Title: Understanding NSSI and Predictive Factors for Suicide
Date & Time: May 17, 2024 at 1pm ET

Moderator: Hello and welcome to today's webinar, Understanding NSSI and Predictive Factors for Suicide. This webinar is paid for by McLean Hospital, a top-ranked freestanding psychiatric hospital, a leader in psychiatric care, research, and education, and the largest psychiatric teaching hospital of Harvard Medical School. Some important points before we get started. Dr. Daniel Dickstein and Kristen Batejan, the presenters for today's webinar, work at McLean Hospital.

As such, they have both a financial and intellectual interest in the content. The purpose of this presentation is to provide a balanced view on strategies to support families of youth struggling with self-injury and suicide. APA does not endorse any products or services. The content was created by McLean Hospital and does not reflect the views of APA or its editorial staff. Email advertising at APA to learn more.

Next, this program does not offer CE. However, we will email everyone watching live today a certificate of attendance. Certificates will only be issued to those who watch for a minimum of 45 minutes. A recording of this presentation will be emailed to everyone in two weeks' time. The recording will include the presentation slides. During our time together, you will be on mute. You can communicate with us using the Q&A box located on your webinar screen. Have a question for our presenters? Type them in using the Q&A box located on your webinar screen.

A link to the presentation slides will be posted in the chat box of your webinar screen. If you miss them, don't worry. We will email them to you with the recording. Now, let me introduce our presenters. First, Dr. Daniel P. Dickstein. Dr. Dickstein, MD, FAAP, is a physician scientist uniquely trained and board-certified in pediatrics, adult psychiatry, and child adolescent psychiatry. His research lab, the PediMIND Program at McLean Hospital, is focused on identifying the brain and behavior basis behind mental health disorders in children to ultimately improve how these problems are diagnosed, treated, and prevented.

Mentoring young researchers is important to Dr. Dickstein. He has served as a mentor, helping more than five postdoctoral fellows receive career development, K awards, and multiple others receive NIH loan repayment grants. Dr. Dickstein's commitment to mentorship has been recognized by his receiving the NIMH-DIRP Mentor of the World Year Award and the Brown University Department of Psychiatry Education Teaching Excellence Award, and Dr. Kristen L. Batejan.

Dr. Batejan, PhD, is a licensed clinical psychologist at the 3East Partial Hospital Program and an instructor in psychology at the Department of Psychiatry at Harvard Medical School. Dr. Batejan is experienced in treating adolescents and young adults struggling with emotional dysregulation, self-harm, and suicidality. She specializes in the use of dialectal behavior therapy, DBT. Welcome, Dr. Dickstein and Batejan.

Dr. Daniel Dickstein: Thank you so much for having us here. It's a pleasure to co-present with Dr. Batejan and to have a chance to share some of the work we're doing at McLean and also to learn from the attendees about questions related to non-suicidal self-injury and suicide that they might be interested in. We have three

learning objectives. I'm going to start with the first two. To start with the magnitude of the problem with youth suicide. I want to start by telling a tale of two children.

As a pediatrician and child psychiatrist, these are two prototypical children whose names have been changed, but kids I've seen numerous examples of to illustrate part of the problem with youth suicide. Jack, who's five, he has fatigue, fever, and joint pain. His belly is swollen, he is bruising. His parents say something's not quite right with Jack. They take Jack to his pediatrician. On exam, they notice Jack's spleen is big, liver is big, Jack is very pale. They order a biomarker and it's not something super fancy. It's something all of us have probably had numerous times throughout our life.

It's a complete blood count, a test to figure out cells that fight infection, your white blood cells, or anemia, or how you clot with platelets. What this shows is the white blood cell count is too low and there are too many immature white blood cells called blasts. Instantly, the symptoms plus a biomarker results in specific early rapid diagnosis, mechanism-targeted treatment, and better prognosis and outcome. In fact, Jack has the most common form of childhood leukemia, acute lymphocytic leukemia. While that's really bad, I would not wish leukemia on anybody.

The reality is Jack's prognosis is quite good. Jack has a five-year survival rate of over 95%. This is remarkably different from even in the '80s when cancer was a top three because of death. Most kids with cancer died. By the mid 2000s, most kids with cancer actually do quite well. In fact, cancer is no longer a top three cause of death. On the other hand, Sophia, age 14. Before the pandemic, Sophia was struggling with sadness, loneliness, and depression. She had worsening symptoms, thoughts of wanting to end her life called suicidal ideation, self-injury, cutting herself, but not with the intent to die called non-suicidal self-injury or NSSI.

Six months later, after this was going on, parents all of a sudden noticed grades were falling. There was concern from school. Actually, Sophia disclosed that she actually had been deliberately cutting herself. They started some treatment. They started both medication from a pediatrician. They were looking for a therapist. Unfortunately, Sophia made a suicide attempt. She took 20 Tylenol, went to sleep. She woke up the next morning and told her parents what she had done. She was taken to the emergency department and she waited almost a week to get into McLean.

These two kids illustrate the real problem that in the end, if only child mental health care was as good as it was, is for other conditions, including cancer. For example, with childhood cancer access, there's no waiting. The treatment is widely available. A team approach is paid for by insurance. In terms of innovation, dramatic breakthroughs have increased survival rates and a diagnosis is a combination of clinical expertise and art, plus the science of medicine with biomarkers, scans, and tests. The workforce, there's a great supply of doctors, nurses, et cetera, who help with childhood cancer care.

Education, there's no stigma. The Make A Wish Foundation, the Jimmy Fund, et cetera. When a kid has cancer, they very rapidly talk about it with their community to rally support and to mobilize their support system. On the other hand, with child mental health access, we face long wait times. Insurance reimbursement is low and

often providers don't take insurance. Innovation, while we know lots about mental health conditions in both kids, teens, and adults, there clearly is a need for greater innovation in how we diagnose and treat these conditions so that there could be precision approaches with earlier diagnosis.

The diagnosis right now is primarily the art of medicine. Wonderful expert clinicians, highly trained, apply their skills, but there's no augmentation of markers. Workforce, there's an insufficient supply of physicians, nurses, psychologists, social workers, counselors, et cetera. In terms of education, there's substantial stigma. Nobody goes out and tells their whole community, my child just started treatment for depression or my child just tried to end their life. The problem with this big discrepancy between how medical conditions and how mental health conditions are treated, the result of that suicide is actually the second leading because of death.

Starting at age 10, believe it or not, and extending up to age 34. I realize this is quite a busy slide, but it basically shows by age group how people die. In the red highlighted area around the green box is the second leading because of death. Again, starting at age 10, going all the way up to age 35 is suicide. Unfortunately, if you look at data from the mid-70s through the present, while there are some ebbs and flows, the reality is rates of completed suicide by and large don't change, despite lots of innovation. We're not just talking about completed suicide death by suicide.

If you look at data from high school students across the US collected every year by the Center for Disease Control through their Youth Risk Behavior Surveillance Study, every year, and this is data from 2019, the latest release, every year, more than 18% of high school students seriously considered ending their life, having suicidal ideation at least once during the year. Over 15% made a suicide plan, how they would end their life at least once. Over 8% made a suicide attempt, tried to end their life on purpose. We in mental health often only see the 2.5% or so who actually seek medical attention for the suicide attempt.

This is an article, it's written in January 2020, before there was a COVID pandemic. I think it's actually remarkably interesting. It talks about why are young Americans killing themselves, including after declining for nearly two decades, the suicide rate among Americans age 10 to 24 jumped 56% between 2007 and 2017, according to data from the CDC. For the first time, the gender gap has narrowed, gender gap is unfortunately binarily, but the number of suicides are greater in males, the rates of suicide for female use increased by almost 13% each year compared with 7% for males.

The author goes on to sort of wonder, how is it possible that so many of our young people are suffering from depression and killing themselves when we know perfectly well how to treat the illness? If thousands of teens were dying from a new infectious disease or a heart ailment, there would be a public outcry and a national call to action. I submit that there is such a thing. There is this issue of suicide being the second leading because of death, and where is the public outcry? Where is the approach that we took with the pandemic to really address this?

Unfortunately, COVID has actually exacerbated the need for better child and adolescent mental health care. There was a joint declaration from the American Academy of Child and Adolescent Psychiatry, the American Academy of Pediatrics,

and the Children's Hospital Association talking about there's a state of emergency in child mental health starting in 2021. The Surgeon General in the same year issued an advisory about youth mental health in crisis, basically showing that the COVID-19 pandemic pushed the so-called system beyond its breaking point.

Against this backdrop, I want to present some of the work that we're doing in my PediMIND research program to try to take some steps in the direction of better understanding of non-suicidal self-injury as a distinct but related problem that may help advance what we know about youth suicide. In 2014, the National Institute of Mental Health and the National Council for Suicide Prevention issued a prioritized research agenda for suicide prevention. Realizing that suicide was such a problem, they wanted to reduce suicide attempts and suicide completions by 20% in five years, which unfortunately were passed, and that unfortunately hasn't happened, and by 40% in 10 years, which we're just about at.

They identified six target areas. Why do people become suicidal? How do we better detect and predict risk? What interventions or preventions are effective? What services are most effective for treating suicidal behavior? What non-healthcare-centered preventions and interventions work? What new and existing research infrastructure is needed to reduce suicidal behavior? This is a study, it's a 50-year meta-analysis of suicide research, basically taking all research published and looking at what are people studying.

Overall, what this shows is that from before 1985 to the present, essentially people are mostly looking at the same five factors, and this is like a horse race where the same five horses come in, win, play, show, plus two, but in slightly different order, showing the need for more innovative research. Those five factors are demographic factors like age, sex, et cetera, internalizing behaviors like anxiety disorders and depression.

Externalizing disorders like aggression, violence, and other things, social factors like relationship stress, loss of peer or romantic relationship, family fighting, and then lastly, prior suicide and life-threatening behaviors, again, suggesting that if we have to wait for somebody to try to kill themselves once to predict that they're at a higher risk for suicide, that's not so effective because a lot of those people are going to die, and we need much more innovation.

I would like to invite all the people who are here attending or people watching this subsequently, we need your help, we need innovation, we need partnership. That's really what changed things for childhood cancer. Everybody started to work on this, clinicians, researchers, parents, funders, et cetera. Non-suicidal self-injury is deliberate destruction of one's body without intent to die. By the way, it doesn't mean that somebody who deliberately does non-suicidal self-injury doesn't at other times want to die, meaning doesn't at other times have suicidal ideation.

It just means their action of cutting, erasing, scratching, burning, et cetera, is not meant to end their life. It's often done in areas that can be hidden, arms, thighs, stomachs. While some might call this a suicidal gesture, I would say this is maybe an outdated term because it sort of suggests that it's done to provoke a reaction, and we actually don't have data to confirm that's actually true. It's not clear there are SES

differences in non-suicidal self-injury. Also, there are no socioeconomic status or ethno-racial differences in non-suicidal self-injury.

It's a growing problem, potentially 7 to 45% of adolescents overall, that's quite a big range, but maybe 25 to 45% of children seen in the emergency department for self-harm What's the relationship with non-suicidal self-injury and suicide? By definition, that action done in non-suicidal self-injury is not intended to end someone's life. However, it's definitely a risk factor for a suicide attempt. The Treatment of Resistant Depression in Adolescents, the TORDIA study, showed baseline non-suicidal self-injury predicted future suicide attempts actually better than a baseline history of suicide attempts did.

Another study showed that baseline non-suicidal self-injury predicted future suicide attempts among teens despite controlling for past suicide attempts. Lastly, a history of non-suicidal self-injury increased the risk for a suicide attempt by sevenfold, not 7%, but sevenfold in a study of almost 400 high school students despite controlling for prior depression, suicide attempts, and gender. Non-suicidal self-injury is a separate problem, but it is related to suicide. We can't just hospitalize every child with these problems. There's just not enough places for them.

Better understanding of the mechanisms about how non-suicidal self-injury and suicide is how I focused a lot of my career. I'm going to talk a bit about that before I pass the baton to Dr. Batejan. Again, similar models of how suicide and non-suicidal self-injury are involved. People often would write articles, still do write articles about how these are related to interpersonal stress versus intrapsychic conflict, how it's related to emotion generation or emotion recognition. Is this a cold cognition problem, meaning is this about not emotional decision-making, but is it about decision-making, understanding risk, understanding impulsivity, short versus long-term goals?

In the end, people say the common pathway is emotion regulation. People just can't handle and regulate their emotions. There are few studies of kids who are engaged only in non-suicidal self-injury versus kids who have made a suicide attempt and very few studies of the brain and behavior mechanisms underlying these things. We actually designed a study that was funded in part by the American Foundation for Suicide Prevention, which actually sought to enroll three groups of adolescents that did not overlap. Kids who were engaged in non-suicidal self-injury at least five times, but had never made a suicide attempt.

Kids who had made a suicide attempt during the past month, but had not engaged in non-suicidal self-injury. Typically developing controls, healthy kids who didn't have mental health problems themselves or in their first-degree relatives, because this was not a longitudinal study, we wanted to make sure that they were at the lowest risk of potentially developing mental health challenges before their 18th birthday. We looked at both psychopathology factors and demographics, and we also looked at behavioral task performance.

In terms of our sample, they were mostly around age 15. They didn't differ in terms of age. There was a slight increased female predominance in the non-suicidal self-injury group. Again, this is at a time when we were assessing binarily rather than across the gender spectrum. The onset of suicidal ideation was earlier, actually, in

the kids who were engaged in non-suicidal self-injury, but had never made a suicide attempt. Similarly, their start of their self-injurious behavior was actually earlier in the group engaged in non-suicidal self-injury compared to the onset of the first suicide attempt in the suicide attempt group.

If you look at the reason for why they did their self-harm, it's interesting. There were significant differences. The kids who were engaged in non-suicidal self-injury said they were doing it because of their current emotional state far more than the kids who had made a suicide attempt, whereas the kids who had made a suicide attempt said they did their attempt far more to escape something or someone compared to those engaged in non-suicidal self-injury. We also looked at tasks, again, getting into this idea of what's going on in their brains without jumping right into brain imaging.

One of the things we looked at was the prisoner's dilemma task. This actually looks at peer acceptance and rejection. This is developed from economics. It says it simulates social situations using reciprocal economic exchange, or in actual English, players can win money depending on whether they and the other player they're playing against decide to cooperate or not. Each player's decision is revealed after each round and allows us to look at both the play in terms of cooperation or rejection, and it also allows us to look at stress.

On the top, you see the screen, and so our participants were, in this case, were your, they were in the green, and so basically on each turn, they could cooperate or not cooperate, and they were told they were playing against another player. In this study, they actually weren't playing against a real player. They were playing against a fictitious player, and over 95% of our participants actually believed this deception, thanks to the power of multiplayer games, which are so common.

This was important because we need them to play against one peer who mostly would cooperate with them and accept them, and another peer who would mostly reject them to see again what was their level of stress and play. In green, you'd have a chance to cooperate or not cooperate. In the middle screen, if our player decides to cooperate, showing the yellow in the column, and then the final box shows that both our player and the fictitious player cooperated, so each person got $2.

Again, from economics, this shows why it's always better to say yes and accept people and cooperate, because if you do and they do, you both get the same amount of money. If you choose not to cooperate and the other person cooperates, you get three dollars and they get nothing. On the other hand, if the person you're playing against decides not to cooperate but you decide to cooperate, you get nothing and they get $3. In general, cooperation is the key to success. What we found actually was that there were no differences in the strategy of how people played, but there were significant differences in the stress during this.

Non-suicidal self-injury teens actually had almost three times the self-reported stress of kids who had made a suicide attempt, and two times the stress during this game compared to healthy controls, suggesting aberrant mechanisms in how kids engaged in non-suicidal self-injury handle peer acceptance and rejection. Another thing we looked at was people talk about unconscious bias towards things, or intrapsychic sort of conflict. You can look at that with the implicit association task. What this is asking people to do is in the center are suicide or self-injury related words.

You have to classify them according to the categories at the top. The categories at the top, as you'll notice on the left screen, will have opposite pairings of what this is. By the way, this is actually not cut skin, this is ketchup. Cutting versus not cutting, and me and not me. They'll play one round with this pairing and then they'll play another round with the same image with the opposite pairing. Cutting not me, not cutting me. How this works is we all respond faster to things we've thought about before. If you've engaged in non-suicidal self-injury, you will respond faster when cutting is paired with me than when cutting is paired with not me or the other pairings.

You can look at those differential reaction times, and this has been studied by a number of people including Matt Knox group at Harvard in adults. Slightly busy slide showing data from over 7,000 adults, but in the left top pane what you're seeing is that comparing adults engaged in non-suicidal self-injury versus those who did not, there was a stronger bias towards faster reaction times, towards suicide and death by those who had engaged in non-suicidal self-injury. In the top right panel what you're seeing is adults who had made a suicide attempt versus those who had not.

Again, stronger bias towards suicide and death compared to those who had never done that. In the bottom left what you're seeing is in some ways a recency effect. Among people engaged in non-suicidal self-injury, the bias towards death and suicide was strongest in people who had engaged in non-suicidal self-injury in the past week, and the bottom right panel shows the same thing in people who had made a suicide attempt. People who had made a suicide attempt in the past year had a stronger bias towards death and suicide compared to those who had made a suicide attempt at some point in their life versus no attempt.

We actually did one of the first studies of this in adolescents comparing kids engaged in non-suicidal self-injury to those who had made a suicide attempt to controls, and what we found in the middle is that, not surprisingly, kids who engaged in non-suicidal self-injury had a stronger bias towards cutting and self-injury than kids who had made a suicide attempt or typically developing controls. On the right, though, what was surprising is kids who engage in non-suicidal self-injury had a stronger bias towards death and suicide than actually kids who had made a suicide attempt or healthy controls.

In summary, our first phase of this research showed that non-suicidal self-injury is a serious problem associated with earlier onset self-harm behavior, greater implicit association with cutting and death and suicide, greater self-reported stress during peer acceptance and rejection in the prisoner's dilemma task, and it raises questions. Why haven't these kids engaged in non-suicidal self-injury tried to kill themselves yet? What is the neural mechanism underlying non-suicidal self-injury, and what is the mechanism that helps understand this transition from kids engaged in non-suicidal self-injury to making a first attempt?

Those mechanisms are very important to us. We're working on those now using brain imaging and longitudinal studies because we feel like those mechanisms hold the potential just like for kids with cancer to transform how we diagnose, treat, predict, and prevent these conditions. With that, I'm going to pass it to Dr. Batejan.

Dr. Kristen Batejan: Thank you, Dan. As was just discussed, we know that rates of suicide and self-harm in adolescents and young adults are high and on the rise, and we know that self-harm is connected to suicidal behavior. Knowing that, what do we do about it? How do we treat these adolescents? In this next section, I will be talking about treatment for adolescent suicidality and self-injury, and more specifically, what dialectical behavior therapy is and the treatment program I work in at McLean.

There are several treatments for adolescents with suicidal thoughts and behaviors. There are fewer evidence-based treatments for adolescents. While I'll mostly focus on DBT, I want to give a quick purview of the following treatments that have shown reductions in suicidality and/or self-injury in adolescents. This is in no way an exhaustive list. I also do not provide these treatments, so I am less familiar with the theories and applications behind them.

Mentalization-based therapy for adolescents is adapted from an adult treatment that has shown some effectiveness at reducing self-harm in adults, typically with borderline personality disorder. MBT is a combination of psychodynamic theory, attachment theory, and cognitive theory with the goal of improving the ability to mentalize, which is the ability to interpret or understand behavior, one's own and others, by understanding the thoughts, feelings, and intentions behind them. One study showed that MBT reduced self-harm and depressive symptoms, while a larger meta-analysis review paper showed that MBT was no more efficacious at reducing self-harm compared to control group.

Integrated cognitive behavior therapy is a manualized treatment that teaches cognitive and behavioral techniques plus motivational enhancement to increase motivation for change and treatment engagement. This treatment also includes parent training and family therapy. Modules include problem solving, cognitive restructuring, behavioral activation, and affect regulation. One study demonstrated that adolescents with a substance use disorder plus suicidality had fewer suicide attempts over the course of 18 months compared to a treatment as usual group.

Family-focused CBT added a few more modules to the ICBT treatment around emotion regulation, physical health, trauma, and anxiety exposure work. Treatment outcomes for this group did not differ compared to the controlled group, as both groups showed a decrease in suicidality and self-injury. Attachment-based family therapy, rooted in attachment theory, is designed to improve and increase the security of the attachment between parent and child, thereby strengthening the foundation serving as a protective factor against depression and suicide.

One recent study found that there were significant decreases in suicidal ideation in the adolescents and young adult groups at the end of treatment. However, there was no control group. Another study found that ABFT was no different than treatment as usual on depressive symptoms at the four-month mark. However, they did not look at suicidality specifically. Dialectical Behavior Therapy, or DBT, was created by Marsha Linehan and has been around since the late '70s, with the first randomized control trial published in 1991.

DBT was created for a very specific population, adults who were highly suicidal where more traditional treatments at the time were not helping reduce their suicidality and risk. The early DBT RCDs treated adult women with borderline

personality who were suicidal, self-harming, and going in and out of inpatient hospitalizations. Over the past decade or so, it has become one of the more evidence-based treatments and is effective treating different diagnoses, ages, and demographics. DBT is a behavior therapy stemming from CBT, so it includes change-based skills and strategies and adds acceptance and mindfulness skills.

The concept of dialectics is where two seemingly opposing things can exist at the same time, and the biggest one in DBT is how to balance both accepting things and changing things. There are four modules that originated in the adult manual, with a fifth one being added to the adolescent parent manual. The acceptance-based modules are mindfulness, which is the practice of being fully aware and present in this one moment in a non-judgmental way, and distress tolerance, how to tolerate pain in difficult situations without worsening it, how to accept what is without suffering.

The change-based modules are interpersonal effectiveness, which teaches how to build and maintain relationships, ask more effectively for something, and say no while maintaining self-respect, and emotion regulation, which focuses on how to change emotions and solve problems. Walking the middle path blends acceptance and change by helping foster communication between parents and teams to maintain and rebuild the relationship. There are four modes of treatment within DBT, which I will elaborate on in more detail when I describe the program I work in.

There have been a number of research studies over the last decade that have looked at DBT in adolescents. As DBT was originally created in the outpatient model, most of the studies have looked at adolescents in outpatient treatment. Fewer studies have examined DBT treatment and PHPs in patient settings and residential programs.

There have been now a few RCTs that have compared DBT to other treatments, mostly supportive or treatment-as-usual therapy, and found that adolescents in outpatient DBT had fewer instances of self-harm, had reduced frequency of suicide attempts, and lower levels of suicidal ideation. While there are no RCTs conducted in a PHP, to my knowledge, these studies have found that adolescents had fewer anxious and depressive symptoms at discharge and more skills, including better emotion regulation and interpersonal effectiveness.

One residential study found reductions in borderline and depressive symptoms and severity, and the Tebbit-Mock study compared adolescents receiving DBT to a historical sample of treatment-as-usual adolescence on that same inpatient unit and found fewer suicide attempts and episodes of self-harm on the unit in the DBT group, as well as fewer hospitalized days. DBT as a treatment targets suicide and self-injury in a number of ways. First, DBT clinicians thoroughly assess suicide risk. We cannot reduce risk if we don't know whether risk is present.

Evidence-based measures include assessing risk directly, such as how are they planning for it, how are they preparing for it, what are their means, assessing risk indirectly, like how hopeless they may be, and assessing the protective factors, such as support systems and beliefs about suicide. Next, this treatment targets these behaviors and thoughts directly. Clinicians will assess the factors that cause and maintain these behaviors and then collaborate with the patient around solving the

problems that can be solved. Related to this is that DBT clinicians are consistently monitoring suicidal thoughts and urges by way of a diary card.

A diary card is used to track the intensity and frequency of problematic urges, behaviors, and emotions on a daily basis, as well as skills use. DBT was created for incredibly high-risk patients and our goal is to keep them in treatment in the least restrictive environment. This means that we don't typically use psychiatric hospitalizations when there is suicide risk. A lot of our initial and continuing commitment work is helping the patient want to build life worth living, and it's really hard to build a life worth living when you're constantly going in hospitals.

These individuals need to learn and manage and reduce the risk while still living their lives. Skills coaching offers patients a way to connect with their therapist between sessions, even around the clock, to get guidance and support on how to use skills in the moments that they need them the most. DBT targets suicidality and self-harm by teaching skills. Suicide is a solution to a problem. It's not the only solution and it's not the most effective solution, the way we see it. DBT teaches a tremendous number of skills to help patients learn to regulate their emotions, tolerate distress, improve relationships, all in a mindful way.

Clinicians will balance teaching short-term solutions to tolerate suicidal urges so as not to act on them and work towards long-term solutions for suicide. The goal is to help patients build a life worth living, to take suicide off the table once and for all. This ends up becoming a lot of values work, how to live a life that aligns with your values and goals. Lastly, DBT therapists working with high-risk patients need their own support and therefore, require a consultation team. It is incredibly hard to have a highly acute and potentially lethal patient on your caseload, and being on call means there's no break, that any call or text can be life-threatening.

The team helps support each therapist, helping with motivation, reducing burnout, and monitoring treatment fidelity. I now want to highlight my treatment program, which is a DBT partial hospital program for adolescents and young adults. DBT was originally created in an outpatient setting where it could take between 6 to 12 months to learn the entire curriculum. We've condensed that into four weeks, so we think of our program as a boot camp.

Our program has been around since 2008, and we treat 14-year-olds to about mid-20s who present with a host of problems such as self-harm, suicidality, borderline personality disorder and traits, substance use, eating disorder behaviors, depression, anxiety, OCD, and overall emotion dysregulation. Over the 16 years of being open, we have treated more than 1,500 patients from all over the world. Most of the program referrals come from outpatient providers, indicating that once-a-week therapy is not enough to support this patient and their current struggles. I will get into the demographics in the next few slides.

I want to give a quick overview of the various treatment components in our program. The bulk of our treatment is group therapy. Most of the day, patients are in a variety of skills groups. Most groups are didactic, where the goal is to learn the skill and then practice it at home, so they do get assigned homework. We know that learning the skills is not enough. They have to practice the skills for the skills to truly generalize. Patients get two individual sessions a week. These sessions are structured and

based off of the diary card. The diary card is used to track problematic urges and behaviors, emotions, and skills to help notice patterns and reflect on change.

We prioritize what we call target behaviors, starting with life-threatening behaviors, which include suicide and self-harm. Therapy-interfering behaviors can be anything that gets in the way of treatment, such as minimizing emotions, lying about behaviors, or not meeting program expectations. Quality-of-life-interfering behaviors are everything else that brings someone to therapy. Eating disorder behaviors, substance use, isolating, lashing out, avoiding, to name a few. By adding these target behaviors to the diary card, the patient is accepting that these are problems and they are committing to use skills when urges arise.

We are not naive, though. We know behaviors are going to show up, and when they do, we use something called a chain analysis to figure out what led to the behavior. We want to know about all the vulnerabilities, the emotions, the sensations, the thoughts, the urges that led to the behavior, and we also want to understand what happened after. We want to know what's reinforcing this target behavior, and even just as importantly, we help them identify what skills they needed to have used instead of all these urges and behaviors.

In these sessions, as therapists, we are balancing validation with a reverence to help them accept their emotions and what has happened and continue to work on changing what's not effective in their lives to get them moving towards their goals and life worth living. Family work is a significant part of the patient's treatment. Most families we treat have had long-standing issues around communication, transparency, holding limits, and trust. Because we only have four weeks, these sessions are solution-focused and address the more immediate challenges between parents and the patient.

In addition to the weekly family session, parents also attend a weekly DBT skills group for them to learn and practice the same skills their kid is learning. In our program, we provide 24-7 skills coaching, which is truly a unique feature of DBT. After hours, if the patient is having urges for a target behavior or feeling intense emotions, they can page the clinician on call. The skills coach will do a quick assessment about what's going on and then walk them through a variety of skills to help in the moment. It's not a crisis line and it's not a therapy session. It is a great opportunity to generalize the skills and the environment that's elicited in the emotions and urges.

Patients will meet with the prescriber once a week, and this serves as a psychiatric consultation. These sessions provide medication management, second opinions on medications, a focus on medical and physical concerns, and psychoeducation around skills use over certain medications like PRNs. I described the consultation team in an earlier slide, but this is basically therapy for therapists. It's a space for clinicians to share what's driving their stress and burnout. We break down burnout by emotional exhaustion, feeling ineffective, and loss of compassion.

This meeting helps us identify our own therapy interfering behaviors. It also gives us a space to share our emotions and ask for validation or help problem solving. This is also a chance for the team to hold each other accountable to make sure we're providing adherent DBT. I now want to share some of the research coming out of the

program, which has been a long time coming. We have our first manuscript on treatment outcomes accepted for publication. In this sample of 146 adolescents and young adults, the average age was 17 and a half. During this period, we did have more than 146 patients.

However, this number reflects those that completed the admission and discharge measures. Almost 62% reported a history of suicide attempt or self-harm in the past three months. As you can see, our patient population mostly identifies as white or European American. We do have more gender identity and sexual orientation diversity, where 20% of patients identified as transgender male or female, non-binary, gender fluid, or gender queer, and 53% identified as gay, lesbian, bisexual, asexual, queer, or some other non-heterosexual identity.

We looked at mean scores on a number of measures at admission and day 20, which was typically the day of discharge. Measures assessed depression, anxiety, stress, suicidal severity and frequency, suicidal attitudes and beliefs, emotion regulation, mindfulness, and coping. We found that patients had significant improvements across all outcome measures, including the subscales. Specifically, patients reported significantly fewer suicidal behaviors and lower depression, anxiety, and general distress.

Patients reported significantly less difficulty with emotion regulation, increased mindfulness, and increased functional coping skills and decreased dysfunctional coping skills. Almost all the effect sizes were medium to large. Given that improvement in emotion regulation ability is a core mechanism and goal of DBT, this study also examined whether there was clinically significant and reliable change.

Of the participants who had clinical levels of poor emotion regulation at admission, 55% demonstrated reliable improvement by day 20. Of that group, 75% had both clinically significant and reliable change, in other words, recovery. This next project, called the Child and Adolescent Routine Evaluation or CARE Initiative, is a measurement-based care collaboration between the research and clinical programs within the Child and Adolescent Division at McLean.

The goal of this is to enhance clinical care by providing standardized measures to improve the quality of patient care, as well as improve the treatment programs to better understand who we are treating. So far, we have collected data on 86 patients ages 13 to 24. While the average age is 17, the mode is 16 followed by 19. The 86 kids account for 60% of our admissions from April 2022. However, only 10% of patients have actually declined to participate. The remaining numbers due to premature discharges or logistical issues. As you can see, this demographic data is very similar to our more general PHP demographic data.

More of the sample did identify as cisgender female and more of the sample identified as not straight or heterosexual. This next slide looks at the breakdown of suicidality and self-injury, assessed by the Self-Injurious Thoughts and Behaviors Interview, or the SITB. The SITB is a widely used structured interview about the presence, frequency, and characteristics of suicide and self-harming thoughts and behaviors. I'm going to go through the following breakdowns. In our sample, 22% acknowledged the suicide gesture, basically some type of suicidal behavior that had the function other than to take one's life.

While Dan mentioned we don't use this term often anymore, and it can be thought of as pejorative, clinically, however, we think it is still helpful to assess as we can then teach the skills to target this likely indirect way of getting one's needs met. Almost 48% had a history of a suicide attempt, 64% endorsed some lifetime planning about suicide. Almost 83% endorsed self-harm. Almost 90% endorsed suicidal ideation at some point in their lives. These rates are incredibly high and not at all surprising given that these are individuals in a DBT program that was created for suicidal, self-injuring, and emotionally dysregulated youth.

The next phase of this project is breaking down who we are treating and seeing how they do a DBT in a PHP level of care. Currently, we are looking at autism and suicidality. While we have so far found that 88% did not endorse elevated symptoms, meaning criteria for ASD, those that had elevated symptoms were less likely to endorse a history of suicide attempts. There were no differences on suicidal ideation or self-harm. Overall, throughout four weeks, both groups showed improvements in emotion regulation, social competence, and adaptive coping skills.

The only slightly higher improvement observed for adolescents endorsing higher ASD symptoms was on mindfulness skills. Overall, this work suggests that DBT is an effective treatment for adolescents and young adults across the spectrum. I want to end by talking about why and how we think our DBT PHP is effective at reducing suicidality and non-suicidal self-injury. The first being the commitment interview. This interview serves two critical functions to provide information and education about DBT and the services provided by the PHP and to determine if the adolescent symptom profile fits DBT, including assessing their motivation and commitment.

There are a few commitment strategies employed during this interview, including pros and cons of the target behaviors, playing the devil's advocate about why the adolescent would want to give up a target behavior, and highlighting they do have the freedom to choose what they want to do. These strategies can be somewhat jarring for them. For example, we ask them to come up with the pros for why they cut. Then we may ask why would they want to stop cutting when it clearly does something for them in bringing down their emotions very quickly.

Then we tell them it is their choice. They do have the choice to stop self-harm or continue cutting. These commitment strategies help them hold both sides for why they engage in a target behavior and why it's possibly not the most effective behavior moving forward. These strategies help strengthen their commitment to do this really hard piece of work. The diary card, as I shared earlier, helps strengthen the mindfulness muscle as they have to start being more aware of their urges and emotions on a daily basis. This helps hold them accountable because it helps them acknowledge and talk about what happened.

The family piece is integral. Parents are a part of this. They may be reinforcing target behaviors. They may be invalidating emotions and contributing to more conflict. They may be walking on eggshells or fragilizing their child, which prevents their child from feeling the emotions and tolerating them. Parents need skills too. Everyone needs to be doing better. Skills coaching, which I also described earlier, helps in the moments when patients are actually suicidal or have an urge to self-injure.

While other individuals and providers might recommend or require going to an emergency room, we're going to do our best to keep them out of the hospital as long as they continue to stay committed to not acting on their urges and emotions. When a patient reaches out because it can be such a difficult thing to do, especially for teenagers, we take that as a positive sign. They are trying their best to stay out of the hospital and to use skills to reduce their suffering.

Lastly, exposures. We don't have many environmental interventions in our program or DBT. We don't recommend removing all sharps or risky materials. We would actually prefer adolescents have exposure to those objects and stressors to learn how to cope with them. We want to help patients learn to tolerate and fully live in the real world. The real world has danger and risk and stress. In closing, while adolescent and young adult rates of suicide and self-injury are at all-time highs, there are promising treatments and programs that can help reduce the suffering and thereby reduce suicidality and self-injury. Thank you.

Dr. Dickstein: I think together we have time for a number of questions. Dr. Batejan and I will alternate, and please feel free to put more questions in the chat. Just to get going with one. Someone asked, what does erasing mean in non-suicidal self-injury? Some kids will actually use an eraser to repeatedly, like a pencil eraser, to rub that back and forth until they create a mark or may actually burn their skin. There are a number of different forms of non-suicidal self-injury. I think among the biggest challenges really about all suicidal behavior, but especially non-suicidal self-injury, is that often there's a big effort to conceal non-suicidal self-injury.

Many times as both clinician and researcher, I've heard stories about, for example, ultimately someone realized their kid isn't doing as well because of school issues or some emotionality, et cetera. They then look backwards and realize, gosh, our kiddo who used to like to wear short-sleeved shirts hasn't worn short sleeves all summer or hasn't gone to the beach or the pool or things like that.

I think that stuff just sort of happens to families. I do think asking questions about what do you do about suicide and self-injury, part of it I think is creating opportunities to talk to kids as a family, to make those opportunities to just understand what's going on, what they're excited about, what they're challenged about. I don't know if Dr. Batejan has thoughts about those detections of suicide or non-suicidal self-injury or we can move on to another question.

Dr. Batejan: I think we're done. There's a question about how often do suicidal youth get diagnosed with BPD and how are they treated? I think BPD in youth is still a very stigmatized diagnosis. They can be diagnosed under 18 as long as there's been at least a year of symptoms. In our program, we do see that most of the adolescents and young adults probably do have a borderline diagnosis, although it's couched under emotion dysregulation.

DBT was created for this specific population to teach them how to regulate their emotions, how to deal with really destructive, problematic behaviors for the emotion dysregulation. I don't have actual rates though. I think that would be really great to have, but I imagine it's probably underreported, whatever's out there.

Dr. Dickstein: Another question in the chat asked about, is there a Columbia Suicide Scale for children and adolescents? Actually, the Columbia Suicide Severity Rating Scale can actually be used in children and adolescents, I believe down to age six, based on my knowledge. There are other ways to ask about suicide and self-injury. As Dr. Batejan mentioned, the self-injurious thoughts and behaviors interviewed. The SITB is another one that goes through in great systematic detail about suicidal ideation and actions and plans and things like that.

Another measure that is commonly used, although I would say more in non-psychiatry psychology settings, but certainly can be used in mental health settings, is the Ask Suicide Questions, or the ASQ, which is developed by the National Institute of Mental Health. What's nice about the ASQ is that, especially for folks who don't ask about suicide that often or may be a little bit uncomfortable, the ASQ is actually really good about giving prompts to say exactly what you're supposed to ask, and depending on what the person says, what you're supposed to do about it. There are a number of different ways to assess for self-injury and suicide.

Dr. Batejan: Okay, so then there's a question on hotlines receiving a lot of calls from children, and I assume adolescents, with self-harm, and how can they handle these calls? This reminds me of how we handle this in DBT with skills coaching. I think a lot of it is teaching them crisis survival skills. These are the ones that are for kids in acute crisis. There's something called an ice dive, where you literally stick your face in a bucket of cold ice water. It changes the physiology of your body, which then brings down the emotion because it's bringing down the heart rate and the breathing.

I think a lot of those skills can be helpful, distractions, games, puzzles, trying to change your thoughts so that it's really hard to think about self-harm in those moments. I think a lot of validation of their emotions are probably really intense, and it's leading them to have urges for self-harm or suicide. While not validating those behaviors, can you at least validate the emotions of what's going on that's leading you to feel so sad or so angry or so hurt or anxious?

Then I think a lot of praise and cheerleading. Adolescents reaching out for help is incredibly impressive and really hard to do, especially on the phone. If they are calling for support and help with these behaviors, to really praise how hard this must be for them and how amazing it is that they are asking for help. Then I would also recommend trying to get them connected to a trusted adult. Is there a parent? Do they have a treatment provider? Is there someone at school or someone that they trust that they can reach out to and talk about this to get more services?

Dr. Dickstein: There's another question in the chat that asks a really important question about, is there an objective predictor of a suicide attempt? How do we predict suicide with surety? This is really at the crux of the problem for mental health right now. We have many research-based, evidence-proven risk factors for suicide and non-suicidal self-injury, just like some of the ones I reviewed in that 50-year of suicide meta-analysis. The challenge is that for an individual child, adolescent, or even adult, we don't have a data-driven way to say, if you have this combination, this many risk factors, this whatever, you have this percentage risk of dying or making an attempt by suicide in the next one hour, one day, one week.

That really is the challenge for all of mental health at this juncture, is how do we move beyond risk factors to precision prediction, in some ways much like they have in other aspects of medicine, right? In other aspects of medicine, you can look at your risk of a heart attack. You can look at risk of stroke. We have a lot more precision in terms of how do you calculate those. This is where we need everybody's partnership, clinicians, researchers, parents, funders. We can make a difference in kids' mental health. That's something we very much believe in at McLean.

Dr. Batejan: Okay. I have a question about whether treatment gains were assessed at discharge or if they're being longitudinally measured. This is a great question. The research that I shared was at just discharge, so 20 days from when they started. We have data that we have been collecting on three months, six months, and twelve months. Twelve months, we don't have a lot, but our next step is starting to look at how does DBT continue and how are they doing at longer time points. Once we are finishing cleaning the data, we are hoping to start to analyze that.

Dr. Dickstein: Let's see. It looks like there's another question about, in terms of different measures we're using. As Dr. Batejan mentioned, the CARE Initiative is something we're actually really proud of at McLean. We're the first to conduct a division-wide measurement-based CARE Initiative. Both in the three-part program, but actually in all of McLean's child division programs. For the past two years, we've been using standardized assessments of things from suicide to autism to ADHD in an effort to follow the model of childhood cancer, whereby every clinical child is part of research.

We're doing a broad, better-than-gold-standard diagnostic assessment with these measures. We're just at the start of trying to use those measures to better understand who benefits are not from our programs so that we can further iterate and innovate in those programs. You'll likely hear more from McLean faculty over the next couple of years about the CARE Initiative.

Dr. Batejan: All right, there's a question about research on the impact of social media on self-harm suicidality. I don't have that research. I think that would be really incredible research to start looking at if it's not already being looked at. I think more anecdotally, we do see social media in the links for the chains in self-harm and suicidal behaviors, whether that's direct, like friends, Snapchat, being bullied, whatever, or just, seeing random people and not having the life that they're having. I think there is some link to it. I just don't know what the research is showing behind that.

[pause 00:56:15]

Dr. Dickstein: I don't know if our hosts think we have time for one more question, or? I know we're almost at the top of the hour.

Moderator: Yes, I'd say go ahead and do one more question.

Dr. Dickstein: I would just join in with Dr. Batejan's thing about social news. That's actually something we're actually looking at in a couple of our research projects. I think one thing I think about social media is lots of people talk about the harms of social media and point to all sorts of things about bullying and stuff like that. I also

think it's important to realize that social media also helps many people connect to communities they wouldn't otherwise have a chance to, which could be beneficial that relate to sort of identity formation for kids and adolescents. I think there is a lot more to learn about social media.

I think more than likely the answer is it's not going to be all good or all bad, like most things, but in some ways it's how you use it. I think clinically it's important to understand not just how our kids are using it, but also how the families in which they live are using it. If that's something they're talking about and creating some space to have some gaps and not using it. For example, there have been a number of studies showing that it's a very small fraction of US families these days who have dinner without any social media or phones off even once a week. Like many things, I think more work needs to be done. Chances are it's probably both/and rather than either/or.

Moderator: Thank you so much for joining us, Drs. Dickstein and Batejan, and thank you to all of our listeners for your participation. We'd also like to thank McLean Hospital for making this webinar possible. A recording of this presentation will be emailed to everyone in two weeks time. The recording will include the presentation slides. As soon as the webinar has ended, a short survey will appear on your screen. Please take the survey and give us your feedback. We thank you for your attention and hope you have a great day.

[00:58:35] [END OF AUDIO]