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Volume 8 Issue 8
November/December 2017
www.thecarlatchildreport.com

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Learning Objectives

After reading these articles, you should be able to:

1. List some of the challenges in managing the medication treatment of adolescent patients.
2. Review how the developing adolescent brain affects teens' decision-making and risk-taking.
3. Summarize some of the current findings in the literature regarding psychiatric treatment for children and adolescents.

Tips on Managing Medications With Adolescents

Jess Shatkin, MD. Vice chair for education and professor of child & adolescent psychiatry and pediatrics at the New York University School of Medicine. Author of Born to Be Wild: Why Teens Take Risks, and How We Can Help Keep Them Safe (Penguin Random House).

Dr. Shatkin has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

Discussing medications with adolescents can be challenging. In general, my approach during the initial evaluation is to have a first evaluation appointment with the parents alone to ————— *Continued on page 2*

In Summary

- The appropriate time for adolescents to independently handle their medications varies by age and diagnosis.
- Challenges with adolescents handling their own medications include compliance, drug diversion, and co-occurring substance use.
- The combination of physical maturation and strong social and psychological support can affect adolescents' dosage requirements as they age.



Understanding Risk-Taking in Adolescents

Jess Shatkin, MD

Dr. Shatkin has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

In this interview, Dr. Shatkin talks about how the adolescent brain works, and how we can use this understanding to work more effectively in our practices with both adolescents and their parents.

CCPR: Hello, Dr. Shatkin. Your latest book, *Born to Be Wild*, is about understanding why adolescents are impulsive and take so many risks. Why did you decide to write about this topic?

Dr. Shatkin: I've long been interested in the public health perspective of psychiatry and the importance of prevention, and I began further exploring the reasons for risky adolescent behavior after NYU brought me to campus to develop a psychological wellness program. In 2003 and 2004, 7 NYU students died—at least 6 of them from suicides—so the university asked me to help with a prevention strategy. The book was the result of my further interest in the topic while researching and creating that program.

CCPR: In your book, you help us gain a deeper understanding of adolescent risk-taking behavior both on a neurobiological and an evolutionary level. Can you tell us more about that?



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Tips on Managing Medications With Adolescents

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gather relevant history, and then bring the teen back for a separate and individual appointment. Oftentimes, however, and particularly with older teens, I will see the family together for the first visit, all members in one room, and then meet separately with the adolescent. I base my approach on what I learn by phone from the parents when they call for an appointment. Because there is so much variation in family structure and the problems that kids and families face, I find it's important to maintain some flexibility in how I evaluate adolescents.

One thing I don't want to do is leave adolescents in the waiting room while I'm talking to their parents. If the parents need to be seen alone without the child present, then I will do that at a separate time. The important thing is understanding where adolescents are coming from, and what they're challenged by. Often, they're struggling with some aspect of how they view themselves, and how they're going to be

independent from their parents. And so, helping them to see the medication as part of how they can manage on their own can be very empowering.

How do you decide when young people can handle their own medications? In my experience, this varies by age and diagnosis. With ADHD, for example, it's difficult because these kids have terrible organizational skills, so getting them to even find their medicine or remember to take it is a big challenge. Therefore, I suggest that you initially work with parents on the following strategies:

- Have parents help their child store the medicine in a consistent place, where it can always be found. As any parent knows, kids can be prone to misplacing things that are important. So, parents might try placing the medication by the toothbrush (presuming the child always brushes each morning!) or putting it out with breakfast.
- Encourage parents to allow their child to take the medicine on their own—but also provide parents with ways to check that their child took the medicine. Some kids will fight parents on this, so I suggest that parents tie taking the medication to privileges that their kids want, such as using the car or keeping their smartphone. Also, kids must be aware of the importance of keeping up with their treatment. In the case of ADHD, for example, driving can be quite dangerous if kids are not taking their medication. So, these issues must be explained. Kids need to know how many more automobile and other accidents happen to people who do not take their ADHD treatment as prescribed.
- Have parents and children come in more frequently for therapy to address any concerns about taking medication. Work with parents to reinforce the value of taking the medication.

Drug diversion can also become a problem, especially with older kids

prescribed stimulants. One potential solution is to prescribe a long-acting formulation, such as Adderall XR as opposed to Adderall IR—although some kids will still sell it to friends as a study drug (Martinez-Raga J et al, *The Adv Drug Saf* 2017;8(3):87–99). In conjunction, I will often say something like, “Listen, this is a medicine that some people like to borrow; they like to take it so they can stay up all night and study. So, you'll get this medicine from me only once a month, and I don't give early refills.” I tell this to the parents, too. If a family member tells me the medication accidentally got flushed down the toilet or something terrible happened, that'll be addressed on a case-by-case basis, and I might give an early refill one time, but that's it.

In terms of how teens should secure their meds while attending college, I generally will give some practical advice. Some colleagues recommend that students bring a lock box with a cable on it that they can secure under their bed, where they keep their wallet and their medicine.

In college, adolescents are in a time of transition, and some students very much want to remake themselves. I sometimes hear, “I don't want to be that kid who takes the medication his parents tell him to take.” In addition, it's key to make sure students can get the care they need at college. Because the college stressors may aggravate their symptoms, this is not the time for them to abruptly change or stop their treatment (Brinkman WB et al, *American Pediatrics* 2017, doi:10.1016/j.acap.2017.09.005).

It's also important to address the issue of substance abuse, which is very common in college. I tell kids that alcohol and marijuana will contribute to depression and anxiety; it will also distract them from learning and being involved in the sorts of activities that will help them grow into the person they want to be. But discussing this with teens requires some finesse.

I recommend you begin by making it clear that you don't want them drinking at all while on the medication, and outline the risks associated with doing so. I also

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This CME/CE activity is intended for psychiatrists, psychiatric nurses, psychologists, and other health care professionals, with an interest in the diagnosis and treatment of psychiatric disorders.

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tell adolescents that, even though young people often don't feel the immediate negative effects of drugs and hangovers as much as older people do, the negative impact upon their brains and neural tissue is far greater. At the same time, though, you also need to let them know that you understand they will want to go to college parties, where they might well be tempted to drink alcohol or smoke marijuana. Depending upon the patient, I may then give them some advice about harm reduction. This is not a perfect solution, but some teens may not feel they can be honest with you if you simply forbid them from drinking or smoking; they may instead just drink and skip their medication for fear of a terrible interaction. As their doctor, you need to know the truth about their behavior.

For example, I might suggest that a teen have a maximum of 2 drinks at a party, and that it's imperative to drink 12 ounces of water between drinks. I explain that a "drink" is a 12-ounce beer, 4 ounces of wine, or a single shot of spirits. I also emphasize the importance of making a plan before they arrive

at the party. Deciding in advance how much they will drink, or role playing how they will say no or not have a second or third drink, is a way to potentially reduce harm with the acknowledgment that they will otherwise be without any guideposts to follow.

It is also important to talk about serious drug-drug interactions, such as serotonergic interactions between SSRI/ SNRIs and MDMA/ecstasy, while we monitor as usual for severe medication problems such as agitation and withdrawal, either of which could increase suicidality (Groenman AP et al, *J Am Acad Child Adolesc Psychiatry* 2017;56(7):556-569).

Some clinicians find that, as their patients grow into their late teens and early 20s, they don't require as much medication. In my experience, there are at least two reasons for this. First, younger kids metabolize drugs more quickly than teens and young adults. I sometimes think of kids as hummingbirds, and they slow down as they grow older. We certainly see this with ADHD medicines, where dosing is much higher per kilogram of body

weight in younger people. I sometimes see this with antidepressants, too.

Aside from changes in metabolism, there are also psychological changes that may explain why dosing decreases. As young adults develop more insight into their behavior, learn skills through psychotherapy that help them regulate their emotions, establish a good network of social support, and develop more self-efficacy, we sometimes find that they require less medication. Conversely, however, for those who don't develop these supports, continued higher dose treatment may remain essential.

CCPR VERDICT:

Figuring out how to help young people handle their own medications can be a challenge for both parents and psychiatrists. Keeping kids organized and responsible when it comes to taking and securing their meds involves careful consideration, specific strategies, and counseling.

Expert Interview

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Dr. Shatkin: I speak about neurodevelopmental imbalance in the book. It's this idea that the frontal lobes mature more slowly than the limbic system or emotional centers of the brain, which is complemented by the fact that when we are young, we have the highest levels of dopamine in our brains that we will ever have (Spear L, *Neuroscience & Biobehavioral Reviews* 2000;24(4):417-463). This is probably why our memories of high school and college are so profound. The love we once had, or the trip we took with our friends, or the college break seemed like the best thing in the world, and it probably was because our dopamine levels were so high.

CCPR: Can you remind us how dopamine works in the brain?

Dr. Shatkin: There's a misconception that dopamine equates to pleasure. It's not pleasure; it's the *promise* of pleasure. Dopamine is the idea that something great might happen. And so high dopamine levels drive kids into high-risk situations with high amounts of potential pleasure. This is aggravated by the fact that the frontal cortical areas are not well myelinated yet and not well connected to the limbic system. So, when kids are younger, they have less control over those impulsive drives.

CCPR: So, dopamine is part of what drives adolescent behavior. What else is going on?

Dr. Shatkin: You've also got testosterone, which is about status seeking. We tend to associate testosterone with physical and mental toughness, which is part of the story, but emotionally it makes you very concerned with how people perceive you. How you are perceived matters, especially from an evolutionary perspective. These peer effects are huge because they are adaptive. You have to care what your peers think because this is the time of life when you bond, build connections, and make a family. Kids become sexually mature around ages 12 to 14 so that they can start having babies when they are in the healthiest phase of life. And those who make a family, who are social and engage well and make good eye contact—those are the ones who are more likely to succeed since you can't do it alone in this world, and you especially couldn't do it alone 100,000 years ago.

CCPR: Fascinating. So all these adolescent behaviors that we think of as problematic, such as being excessively swayed by peer pressure and risk-taking behavior, are inevitable consequences of evolution?

Dr. Shatkin: Exactly. They need that brain to be geared to taking risks and bonding really quickly, and to having that great promise of pleasure. Otherwise, our species wouldn't have survived (Casey BJ et al, *Dev Rev* 2008;28(1):62-77). In the book, I say that "evolution is willing to sacrifice thousands to save millions." Our kids are

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driven by risk because we need them to take risks; we need them to be the frontline soldiers who will stay up late at night to guard the fires and the caves so the older people can sleep and won't get hurt. This might explain why teens' circadian rhythm is shifted later and why, as we age, we wake up earlier in the morning—so we can relieve the kids and let them sleep in.

CCPR: So, when teens refuse to get out of bed to make it to school, they are responding to an evolutionary imperative? They've been taking risks to protect the herd until late at night, and they have to sleep in?

Dr. Shatkin: Yes, but the world has obviously changed, and there are fewer advantages to risk-taking behavior than in the past. It did you a lot of good to run across the savannah to find a new food source, but it does you very little good to drive 100 miles an hour down the freeway.

CCPR: Let's paint a high-risk scenario. Say a 13-year-old female is having unprotected sex. What are some ways that we can talk to her about it, while not making her think that her doctor is just another adult trying to tell her what to do?

Dr. Shatkin: What we need to do is give her a clear sense of the consequences. In your scenario, we want to give this girl a deep, emotional understanding of what it means to get pregnant, because the more she can internalize the sense of what that means, the more she is likely to get the gist that this is a risk. Ask her what happens if she gets pregnant—deeply dig into that experience. Ask what she will do, whom she will tell, what decisions she might have to make on her own, and really emotionally connect her to those serious risks. I have found that the more emotionally connected kids feel to the risk, the more likely they are to say, "Oh, I really have to be careful here."

CCPR: I also know that parents need to be involved in connecting to their kids. But what are some of the strategies we should recommend that parents use with kids in the home?

Dr. Shatkin: This is a very important question. One thing is to have parents recognize "red alerts." A red alert means danger is imminent. One example of a red alert is your 16-year-old daughter being left home alone with her boyfriend, which presents a risk that they might have sex. You need to work with parents to identify the red alerts so that they are aware of those situations and can head off risk in advance. Other examples of red alerts are things such as breaking curfews and too much screen time alone on social media. Even if it's by only an hour, tell parents to not be OK with it if their kid breaks curfew.

CCPR: You mention social media. Since it's such a huge part of life now, can you tell us more about why we should advise parents to limit screen time?

Dr. Shatkin: Parents, and teens as well, need to know that the social attachment system in the brain has piggybacked on the brain's physical pain system. In other words, when our kids are socially excluded (which happens even more now with social media, like when someone isn't tagged in a Facebook photo), they feel genuine pain. And what might a kid do to avoid pain? How about take a risk, like race down the freeway in his car because his friend is doing it? (Masten CL et al, *Soc Cog and Affect Neurosci* 2008;4(2):143-157).

CCPR: Then, what advice should we give parents on limiting social media use?

Dr. Shatkin: You should make parents acutely aware of the peer effects social media can have. I like to joke with parents that this is why God created the fruit bowl—to store their kids' phones in until the homework is done. You need to be 18 to get a phone contract, which means parents own those devices. Parents should make this fact clear to their teens when they give them their phone: "It's mine, and I'm letting you use it. You can call it your phone, but it's mine. I pay for it, and I'm giving you this device as a privilege that you must continue to earn in order to keep it." During homework time and again at night, the phones should go into the fruit bowl. Phones are one of many examples where it's really important for parents to closely monitor their kids. I know it's hard—it's really hard. I have two teens myself. But it's what we must do to manage risk.

CCPR: In addition to monitoring their adolescent's activities, and watching for those red alerts, what else should we be telling parents?

Dr. Shatkin: Tell parents to find ways to use positive reinforcement. For example, there is nothing my 16-year-old son loves more than driving, so he would do anything to earn that privilege. He will even clean up his room to drive! So, this is an opportunity to prompt a lot of good behavior with kids by using the positive things that kids want. Tell parents to look for ways to connect those things with rewards that are meaningful.

CCPR: What advice do we give parents who feel that they've done it all wrong, yet their child is now on the verge of adulthood? Is there anything we can do to rehabilitate somebody who's already 18 and is still exhibiting risky behaviors after not experiencing the greatest of child-rearing practices?

“Parents, and teens as well, need to know that the social attachment system in the brain has piggybacked on the brain's physical pain system. ... And what might a kid do to avoid pain? How about take a risk, like race down the freeway in his car because his friend is doing it?”

Jess Shatkin, MD

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Expert Interview

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Dr. Shatkin: Parenting books, advice, or talks should not be geared toward making parents feel bad. Throughout the book, I talk about my own mistakes. So yes, I think parents can still, if not achieve total rehabilitation, at least get their kid back on track. Just because kids got drunk at 16, that doesn't mean they will be abusing alcohol at 18, 19, or 20. Some kids actually do learn from those things. Can you rehabilitate a kid? Absolutely. That's what therapy is about. That's what a lot of parenting is about.

CCPR: So, what are some specific strategies we can give parents for their young adult children?

Dr. Shatkin: Even at 18 and older, young adults need lots of positive reinforcement from their parents. The other thing is to build self-efficacy. Tell parents to encourage young adult children to believe that they are powerful, and that they can make a difference if they work hard and exhibit discipline. We want to turn the good feelings and the rewards toward academics, arts, creativity, and good work habits, while turning them away from alcohol and sex. Kids and young adults often gravitate to alcohol, drugs, and sex when they are not successful in the other areas.

CCPR: How does this understanding of adolescent behavior relate to how we deal with adolescents who cut themselves or otherwise self-harm? I'd like to get your thoughts on that.

Dr. Shatkin: What we have learned is that kids keep self-harming because it makes them feel better. The physical pain sort of substitutes for the emotional pain. Think right now for a moment about the most painful experience you've ever had in your life. If you're like most people, you're probably thinking of something emotional, like a breakup or the loss of a parent. The reality is that kids cut because they're in so much emotional pain that they can't take it, so cutting becomes a way to convert that pain into something more tolerable. I think this is useful to speak with kids about directly. We can explain to them that, in a way, it makes sense that they would cut because the physical pain is more tolerable than the emotional pain. They might be supplanting some of that feeling of being left out, feeling not engaged, with something physical.

CCPR: Once adolescents understand why they are self-harming, what should we do next?

Dr. Shatkin: We then work to improve their emotional regulation, and DBT (dialectical behavior therapy) is all about that. In my work with the students, and in my resilience program at NYU, what we teach is mindfulness and cognitive behavior therapy skills. We teach them how to relax and breathe. We teach them the importance of exercise and good sleep in terms of managing emotions. That's the kind of stuff that DBT focuses on as well, along with building self-efficacy—getting more self-confidence so that you don't have to do this. And then there are all sorts of other techniques, such as substitutions. We try to substitute self-harm with something like squeezing ice cubes, which exerts some level of pain but doesn't hurt your body. But the kids who self-injure are a subset of the kids who take risks, and it's a very specific thing. I think the behavior draws on a lot of the same parameters, but I don't think it's the same thing, and most kids who self-harm are considerably

mentally distressed.

CCPR: Do you think you are using less medication than you used to?

Dr. Shatkin: No, I don't think so. The reality is that most of my kids that I see have a major psychiatric diagnosis—depression, ADHD, bipolar disorder, or the like. So, it's not that I'm just seeing a generally well population. I'm a psychiatrist, and I don't think that simply educating kids and talking to them is always enough. That said, I also don't reach for the pill bottle right away. I want to understand them first and do what I can do to help them in every way possible.

CCPR: As you've been learning more about the adolescent brain and these other factors, has it changed the way you've practiced in your clinic? By extension, how should it affect our practices?

Dr. Shatkin: I now focus on the things that drive adolescents—for example, peers. What are their peers doing? What do they want to be doing with their peers? What makes them feel

Motivational Interviewing

Motivational interviewing (MI) is an effective technique that can be used to change risky behaviors with adolescent patients, including substance abuse. In a recent study, MI was associated with significant reduction in rule-breaking behaviors by adolescents at a 6-month follow-up (Brown RA, *J Substance Abuse Treat* 2015;(59):20–29). Here are some basic elements of MI:

Providing advice: Ask-Tell-Ask

- What do you know about how drugs work in the brain?
- Is it alright if I share what we know from research?
- What do you think about the information I just talked about?

Affirmative statements

- Even though you aren't getting along with your parents, you still have been helping out around the house and making it to school each day.

Reflective listening

- I get the sense that this has been really hard for you, but you aren't sure what to do.

Change talk

- What is the best thing you can imagine coming from decreasing your drug use?
- On a scale of 1 to 10, how confident are you that you could decrease your drug use?
- What would make that number an X (increase number by 1–2 points)?

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