasticity in Adolescence*, 34 J. Neuroscience 9484 (2014).

204 Vishnu Murty, Finnegan Calabro & Beatriz Luna, *The Role of Experience in Adolescent Cognitive Development: Integration of Executive, Memory, and Mesolimbic Systems*, 70 Neurosci. & Biobehavioral Rev. 46 (2016).

205 Catherine Insel et al, *Development of Corticostriatal Connectivity Constrains Goal-Directed Behavior During Adolescence,* 8 Nature Comm. 1 (2017); Juliet Davidow, Catherine Insel & Leah Somerville, *Adolescent Development of Value-Guided Goal Pursuit,* 22 Trends Cognitive Sci. 725 (2018).

the striatum and prefrontal cortex.[206] When learning from feedback, research indicates that late adolescents are more responsive to positive feedback (including both material rewards and social rewards such as praise and recognition) than to punishments.[207]

The neuroscience and behavioral research indicate that late adolescents are particularly well suited to learning from experience given the right circumstances and contexts. Further, positive reinforcement may be especially beneficial for adolescent learning, as late adolescents are more responsive to learning from reward than punishment. This has direct consequences for intervention and rehabilitation, as the research demonstrates that late adolescents are more likely to learn from the outcomes of their experiences to change their behavior[208] unless their capacities for social and other learning are compromised by psychiatric, developmental, or cognitive challenges. This, of course, has direct bearing for how to best promote positive behavioral change in youths.

Middle and Late Adolescent Behavior Patterns and Emerging Personality Features Are More Malleable Than Those of Adults

As noted by the United States Supreme Court in *Roper, Graham,* and *Miller,* the frequency of criminal offending increases in late adolescence and then tapers off in early adulthood.[209] Most late adolescents who are chronically involved in the criminal justice system and/or commit violent acts are likely to self-desist from or "age out" of crime as they enter into adulthood, with or without punitive intervention.[210] As discussed in Section I (page 10), middle and late adolescence is a time where individuals are predisposed to impulsive decision-making, preferring immediate over delayed rewards (future discounting), and peer influence.

In 2019, there were more than 10 million crimes committed in the United States. Individuals ages 18–20 accounted for 8% of all offenses and 8.76% of all violent offenses.[211] In a criminal trajectory study, which included individuals who were classified as persistent and serious

206 Wouter can den Bos et al, *Striatum–Medial Prefrontal Cortex Connectivity Predicts Developmental Changes In Reinforcement Learning*, 22 Cerebral Cortex 1247 (2012).

207 Dorothea Hämmerer et al, *Life Span Differences In Electrophysiological Correlates Of Monitoring Gains And Losses During Probabilistic Reinforcement Learning*, 23 J. Cognitive Neuroscience 579 (2011); Katherine Luking et al, *Do Losses Loom Larger for Children than Adults?* 16 Emotion 338 (2016).; Catherine Insel & Leah Somerville, *Asymmetric Neural Tracking of Gain and Loss Magnitude During Adolescence*, 13 Soc Cognitive & Affective Neurosci. 785 (2018).

208 Arielle Baskin-Sommers et al, *Towards Targeted Interventions: Examining the Science Behind Interventions for Youth Who Offend.* 5 Ann. Rev. Criminology (forthcoming 2022).

209 Natsuaki Misaki, Xioajia Ge & Ernst Wenk, *Continuity and Changes in the Developmental Trajectories of Criminal Career: Examining the Roles of Timing of First Arrest and High School Graduation*, 37 J. Youth & Adolescence 431, (2008).

210 Terrie Moffit, *Male Antisocial Behaviour in Adolescence and Beyond*, 2 Nature Human Behaviour 177 (2018); Georg Kessler, *Delinquency in Emerging Adulthood: Insights into Trajectories of Young Adults in a German Sample and Implications for Measuring Continuity of Offending*. 6 J. Developmental & Life-Course Criminology 424, 424–447 (2020); Maryann Davis et al, *Reducing Recidivism and Symptoms in Emerging Adults with Serious Mental Health Conditions and Justice System Involvement*. 42 J. Behavioral Health Services & Rsch. 172, 172–190 (2015).

211 *See* Off. of Juvenile Justice and Delinquency Prevention, *Estimated number of arrests by offense and age group*, U.S. Dep't Just. (2019), https://www.ojjdp.gov/ojstatbb/crime/ucr.asp?table_in=1 [https://perma.cc/T6H7–3LWX].

delinquents, most individuals who committed serious crimes at 17 and 18 (including armed robbery and felony assault) did not continue to engage in antisocial behavior into adulthood, following court involvement.[212]

Violent crime peaks at ages 17–19 and decreases in the early twenties.[213] While counterintuitive, a robust body of research indicates that committing a violent crime before age 20 is not a strong predictor of a persistent criminal trajectory.[214] While there are no research studies involving solely late adolescents, research indicates that early and middle adolescents who commit homicides have similar rates of desistance from misconduct to youth who commit other kinds of less serious offenses, and committing a homicide in adolescence is not itself a predictor of either future violent or non-violent recidivism .[215]

This is in part, because—as discussed in Section I (page 10)—characteristics such as impulsivity, poor decision-making in "hot cognition" contexts and susceptibility to peer influence diminish as the brain continues to develop. However, while *most* late adolescents who commit crimes do not significantly penetrate the adult criminal justice system, pre-adolescent onset of criminal behavior is associated with a higher likelihood of persistent criminal offending behavior [216] and greater exposure to childhood adversities.[217] Versatility of criminal offending is also more likely among those who continue to commit more serious crimes into adulthood.[218] However, as previously noted, *most* chronic and repeat offenders in youth do not persist into adulthood.

Adolescence Gives Rise to Developmentally Expectable Changes in Behavior

Adolescence is characterized by evolving identity, fluctuating family and social relationships, changing motivations and goals, and maturing physical characteristics and cognitive abilities.[219] Adolescent brains continue to develop as they amass life experience. Brain development also responds to the characteristics of the specific physical and social environment within which the adolescent is maturing. Their decision-making, relationships, their ways of understanding the world they navigate, emotional regulation, and behaviors will necessarily change with age as

212 Edward Mulvey et al, *Trajectories of Desistance and Continuity in Antisocial Behavior Following Court Adjudication Among Serious Adolescent Offenders*, 22 Development & Psychopathology 453 (2010).

213 *See, e.g.*, Off. Juv. Just. Delinq. Prot., *Law Enforcement & Juvenile Crime: Arrests by Offense, Age, and Gender,* U.S. Dep't of Justice (Oct. 21, 2019), https://www.ojjdp.gov/ojstatbb/crime/ucr.asp?table_in=1 [https://perma.cc/T6H7–3LWX]; Alex Piquero, et al, *Criminal Career Patterns*, *in* From Juvenile Delinquency to Adult Crime: Criminal Careers, Justice Policy, and Prevention 14 (Rolf Loeber & David P. Farrington eds., 2012).

214 *See* Piquero, *supra* note 215.

215 Elizebth Cauffman & Laurence Steinberg, *(Im)Maturity of Judgment in Adolescence: Why Adolescents May Be Less Culpable Than Adults*, 18 Behav. sci. & l. 741 (2000); M. DeLisi, A.R. Piquero & S. M. Cardwell, *The unpredictability of murder: Juvenile homicide in the pathways to desistance study*, 14 Youth Violence & Juv. Just. 26 (2000).

216 Terrie Moffitt, *Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy*, 100 Psychol. Rev. 674 (1993).

217 Michael Baglivio et al, *The Relationship Between Adverse Childhood Experiences (ACE) and Juvenile Offending Trajectories in a Juvenile Offender Sample*, 43 J. Crim. Just. 229, 229–241 (2015).

218 Moffit, *supra* note 218.

219 Casey, *supra* note 18.

each person transitions across adolescence and young adulthood. For example, development of the prefrontal cortex is accompanied by improvements in self-control and decision-making[220] that are reflected in desistance of misconduct, diminished impulsivity and risk-taking, and long-term planning towards goals.

This is developmentally to be expected. It is currently not possible to reliably predict an individual adolescent's future developmental trajectory based upon current presentation and past history. This is partly because of the high rates of desistance from antisocial conduct as youth mature into young adulthood and partly because behavioral, emotional, and attitudinal changes are expected components of adolescent development.[221] It is also currently scientifically impossible to reliably predict how much or how quickly an individual will change with age based on their presumed brain development, history, or current behavioral profiles.[222]

While adolescents, as compared to adults, may exhibit increased impulsivity and riskier decision-making, these behaviors are ordinarily temporary and developmentally expected.[223] In certain situations, enhanced risk-taking tendencies can be adaptive to promote learning and exploration.[224] These changing behaviors help adolescents navigate the world as they seek to establish autonomy and self-efficacy in society, including risk-taking to achieve positive goals. However, this developmental brain-based behavioral profile also increases risk for problematic behaviors during adolescence.[225] Risk-taking and impulsivity peak during childhood and adolescence and then decrease with age.[226] This developmental trajectory is reflected in age-related changes in delinquent and criminal misconduct (primarily property, substance possession, and other non-violent misconduct), which surges from early through late adolescence and then declines during young adulthood.[227]

220 Catherine Insel et al, *Development of Corticostriatal Connectivity Constrains Goal-Directed Behavior During Adolescence,* 8 Nature Comm. 1 (2018); Davidow, *supra* note 207.

221 Brief of Amici Curiae Professional Organizations, Practitioners, and Academics in the Fields of Neuroscience, Neuropsychology, and Other Related Fields in Support of Petitioner, *Wardlow v. State of Texas*, 141 S. Ct. 190 (2020) (No. 19–8712), https://www.supremecourt.gov/DocketPDF/19/19–8712/145983/20200619160740671_19–8712%20-%20Wardlow%20v.%20Texas%20-%20Professional%20Organizations%20et%20al.%20cert.%20amicus.pdf; Monahan et al., *Trajectories of Antisocial Behavior and Psychosocial Maturity from Adolescence to Young Adulthood*, 45 Developmental Psychol. 1654, 1655 (2009).

222 Violence and Serious Theft: Development and Prediction from Childhood to Adulthood 333 (Rolf Loeber, David Farrington, Magda Stouthamer-Loeber & Helene Raskin White, eds., 2008).

223 Gail Rosenbaum & Catherine Hartley, *Developmental Perspectives on Risky and Impulsive Choice*, 374 Phil. Transactions Royal Soc'y 1766 (2019).

224 Duell, *supra* note 50.

225 Whitney Fosco et al, *The Development of Inhibitory Control in Adolescence and Prospective Relations with Delinquency*, 76 J. Adolescence 37 (2019).

226 Natasha Duell et al, *Age Patterns in Risk-Taking Across The World*. 47 J. Youth & Adolescence 1052 (2018).

227 David Farrington, Rolf Loeber & James Howell, *Young Adult Offenders: The Need for More Effective Legislative Options and Justice Processing*, 11 Crim. & Pub. Pol'y 729 (2012).

Personality Continues to Change Across the Lifespan

Research has long demonstrated that personality is not firmly established in adolescence. Indeed, the 20s are a time of significant evolution of many personality traits, including growth in conscientiousness, self-discipline, and emotional stability.[228] Similarly, adolescence is characterized by continuous changes in personality as adolescents work to form a sense of identity.[229] Personality traits are influenced by environmental and contextual factors such as changing social roles and relationships. [230] Adolescents are uniquely attuned to their social world, and they are highly influenced by the perceptions and behaviors of their peers.[231]

On average, as adolescents age, they exhibit decreases in neuroticism[232] and increases in agreeableness, conscientiousness, openness, and extraversion.[233] Self-control and emotional stability also increase with age, with continued changes in the third and fourth decades of life.[234] As with most developmental research, studies of personality rely upon group averages so research cannot reliably predict whether or how a particular individual's personality will change with age.

Converging research from psychological science simply does not support a view that most youth offenders are incorrigible.[235] In fact, as described above, the science supports a view that (a) the significant majority of adolescent offenders will self-desist from misconduct with maturation, (b) that misconduct typically reflects the "transient immaturity" of youth, and (c) that it is not currently possible to reliably identify the "rare" juvenile who will fail at rehabilitation efforts over the course of a lifetime.

Research on personality and identity formation in late adolescents indicates that behavioral or temperamental traits change significantly through maturation. In other words, personality traits that once were believed to be fixed are actually subject to change over time. This is the case even for adolescents who display callous-unemotional traits and psychopathic traits, which

228 Cohen, *supra* note 12; Brent Roberts & Daniel Mroczek, *Personality Trait Change in Adulthood*, 17 Current Directions Psych. Sci 31 (2008); Brent Roberts, Kate Walton, Wolfgang Viechtbauer, *Patterns of Mean-Level Change in Personality Traits Across the Life Course: A Meta-Analysis of Longitudinal Studies.* 132 Psych. Bulletin 1 (2006); Brent Roberts & Dustin Wood, *Personality Development in the Context of the Neo-Socioanalytic Model of Personality, in* Handbook of Personality Development 11–39 (2006).

229 Theo Klimstra, *Adolescent Personality Development and Identity Formation*, 7 Child Development Perspectives 80, 80–84 (2012).

230 Brent Roberts, Dustin Wood & Jennifer Smith, *Evaluating Five Factor Theory and Social Investment Perspectives on Personality Development*, 39 J. Rsch. Personality 166, 166–184 (2005).

231 Sarah Blakemore & Jathryn Mills*, Is Adolescence a Sensitive Period for Sociocultural Processing?* 65 Ann. Rev. Psych, 187, 187–207 (2014); Leah Somerville*, Special Issue on the Teenage Brain: Sensitivity to Social Evaluation.* 22 Current Directions Psych. Sci 121, 121–127; Braams, *supra* note 152; Lisa Knoll et al, *Social Influence on Risk Perception During Adolescence*, 26 Psych. Sci. 583, 583–592 (2015).

232 Neuroticism is a trait characterized by a tendency to experience intense negative emotions and emotional instability in response to various forms of stress.

233 Theo Klimstra et al, *Maturation of Personality in Adolescence*, 96 J. Personality & Soc. Psych. 898, 898–912 (2009).

234 Casey, *supra* note 12; Roberts BW, Mroczek D. 2008. Personality Trait Change in Adulthood. *Curr Dir Psychol Sci* 17: 31–35

235 Casey, *supra* note 12.

turn out not to be confidently predictive of life-course-persistent offending into adulthood.[236] For example, in a longitudinal study of middle and late adolescents, ages 17–24, researchers found that previously identified psychopathic personality traits[237] decreased over time in late adolescents until age 24.[238]

For late adolescents who engage in criminal behavior, relying upon approaches that build on buttressing individual strengths and resiliencies, at a time when the brain's plasticity facilitates new learning from experience, can promote positive growth and prevent further penetration into the criminal justice system.[239] These approaches must be able to take into account the contributions to rehabilitation or continued criminality of the typically large number of social systems: family, peers, schools, their neighborhood and community, and public agencies.

Consistent interpersonal relationships with young and older adults and social engagement that supports positive prosocial relationships and activities are important for:

- fostering resilience and self-efficacy
- bolstering coping strategies and emotional self-regulation
- building on strengths
- improving prosocial competencies
- increasing a sense of personal responsibility
- establishing goals for the future
- providing opportunities for prosocial engagement and a sense of meaning, and
- establishing healthy and adaptive attitudes, values, and beliefs (norms)[240] that are inconsistent with continuing criminal misconduct.

236 Jennifer Skeem et al, *Psychopathic Personality: Bridging the Gap Between Scientific Evidence and Public Policy*, 12 Psych. Sci Pub. Interest, 95, 95–162 (2011); Matthew Harris et al, *Personality Stability from Age 14 to Age 77 Years*, 31 Psych. & Aging, 862 (2016).

237 Psychopathic personality traits include, for example, a lack of empathy, immoral behavior, and limited emotional responses.

238 Samuel Hawes et al, *Structural Coherence and Temporal Stability of Psychopathic Personality Features During Emerging Adulthood*, 123 J. Abnormal Psych. 623 (2014).

239 Anderson Moore, *Why Positive Youth Development Works*, Child Trends (2016) https://www.childtrends.org/why-positive-youthdevelopment-works [https://perma.cc/9CVX-JVSA]; Family & Youth Services Bureau, *Positive Youth Development,* Admin. For Children & Families, https://www.acf.hhs.gov/fysb/positive-youth-development; [https://perma.cc/NS47-DTVQ] (last visited Dec 20, 2021); Arielle Baskin-Sommers, *Towards Targeted Interventions: Examining the Science Behind Interventions for Youth Who Offend*. 5 Ann. Rev. Crim. (forthcoming 2022).

240 Moore, *supra* note 241.

Conclusion and Recommendations

The United States Supreme Court cases of *Roper* (2005), *Graham* (2010), and *Miller* (2012) drew attention to adolescent and young adult brain and social development by clearly articulating a "children are different" Eighth Amendment jurisprudence. In *Montgomery* (2016), SCOTUS maintained this line of jurisprudence and clarified that *Miller* was to be applied by states retroactively as mandatory Life Without Parole juvenile sentences (JLWOP) are substantive violations of the Eighth Amendment.

The *Jones* (2021) decision held that sentencing courts are not required to articulate findings that a juvenile is "irreparably corrupt" or even required to make findings on the specific "*Miller* factors" previously outlined. However, the *Jones* opinion left undisturbed the position of the prior cases that even serious crimes committed by persons under age 18 reflect the "transient immaturity" of youth" but for "rare" cases. The challenges of reliably identifying these "rare" youth required barring execution for crimes committed as a minor (*Roper)* and presumably would render discretionary JLWOP sentencing "uncommon" (*Miller).* Even then, a sentenced youth must be provided at least one "meaningful opportunity" to demonstrate rehabilitation as an adult.

Between 2005–2021, states have responded through case law and legislative action to craft frameworks consistent with the SCOTUS line of cases. The variability of the state responses has resulted in a patchwork of "justice by geography" with disparate outcomes for similarly situated cases. However, it also affords an opportunity by clarifying that the focus has shifted from whether a sentencing court must make findings of "irreparable corruption" to a focus on the undisturbed acknowledgement of the "transient immaturity" of youth—even for those who have committed heinous crimes as minors. While *Jones* does not impose a federal Constitutional requirement on sentencing judges to make findings regarding "irreparable corruption" or the *Miller* factors, some states have already incorporated these steps in their state statutes and/or case law. Even where states have not incorporated these steps in their legal framework, there is nothing in *Jones* or state law that bars submitting evidence relevant to the "transient immaturity" of a youthful defendant or the *Miller* factors.

Moreover, the focus in this line of cases upon the dispositive "bright line" drawn at age 18 for imposing accountability through the adult criminal legal system has raised the question: Is there a reasonable basis found in brain science and developmental research (social, behavioral, criminology) for drawing this line at age 18? Put another way, is there a basis in science for drawing this life-altering line between mid-adolescence (ages 16–17) and late adolescence (ages 18–21)? The neuroscience and social-behavioral science summarized in this document indicates there is no solid basis in science for a line drawn at age 18 for criminal jurisdiction.

Indeed, drawing this line at age 18 will lead most late adolescents who offend (and most will *not* offend with serious crimes against persons) to penetrate the criminal justice system just before the time when the significant majority of middle and late adolescent youth will self-desist (the "age-crime curve" occurring at ages 19–20) even if they have been violent and persistent offenders when younger.

From a public policy perspective, this means that young offenders highly likely to desist with maturation—especially if provided with meaningful non-criminal opportunities—will instead accrue the collateral consequences of criminal justice involvement (e.g., criminal records, social labeling, forced affiliation with adult criminals if in prolonged detention or incarcerated). These collateral consequences over time actually *increase* risk of criminal recidivism among young offenders who with maturation are otherwise highly likely desist from continuing criminal misconduct.

From a criminal justice perspective, research indicates that continuing traditional supervision and sentencing practices inadvertently tend to increase recidivism, fail to foster diversion from unwarranted penetration into the criminal justice system, and continue the pattern of disproportionate entanglement of young persons of color. Parole practices focused primarily on "supervision"—rather than "engagement" and individualized case planning—will persist. Younger offenders will continue to be processed at least as harshly (and arguably more harshly) than adult offenders.

This is not to suggest that younger offenders (ages 18–21) should not be accountable for criminal conduct. Indeed, accountability for decisions and conduct is essential for positive development and maturation. Rather, it is to observe that the science exists to guide policy and individual case practice (for judges and probation officers, prosecutors and defense counsel, and others) towards *proportional* and *developmentally aligned* accountability for middle and late adolescent offenders. Our currently worrisome rates of recidivism among younger offenders can be lowered—thereby contributing to community safety—by adopting a developmentally-informed approach to young offenders.

At a policy level, our currently dismal criminal justice outcomes could be improved for this age cohort by designing and implementing evidence-based processes for diversion, preventing unwarranted penetration (including pre-trial detention and avoiding harsh sentencing), and resourcing developmentally specialized intervention for late adolescent offenders which supports prosocial activities (including non-criminal social networks, education, and jobs). Corrections policy may look to evidence-based models in the United States and elsewhere which improve recidivism outcomes by separating younger offenders from older adult offenders, placing them into their own units with developmentally aligned programming, and using

developmentally-trained correctional, educational, pre-vocational, and behavioral health staff to utilize less punitive approaches and support positive community re-entry, thus increasing the likelihood of avoiding future criminal involvement.[241]

Judges can support local implementation of these kinds of policy measures while also informing themselves about the relevant brain and developmental science, considering science offered in briefs and expert testimony, encouraging processes (including plea agreements) which take the developmental status of younger offenders into account, and taking into account the inadvertent consequences of harsh sentencing or more punitive supervision practices. Judges may also look to emerging court-based models of deferred sentencing or innovative sentencing that may be adaptable to the local circumstances and resources of their jurisdiction.

Prosecutors can measure their success by metrics other than convictions and lengths of sentences imposed. For example, metrics can include cases successfully diverted from arraignment without subsequent recidivism, or cases where incarceration was precluded because of successful community-based and developmentally aligned services (e.g., education, vocation, prosocial interpersonal engagement, and behavioral health treatment) as part of initial diversion or subsequent plea bargaining.

Defense counsel can take a broader developmental view (taking into account biological, psychological, and social domains) of who the defendant is and what criminogenic needs must be addressed to lower recidivism risk. They can also learn how to create a complete trial record that includes successful and unsuccessful efforts to bring scientific and/or developmental information before the court in briefs, expert testimony, and oral argument. Appellate counsels are often disadvantaged by incomplete or unartful trial records and efforts are increasingly underway to train trial counsel on how to develop the best records possible.

241 Group-level research that yields “on average” data is a ready fit for guiding broad policy and program development and implementation. For example, policy and law can result in increased community safety if aligned with research finding that “on average” adolescents or youth adults diverted from unnecessary penetration into juvenile or criminal justice systems have lower recidivism rates than those who become entangled in these systems for relatively minor misconduct or misconduct that is likely to remit with maturation. The policy impact can be achieved without specifically assessing the likelihood that a given young person will desist, as the policy anticipates that a significant majority of young persons will desist from delinquent or criminal misconduct with maturation. This is similar to medical practice where decisions and practices are made for identified patient populations because they ordinarily work—such as prescribing antibiotics for certain kinds of infections although there may be some patients for whom the standard practice will not be as effective and alternatives may be considered.

Pre-trial and post-conviction probation staff can take a developmentally and trauma-informed approach to intake, recommendations made to the court, and supervision practices. These can include: (a) avoiding conditions of release/probation likely to result in violation but unlikely to contribute to public safety threat even if not fully complied with by the person under supervision; (b) advocating for conditions of release/probation that are likely to contribute to the person's stabilization and avoiding new arrests; (c) creating highly individualized supervision plans that are informed by the science of normal mid-late adolescent development, adversity/trauma, addictions, and mental health disorders; and (d) case planning that directly addresses each person's most significant criminogenic needs while building upon strengths and protective factors.

Behavioral health professionals likely to conduct forensic evaluations, provide forensic expert testimony, or provide clinical testimony about behavioral health needs/interventions for defendants can strive to be currently informed of relevant research domains. These include brain and developmental research about mid-late adolescents, the "age-crime curve," evidence-based assessment methods (clinical and forensic, including violence and recidivism risk), and evidence-based treatment and intervention approaches for younger offenders. Standard clinical training is ordinarily insufficient to provide proficiency in working with younger offenders, and, in any event, the continuing development of research in this area requires an ongoing process of professional development and learning.

Appendix: Introduction to Middle and Late Adolescent Brain Development

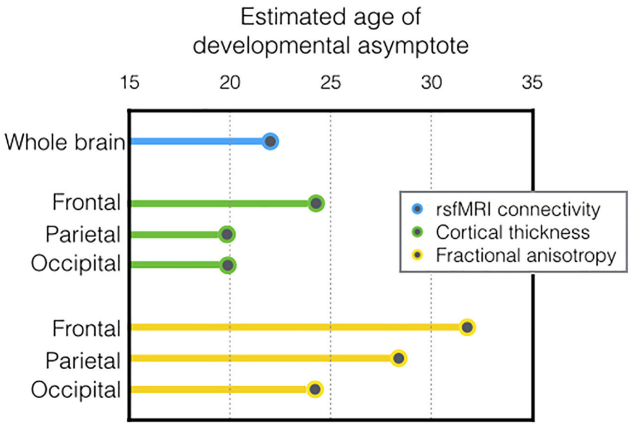

Figure 5: Somerville 2016. Age of developmental asymptote (plateau) for different brain measures. rsfMRI is a measure of whole brain connectivity; cortical thickness is a measure of grey matter development; fractional anisotropy is a measure of white matter development.

Brain development is a dynamic process that continues throughout the life course. Throughout early, middle, and late adolescence,[242] brain systems and the connections between them undergo a period of prolonged refinement.

Since *Miller* (2012), there have been a wealth of new research studies on adolescent brain development that have enhanced our understanding of how the brain matures and how this maturation impacts behavior. Scientists have begun using new approaches to measure brain development. Many newer studies include more individuals (large sample size), and some studies follow the same individuals over time (longitudinal research).[243] With this type of data, researchers can model a "growth curve"[244] of how the brain changes across development by averaging the brain changes of many individuals across different ages and time points. Researchers can measure the age at which the changes of different brain systems level off or plateau. Researchers can also estimate when a brain system reaches a point of stable

242 Because brain development does not rigidly conform to chronological boundaries, there is some disagreement in the field as to how to precisely define the stages of adolescence and adulthood. For clarity, in this document, we define early adolescence as 10–13, middle adolescence as 14–17, late adolescence as 18–21, and young adulthood as 22–25. For discussion of changing age definitions, *see* Susan Sawyer et al, *The Age of Adolescence*. 2 Lancet Child & Adolescent Health 223, 223–228 (2018).

243 A longitudinal study is a study that tracks individuals over time.

244 A "growth curve" is a graphical depiction of change over time. A "growth curve" of brain development depicts changes in brain processes as a function of age.

development.[245] It is important to note that different systems develop at different rates, and the brain never "stops developing," as brain development continues throughout the lifespan. Additionally, development does not occur at the same rate in all areas of the brain. Rather, different brain systems follow different developmental trajectories and time windows.

Dynamic changes in brain development continue well beyond the age of 18 (Figure 5).[245] This extended window of brain maturation is paralleled by prolonged social, emotional, and cognitive development during late adolescence.[246] As a result, late adolescents (ages 18–21) as a group, exhibit unique brain and behavioral profiles that are distinct from both younger adolescents and young adults (ages 22–25).

Fundamentals of Late Adolescent Brain Development

Structural Development

Late adolescence is accompanied by continued development of brain structure. Multiple brain regions and the connections between them continue to mature during this period. The last region to structurally mature is the prefrontal cortex, which guides "executive functions" such as complex decision-making, self-control, and higher-order cognitions.[247]

245 Somerville, *supra* note 11.

246 Laurence Steinberg & Grace Icenogle, *Using Developmental Science to Distinguish Adolescents and Adults Under the Law*, 1 Ann. Rev. Developmental Psych. 21 (2019).

247 "Higher order cognitions" include abilities to consider situations from the perspective of another person, identify and assess the likelihood of future alternate outcomes of decisions made now, and systematic and evaluative problem-solving that is also sufficiently flexible to effectively apply past experiences to novel situations (creativity).

Grey Matter Development

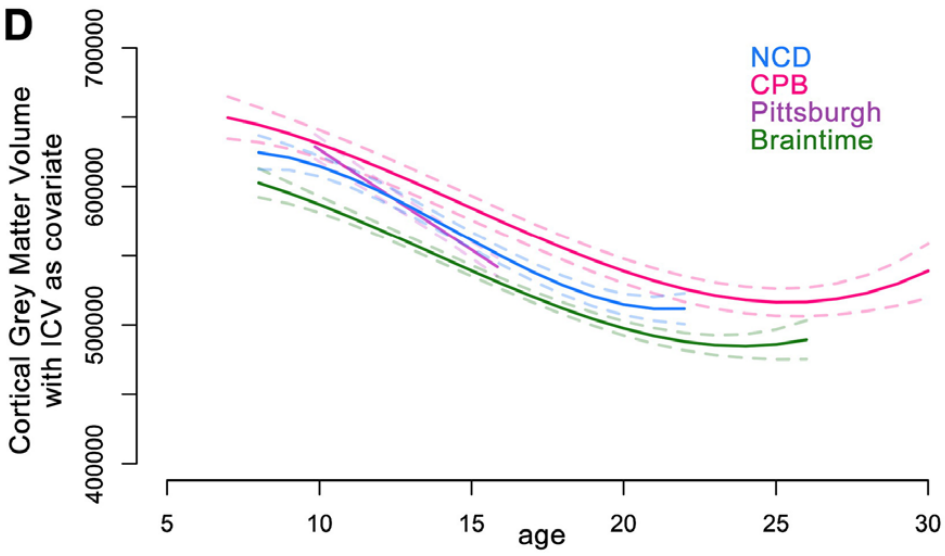

Figure 6: Mills et al. 2016. Age models for cortical grey matter across four research sites. Each line represents a different research site. This study included 852 scans for 391 individuals age 8 to 30. Note that the upturn from age 25 to 30 is not statistically significant.

Grey matter is tissue in the brain that is responsible for information processing. Grey matter volume normatively thins during adolescence, and thinning persists through young adulthood.[248] This decrease in grey matter results from a brain refinement process called synaptic pruning. Synaptic pruning is an experience-dependent process that weeds out underused synapses (connections between neurons). This developmental process sculpts a more efficient

248 Rhoshel Lenroot et al, *Sexual Dimorphism of Brain Developmental Trajectories During Childhood and Adolescence*, 36 Neuroimage 1065 (2007).

and specialized brain.[249] [250] Pruning during late adolescence is more pronounced in regions that support higher-level cognition, including the prefrontal cortex, which is among the last regions to mature. Prefrontal synaptic pruning persists well beyond adolescence and continues into young adulthood.[251]

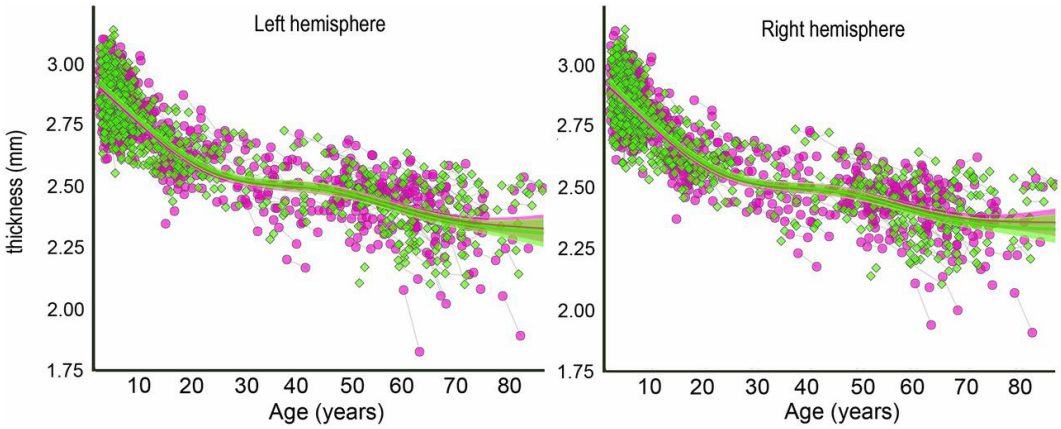

Figure 7: Fjell et al. 2015. Global changes in cortical thickness. Longitudinal study testing 974 participants ages 4–89. Green is female, pink is male.

Converging evidence across multiple studies and institutions demonstrates that grey matter thinning continues throughout the twenties (Figure 6).[252] Research examining structural development across the lifespan found that cortical thinning begins to plateau between ages 25 and 30 (Figure 7).[253] The prefrontal cortex in particular shows dramatic thinning, with a 17% reduction in prefrontal grey matter volume between the ages of 6 and 26.[254]

249 Zdravko Petanjek et al, *Extraordinary Neoteny of Synaptic Spines in the Human Prefrontal Cortex*, 108 Proc. Nat'l Acad. Sci. Acad. Sci. 13281 (2011).

250 Budhachandra Khundrakpam et al, *Brain Connectivity in Normally Developing Children and Adolescents*. 134 Neuroimage 192 (2016).

251 Zdravko Petaniek et al, *Extraordinary Neoteny of Synaptic Spines in the Human Prefrontal Cortex*, 108 Proc. Nat'l Acad. Sci. 13281 (2011).

252 Kathryn Mills et al, *Structural Brain Development Between Childhood and Adulthood: Convergence Across Four Longitudinal Samples*, 141 Neuroimage 273 (2016); Christian Tamnes et al, *Development of the Cerebral Cortex Across Adolescence: A Multisample Study of Inter-Related Longitudinal Changes in Cortical Volume, Surface Area, and Thickness*, 37 J. Neuroscience 3402 (2017).

253 Hugo Schnack et al, *Changes in Thickness and Surface Area of The Human Cortex and Their Relationship with Intelligence*, 25 Cerebral Cortex 1608 (2015); Anders Fjell et al, *Development and Aging of Cortical Thickness Correspond to Genetic Organization Patterns*, 112 Proc. Nat'l Acad. Sci. 15462 (2015).

254 Kathryn Mills et al, *The Developmental Mismatch in Structural Brain Maturation During Adolescence*, 36 Developmental neuroscience 147 (2014).

White Matter Development

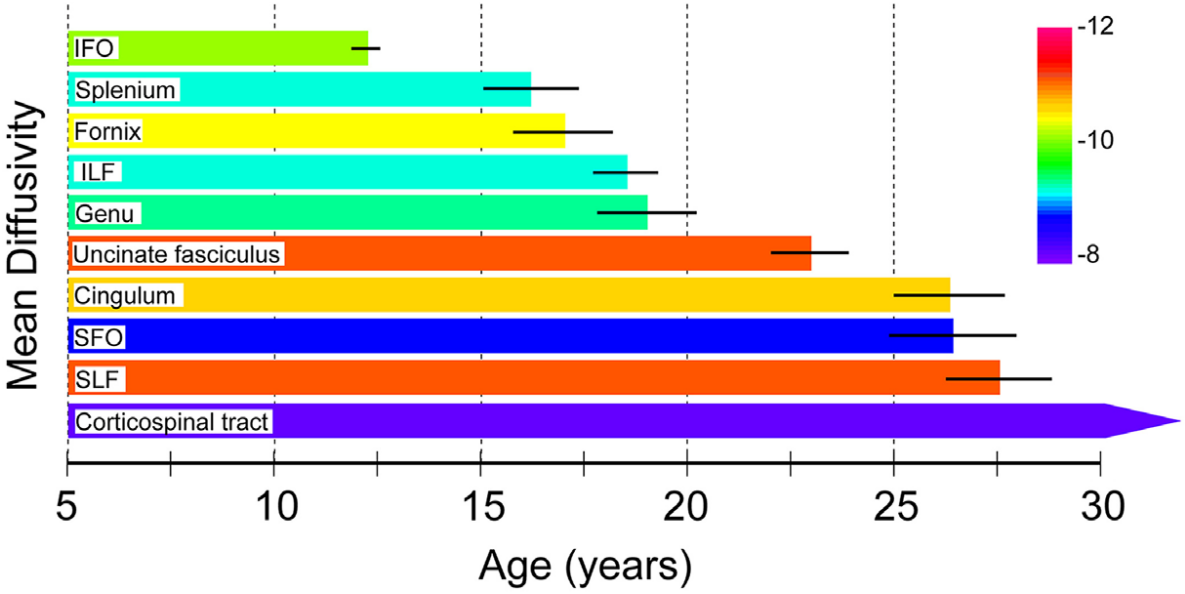

Figure 8: Lebel et al. 2019. Plot showing white matter development from age 5 to 30 in different white matter tracts of the brain (colored bars). Decreases in mean diffusivity provide an approximation of strengthening white matter connections. The end of each bar represents the age at which the measure reaches 90% of its developmental plateau. IFO: inferior fronto-occipital fasciculus; ILF: inferior longitudinal fasciculus; SFO: superior fronto-occipital fasciculus; SLF: superior longitudinal fasciculus.

White matter is tissue that is composed of tracts, which are bundles of myelinated axons in the brain that can relay information between brain regions. White matter connections facilitate efficient communication across the brain. Developmental changes in white matter are thought to reflect myelination. Myelin is a substance that surrounds neuron axons and serves an insulating function for the brain's wiring, which facilitates more rapid communication between brain regions. The process of myelination increases the amount of myelin in the brain, which speeds up communication between different brain regions. During late adolescence, myelination strengthens communication between brain regions that are far apart from one another in the brain. During this period, myelination progresses in the prefrontal cortex, which strengthens connections that are important for reasoning, decision-making, and self-control.[255]

Longitudinal studies have demonstrated that the development of white matter continues throughout the twenties and into the thirties (Figure 8).[256] Notably, connections between the prefrontal cortex and subcortical regions[257] continue to develop past age 18. Maturation of

255 Daniel Miller et al, *Prolonged Myelination in Human Neocortical Evolution*, 109 Proc. Nat'l Acad. Sci. 16480 (2012).

256 Catherine Lebel, Sarah Treit & Christian Beaulieu, *A Review of Diffusion MRI of Typical White Matter Development from Early Childhood to Young Adulthood*, 32 NMR Biomedicine E3778 (2019).

257 Subcortical regions include the hippocampus, amygdala, and striatum. These regions are important for reward processing, processing of emotionally arousing and salient information, and learning and memory.

these white matter connections is associated with improved self-control.[258] Connections between the prefrontal cortex and subcortical regions continue to develop through the twenties.[259] This means that communication and integration within brain networks continue to refine through late adolescence and young adulthood to support higher-order cognition.

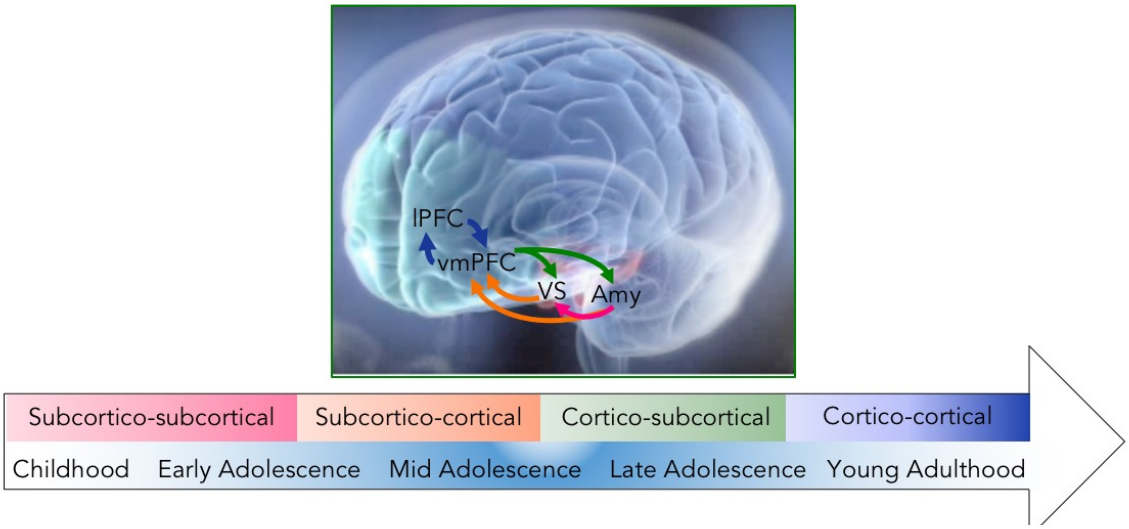

Figure 9: Casey 2020. Illustration of hierarchical development of brain circuitry. Amy is amygdala; VS is ventral striatum; vmPFC is ventromedial prefrontal cortex; lPFC is lateral prefrontal cortex.

Functional Development

While structural development reflects changes in the physical architecture of the brain, functional development reflects changes in the activity in brain regions and the communication between them in response to stimuli in the environment. In other words, functional development describes changes in how the brain's elements communicate with one another to produce cognitions and emotion. During adolescence, functional activity in brain regions and the functional connections between brain networks exhibit changes with age, which suggests that some regions and connections develop at different rates. This means that the development of distinct brain processes stabilizes at different ages (Figure 9).[260] Therefore, the development of some regions and connections stabilizes earlier in adolescence, whereas others continue to mature well into the twenties and early thirties.[261] [262]

258 Daniel Simmonds et al, *Developmental Stages and Sex Differences of White Matter and Behavioral Development Through Adolescence: A Longitudinal Diffusion Tensor Imaging (DTI Study*, 92 Neuroimage 356 (2014).

259 *Id.*

260 Casey, *supra* note 42.

261 B. J. Casey, Rebecca Jones & Leah Somerville, *Braking and Accelerating of the Adolescent Brain,* 21 J. Rsch. on Adolescence 21 (2011).

262 Leah Somerville & B.J. Casey, *Developmental Neurobiology of Cognitive Control and Motivational Systems*, 20 Current Op. Neurobiology 236 (2010).

Subcortical regions have earlier structural development in adolescence than cortical regions.[263] Subcortical regions include the striatum and amygdala, which are important for emotional and motivational processes like responding to rewards, emotionally salient information, and faces. In contrast, the prefrontal cortex, which guides self-control and complex decision-making, continues to mature throughout late adolescence. This extended window of prefrontal maturation supports the development of executive functioning, a set of mental processes that help with concentration, attention, cognitive flexibility, and self-control.[264]

The development of the prefrontal cortex, which guides self-control, exhibits a more protracted trajectory than the development of subcortical regions which are responsive to rewards and salient cues. As a result, late adolescents exhibit unique behavioral responses in reward-driven or emotionally heated situations. On the one hand, because the prefrontal cortex is more developed than it was during earlier periods in their lives, late adolescents have better cognitive control and decision-making skills than they did when they were younger. On the other hand, because the motivational and emotional systems in the brain are hyper-responsive during adolescence, middle and late adolescents as a group are more vulnerable than adults to lapses in self-control or impulsive decision-making—especially when in emotionally heated situations.[265]

Functional connectivity reveals which regions show synchronous activation. In other words, two regions are functionally connected if they show similar patterns of activity over time during a task or when at rest. Functional connectivity measures characteristics of the pathways the brain uses to communicate. The functional connections between brain regions continue to refine through late adolescence as connectivity patterns shift with age. Younger individuals exhibit more connections between regions that are closer together. However, during adolescence, connections strengthen among regions that are farther apart.[266] This enhanced integration supports the development of executive functions[267] which support complex reasoning and emotional regulation.

Emotional Influences on Cognition in the Late Adolescent Brain

Adolescents' cognitive abilities continue to strengthen as they age. However, adolescent self-control is more vulnerable to disruption than the self-control of adults. Specifically, adolescents are vulnerable to temporarily dampened self-control when in emotionally charged or high-stress situations. This occurs because the prefrontal cortex is still developing during adolescence, but subcortical systems in the brain are hyperresponsive to emotional information during this developmental period.

263 Kathryn Mills et al, *The Developmental Mismatch in Structural Brain Maturation During Adolescence*, 36 Developmental Neurosci. 147, 147–160 (2014).

264 Eveline Crone & Nikolaus Steinbeis, *Neural Perspectives on Cognitive Control Development During Childhood and Adolescence*, 21 Trends Cognitive Sci. 205 (2017); Adele Diamond, *Executive Functions*, 64 Ann. Rev. Psych. 135 (2013).

265 Casey, *supra* note 56. For a more detailed summary, see Section B (infra).

266 Damien Fair et al, *Functional Brain Networks Develop from a "Local to Distributed" Organization*, 5 PLoS Computational Biology e1000381 (2009); Nico Dosenbach et al, *Prediction of individual brain maturity using fMRI*, 329 Science 1358, 1358–1361 (2010).

267 Scott Marek et al, *The Contribution of Network Organization and Integration to the Development of Cognitive Control,* 13 PLoS Biology e1002328 (2015).

The prefrontal cortex and subcortical regions are connected to one another, and these connections strengthen during adolescence. The stronger connectivity between cortical and subcortical systems can account for the developmental differences in how people behave in emotional situations. Maturing connectivity between the prefrontal cortex and subcortical regions has been linked to improved cognitive performance in emotional scenarios.[268] Due to the refinement of communication between cortical and subcortical brain systems, emotion regulation abilities improve with age.[269] [270] Connections within the prefrontal cortex also facilitate self-control and emotion regulation. These connections continue to develop through late adolescence and into young adulthood.[271]

At the time of the *Miller* (2012) decision, most developmental research examining how emotionally heated situations influence behavioral and brain responses did so by comparing groups of individuals under age 18 to groups of individuals older than 18. However, research since 2012 has examined continuous changes in brain development throughout adolescence and beyond age 18 into late adolescence and young adulthood. This approach has revealed new insights about how the late adolescent brain responds to emotionally charged situations. Notably, this research shows that, when faced with certain emotional contexts, late adolescents exhibit situational disruptions in self-control. These suboptimal changes in behavior are related to differences in patterns of brain activity and connectivity. For example, these differences are reflected in the relative vulnerability of late adolescents to transient dampening of self-control when anticipating potential threats.[272] [273]

Relative to young adults (ages 22–25), late adolescents (ages 18–21) exhibit poorer self-control when anticipating a potential threat. Research found that during threat vigilance states, late adolescents exhibited patterns of brain activity more like the middle adolescent group (ages 13–17) than the young adult group (ages 22–25). Specifically, middle and late adolescents exhibited reduced connectivity between prefrontal regions and reduced activity in regions that guide successful self-control (lateral prefrontal cortex, the parietal cortex, and the dorsal anterior cingulate).

268 Somerville, *supra* note 65.

269 Dylan Gee et al, *A Developmental Shift from Positive to Negative Connectivity in Human Amygdala–Prefrontal Circuitry*, 33 J. Neuroscience 4584 (2013).

270 Aaron Heller et al, *Changes in Cortico-Subcortical and Subcortico-Subcortical Connectivity Impact Cognitive Control to Emotional Cues Across Development*, 11 Soc. Cognitive & Affective Neuroscience 1910 (2016).

271 Silvers, *supra* note 55.

272 Cohen, *supra* note 12.

273 One brain imaging study tested whether vulnerability to emotional scenarios persists through late adolescence by comparing brain activity and connectivity between adolescents (age 13–17), late adolescents (age 18–21), and young adults (age 22–25). Participants performed a self-control task with emotional cues during a neutral state, positive state, or a threat state. When in a positive or threat state, the participants were anticipating that something good (possibility of winning money) or bad (possibility of hearing an aversive sound) could happen at any point. Thus, the task compared behavioral and brain responses during reward and threat states to neutral states.

Related research has shown that the brain responses of late adolescents more closely resemble those of younger individuals rather than those of young adults for *both* negative and positive emotional states. When encountering both positive and negative vigilance states (such as anticipating potential rewards or threats), the brain responses of late adolescents (ages 18–21) look more similar to the brain responses of adolescents (ages 13–17) than those of young adults (ages 22–25). [274]

Researchers used brain measures to predict the age of an individual and examined how emotional states impacted these age predictions. The predicted "brain age" reveals how old someone's brain behaves given their connectivity pattern, independent of the actual chronological age of the individual. When in neutral states, the predicted "brain age" of adolescents was comparable to their chronological age.

However, when faced with positive (potential to win a high reward) and negative (threat of a loud noise) vigilance states, adolescents' brain connectivity patterns looked younger than their chronological age. This suggests that emotional states elicit temporary changes in patterns of activity and communication in the middle and late adolescent brain. Within the late adolescent group (ages 18–21), individuals who had "younger" patterns of brain connectivity during emotional states were more likely to self-report increased preferences for risk-taking. Therefore, late adolescents classified as having "younger" brain responses during emotional situations were deemed to be more at risk for engaging in real-world risky behavior.

Development of the Brain's Learning and Reward Systems

Developmental changes in the dopamine system increase plasticity in the brain. Dopamine is a neurotransmitter that coordinates movement and is also involved in motivational learning and reward-driven behavior.[275] Plasticity is the brain's ability to change and adapt in response to experiences. The prolonged period of plasticity during adolescence can facilitate learning from experience.[276] [277]

274 M. D. Rudolph, et al., *At Risk Of Being Risky: The Relationship Between "Brain Age" Under Emotional States and Risk Preference*, 24 Developmental Cognitive Neurosci (2017). This brain imaging study examined the effects of emotional states on brain response patterns in a sample of participants ages 10 to 25. Using a self-control task with emotional cues, the researchers compared brain responses of middle adolescents, late adolescents, and young adults. During this study, participants were exposed to different vigilance states that varied in terms of whether something good or bad could happen at any moment. Participants encountered either a sustained neutral state where they anticipated nothing would happen, a positive state where they anticipated the possibility of winning a high reward, or a threat state where they anticipated the possibility of hearing an aversive sound. This research used a neuroimaging technique that measures whole brain connectivity patterns, which reveals how brain regions simultaneously activate and communicate with each other. This approach can measure how connectivity in the brain changes when individuals experience different emotional contexts.

275 Adriana Galvan, *Adolescent Development of the Reward System*, 4 Frontiers Human Neuroscience 6 (2010).

276 Surjeet Mastwal et al, *Phasic Dopamine Neuron Activity Elicits Unique Mesofrontal Plasticity in Adolescence*, 34 J. Neuroscience 9484 (2014).

277 Vishnu Murty, Finnegan Calabro & Breatiz Luna, *The Role of Experience in Adolescent Cognitive Development: Integration of Executive, Memory, and Mesolimbic Systems*, 70 Neuroscience & Biobehavioral Rev. 46 (2016).

During late adolescence, connections are strengthened between the striatum (a region within the dopamine system that is responsive to reward) and prefrontal cortex. Stronger connections between these regions promote the emergence of more adaptive learning strategies. Relative to children and younger adolescents, late adolescents (ages 18–21) are more likely to use positive feedback and less likely to use negative feedback to update and refine their decisions.[278] In other words, adolescents are primed to learn from rewards. This change in learning strategy emerges because of enhanced connectivity between the striatum and prefrontal cortex.[279] The changes in the learning system that occur during adolescence suggest that individuals in this developmental window may be more amenable to intervention and rehabilitation.[280]

During adolescence, the brain's reward system is hyper-responsive, which means that adolescents exhibit exaggerated responses in the brain's reward centers compared to both younger and older persons in response to the same rewarding stimulus. Studies in humans and animals have shown that enhanced reward sensitivity during adolescence is related in large part to changes in the dopamine system.

Researchers use brain imaging techniques to measure how the dopamine system changes during development.[281] This research reveals that dopamine concentration increases during adolescence and stabilizes during adulthood. Yet, the density of dopamine receptors continues to decrease from ages 18 to 30.[282] Therefore, refinement of the dopamine system persists beyond adolescence and continues throughout young adulthood and beyond.

This remodeling of the dopamine system has consequences for reward sensitivity and risk-seeking behavior.[283] Adolescents, relative to children and adults, show exaggerated responses to reward in a key brain region in the dopamine system (striatum).[284] The striatum is important for anticipating and responding to rewards, learning from feedback, and coordinating motivated actions. Longitudinal studies have demonstrated that reward-related activity in the striatum peaks between ages 15 and 17 and remains elevated in late adolescence.[285] [286]

278 Wouter van den Bos et al, *Striatum–Medial Prefrontal Cortex Connectivity Predicts Developmental Changes in Reinforcement Learning*, 22 Cerebral Cortex 1247 (2012).

279 *Id.*

280 *See, e.g.*, David Yeager & Carol Dweck, *Mindsets that Promote Resilience: When Students Believe that Personal Characteristics Can Be Developed*, 47 Educ. Psych. 302 (2012).

281 Bart Larsen et al, *Maturation of the Human Striatal Dopamine System Revealed by PET and Quantitative MRI,* 11 Nature Comm. 1 (2020).

282 *Id.*

283 Tamara Fitzwater et al, *Motivational Systems in Adolescence: Possible Implications for Age Differences in Substance Abuse and Other Risk-Taking Behaviors*, 72 Brain & Cognition 114 (2010).

284 Merav Silverman, Kelly Jedd & Monica Luciana, *Neural Networks Involved in Adolescent Reward Processing: An Activation Likelihood Estimation Meta-Analysis of Functional Neuroimaging Studies*, 122 Neuroimage 427 (2015).

285 Braams, *supra* note 202.

286 Elisabeth Schreuders et al, *Contributions of Reward Sensitivity to Ventral Striatum Activity Across Adolescence and Early Adulthood*, 89 Child Development 797 (2018).

Adolescents show hyper-sensitivity in the striatum to a broad range of reward information. For example, adolescents, relative to adults, show more activity in the striatum when receiving positive feedback during learning,[287] when tasting sweet liquid,[288] when viewing smiling faces,[289] and when receiving "likes" on social media.[290]

This enhanced sensitivity to reward can promote adaptive behaviors during adolescence, such as healthy exploration, novelty seeking, and feedback processing.[291] During adolescence, enhanced brain sensitivity to rewards creates a window of opportunity for learning.[292] For example, a longitudinal learning study tested individuals ages 8–25 and found that increased activity in the striatum supports learning improvements during middle and late adolescence.[293] However, enhanced responses to reward in the brain have also been linked to increased sensation seeking and risk-taking behavior.[294] [295] Taken together, this research suggests that the adolescent brain is remarkably—and perhaps uniquely—attuned to what it identifies as rewarding cues in the environment. Enhanced brain responses to reward support the emergence of adaptive behaviors that promote learning and independence. Yet, this brain responsivity is also reflected in the adolescent propensity for maladaptive behaviors, impulsivity, and risky decision-making.

Social Influence Impacts Late Adolescent Brain Responses

Adolescents are hyper-attuned to their social worlds. In particular, the influence of peers is more powerful during this period than any other point in the lifespan.[296] Adolescents are more likely to conform to the expectations and behaviors of peers, especially when seeking peer approval. This can be adaptive as it promotes social exploration and novelty-seeking.[297] However, peer influence can also result in suboptimal self-control and decision-making. For example, adolescents typically make more cautious decisions when they are alone but riskier decisions when peers are present.[298]

287 Jessica Cohen et al, *A Unique Adolescent Response to Reward Prediction Errors*, 13 Nature Neuroscience 669 (2010).

288 Adriana Galván & Kristina McGlennen, *Enhanced Striatal Sensitivity to Aversive Reinforcement in Adolescents Versus Adults*, 25 J. Cognitive Neuroscience 284 (2013).

289 Somerville, *supra* note 65.

290 Lauren Sherman et al, *Peer Influence Via Instagram: Effects on Brain and Behavior in Adolescence and Young Adulthood*, 89 Child Development 37 (2018).

291 Juliet Davidow et al, *An Upside to Reward Sensitivity: The Hippocampus Supports Enhanced Reinforcement Learning in Adolescence.* 92 Neuron 93 (2016). (Citation: Davidow, *supra* note 203); Juliet Davidow, Catherine Insel & Leah Somerville, *Adolescent Development of Value-Guided Goal Pursuit,* 22 Trends Cognitive Sci. 725 (2018). (Citation: Davidow, *supra* note 207); Sabine Peters & Eveline Crone, Increased Striatal Activity in Adolescence Benefits Learning, 8 Nature Communications 1 (2017). (Citation: Sanders, *supra* note 204); Kate Nussenbaum & C. Hartley, *Reinforcement learning across development: What insights can we draw from a decade of research?* 40 Developmental Cognitive Neurosci. (2019).

292 Samantha DePasque & Adriana Galván, *Frontostriatal Development and Probabilistic Reinforcement Learning During Adolescence*, 143 Neurobiology Learning & Memory 1 (2017).

293 Peters, *supra* note 204.

294 Adriana Galvan et al, *Risk-Taking and the Adolescent Brain: Who Is at Risk?*, 10 Developmental Sci. F8 (2007).

295 Samuel Hawes et al, *Modulation of Reward-Related Neural Activation on Sensation Seeking Across Development*, 147 Neuro Image 763 (2017).

296 Eric Nelson et al, *The Social Re-Orientation of Adolescence: A Neuroscience Perspective on the Process and Its Relation to Psychopathology*. 35 Psych. Med. 163, 163–174 (2005).

Sensitivity to social influence uniquely impacts brain responses in adolescents, and the late adolescent brain is particularly sensitive to the presence of peers. This sensitivity is related to differences in brain responses in regions that are important for social and emotional processing.[299] Social influence can modulate brain responses in reward regions like the striatum, and in regions in the prefrontal cortex that support social cognitive functions such as thinking about self and others. Research shows that the mere presence of a peer can elicit exaggerated activity in the brains of middle and late adolescents, although this effect is tempered in younger children.

For example, a study examined brain activity when individuals thought a peer was observing them.[300] When a peer was watching, middle and late adolescents exhibited increased activity in a region within the prefrontal cortex that is important for social cognition and self-conscious awareness (medial prefrontal cortex). Middle and late adolescents also displayed increased connectivity between reward processing regions like the striatum and the medial prefrontal cortex. This suggests that the brains of middle and late adolescents are especially sensitive to social evaluation.

The presence of peers also modulates reward-related responses in the brain during middle and late adolescence, and this heightened reward response has direct implications for risk-taking behavior.[301] Neuroscience researchers found that when receiving rewarding outcomes, individuals ages 14–19 exhibited enhanced activity in reward-processing regions (including the striatum) when peers were present relative to when they were alone. However, peer presence did not modulate neural responses to reward in adults ages 25–35.[302] Peer modulation of reward-related activity in the brain has also been linked to enhanced risk-taking. For example, while completing a driving simulation task, adolescents ages 14–19 showed more activity in the striatum while in the presence of peers than when performing the task alone, and this difference was attributed to increased risk-taking behavior.[303]

297 Albert, *supra* note 15.
298 *Id.*
299 Laurence Steinberg, *A Social Neuroscience Perspective on Adolescent Risk-Taking*, 28 Developmental Rev. 78 (2008).
300 Leah Somerville et al, *The Medial Prefrontal Cortex and the Emergence of Self-Conscious Emotion in Adolescence*, 24 Psych. Sci. 1554 (2013).
301 Albert, *supra* note 15.
302 Ashley Smith, Laurence Steinberg, & Nicole Strang, *Age Differences in the Impact of Peers on Adolescents' and Adults' Neural Response to Reward*, 11 Developmental Cognitive Neuroscience 75 (2015).
303 Jason Chein et al, *Peers Increase Adolescent Risk-Taking by Enhancing Activity in the Brain's Reward Circuitry*, 14 Developmental Sc. F1 (2011).

Summary

Advances in contemporary psychology and neuroscience research provide converging evidence that adolescence is a period of dynamic brain development that persists beyond the age of 18. The vast majority of research has charted brain and behavioral development by averaging across groups of individuals and charting changes with age. However, moving forward, newer approaches in the field will allow scientists to quantify, and thus better understand, individual differences in brain and behavioral developmental trajectories.[304] New innovations in research methods have allowed scientists to take new approaches to measure brain development, and ongoing initiatives with large-scale sample sizes and longitudinal data collection will reveal a more nuanced and complex picture of brain development.

304 Simmons, *supra* note 97; B.J. Casey et al, *The Adolescent Brain Cognitive Development (ABCD) Study: Imaging Acquisition Across 21 Sites,* 32 Developmental Cog. Neurosci. 43. 43–54 (2018), Leah Somerville et al, *The Lifespan Human Connectome Project In Development: A Large-Scale Study of Brain Connectivity Development in 5–21 Year Olds,* 183 Neuroimage 456, 456–468 (2018).

HealthAffairs

CULTURE OF HEALTH

HEALTH POLICY BRIEF | JUNE 2018

HOUSING AND HEALTH: AN OVERVIEW OF THE LITERATURE

There is strong evidence characterizing housing's relationship to health. Housing stability, quality, safety, and affordability all affect health outcomes, as do physical and social characteristics of neighborhoods.

The impact of housing on health is now being widely considered by policy makers. Housing is one of the best-researched social determinants of health, and selected housing interventions for low-income people have been found to improve health outcomes and decrease health care costs. As a result, many health care systems, payers, and government entities are seeking to better understand the totality of the health and housing literature to determine where they might intervene effectively. This brief outlines the literature and provides high-level direction for future research and policy agendas.

Four Pathways

Existing evidence on housing and health can be understood as supporting the existence of four pathways by which the former affects the latter (exhibit 1). First, there are papers describing the health impacts of not having a stable home (the stability pathway). Second, there are papers describing the health impacts of conditions inside the home (the safety and quality pathway). A third, smaller set of papers describes the health impacts of the financial burdens resulting from high-cost housing (the affordability pathway). Lastly, a rapidly growing literature describes the health impacts of neighborhoods, including both the environmental and social characteristics of where people live (the neighborhood pathway).

This brief reviews each of the pathways in turn, including examples of both observational studies of housing deficits and interventional studies of possible solutions.

WITH SUPPORT FROM:

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THE STABILITY PATHWAY

Observational studies have shown that being without a stable home is detrimental to one's health. People who are chronically homeless face substantially higher morbidity in terms of both physical and mental health and of increased mortality.

Many people experience traumas on the streets or in shelters, which has long-standing adverse impacts on psychological well-being. These and other challenges can result in persistently high health care expenditures due to emergency department and inpatient hospital use. Even children who experienced homelessness only while in utero are more likely to be hospitalized or suffer worse health, compared to their peers.

People who are not chronically homeless but face housing instability (in the form of moving frequently, falling behind on rent, or couch surfing) are more likely to experience poor health in comparison to their stably housed peers. Residential instability is associated with health problems among youth, including increased risks of teen pregnancy, early drug use, and depression. A review of twenty-five studies that examined the impact of foreclosure on mental health and health behaviors (including substance abuse) found that all of the studies reported that foreclosure was associated with worsened outcomes, including depression, anxiety, increased alcohol use, psychological distress, and suicide. Matthew Desmond's recent ethnography, *Evicted*, illustrates how the stress of unstable housing can result in disruptions to employment, social networks, education, and the receipt of social service benefits. The lack of stable housing can also decrease the effectiveness of health care by making proper storage of medications difficult or impossible.

> "Housing the homeless has consistently been shown to improve health outcomes."

In contrast, providing access to stable housing can improve health and reduce health care costs. Within a population of nearly 10,000 people in Oregon with unstable housing, the provision of affordable housing decreased Medicaid expenditures by 12 percent. At the same time, use of outpatient primary care increased by 20 percent and emergency department use declined by 18 percent for this group. The health impacts of other means of stabilizing housing, including rental and foreclosure assistance, have also been rigorously studied in relation to mental health outcomes.

Housing the homeless has consistently been shown to improve health outcomes. In one of several randomized controlled trials of interventions to address homelessness, long-term housing subsidies had positive impacts on measures of psychological distress and intimate partner violence. Particularly among chronically homeless people, having a safe place to stay can both improve health and decrease health care costs. The extent to which the reductions in health care costs fully offset the costs of housing continues to be a subject of debate. The Housing First model, in which chronically homeless people with a diagnosis of a behavioral health condition receive supportive housing, has been shown to be particularly cost-effective, with one study finding that the provision of housing generated cost offsets of up to $29,000 per person per year, after accounting for housing costs.

EXHIBIT 1

Four pathways connecting housing and health

SOURCE: Adapted by the author from Gibson et al. 2011, Sandel et al. 2018, Maqbool et al. 2015, and Braveman et al. 2011.

THE SAFETY AND QUALITY PATHWAY

A number of environmental factors within homes are correlated with poor health. In-home exposure to lead irreversibly damages the brains and nervous systems of children. Substandard housing conditions such as water leaks, poor ventilation, dirty carpets, and pest infestation have been associated with poor health

outcomes, most notably those related to asthma. Additionally, exposure to high or low temperatures is correlated with adverse health events, including cardiovascular events—particularly among the elderly. Residential crowding has also been linked to both physical illness (for example, infectious disease) and psychological distress.

A large number of interventional studies demonstrate the potential for improving health through improved housing quality and safety. Studies in which asthma triggers are removed have repeatedly demonstrated health improvements and cost reductions among both children and adults (see also here and here). Research on smoking bans in public and affordable housing has found reductions in the number of smokers, the number of cigarettes smoked per smoker, and secondhand smoke exposure among nonsmokers. Children in families participating in the federally funded Low Income Home Energy Assistance Program (LIHEAP), which provides financial assistance for home heating, medically necessary home cooling, and emergencies due to weather-related fuel shortages, were at a healthier weight and at less nutritional risk, compared to their nonparticipant peers. Among community-dwelling older adults, home modifications can reduce falls by 39 percent when delivered by occupational therapists, and a randomized controlled trial of a standardized package of home safety improvements to decrease fall risk is ongoing.

> "The number of American households that are severely cost-burdened because of rent is expected to reach 13.1 million in 2025."

THE AFFORDABILITY PATHWAY

In 2015, 38.9 million American families spent more than 30 percent of their income on housing, earning them the designation of being "cost burdened" and inhibiting their ability to invest in health-generating goods. In the same year, 18.8 million households were "severely cost-burdened" because they spent more than 50 percent of their income on housing, with much of this burden falling on renters rather than owners. If both rents and incomes rise at the rate of inflation, the number of American households that are severely cost-burdened because of rent is expected to reach 13.1 million in 2025, an 11 percent increase from 2015.

In some cases, Americans may choose to spend substantially on housing to live in neighborhoods that provide access to health-promoting features such as schools and parks. However, a lack of affordable housing options can affect families' ability to make other essential expenses and can create serious financial strains. Low-income families with difficulty paying their rent or mortgage or their utility bills are less likely to have a usual source of medical care and more likely to postpone needed treatment than those who enjoy more-affordable housing. Severely cost-burdened renters are 23 percent more likely than those with less severe burdens to face difficulty purchasing food. Homeowners who are behind in their mortgage payments are also more likely to lack a sufficient supply of food and to go without prescribed medications, compared to those who do not fall behind on payments. Conversely, New York City families with affordable rent payments were found to increase their discretionary income by 77 percent, freeing up funds to spend on health insurance, food, and education or to save for a future down payment on a home.

THE NEIGHBORHOOD PATHWAY

Research on the influence of physical surroundings on health has been ongoing since John Snow's investigation of the Broad Street pump. In the modern era, researchers have found that the availability of resources such as public transportation to one's job, grocery stores with nutritious foods, and safe spaces to exercise are all correlated with improved health outcomes. Living in close proximity to high-volume roads, in contrast, is a danger to health and can result in increased rates of respiratory diseases such as asthma and bronchitis and increased use

of health care. In one study of neighborhood blight remediation, even walking past a vacant lot that had been "greened" decreased heart rate significantly, in comparison to walking past a nongreened vacant lot. The same authors also found that abandoned building and lot remediation significantly reduced firearm violence. Researchers evaluating the creation of a Safe Routes to School program in Texas found that the addition of sidewalks, bike lanes, and safe crossings reduced pedestrian and bicyclist injuries 43 percent among children ages 5–19.

Less visible but potentially even more important are neighborhoods' social characteristics, including measures of segregation, crime, and social capital. Sociologists have conducted crucial research that describes the health impacts of social and institutional dynamics of communities. David Williams and Chiquita Collins, in particular, have documented the impact of neighborhood segregation on health, suggesting that segregation widens health disparities by determining access to schools, jobs, and health care; influencing health behaviors; and increasing crime rates in neighborhoods of color. Although the preponderance of evidence suggests that racial segregation has negative impacts on health, some researchers have reported health-protective effects among blacks living in "clustered black neighborhoods."

> "The evidence on the relationship between housing and health is complex but compelling."

An analysis of the Moving to Opportunity for Fair Housing Demonstration Program has offered some of most compelling data on the impact of neighborhoods on health. Under this landmark federally funded experiment, people were randomly assigned to groups that either did or did not receive financial and other assistance in moving to lower-poverty areas—a research design that overcame unobservable selection effects inherent in many previous studies. Adults who moved experienced improvements in long-term mental health and some aspects of physical health (for example, reductions in the prevalence of obesity and diabetes) in comparison to peers who remained in high-poverty areas. Nearly two decades after the experiment concluded, Raj Chetty and colleagues found that when children were younger than age thirteen when they moved to a low-poverty neighborhood, their likelihood of attending college and projected lifetime earnings were significantly improved.

Evaluation Of Available Research

The weight of evidence is unevenly distributed among the four pathways. There is a great deal of evidence in both the stability and the safety and quality pathways of the risks associated with housing deficits and the potential health gains of providing housing or improving conditions inside the home. However, much of this research is concentrated in urban areas, and suburban and rural areas are frequently neglected. In addition, many of the studied interventions targeted people who were extremely high utilizers of health care without including a control group, which leaves the findings vulnerable to questions about regression to the mean. Finally, researchers reported health impacts more frequently than cost impacts for health systems, payers, or society. More financial analyses of housing interventions are therefore warranted, including examinations of costs related to social services and the criminal justice system.

The affordability pathway may have the least evidence to offer researchers and policy makers. At first blush, the pathway seems intuitive: As economists constantly point out, everything has an opportunity cost. Particularly among Americans with little disposable income, it is not surprising that people skimp on investments in other areas to make housing payments. However, additional studies of how people set priorities among basic needs and make decisions in conditions of scarcity may be useful in informing program and policy design.

Observational research about the neighborhood

pathway has made a strong case that individual-level analyses of risk factors are insufficient for predicting health outcomes. However, even well-designed studies of community-level interventions remain vulnerable to questions about whether causal inference can be established. The Moving to Opportunity evaluations were groundbreaking, in terms of both the randomized approach and the longer time periods used in the research. However, the question of how to address the social dynamics of neighborhoods (including inequality, segregation, and social capital deficits) appears ripe for further research. This will likely require an examination of how US housing policies have contributed to social inequality and residential segregation.

> "The role of the government in improving housing cannot be minimized."

Finally, the literature would be strengthened by more natural experiment study designs, which require less active manipulation than randomized controlled trials and can isolate the impact of an intervention better than standard regression techniques.

Policy Implications

The evidence on the relationship between housing and health is complex but compelling. The health care sector, businesses, community-based organizations, foundations, and government each have unique roles to play in improving housing conditions in the United States.

The health care sector should continue to explore the extent to which home interventions, such as the well-studied community asthma initiatives, can make financial sense among other patient populations. Given the shift toward accountable care models and other value-based payments, the financial incentives for health care systems to take broader responsibility for social determinants of health (including housing) are likely to increase. Medicaid programs in Oregon, New York, and Massachusetts have endeavored to support health systems in providing housing-related services and, in some cases, making investments in local housing stock. In many instances, health systems have managed to acquire housing-related capabilities through cross-sector partnerships with community-based organizations. Large health care systems may also consider using community benefit dollars and other institutional resources to create new affordable housing units in their communities.

Private-sector businesses, lenders, and investors can play a variety of roles, particularly via the neighborhood pathway. Banks have long invested in affordable housing as part of their obligations under the Community Reinvestment Act of 1977. Community development financial institutions have a track record of investing in housing as part of comprehensive neighborhood development. Other commercial entities should consider themselves potential anchors for community revitalization (or market opening) projects. The work of the Healthy Neighborhoods Equity Fund and Build Healthy Places Network may be especially instructive.

Community development corporations, housing alliances, and neighborhood initiatives will no doubt continue to be the main channels for making the voices of low-income neighborhood residents heard. These entities may be particularly well suited to take on the redevelopment of blighted spaces, organize support for new local policies in public and affordable housing units (such as smoking bans and rent control ordinances), create community-led interventions to lessen social isolation, and lobby policy makers to remain committed to the development of low-income housing.

Health-related foundations must continue to ensure that housing opportunities are distributed equitably. In their role as funders of research, foundations could help create return-on-investment analyses of housing interventions. However, researchers and policy makers alike should be careful in assessing and interpreting such analyses. There may be investments that do not produce a positive return on investment to the health

care sector but that are nevertheless socially desirable. Foundations can and should continue to support the development of affordable housing on the ground that it is an essential contributor to good health.

Despite the best efforts of these actors, the role of the government in improving the stability, safety, quality, and affordability of housing cannot be minimized. Critically, the supply of available housing for low-income families must be increased. Expanding access to Low-Income Housing Tax Credits is one way in which the government should provide a stimulus to private developers and managers, while the expansion of rental assistance and mobility programs may provide more immediate relief for families facing housing instability. Federal assistance programs such as LIHEAP and other subsidies for household necessities should also be continued. In particular, new policies to support seniors' aging in place may be needed to prevent large-scale institutionalization of aging baby boomers. Finally, federal, state, and local housing policies must be used to combat the persistence of income inequality and racial segregation as urban populations grow and neighborhoods are revitalized.

Three forthcoming *Health Affairs* briefs will explore specific strategies to address both the demand- and supply-side challenges of providing affordable housing. The first, Housing Mobility Programs And Health Outcomes, will focus on the performance and scalability of housing mobility programs. The second and third (Using The Low-Income Housing Tax Credit To Fill The Rental Housing Gap and Housing And Health—The Role Of Inclusionary Zoning) will address the potential for low-income tax credits, inclusionary zoning, and other policies to increase the supply of affordable housing.

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Written by **Lauren A. Taylor**, a doctoral candidate at the Harvard Business School, in Boston, Massachusetts.

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7500 Old Georgetown Road, Suite 600 | Bethesda, Maryland 20814-6133 USA |

Liberating Our Health:
Ending the Harms of Pretrial Incarceration and Money Bail

HUMAN IMPACT PARTNERS

February 2020
humanimpact.org/HealthNotBail

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Executive Summary

Almost half a million people who are locked in jails across the United States today have not been found guilty of the charges against them. Through the system of pretrial incarceration, people are separated from their loved ones, unable to go to work, forced to face economic insecurity, and placed at risk of the health harms of incarceration — all without a conviction.

In the US, pretrial incarceration is a practice that goes hand in hand with money bail. This is made clear by the fact that 90% of those who are incarcerated pretrial — specifically, 430,000 people — are locked up because they cannot afford bail. Theoretically, money bail is a policy that's meant to ensure that people return to their court dates after release from jail. Yet the majority of people who are released without bail still return to trial.

26 days:

Average length of pretrial incarceration in the US

In this report, we map out the pathways through which pretrial incarceration impacts health. We use a public health analysis to understand how the experience of pretrial incarceration factors into health and to assess the inequities inherent in money bail as a policy. Our ultimate goal is to address the root causes of incarceration in order to achieve community health and safety for all.

The current system disproportionately incarcerates people who are structurally marginalized

Because of the inequitable application of policies that criminalize activities associated with poverty and other forms of marginalization, jails are disproportionately filled with people who are historically and structurally marginalized. These inequities in incarceration are not because of any distinguishing individual behavior but because of racist policies and policing practices such as "broken windows" policing and stop-and-frisk. Such policies arose as a way to exert social control over Black people and have paved the way for mass incarceration.

Pretrial risk assessment tools perpetuate racial bias

9 out of 10

people return to every court appearance in Washington DC, which eliminated bail

States and local jurisdictions are turning to risk assessment instruments[1] in their attempts to reform pretrial incarceration. However, the data that are used in risk assessment algorithms are neither reliable nor neutral. The incorporated information is impacted by the racist systems of over-policing, mass incarceration, poverty, and segregation.

1 Risk assessment tools use information about a person who has been arrested — such as age at arrest, prior conviction record, prior failure to appear in court, family background, neighborhood of residence, and employment status — to categorize people's level of risk and inform a judge's decision on bail.

Pretrial incarceration harms health via 6 pathways

"I lost everything I owned while I was in jail — all my clothes, everything. Everything my mom was spending on me, putting money on my phone, I had to pay back. And then I never got paid by the job to pay her back, so that sent me even farther into debt. . . . Everything you think about is just how to get out. And the more you realize you can't, the more depressed you get and the more anxiety."

— Nick, formerly incarcerated pretrial in Florida

The cycle of debt and pretrial incarceration threatens economic security

Half of the people released from jail pretrial have had to use a for-profit bail bond company to secure their release. In a nation where nearly half of us experience financial fragility, our criminal legal system[2] effectively punishes those who experience poverty, as well as their loved ones, through the system of money bail.

Financial stress is strongly associated with a number of negative health outcomes — including higher perceived stress and depression and worse self-reported general health — due to the psychological burden and limited access to resources for those who experience a lower socioeconomic status.

Pretrial incarceration threatens steady employment

When someone is arrested or incarcerated, they are at risk of losing their job(s). Pretrial incarceration could also affect their future employment opportunities due to discrimination against those with an arrest record or workplace legal restrictions against those who are formerly incarcerated.

We know that loss of employment for any reason is damaging to health, and these negative health impacts can be compounded by the fact that loss of employment might also result in loss of employer-provided health insurance, and therefore, reduced access to needed medical care.

2 Criminal legal system: We use this term to refer to the US system of laws and the actors who enforce them — including police, prosecutors, and judges.

Pretrial incarceration can lead to loss of stable housing

23%

of people facing pretrial incarceration lose their rental housing

Alongside potential job loss, people who are incarcerated pretrial are also at risk of losing their housing through missed rent checks or home equity loan payments. When someone experiences incarceration of any form, their odds of experiencing houselessness increase from 1 in 200 for the general population to 1 in 11 for individuals recently released from incarceration.

Moving is stressful even under the best circumstances. Being forced to move can throw people's lives and health into turmoil and is especially harmful to children's well-being and educational outcomes.

Jails are not healthy environments

People who are incarcerated pretrial are often exposed to poorly maintained and constructed jails, which are toxic to people's health. Overcrowding results in more rampant and more rapid spread of infectious diseases due to concentrated exposure. Harmful conditions include extreme temperatures, toxic water, and food prepared without regard for safety and hygiene standards.

The experience of confinement can also impact mental health. The particular instability of pretrial incarceration, with high turnover of both the staff and incarcerated population, limited access to health care, and the shock of transition from freedom to incarceration could result in a heightened level of stress and trauma.

Jails do not provide quality health care

The understaffing of medical professionals on site, lack of resources, inability of those who are incarcerated to afford copays, and the overall dehumanization of incarcerated people hinder receipt of quality care. Jails are poorly equipped to provide mental health services and substance use treatment. Copays in jail can further restrict access to medical care.

Beyond the medical neglect of those within jails, incarceration can also lead to interruption of needed medical care and prescription medication. This disruption can be especially harmful to transgender people who are incarcerated.

Pretrial incarceration threatens community cohesion

Another consequence of pretrial incarceration is the disruption to social support networks while a person is incarcerated. Financial barriers, such as the cost of phone calls and visits, and legal barriers, such as those that might remove a child from the care of the incarcerated parent via family court, result in further separation from one's community during pretrial incarceration.

Loss of social support harms both the mental and physical health of those who are incarcerated pretrial. Forced separation also affects the health of family members.

People who are undocumented face particular harm

People who are undocumented are at particular risk in the conversation around ending money bail. With the use of ICE detainers[3], people who are undocumented are often shifted into the immigration enforcement system after they are released from pretrial incarceration. The system of immigration enforcement is even harder to get out of than the criminal legal system, and people can be detained for long periods without recourse and then eventually deported.

Fear of deportation damages mental and physical health. The stress of fear of deportation exacerbates chronic diseases such as depression, high blood pressure, sleep disturbances, and anxiety while producing a range of physical symptoms, such as hair loss and headaches.

Alternatives to incarceration often recreate jail-like conditions

Some jurisdictions are implementing alternatives to incarceration, like electronic monitoring or other conditions of 'supervised release,' which can include mandatory drug and alcohol testing or regular check-ins with a case manager or probation officer.

It's critical to ensure we are not replacing the harmful bail system with a harmful system of surveillance, which also generates fees and/or undue burden that can continue to put a person's health at risk.

Solutions exist to protect community health and safety

Policymakers at the local, state, tribal, and federal levels urgently need to address pretrial incarceration to advance health equity and racial justice. Our full report includes detailed recommendations that include:

- Ending money bail in favor of presumption of release
- Providing the pretrial support people need to live healthy lives
- Mandating data collection and transparency

Visit HumanImpact.org/HealthNotBail to read the full report and view references.

3 Immigration and Customs Enforcement (ICE) can request state or local law enforcement to hold someone in custody for up to 48 hours after they would otherwise be released so they can be transferred into federal immigration custody.

Acknowledgments

Authors

Christine Mitchell, ScD MDiv
Amber Akemi Piatt, MPH
Juan Gudino

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Contact Information

Christine Mitchell
Human Impact Partners
christine@humanimpact.org
www.humanimpact.org
510-452-9442 x 113

Key Contributors

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About Human Impact Partners

Human Impact Partners (HIP) brings the power of public health to campaigns and movements for a just society through research, advocacy, capacity building, and field building. Our mission is to transform the policies and places people need to live healthy lives by increasing the consideration of health and equity in decision making.

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Introduction

"They say you're innocent until proven guilty, but this is guilty until proven innocent. It's really how it works."

— Tressa, formerly incarcerated pretrial in Florida

On any given day in the United States, around 482,000 people — 65% of the total national jail population — are incarcerated in jails without having been convicted of the charges against them. This is called *pretrial incarceration*.[1] Some of those people are incarcerated pretrial because they have just been arrested and are awaiting their bail amount to be set and paid. But 90% of people in jail pretrial are there because they can't afford the bail amount that was set for them.[2]

As a result, many of the people who will suffer the harms of the system of pretrial incarceration — including job loss, housing loss, poor health care, and social isolation — are those who are poor. That poverty is then only compounded by the costs of being incarcerated and of paying money bail. In this way, pretrial incarceration cyclically feeds the criminalization of poverty.

How money bail fits into the system of pretrial incarceration

When a person is arrested and incarcerated pretrial, their release is at the discretion of varying actors in the criminal legal system. Their decisions are often inconsistent and can take several forms.

Citation release

During the arrest process, a law enforcement officer can issue someone a citation mandating that they attend a court date and then release them rather than taking them to a local jail.

Being released on your own recognizance

When someone is *released on their own recognizance*, they are released from jail with the promise to return to court dates on their own in the future. This can occur immediately after arrest while they are in a holding cell or at their arraignment, or after a short period of time in pretrial incarceration. By avoiding any substantial jail time before their court date and trial, people released on their own recognizance are able to continue working, maintain housing and health care, and stay with their families.

Conditional release

With *conditional release,* a person is released without any bail under conditions that range from minorly to highly supervisory, including pretrial supervision with a case manager, mandatory substance use treatment, restrictions on travel, educational or vocational programs, or electronic monitoring.

Money bail

When someone is required to pay *money bail*, they can still be released with or without additional conditions of supervision. Money bail payment can take three forms[3]:

1. A **secured bond**, where a person must pay some or part of the assigned bail amount either in cash or with a lien on some property prior to release
2. An **unsecured bond**, where a person pays the assigned bail amount only if they fail to return to a court date in the future
3. A **surety bail bond**, where a person is unable to afford the cost of bail and contracts with a bail bond agent to make the payment for them

With a secured bond, the bail amount is typically returned to the person after they have attended all of their court dates.

The person responsible for setting bail, as well as how bail amount is determined, varies by location. Some places use a bail schedule, which assigns a dollar amount depending on the offenses a person is being charged with (e.g., types of felonies or misdemeanors). The timing of a bail hearing and the existence or structure of bail schedules vary by jurisdiction — and a judge, bail commissioner, or magistrate may choose to reduce the set bail amount at their own discretion.[3]

Preventive detention

In some cases, a judge may decide to deny bail to those they deem a threat to public safety. These people would then be placed in *preventive detention*, or pretrial incarceration, until their court case is completed.[4]

Immigration bond operates under similar principles as money bail

In recent decades, immigration law has posed increased challenges for people detained by Immigration and Customs Enforcement (ICE). Like the US legal court system, bonds issued in the immigration court system operate under the same principle as bail in the criminal legal system — that is, to ensure that a defendant returns for future immigration court hearings. However, in practice, criminal bail and immigration bond are distinct for a variety of reasons.

While people may be granted bond to gain release from ICE custody until their cases are resolved, there is no guaranteed right or process for immigration bond hearings. In 2018, about 1 in 5 detained individuals (19%) received a bond hearing — and less than half of these cases (47%) were granted bond.[5] Of those granted bond, only 1 in 4 individuals detained by ICE were successful in obtaining an Immigration Court custody decision that allowed them to be released, due to either inability to pay for bond or inability to meet other conditions of release.[6]

Immigration bond is set by an immigration judge at a bond hearing at a minimum of $1,500, often varying by judge and the nationality of the person being detained.[7] Currently, the average immigration bond is $10,000 nationally, which has increased significantly in the past decade.[8]

As of 2019, the average wait time for a case to be resolved is 2 years, with about one million immigration cases waiting to be resolved — a number that has doubled since 2015.[9]

A public health approach to ending pretrial incarceration and money bail

This report uses a public health approach to understanding and addressing pretrial incarceration in the US. Public health as a field "promotes and protects the health of people and the communities where they live, learn, work and play."[10] Public health emphasizes environmental factors — such as access to healthy housing and robust public transportation options — as the primary drivers of health status and seeks to shape policies that support people's wellness.

There is a growing analysis of how entanglement with the criminal legal system is itself a social determinant of health,[11,12] and this report adds to this body of evidence by focusing primarily and narrowly on pretrial incarceration. We understand that all aspects of the criminal legal system — including criminalization, policing, prosecution, incarceration, re-entry, immigration enforcement, and deportation — are interconnected in inextricable ways.

As advocates around the country organize campaigns to end money bail, we highlight the health impacts of the existing system. We also offer recommendations for a vision of pretrial liberation that addresses the root causes of incarceration and the inequities therein in order to achieve community health and safety.

About this report

This report is informed and shaped by the experiences of those who are affected by or affecting the system of pretrial incarceration — namely, people who are currently or formerly incarcerated pretrial, their loved ones, organizers/advocates, and public policy decision makers. Quotes from those we interviewed individually and in a focus group are included throughout.

In this report, we rely on the general literature about the effects of incarceration, and when available, provide research on the pretrial period. The few specific studies about pretrial impacts mirror findings in the general literature and allow us to generalize more broadly in the absence of specific data. Due to the lack of transparency of government data, especially on policing and incarceration, we often rely on journalists or non-profit organizations who are filling the gap in data with their work.

Given the pervasiveness of the issues, the main body of this report addresses pretrial incarceration and money bail at a national level. It's our hope that local campaigns to end money bail can see themselves and their work in this report and use it to educate their bases and their local elected officials. Given that these reforms largely need to happen at the city, county, and/or state level, we partnered with — and intend to continue partnering with — local advocates to focus in on local-level statistics, policies, and opportunities for organizing. The first example of this type of partnership was with Faith in Florida — to read the full brief about Hillsborough County, visit HumanImpact.org/HealthNotBail.

"Criminal legal system" and other important terms

In this report, we use the following terms:

- **Criminal legal system**: This term encompasses the US system of laws and the actors who enforce them — including police, prosecutors, and judges — with the recognition that those actors often enforce the law inequitably and unjustly. Given deeply entrenched inequities seen in racial profiling, over-policing, and mass incarceration of people of color and poor people, we use this term rather than "criminal justice system" because there is little "justice" to be found within the system.
- **Money bail**: We use this term rather than the more well-known "cash bail" to clarify that bail doesn't always take the form of cash. For example, it can also take the form of bank checks, liens on homes or cars, or bond from a bail bond agent.
- **Pretrial incarceration:** The US criminal legal system uses the term "incarceration" to mean long-term time in prison after someone is convicted, while "detention" is used to imply temporarily holding those who are pretrial or awaiting deportation.[13] We use "pretrial incarceration" here rather than "pretrial detention" to challenge this distinction. People who can't afford bail often spend a long time in jail pretrial. In addition, using the term "incarceration" highlights that those pretrial are still experiencing the very real and destructive harms of life behind bars. Following the lead of immigration justice organizers, we continue to use the word "detention" in reference to those who are detained by immigration enforcement.
- **People-first language**: People who are incarcerated have a lot of labels applied to them — "felon," "convict," "inmate," "detainee," "criminal," and "offender," to name a few. We reject these dehumanizing labels and use people-first language to emphasize the humanity of persons who are incarcerated. We also reject the labeling of any human as "illegal" and use people-first language when naming those who are undocumented. Finally, we use the phrase "people experiencing houselessness" to identify those who are living without a house, both to name that this is a changeable experience and not an innate characteristic, and to highlight that "home" can mean many different things not necessarily tied to housing.
- **People who are historically and structurally marginalized**: We use this descriptor for those who have been intentionally or unintentionally excluded from beneficial social, political, or economic policies and institutions or actively oppressed by harmful social, political, or economic policies and institutions. In the context of this report, we specifically mean those who are disproportionately targeted by the criminal legal system and the immigration enforcement system, both historically and currently. This includes people experiencing houselessness, LGBTQ people, people with disabilities, people with mental health needs, immigrants, people who use drugs, sex workers, women, people of color — and those who hold multiple of these identities.

The Money Bail System Is Unnecessary, Ineffective, and Biased

It's important to understand the historical origins of the systems that incarcerate so many people every day in the United States in order to understand those systems' continued inequitable and ineffective application. Pretrial incarceration is one such system that is both racially biased in its application and unnecessary for fulfilling its intended purpose.

Pretrial incarceration and the bail system are historically inequitable

The bail system has its roots in the Anglo-Saxon legal process of medieval England. Under this process, those who committed lesser offenses were granted a system of pretrial release whereby they were freed while awaiting a magistrate to hear their case. Sheriffs accepted "personal surety" in the form of a friend or family member who agreed to stand in for the accused person if they did not return to trial, and who agreed to pay a monetary penalty to the injured.

While a similar system was implemented in the US, by the mid to late 19th century, the need arose for sureties among those who did not have friends or family members nearby to serve in this capacity. In this context, the bail bond industry flourished, with the first commercial money bail bond agency established in San Francisco in 1898.

For those unable to pay, inequities were built into the system from the outset. A 1927 study found that bail in Chicago was set solely on an alleged offense, which resulted in about 20% of people unable to afford bail, as well as endemic abuses of bail bond agents.[14]

By the 1960s, the Vera Institute of Justice was running the Manhattan Bail Project to test what would happen if people were released from jail with no bail conditions. Results found that out of 3,505 people who were released pretrial without bail, "only 1.6 percent of them failed to show up for their trials for reasons within their control."[15] Shortly after, Congress passed the Bail Reform Act of 1966, which required that all people be released under the "least restrictive conditions" that would still ensure their return to court.[16]

Subsequent policies, however, enabled pretrial incarceration to expand to new heights, particularly for people of color. In the midst of civil unrest and uprisings against racial discrimination in policing, housing, employment, and education, judges began to suspend the normal rules of bail and punish the mostly Black people participating in civil disobedience.[17]

Alongside the implementation of "tough on crime" policies like "broken windows" policing, Congress passed the Bail Reform Act of 1984. This allowed a judge to incarcerate someone pretrial if they were deemed to be either a flight risk or a threat to public safety. The act gave judges wide discretion to decide who was and who was not "dangerous," allowing the possibility of both implicit and explicit racial discrimination.[17]

Pretrial incarceration is a global issue, but money bail is not

Many of the issues described in this report mirror conditions in pretrial incarceration throughout the world.[18] While there is no comprehensive database of pretrial incarceration globally, one analysis found that as many as 10 million people may be incarcerated on a pretrial basis in the world annually, with an estimated 3 million people incarcerated pretrial on any given day.[19]

However, the United States is unique in at least one way: it is one of only two countries globally where the bail system is dominated by commercial bail bond agencies. Indeed, only the United States and the Philippines have perpetuated a system that profits from people's inability to pay for their own freedom.[20]

Without money bail, people still show up to court

"Any amount of leeway [in bail reform] will always be used more aggressively on people of color and more impacted communities. I really don't think [money bail] should exist anywhere, period."

— Jacob Tillotson, organizer with Dream Defenders

Theoretically, the money bail system is meant to ensure that people return to their court dates after release from jail. However, the majority of people who are released on their own recognizance without bail still return to trial.

For example, Washington DC, which eliminated money bail in 1992, releases 94% of all people arrested without using money bail, and 9 out of 10 people return to every court appearance.[21] The Bronx Freedom Fund, a community bail fund that pays bail for those who cannot afford it, found that 96% of the people they bailed out of jail returned to their court dates.[22]

Although this is the initial historical purpose of bail, the Bail Reform Act of 1984 introduced the idea that a person could be incarcerated pretrial when a judge determines there is a "risk of danger to the community" if the person is released.[23] Thus, a judge could set exceptionally high bail or no bail for a person deemed "dangerous."

However, again, data tell us otherwise. In Washington DC, less than 2% of people released pretrial are rearrested for what courts consider a "violent crime."[24] In Kentucky, around 70% of people arrested are released pretrial, with only half of one percent of those people rearrested for a "violent crime."[21]

Instead, the money bail system criminalizes poverty by incarcerating those who have not been convicted of any crime and simply cannot afford to pay the bail set by the court. Bail practices, as with the entire criminal legal system, result in the disproportionate incarceration of people experiencing houselessness, LGBTQ people, people with disabilities, people with mental health needs, immigrants, people who use drugs, sex workers, women, and people of color.[12]

Jails disproportionately incarcerate people who are structurally marginalized

"It all starts when they get arrested. So how that person was racially profiled when they were arrested can make the difference about whether this person is going to get the $250 bond, the $500 bond, maybe $1,000, or maybe no bond. Because it all depends on the charge that they put, and most of the time race does play a significant role."

— Nanci Palacios, Deputy Director of Faith in Florida

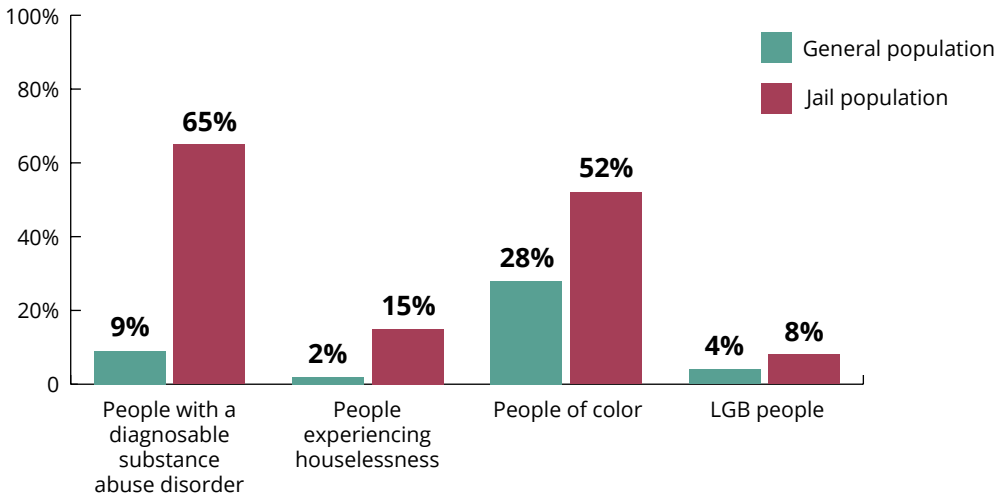
Because of the inequitable application of policies that criminalize activities associated with poverty and other forms of marginalization, jails are disproportionately filled with people who are historically and structurally marginalized. These inequities in incarceration are not because of any distinguishing individual behavior but because of racist policies and policing practices such as "broken windows" policing and stop-and-frisk. Such policies arose as a way to exert social control over people of color and have paved the way for mass incarceration.[26]

Jail populations have more than tripled since the 1980s, with 99% of that growth due to an increase in the pretrial population.[25]

The most recent data on the self-identified demographics of those incarcerated pretrial are significantly outdated, collected by survey in 2002.[27] The percentage of people who are incarcerated pretrial has increased from 29% to 65% of the jail population since 2002, meaning these demographic data are severely in need of updating. However, even the 2002 data still show the pervasiveness of inequities: nearly 7 in 10 (69%) of the people in jail pretrial were people of color, with Black (43%) and Hispanic (20%) people disproportionately overrepresented and White (31%) people disproportionately underrepresented compared to general population demographics. The data also show that Black people are more likely to receive a higher money bail amount and less likely to be able to afford it.[28]

The criminalization and targeted policing of structurally marginalized people means that jail populations nationally — both pretrial and otherwise — disproportionately consist of people who hold these marginalized identities. For instance, data show that Black people are jailed at 4 times the rate of White people[25] and that 60% of women in jails have not yet been convicted of any crime and are awaiting trial.[29] See Chart 1 below for a more detailed comparison of the general population in the US to the population in jail, pretrial or otherwise.

Chart 1. Demographics of in-jail population compared to general population[25,30]



Pretrial risk assessment instruments perpetuate racially biased results

"[T]he risk assessment industry, led by private corporations, foundations, and hedge-fund billionaires, seeks a new way to profit from mass incarceration, while claiming to support reform. Policymakers, drawn to its promise of technological efficiency, continue to ignore evidence of the mechanized racial profiling of the risk assessment tools."

— Ivette Alé, Senior Policy Lead of Dignity and Power Now & Campaign Coordinator of The JusticeLA Coalition[31]

Almost all of the states and counties that have ended money bail have replaced it with risk assessment instruments, which are algorithms intended to determine whether a person is at risk of flight or rearrest. However, this perpetuates the disproportionate incarceration of people who are historically and structurally marginalized.

There's a variety of risk assessment instruments that states and local jurisdictions have used to reform pretrial incarceration, some proprietary and others public. Information about a person who has been arrested — such as age at arrest, prior conviction record, prior failure to appear in court, family background, neighborhood of residence, and employment status — is used to categorize people into "low," "medium," or "high" risk. A judge then uses that categorization to determine whether to set bail or not, and if so, at what amount.[32]

However, the data that are used in risk assessment algorithms are neither reliable nor neutral. The incorporated information is impacted by the racist systems of over-policing, mass incarceration, poverty, and segregation. As Dr. Ruha Benjamin notes, the data measure how much a person's life has been impacted by structural racism without ever including an explicit datapoint about a person's race. While advocates for the use of risk assessments tout their objectivity, Dr. Benjamin highlights how such algorithms are an "insidious combination of coded bias and imagined objectivity."[33]

This leads to the algorithms producing racially biased results:

- A study of risk assessment scores in Broward County, Florida by ProPublica in 2016 found that one popularly used risk assessment instrument designed by Northpointe was two times more likely to wrongly label a Black person as "high risk" for rearrest pretrial, compared to a White person.[34]
- Another study of judges in the US found that the use of risk assessment algorithms in a judge's decision making about pretrial incarceration increased judges' likelihood of incarcerating relatively poor people, while it reduced the likelihood of incarceration for the relatively affluent.[35] This means that richer people had a 44% chance of spending time in jail pretrial, while poorer people had a 61% chance.[35]

New Jersey, which mostly eliminated money bail in 2017, has been using the Public Safety Assessment (PSA) risk assessment tool. While overall pretrial incarceration numbers have dropped, with 6,000 fewer people in jail pretrial in 2018 than in 2012, racial disparities have persisted. In 2018, Black women made up 34% of the female pretrial jail population, and Black men made up more than 50% of the male pretrial jail population, despite Black people only being 15% of the New Jersey general population.[36,37]

Kentucky passed a criminal legal system reform bill in 2011 that mandated judges to use risk assessment tools in pretrial decision making. Prior to this reform, there was a difference of 2% between the proportion of White people and the proportion of Black people who were sentenced to pretrial incarceration. After risk assessments were mandated in 2011, that inequity actually *increased* to 10% and remained stable through January 2016, despite Kentucky changing the risk assessment they used twice in that time. While some of this gap decreases once gender, age, criminal history, and the charges at hand are accounted for, Black people are still more likely to be incarcerated pretrial than White people.[38]

Jails and prisons have significant differences

Although the words "jail" and "prison" are often used interchangeably, there are actually substantial differences between the two institutions.

Jails are typically short-term facilities that predominantly incarcerate people who are either pretrial or who are convicted of misdemeanors and serving relatively short sentences, generally less than one year. Unless they are private jails run by corporations, jails are run and operated by local governments and county sheriff's departments. More recently, jails have also been used for immigration detention sites.

Prisons, on the other hand, are typically run by state or federal government and are meant for people who have been convicted of more serious offenses and who have received longer sentences.

As of 2019, there are 3,163 local jails, 1,719 state prisons, and 109 federal prisons operating in the US.[39]

PRETRIAL INCARCERATION & MONEY BAIL DESTABILIZE OUR COMMUNITIES

Pretrial incarceration wreaks havoc on what we know makes us healthy. Due to structural oppression, people of color, people living in poverty, and people who are undocumented face disproportionate harm.

The Cycle of Debt and Pretrial Incarceration Threatens Economic Security

"When [the bail bond company] went off my bond, they said, 'Well, it's because you're behind on your payments.' So they said, 'If you come down here and bring us the money, we'll go back on your bond.' So I borrowed some money from my family, my dad, and then I went down there. They took the money and then they said, 'Well, we're not going to go back on your bond,' and they took me to jail. So, they flat out lied to me."

— Bryan, formerly incarcerated pretrial in Texas

Many families and individuals throughout the US go into debt in order to meet the costs of pretrial incarceration. This is doubly difficult because people incarcerated in jail or prison already tend to struggle financially due to the widespread criminalization of activities related to poverty and marginalization in the US, such as writing a bad check or theft to meet survival needs.

We know that half of people released from jail pretrial are on for-profit bail, meaning that those families have had to pay a portion of the total bail to a private bail bond company in order to secure their loved ones' release.[41] While families that pay bail directly to the court get their money back after a case is over, families that pay a bail bond company do not get their money back. Bail bond companies don't make systematic data available and are not transparent about their money bail practices, earnings, and outcomes. Subsequently, more exact numbers are hard to obtain and research typically relies on other sources to assess impacts.

$10,000:

The median bail amount nationally, which represents about 8 months of income for the average person incarcerated pretrial.[40]

"Pay-to-stay" and other exorbitant fees add undue burden

Many parts of the country also charge people who are incarcerated pretrial a daily jail fee, known as "pay-to-stay." At the state level, these fees range in cost. For example, fees are $3 per day in Virginia, but $50 per day in Kentucky. A judge can waive these fees, but the fees

can also be deducted from a person's commissary account or leave a person in debt after they are released.[42]

In addition to the costs of bail, jail fees, and court fees, people in jail and their families also pay to meet the exorbitant costs of staying in touch with their loved ones and their defense attorneys. Nationally, the average cost of a 15-minute telephone call from jail is $5.74.[43] At the highest end of the range, phone calls from Arkansas county jails can cost up to almost $24.82 per 15-minute phone call. A 2015 study found that more than 1 in 3 families went into debt paying for phone calls and visits alone.[44]

Furthermore, if families want to send in money for food and toiletries from the jail commissary, there are often markups on basic necessities. For example, in San Francisco jails, items such as hygiene products are marked up by 43%.[45] Since those who are in jail pretrial often remain there because they cannot afford bail, this price gouging can cause them and their families to go even further into debt.

A person might stay in debt, or go even further into debt, due to criminal legal system fees over the course of a lifetime. A study conducted in Philadelphia found that a total of 82% of people who were charged court fees were still in debt five years later after their release.[46] Because pretrial incarceration disrupts current employment and often affects earnings years after release due to barriers to regaining employment, a person's ability to recover from debt remains substantially impacted in the long term.

Financial stress contributes to poor health

"I lost everything I owned while I was in jail — all my clothes, everything. Everything my mom was spending on me, putting money on my phone, I had to pay back. And then I never got paid by the job to pay her back, so that sent me even farther into debt. . . . Everything you think about is just how to get out. And the more you realize you can't, the more depressed you get and the more anxiety."

— Nick, formerly incarcerated pretrial in Florida

Financial stress in the US is strongly associated with a number of negative health outcomes.[47] While there are numerous studies that examine the association between socioeconomic status and health, there are far fewer that look specifically at the health impacts of financial debt.[48] The existing research that does explore this relationship focuses mostly on the psychological burden of being indebted,[49] though more recent work has found that being in debt harms mental well-being and is associated with higher perceived stress and depression, worse self-reported general health, higher diastolic blood pressure, sleep deprivation, and anxiety.[50]

This burden is compounded for families of people who are incarcerated pretrial if financial burdens already exist because a family member is no longer earning wages at their job or has difficulty finding employment again after they are released from jail. When jail time challenges a family's economic security, there may also be the added stress of loss of housing, loss of child care, and loss of their ability to afford other resources that are vital to health, such as health care and healthy food.

Pretrial Incarceration Threatens Steady Employment

"I've lost jobs almost every time I've got arrested — every time I was stuck there overnight. I've lost places and cars going through jail even if it was just for a week or two. Most places don't understand where you're going for two weeks to be in jail."

— Tressa, formerly incarcerated pretrial in Florida

Part of the cycle of poverty and debt arising from pretrial incarceration comes from the loss of employment that often occurs when a person is arrested or incarcerated. People might lose their job(s) due to missing work while incarcerated pretrial, and due to the price of phone calls from jail, might not even be able to call their workplace to let them know about their situation. Time in pretrial incarceration could then also affect future employment opportunities due to discrimination against those with an arrest record or workplace legal restrictions against those who are formerly incarcerated.[51]

Indeed, due to the structural barriers in place for those with an arrest record, those who are incarcerated pretrial are found to be less likely to be employed and significantly less likely to have any household income up to four years after their bail hearing.[52] One study found that only 37.9% of those who were incarcerated pretrial were employed in the formal labor market 3 to 4 years after their bail hearing, compared to 48.9% of those who were released pretrial.[52]

This barrier to employment is likely even more pronounced for Black people incarcerated pretrial than White people incarcerated pretrial. Research about those who have been incarcerated post-trial shows that the ratio of callbacks from employers for White people with no criminal record compared to White people with a criminal record is 2:1, while for Black people the ratio is 3:1. This means that the effect of a criminal record for Black people is 40% greater than it is for White people.[53] Given the racism inherent in the criminal legal system, as well as the racism that often occurs in hiring processes, it is reasonable to believe this inequity would hold true for those incarcerated pretrial.

Lack of employment results in harsher sentencing

Stable employment is also a factor that judges often consider in sentencing decisions. If a person loses their job due to pretrial incarceration, that lack of employment and resultant financial instability is associated with harsher sentencing when compared to those who are released pretrial and able to maintain stable employment.[51]

In fact, research shows that people who are incarcerated pretrial are 15% more likely to be convicted and are sentenced to prison for 264.6 days longer on average compared to those who are released pretrial.[52] This translates to more convictions and longer sentences, which means more time away from the families, communities, and resources needed to live a healthy life.

Job loss is damaging to both physical and mental health

We know that loss of employment for any reason is damaging to health, though the particularities of the health impacts of job loss due to pretrial incarceration are not well documented:

- Workers who are laid off from their jobs have higher total cholesterol levels and higher blood sugar levels[54]
- Studies show job loss is also associated with worse self-reported health, more cardiovascular disease, an increase in hospitalization, higher use of medical services, and higher rates of mortality[55]
- Job loss also takes a toll on mental health and psychological well-being, resulting in higher levels of stress, depression, and anxiety[56]

All of these negative impacts can be compounded by the fact that loss of employment might also result in loss of employer-provided health insurance, and therefore, reduced access to needed medical care.

Pretrial Incarceration Can Lead to Loss of Stable Housing

"I've been on the border of getting evicted. I struggled. It wasn't something I was expecting to happen. My world turned upside down completely."

— Daisy, wife of someone who was deported after being bailed out of pretrial incarceration in Massachusetts

Alongside potential job loss, people who are incarcerated pretrial are also at risk of housing loss through missed rent checks or home equity loan payments. Research indicates that approximately 23% of people facing pretrial incarceration lose their rental housing.[57]

Research also shows that when someone experiences incarceration of any form, their odds of experiencing houselessness increase from 1 in 200 for the general population to 1 in 11 for individuals recently released from incarceration.[58] This impact extends to families with someone who is incarcerated, 48% of which have difficulty meeting basic housing needs because of the loss of income due to a family member being incarcerated.[44]

After someone loses their housing, it can be hard to get it back with an arrest record. Federal housing regulations require a background check for all public housing applicants and denies public housing to those with a conviction.[59] This can also include evicting residents of a house where a family member with a record of a conviction is staying or living. Pertinent to those who have experienced pretrial incarceration, some states deny housing based on arrest record, regardless of conviction.[59]

Housing insecurity puts health at risk

When people experience unstable housing and chronic houselessness, it can seriously harm their health.

- Home foreclosure is shown to dramatically worsen the psychological well-being of affected adults, including outcomes such as depression, anxiety, increased alcohol use, psychological distress, and suicide[62]
- Those experiencing houselessness are more likely to become ill, have greater hospitalization rates, and die at a younger age than the general population[63]
- Houselessness, in particular, can result in respiratory conditions, depression, anxiety, unintentional injury, excess winter mortality, and skin irritation[64]
- Loss of housing also has a health impact for children and families. Being behind on rent has been linked to fair and/or poor caregiver health, maternal depressive symptoms, child lifetime hospitalizations, fair and/or poor child health, and household material hardships[65]

Safe and stable housing is also crucial to an individual's sustained employment. In fact, one study finds that people are 11% to 22% more likely to lose their jobs after they have involuntarily lost their housing, compared to those with stable housing.[66] Though there are multiple pathways by which job loss and housing loss are linked, one potential pathway is that the stress and turmoil of losing one's home might result in an inability to perform one's job, as well. Furthermore, it can be hard to obtain a new job without an address on one's job application. Thus, pretrial incarceration often leaves affected individuals and their families susceptible to the health risks of housing insecurity, with little assistance to recover.

Efforts that focus on pretrial release only for some (such as misdemeanors associated with houselessness) can feed a false violent/non-violent dichotomy

"As we see a wave of bail 'reform' policies being proposed across the political spectrum, it is critical that we avoid falling into traps that dichotomize categories like violent/non-violent. Policies that set up judgmental categories for individuals and create lists of exceptions that leave people detained only perpetuate the bias in the system."

— Pilar Weiss, Director of the National Bail Fund Network

Advocates of ending mass incarceration often focus on policies that reduce or eliminate sentences for people charged with or convicted of nonviolent misdemeanors, such as laws that criminalize sleeping outside. A majority of people incarcerated in state prisons (54.5%) and a large percentage of people incarcerated pretrial (31.5%) are charged with or convicted of a "violent crime."[39] As Michelle Alexander, author of *The New Jim Crow*, notes in a recent *New York Times Magazine* article, "Those of us who are committed to ending the system of mass criminalization have to begin talking more about violence. Not only the harm it causes, but the fact that building more cages will never solve it."[60]

Some solutions to reforming pretrial incarceration propose that certain charges — often nonviolent misdemeanors — be treated with a presumption of release where a person spends no time in pretrial incarceration, while other charges — often felony charges or charges that involve violence — be met with pretrial jail time, provided that a judge finds clear evidence that the person is a danger to public safety.

The system of classification of offenses as "violent" also raises concern. Many offenses that a court defines as "violent" in fact don't cause physical harm to others, or they involve actions done in self-defense, often against physical or sexual abuse. No agency collects data on how many abuse survivors are arrested and prosecuted for actions in response to abuse. But what we do know from US Department of Justice data is that nearly half of women incarcerated in jails and prisons had been abused prior to their arrest, and among those women, the majority convicted of murder had killed intimate partners or family members.[61] Rather than addressing the root causes of violence, the criminal legal system freezes people into a single action forever by placing them in the category of "violent."

Jails Are Not Healthy Environments

"There are two scratches on my window. If I lean over to look through the scratches, I can see the sky."

— Zara, currently incarcerated pretrial in California

Millions of people annually are exposed to conditions within jails that have a negative, direct impact on health. Nationally, around 482,000 people are incarcerated in jails pretrial on any given day, with an average stay lasting 26 days.[1] However, because people cycle in and out of jails so often, it is also important to note that there are an astounding 11 million jail admissions per year.[67]

A report tracking the deaths of 816 people in jails across the country from 2015 to 2016 found that most died within the first week of custody. Knowing that over 65% of the people in jails are pretrial, it is likely that most of the people who died were not yet convicted of the crime for which they were incarcerated.[1] Of these 816 people, 31% died from apparent suicide and 27% died due to natural causes or medical emergencies.[68]

Environmental conditions within jails are toxic

People who are incarcerated pretrial are often exposed to poorly maintained and poorly constructed jails, which are toxic to people's health.

Jail conditions are even worse than one might find in a prison because they are usually constructed for short-term incarceration. For example, jails are often overcrowded, with people who are incarcerated pretrial making up 99% of the growth in the jail population in the last 20 years.[39] Overcrowding, which by definition means that a jail is holding more people than it was designed to, can result in more rampant spread of infectious disease due to concentrated exposure to the disease, heightened negative effects on mental and physical health, inability to provide needed programming for people's mental and physical health, and more rapidly deteriorating conditions in aging jail structures.[69] Some of these deteriorating conditions include poor ventilation, extreme temperatures,[70,71] black mold on the walls, or poor plumbing infrastructure, resulting in blackened water coming from the taps, overflows of raw sewage, and leaky or clogged toilets.

There are also more and more reports of prisons, jails, and ICE detention centers built on toxic waste sites, where pollutants can result in gastrointestinal, respiratory, and skin conditions.[72]

Jails allow for the rapid spread of infectious disease

Studies show the high prevalence of Methicillin-resistant Staphylococcus aureus (MRSA), scabies, lice, influenza, the varicella-zoster virus that causes chickenpox and shingles, tuberculosis, hepatitis, and HIV in jail settings.[73] Overcrowding is not the only mechanism by which disease spreads rapidly through jail populations. Many jails inhibit proper hygiene by limiting access to showers and hand-washing stations, proper health care and vaccinations, soap and tampon supplies, and clean clothing and linens. Blood-borne pathogens can spread via shared razor use, sexual encounters, or injection drug use, as jails fail to provide adequate hygiene products, condoms for protection, or needle exchange programs and substance use treatment.[73]

The food and water jails provide are toxic

"We've paid bonds for people with all sorts of health issues that are made worse in jail by the food that they're served and the lack of control they have over the diet. Diabetics that weren't able to keep food on them that they might need, or if they did, they would have to buy it special through commissary because you can't just hold on to an apple after lunch when your blood sugar becomes low because that becomes contraband."

— Sharlyn Grace, Executive Director of the Chicago Community Bond Fund

Participants in our project who were incarcerated pretrial describe the jail food as sometimes moldy, sometimes frozen, and prepared without regard for food preparation safety and hygiene standards. A study of foodborne disease outbreaks in correctional institutions, including both jails and prisons, from 1998 to 2014 revealed 200 foodborne outbreaks, resulting in 20,625 illnesses, 204 hospitalizations, and 5 deaths.[74] These numbers are more than six times higher than the number of outbreak-associated foodborne illnesses in the non-incarcerated population.[74]

Poor water quality in jails and prisons is also well documented across the country. In California prisons, several people came down with a deadly type of pneumonia called Legionnaires' disease due to contaminants in the water.[75] In Connecticut prisons, several people became ill with helicobacter pylori, a waterborne bacteria caused by sewage leaking into the water supply.[76] In Texas, a Consumer Confidence Report found that the water supply in one prison had double the safe level of arsenic in it, which could cause skin damage, circulatory problems, and cancer.[77] In Massachusetts, the Department of Environmental Protection found one prison's water to have elevated levels of manganese, a mineral that can cause long-term neurological damage.[78] The problem of water with high levels of contaminants is identified in correctional facilities across the country.[79]

Conditions of confinement impact mental health

"While I was in there, I ended up having an anxiety attack. They started prescribing me something for anxiety because of all of the stress — I still had another 20 days before my court date. It's that not knowing what's going to happen — once you're sentenced and all the other stuff, you know when you're getting out, you know when the end is. There's always that. But until then, it messes with your head."

— Nick, formerly incarcerated pretrial in Florida

With 31% of people who die in jails dying from suicide, it is evident just how harmful the experience of incarceration is to mental health.[68] Within populations of incarcerated people, there is a body of literature that hypothesizes that incarceration is harmful for mental health due to its inherently isolating, stressful, and stigmatizing nature. In addition, the neglect, abuse, and violence people face while behind bars damages both physical and mental health.

The particular instability of pretrial incarceration, with high turnover of staff and incarcerated population, limited access to healthcare, and the shock of transition from freedom into incarceration, could result in an even more heightened level of stress and trauma.[80] Because of this unique environment, some studies are now exploring the specific mental health impact of incarceration in jails as compared to prisons.

For example, one study found that people incarcerated in jails reported more depression, heavy alcohol use, and illicit drug use than people incarcerated in prison, and that those incarcerated in jail were more likely to report life dissatisfaction than those not incarcerated at all.[81] The environment, paired with lack of quality treatment provided within jails, means that any period of incarceration is likely to only exacerbate the conditions of those with mental illness.

People with mental health needs are also often criminalized and therefore overrepresented within jails. A landmark 1984 study observed 1,382 police encounters with civilians and found that for similar offenses, people with diagnosed mental illnesses had a significantly higher chance of being arrested than those without one.[82]

Within jails, the Bureau of Justice Statistics found that 23% of unsentenced people incarcerated in jail reported serious psychological distress in the 30 days prior, compared to 5% of the general population. Furthermore, 44% of people unsentenced in jail had ever been told by a mental health professional that they had a mental illness.[83] It is essential to recognize that these statistics are the result of the over-policing and criminalization of those with mental health needs.

The "deinstitutionalization" of people with mental health needs from psychiatric hospitals in the 1960s and 1970s only shifted the institutionalization of people with mental health needs from hospitals to jails. The National Alliance for the Mentally Ill and the Public Citizen's Health Research Group released a report in 1992 that found that 29% of the jails they surveyed were holding people with a diagnosed mental illness without any criminal charges against them.[84]

Alternatives to incarceration often recreate jail-like conditions

"We need to be careful, as a movement, to make sure we're not making concessions that are actually going to be increasing the police state. Where it's like, 'Okay, yeah, you can be free — you just need to pay $99.99 for this ankle monitor.' So I wouldn't want that to be a part of the solution, where, okay, you're not in jail, but you're still being monitored. That's a new form of bondage. That's not freedom."

— Bernice Lauredan, community organizer in Florida

Jurisdictions that are implementing alternatives to pretrial incarceration are increasingly using methods that recreate conditions of confinement outside of the institution of a county jail. This includes electronic monitoring, usually with a GPS ankle monitor, as well as conditions of surveillance under the name of "supervised release," such as mandatory drug and alcohol testing or regular check-ins with a case manager or probation officer.

As more places push for an end to money bail, electronic monitoring is more and more commonly used. After San Francisco passed a bail reform policy in 2018, the number of people released from jail on an ankle monitor tripled.[85] However, the use of electronic monitoring threatens to replace a harmful bail system with a harmful system of surveillance that can just as easily result in debt, job loss, and social isolation. While a 2014 NPR report found that every state except Hawaii required people to pay at least some of the costs of their own electronic monitoring,[86] more and more states are eliminating fees for people in order to maintain the use of electronic supervision.

The fee for an ankle monitor averages around $10 to $15 a day, which, for many people, adds up to more than the cost of bail would have been.[87] On top of this debt, a 2011 survey conducted by the National Institute of Justice found that among 5,034 people classified as "high" or "medium" risk who were on electronic monitors, 22% said they had been fired or asked to leave a job because of electronic monitoring.[88] If a person is unable to afford the ankle monitor, they can be sent back to jail pretrial.

"Supervised release" still expands the reach of the criminal legal system

Another alternative that has been attempted in places trying to reduce pretrial jail populations is "supervised release." While the idea of having a case manager who facilitates a connection to necessary treatment or provides reminders for upcoming court dates holds the potential to be a healthy and supportive alternative to pretrial incarceration, some current forms of supervised release, particularly those that involve law enforcement officers, still expand the reach of the criminal legal system into the lives of people who have not been convicted of any crime.

One way in which this occurs is through regular mandatory drug or alcohol testing. Research shows mixed results about whether this mandatory testing works for the purposes of ensuring a person returns to court or avoids rearrest. The National Institute of Justice evaluated mandatory drug testing programs in five jurisdictions nationally and in Washington DC, and found no conclusive difference across drug type and jurisdictions in failure-to-appear rates or likelihood of rearrest among people assigned to mandatory drug testing and people without that condition of release.[89] Still, failure to maintain compliance with total abstinence from drugs or alcohol, or failure to submit oneself for testing or a check-in with one's case manager for those with mandatory testing and supervision as a condition of release, can lead to being sent back to jail pretrial.

As Robin Steinberg, executive director of the Bronx Defenders, and David Feige, board chair of the Bronx Freedom Fund, note, "In effect, the pretrial-services model imposes supervisory oversight on the innocent in ways that are more onerous than what one would face if actually guilty. The system thereby replicates (albeit in a more benign fashion) the very problem it seeks to solve: inverting innocent until proven guilty, and placing punishment before adjudication."[90]

Jails Do Not Provide Quality Health Care

"They don't care about our health, they don't care about our baby's health — including our grown babies."

— Jazz, currently pregnant and incarcerated pretrial in California

Despite high rates of health concerns within prisons and jails, it's a struggle for those who seek medical care behind bars to receive the health care they need. Corrections staff are often the ones who decide whether a person who is incarcerated receives medical care. The understaffing of medical professionals on site, lack of resources, inability to afford copays, and overall dehumanization of incarcerated people hinder receipt of quality care.

According to a 1998 Bureau of Justice Statistics report, less than half (41%) of people incarcerated in jail with mental health needs received any help while incarcerated.[91] Another study showed that among those with persistent medical conditions, 68% of people incarcerated in local jails had received no medical examination since incarceration. Though more than 20% of people were taking prescription medication for any reason prior to incarceration in jails, 42% of those people stopped that medication since incarceration.[92]

Perhaps one of the most concerning issues with health care provision in jails is the interruption to treatment being received prior to incarceration. For instance, while 65% of all people in jail have a diagnosable substance use disorder,[25] comprehensive substance use treatment is often substituted for something like a self-help program.

Transgender people in jail face particular health consequences

Transgender people also suffer from a particular interruption to health care during incarceration. A report by the National Center for Transgender Equality notes that while 58% of respondents to their survey reported being on hormone therapy prior to incarceration, 37% of those respondents were prohibited from taking their hormones while incarcerated.[94] Denying this treatment can result in increased depression, anxiety, and suicidality — a particular concern given that many states don't provide psychotherapy to transgender people while incarcerated, and given that transgender people experience psychological distress at 8 times the rate of the general population.[95]

Two-thirds of jails don't offer any substance use treatment at all, aside from self-help groups and educational programming.[93] Only 13% of people incarcerated in jails who reported ever using drugs had participated in any sort of treatment since their admission, and most of those reported were self-help groups.[93]

Copays in jail further restrict access to health care

The problem of access to health care is further amplified due to restrictive copays for any medical or dental care within jails. Despite the fact that people incarcerated pretrial are making no money, many jails still charge copays between $2 and $8 for medical or dental care.[96] This cost is prohibitive to seeking treatment, forcing people who are incarcerated to either go without treatment at all — which could contribute to the spread of untreated disease — or to let the illness sit until they can no longer go without treatment — which could result in death or in more aggressive or expensive care for an advanced-stage illness.

California is the first state to eliminate medical copays in jails

As of January 1, 2020, California will be the first state in the US to eliminate medical copays in both jails and prisons (9 other states have eliminated medical copays in prisons). Previously, there was a $3 copay for medical, mental, or dental care in California jails — a cost that inhibited those who are incarcerated from seeking health care.

In the press release announcing the signing of the legislation marking this change, policy associate Derick Morgan of the Ella Baker Center for Human Rights noted, "What we saw with these copays was a two-tiered system — those incarcerated with family able to send money could see a doctor, while those with less means were effectively barred from accessing health care." The elimination of copays in jails removes a barrier to health care for those incarcerated pretrial.[97]

Pretrial incarceration can also lead to loss of health insurance

Any period of incarceration also results in interruption to medical care access once a person is released. Despite the fact that many people who are incarcerated are provided health insurance via Medicaid, many states have implemented policies where an individual's enrollment in Medicaid is terminated upon incarceration, whether a person is pretrial or not.[98]

Only recently has there been a shift among states to enact policies to suspend Medicaid enrollment, rather than terminate it. Currently, 34 states suspend rather than terminate Medicaid upon incarceration, with more states in the process of passing similar policies.[99] This is essential, especially to those requiring continuous treatment for chronic conditions, mental illness, or substance use.

> Every time he gets arrested, he doesn't get his ID or his driver's license back, so then you have issues finding a job. If you're in for a while and nobody can pay for your house, you no longer have a place to stay. If he's not working and he has no place to stay, he can't help take care of his daughter. And after a while, you're trying, then you get depressed. Then you give up. And that's usually when he ends up getting in a minor scrape again.
>
> — Maureen

Maureen (left) is the mother of Nick (center) and Tressa (right). Nick and Tressa have both cycled in and out of the criminal legal system in Florida since their youth. They have struggled with anxiety and debt due to money bail and have lost jobs, housing, and family connections during pretrial incarceration.

Pretrial Incarceration Threatens Community Cohesion

"From his 4-year-old daughter's perspective, after he was in that last time, it was months that she wouldn't talk to him. . . . They talked regularly on the phone, and she was so angry because her father hadn't called her. It was about 3 months that she wouldn't talk to him at all because she felt abandoned."

— Maureen, mother of two people who were incarcerated pretrial in Florida

One consequence of pretrial incarceration is the disruption to social support networks while a person is incarcerated. Social support is interrupted by financial barriers — by the high cost of phone calls or emails and by the cost of travel to visit loved ones in jail. Support is also interrupted by barriers put in place by the criminal legal system — namely, that the arrest can be used to justify a restraining order or the permanent or temporary removal of parental rights of a child by a family court, even before a conviction occurs.[100] Finally, the stigma of being incarcerated may lead to shame in reaching out to loved ones or even intentional distancing by loved ones.

Lack of social support is deeply harmful to health, across a number of outcomes:

- One study shows that people without strong social connections to others were 2 to 3 times more likely to die from ischemic heart disease, cerebrovascular disease, or cancer over a nine-year period compared to individuals with stronger social support[101]
- Poor social support is associated with depression, including the co-occurrence of depression with physical illnesses, such as multiple sclerosis, cancer, and rheumatoid arthritis[102]
- Physically, social isolation can lead to increased heart rate, increased cortisol levels, and increased blood pressure[102]

Forced separation also affects the health of family members

"It's just inhumane to see how folks are caught up in these cages. . . . And it's so traumatic. It's traumatic to the [people who are incarcerated] and it's traumatic to the families and everyone involved in that whole system and process. They think they're just punishing one individual, but they're actually punishing everyone that's in relationship with that person."

— Susy, sibling of someone who was incarcerated pretrial in Florida

Separation of families damages the health not only of the person being incarcerated, but of their families, as well:

- A 2002 Survey of Inmates in Local Jails by the Bureau of Justice Statistics finds that over 150,000 children had a parent in jail because their parent couldn't afford bail[103]
- A small 2016 study by researchers at George Mason University found that 56% of their 220 respondents who were incarcerated pretrial were parents, and that nearly 40% of those respondents noted that their incarceration has changed or will change their child's living arrangements[104]

Family separation is a stressful and traumatizing experience for children in any situation:

- Separation due to incarceration can have lifelong consequences for child development, including increased attention difficulties and aggressive behavior[105]
- Even a temporary separation has an enormous negative impact on the health of children later in life — in one study, separation for as short as a week within a child's first 2 years of life was related to higher levels of child negativity and aggression[106]
- Many parents struggle to restore the parent-child bond once it has been disrupted by a separation, with the attachment bond between parents and children threatened by fear and lack of safety[107]

Pretrial incarceration harms youth

Young people can also be more directly harmed by pretrial incarceration if they themselves are criminalized and/or arrested. Recent data showed there are more than 9,000 youth in juvenile facilities nationally awaiting trial.[108] This excludes youth being held in adult facilities — a major issue given that states permit people under 18 to be prosecuted as adults in serious cases, and as many as 13 states have no minimum age for doing so.[109]

People Who Are Undocumented Face Particular Harm

"We must acknowledge and act on the parallel criminalizing frameworks that funnel people from pretrial incarceration to detention and deportation."

— Sandy Valenciano, community organizer in California

The pathways outlined above impact anyone who experiences pretrial incarceration, including those who are undocumented. Pretrial incarceration does additional harm specifically to those who are undocumented and who face the added threat of deportation.

The system of pretrial incarceration is also tied to the US system of immigration enforcement and deportation:

- **Some state and local law enforcement agencies have contracts with the Department of Homeland Security to detain and deport people themselves.** There are 89 jurisdictions across 21 states that, under Section 287(g) of the US Immigration and Nationality Act, have a contract between the Department of Homeland Security (DHS) and state and local police departments under which certain state and local law enforcement officers act as Immigration and Customs Enforcement (ICE) surrogates to detain and deport people who are undocumented.[110]
- **ICE can request state or local law enforcement to hold someone in custody so they can go into federal immigration custody.** Federal policy also allows immigration detainers or ICE holds, whereby ICE requests that a state or local law enforcement agency holds a person in custody for up to 48 hours after they would otherwise be released, in order for ICE to take the person into federal immigration custody. That person's intended release could be because charges are dropped, the person is acquitted, the person has completed a jail or prison sentence, or because they have paid bail or been released pretrial on their own recognizance.[111]

ICE holds interact with pretrial incarceration in two ways:

1. **Some governmental agencies deny bail to those with ICE holds to finish the criminal proceedings before deportation.** Some government agencies argue that a person for whom ICE has issued a detainer should be denied bail, because once they are released, ICE will detain and deport the person, interrupting the court procedure to settle criminal charges. This means that people with an ICE hold will be held in pretrial incarceration for no reason other than that ICE seeks to detain them.[112]
2. **Some people choose to stay in pretrial incarceration to avoid deportation.** If a person with an ICE hold is released on bail or on their own recognizance, they are often transferred immediately to immigration detention rather than being released. The fear of being transferred to the system of federal immigration enforcement, which is very hard to escape and often leads to deportation and separation of families, means that many immigrants do not even attempt to meet bail.[112]

In Hillsborough County, Florida, activists are organizing to prevent their county sheriff from partnering with ICE

Seventeen counties in the state of Florida currently have an understanding with ICE known as a "Basic Ordering Agreement" (BOA), where ICE agrees to pay local sheriffs $50 for every immigrant they detain for 48 hours after their scheduled release so that ICE can come pick them up. ICE intends to expand this program outside of Florida unless activists and organizers are able to put a stop to it.

One of the counties that announced they would be signing BOAs with ICE in January 2018 was Hillsborough County. However, local activists organized against the policy and called upon elected officials to put pressure on the sheriff to end BOAs. As of June 20, 2018, a public records request placed by the Southern Poverty Law Center found that the county had not executed a BOA with ICE.[113]

Fear of deportation damages health

More and more researchers have been exploring the impact of the fear of deportation on mental and physical health over the past two decades. In a 2010 study, fear of deportation was the strongest predictor of stress among undocumented immigrants.[114] That stress exacerbates chronic health conditions, such as depression, high blood pressure, sleep disturbances, and anxiety while producing a range of physical symptoms, such as hair loss or headaches.[115,116]

Not only does this fear impact health directly, it also affects immigrant access to health care services. Undocumented immigrants might forego seeking medical care in a hospital or even a doctor's office for fear of putting their families at risk of immigration enforcement.[117,118] After a law passed in Arizona in 2010 that allowed law enforcement to stop anyone they suspected of being undocumented, mothers of Mexican origin were less likely to access health care for their children,[119] and residents in a Latinx neighborhood also changed their health-seeking behaviors due to fear and distrust of officials.[120] A qualitative study of Asian and Pacific Islander young adults noted that the fear of deportation was a constant source of stress, which resulted in disengagement from health care settings.[121]

Congress now requires ICE to keep track of data on how many people they deported had children who were US citizens. According to data reviewed by the Center for Public Integrity, ICE deported a total of 87,351 people between 2015 and the end of 2017 who reported having at least one child who is a US citizen.[122] Separation due to deportation or immigration detention has been associated with trauma and toxic stress in children.[107]

Undocumented people get caught in the crosshairs of multiple harmful systems

"People get arrested, and that shouldn't be the reason they get deported. If either we eliminate bail or if there is bail and they pay their bail, that should automatically cancel that ICE hold. Because technically if you had not arrested them or even racially profiled them, you would not be assisting ICE in this process of deporting them."

—Nanci Palacios, Deputy Director of Faith in Florida

People who are undocumented are at particular risk in the conversation around ending money bail. With the use of ICE detainers, people who are undocumented are often shifted into the immigration enforcement system after they are released from pretrial incarceration. The system of immigration enforcement is even harder to get out of than the criminal legal system, and people can be detained for long periods without recourse and then eventually deported.

But tension exists between the constitutional rights guaranteed to a person by the Bail Reform Act, which protects the right of a person to be released while awaiting a criminal trial, and the Immigration and Nationality Act, which allows ICE to detain and deport people who are undocumented after a release from jail or prison. Though several district courts have argued that release on bail constitutes a release from jail, a judge ruled in the 2012 case *United States v. Trujillio-Alvarez* that a person cannot simultaneously be prosecuted with criminal charges and detained in the immigration system. Therefore, the government must choose — either criminal charges must be dropped if a person is detained for deportation by ICE upon release from pretrial incarceration, or they must be freed from ICE custody for the duration of the prosecution on criminal charges.[123]

Any reform to pretrial incarceration or money bail must take this into account. If money bail is eliminated, when an undocumented person is released pretrial after an arrest, they could instead be detained and deported by ICE. Thus, pretrial liberation must be tied to immigration reform.

Daisy & Niño's Story

On March 8, 2019, Daisy got the phone call that turned her life upside down. Her husband, affectionally known as Niño, had been arrested in South Boston for an alleged traffic violation. His bail was initially set to $2,040. Daisy was already waiting at the jail, ready to pay the bail in cash loaned from friends and family. But after hours more of waiting, an officer returned to her with the message: "Your husband cannot be bailed out. ICE has a detainer on him."

ICE detainers (also known as immigration holds) are tools ICE uses to funnel people from the criminal legal system to the deportation system. When they are honored, the law enforcement agency holds the person for an additional 48 hours after their release date so that ICE can pick them up.

Daisy went home to await Niño's first court date. When the day of the hearing arrived, Daisy recalls, "The attorney that was appointed to him came to me and said, 'If I was you, I wouldn't pay the bail. ICE is here waiting for him.'" Indeed, ICE agents were sitting in the back of the room in plain clothes, waiting to detain Niño upon his release on bail.

Upon learning this, Daisy and her attorney devised a plan to free Niño without ICE interference. On April 11, Daisy and her daughter attended a second hearing in Niño's case and paid the court clerk's office to bail him out. But about an hour later, a man in plain clothes passed Daisy outside the clerk's office. She recalled: "As soon as I saw him, I said, 'You're here for him, aren't you?' And he said, 'I am.'"

Sure enough, the ICE officer took Niño — handcuffed at the wrists and at the feet — into custody, without even allowing Daisy to hug him goodbye.

The clerk's office would not return the bail money, claiming Daisy had to return to court to get it. When Daisy went back to court weeks later, the judge said she couldn't return the bail money until the case was over or until Niño was deported.

Niño was deported on June 4.

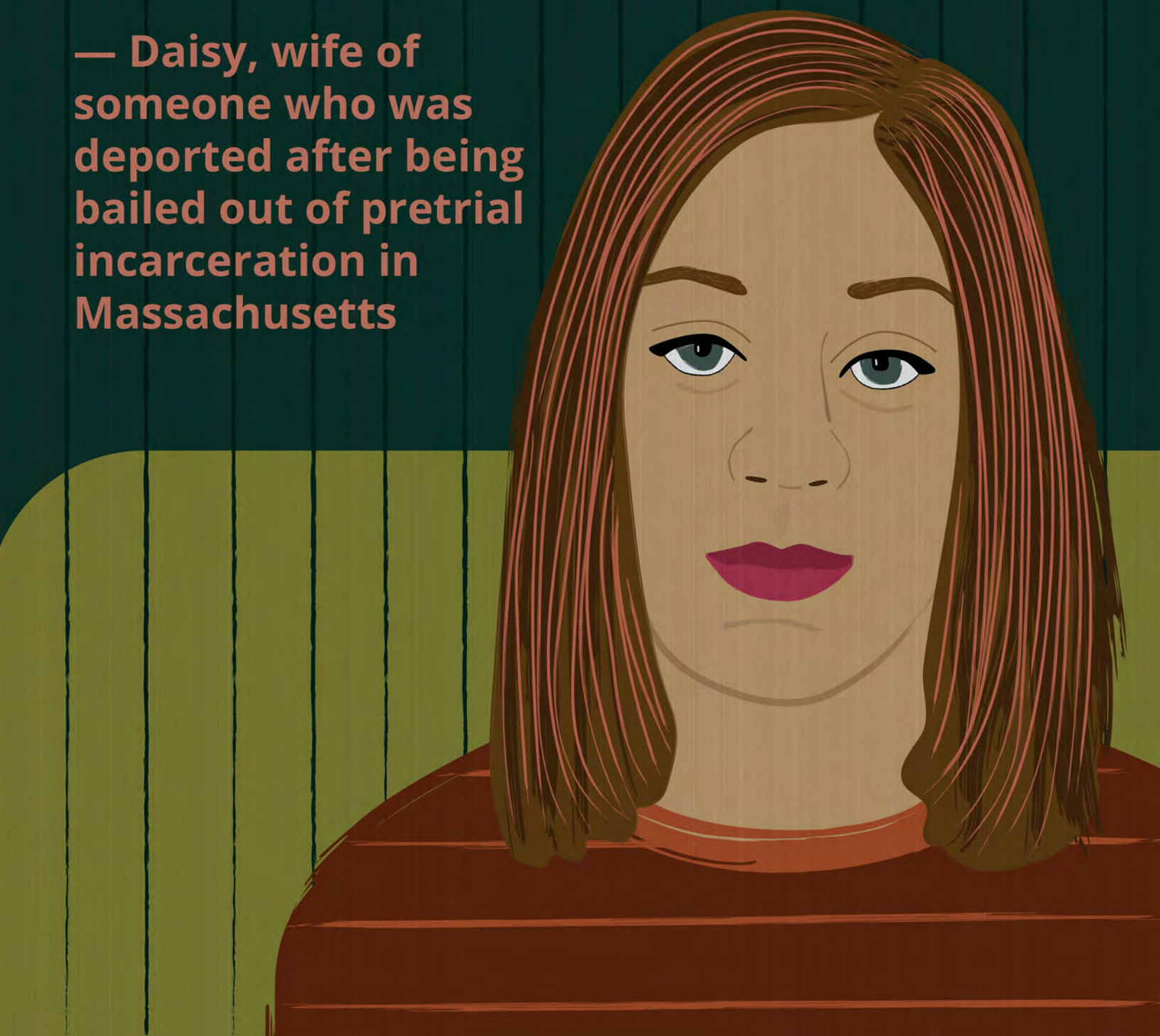
Now, the court is claiming they can't return the bail money without written documentation of Niño's deportation from ICE. ICE claims they can't and don't give such documentation to families. To add insult to injury, since the bank check is in Daisy's daughter's name, they are both required to attend the court hearings.

The repeated need to take work off for court dates hurts Daisy's financial situation even more. She now faces eviction as she tries to get the bail money back, keep her job, pay for her daughter's schooling, and pay bills — all added to the trauma and anxiety she still carries from her husband's deportation.

"He was treated like trash, and I was treated like trash from day one," Daisy recalls.

“The attorney that was appointed to him came to me and said, ‘If I was you, I wouldn’t pay bail. ICE is here waiting for him.’”

— Daisy, wife of someone who was deported after being bailed out of pretrial incarceration in Massachusetts



Considerations to Protect Health and Families

"If we don't have a strong abolitionist frame to how we go about these things, we might be actually giving in to things that we think are solutions but actually add to the problem."

— Susy, sibling of someone who was incarcerated pretrial in Florida

Our research indicates that pretrial incarceration and money bail are biased systems that negatively impact people's financial status, employment, housing, living environment, health care, and community connections — and thus, their health. These harms extend beyond those who directly enter the system to their families and communities, with the highest burden faced by communities of color, people living in poverty, and people who have been historically marginalized.

To better promote health equity and racial justice, policymakers at the local, state, tribal, and federal levels urgently need to address this issue in ways that prevent pretrial incarceration. This includes addressing the root causes of arrest in the first place (e.g. over-policing and criminalization of poverty), as well as creating the conditions that would help those who have been arrested to return to their court dates (e.g. transportation vouchers and child care stipends).[124] Such policies and investments have been passed or considered in jurisdictions throughout the country and must be expanded.

End money bail in favor of presumption of release

"I think one [challenge] is that these are all local ordinances, they're all local systems. . . . There's a cognizance that [money bail] affects people nationally, but there's a challenge that we're talking about many, many, many policy changes at the county and the state and even sometimes the city level."

— Pilar Weiss, Director of the National Bail Fund Network

As noted earlier, in places that have eliminated money bail and routinely release people as they await trial, the vast majority of people return to court. In other words, money bail is unnecessary and solving a non-issue.

Washington DC eliminated money bail in 1992 and now releases 94% of all people who are pretrial. New Jersey virtually eliminated money bail in 2017, and California ended money bail in 2018, though the policy is now delayed in implementation.[16] These reforms are already happening at a national level, and organizing around ending money bail has been happening for decades longer. This report has highlighted the health impacts of pretrial incarceration and the inefficacy and injustice of money bail. People incarcerated pretrial are at risk of losing their jobs, their homes, and their families. They are subjected to inhumane jail conditions and inadequate health care.

We also cannot rely on risk assessment instruments to separate those who will and will not be released as they await trial. These tools perpetuate the disproportionate incarceration of people who are historically and structurally marginalized because of biased data sources. By paying attention to people who are directly impacted and by following the lead of organizers nationally, local, state, tribal, and federal government can take the necessary steps to end money bail and pretrial incarceration for all people and promote health without further entrenching inequities.

Provide the pretrial support people need to live healthy lives

"More often, [people] don't show up to court because their lives are difficult. Because they don't have child care, because they can't arrange transportation, or any number of other things. But rarely because they are fleeing."

— Alexander Shalom, Senior Supervising Attorney and Director of Supreme Court Advocacy with the American Civil Liberties Union (ACLU) of New Jersey

As noted earlier in this report, most people (more than 90%) who are released from jail pretrial return for their court dates, and less than 2% are rearrested. Failure-to-appear rates are calculated differently across jurisdictions, by different agencies, at different times. Corey and Lo write, "In many jurisdictions, failure-to-appear rates make no distinction between a person who arrives five minutes late for a hearing and one who flees the country."[125]

Therefore, alternatives to pretrial incarceration that focus on ensuring that people have what they need to thrive have the potential to accomplish far more than alternatives that focus solely on ensuring a person returns to court. Bolstering health-affirming investments that are designed to benefit those who are historically and structurally marginalized — including those awaiting trial — can have cascading effects that end up benefitting all of society.[126]

Specific to the legally stated purposes of money bail — to ensure return to court and to protect public safety — there are several alternative ways these purposes could be addressed.

Eliminate barriers to showing up for court

One essential way to ensure that people return to court for their trial dates is to help eliminate barriers preventing a person from being able to return. In interviews with those who had experienced pretrial incarceration first-hand, most of the people we spoke to made it

clear that they would never imagine missing a court date because they knew the repercussion would be incarceration. But following that, suggestions for support services that would have helped them return to court dates included reminders, transportation, flexible work hours, and child care. This resonates strongly with our public health vision of a system of pretrial liberation: a system where we're investing public resources to address the root causes of rearrest and failure-to-appear rates.

Create an expedited process for court proceedings

Consistency in provision of transportation, child care, and flexible work hours becomes especially important in court cases that go on for months or years, requiring people to take multiple days off work or find child care repeatedly.[125] One way to address this concern would be for local policymakers to institute policies that expedite court proceedings, so that people do not have to continually return to court.

Use reminder systems to ensure people return to court

For the small percentage who don't already return to their court dates, reminder systems — including postcards, telephone calls (both live and automated), and text messages — remain a promising possibility in helping people return to court. Research shows a reduction in failure-to-appear rates by 4% to 10% regardless of reminder type.[127,128]

As of 2019, several jurisdictions across the United States have adopted some form of court reminder systems to improve failure-to-appear rates, such as in Coconino County (AZ), Jefferson County (CO), Lafayette Parish (LA), Reno (NV), New York City (NY), Multnomah and Yamhill Counties (OR), Philadelphia (PA), King County (WA), and the states of Arizona, Kentucky, and Nebraska.[129] Community organizations like the Bronx Freedom Fund and The Bail Project are also already successfully using text messages to remind those they bail out to return to their court dates.[130]

Mandate data collection and transparency

"I think justice systems could do a better job to actually ensure that information that we have about the people in our care is accurate. For example, data specific to race and ethnicity . . . usually that's collected through the perceptions of a person who works for the criminal justice system, as opposed to how a person who comes into contact with the criminal justice system might self-identify. We need to be very careful of our analyses on that topic because it's basically informed by data that we can't be 100% confident in."

— Dr. Oren Gur, Director of Research and District Attorney's Transparency Analytics (DATA) Lab, Policy Advisor in the Philadelphia District Attorney's Office

Data from the criminal legal system is often exempt from state public records laws.[131] However, these data are necessary to identify the scope of the problem of pretrial incarceration and to assess the most effective and equitable solutions. This includes transparency around how many people are incarcerated pretrial, the reasons they are incarcerated pretrial, the demographics of people incarcerated pretrial, the bail amount that is set, and the process by which these decisions occurred.

For example, those who work in a jail might conflate race and ethnicity, meaning that a person who identifies their ethnicity as Latinx might be miscategorized by their racial identity (e.g., as Black or White). Among the many harms of this misclassification, researchers don't have good data on how many Latinx people are harmed by pretrial incarceration. It also means that the experiences of people who have multiple marginalized racial/ethnic identities — someone who identifies as Afro-Latinx, for instance — are erased.

The last time the government collected survey data on the demographics of people in pretrial incarceration was with the Survey of Inmates in Local Jails in 2002. The pretrial population in jails has since increased from 29% to 65% of the total jail population, meaning publicly available information on inequities in pretrial incarceration is seriously out of date.[28]

This recommendation also includes systematically collecting data to evaluate reforms from start to finish, and making that data publicly available. For instance, for proprietary reasons, some risk assessment developers are not transparent about the weights, items, or algorithms used in the instrument.[132] This lack of transparency inhibits input from data scientists and advocates who could offer input on the tool's design to reduce or eliminate potential racial bias. This both erodes trust among advocates and creates the risk of an unjust and biased process of decision making, with no means to assess or improve the process.

Conclusion

"[We need to change] the idea that the criminal justice system should be punitive, when really we should be trying to heal people and reform them in transformative ways that they would actually be able to be out in society."

— Bex, organizer with Dream Defenders

The system of pretrial incarceration is but one piece of the entangled structures that make up the criminal legal system in the US. This one piece has far-reaching impacts to the 11 million people who cycle through the jail system every year as they await trial, and to the families and communities that love them.[67]

This report highlights some of the pathways through which pretrial incarceration impacts health — including by threatening one's economic security, employment, housing, environment, access to health care, and community ties. Our goal is to deepen the understanding of how incarceration is a social determinant of health, with a specific emphasis on the ways that historically and structurally marginalized communities disproportionately suffer.

Our public health vision is of a system of pretrial liberation: a system where we're investing public resources to address the root causes of rearrest and failure-to-appear rates as a way to build toward a future that does not rely on incarceration. As such, the solutions we offer use a public health framework to address safety, healing, and well-being for *everyone*. This framework centers health as a means of creating community safety.

We recognize that the system of pretrial incarceration holds even further legal, economic, moral, and political complexity in the way that it harms people, and we acknowledge that any solution requires equal complexity of thought and care. We hope that policymakers take seriously the stories of those who have been directly impacted by the system, the decades-long work of advocates on this issue, and the public health implications of investing in our communities instead of systems of punishment.

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