Integrated Program Helps Treatment-Resistant Pediatric Mood Disorders

Outpatient interventions for children and adolescents with mood disorders are more effective when caregivers are involved, yet families are often excluded from treatment. The Child and Adolescent Integrated Mood Program (CAIMP) at Mayo Clinic’s campus in Rochester, Minnesota, exists to serve these patients and their families, with a focus on evidence-based care.

“We fill a gap in service,” says program founder and director Jarrod M. Leffler, Ph.D., L.P., a child and adolescent psychologist at Mayo’s Minnesota campus. “The program is intensive, so if a family hasn’t tried outpatient treatment before, that might be the best place to start. But if a child isn’t benefiting from good outpatient management and perhaps has had a psychiatric hospitalization, then CAIMP is a likely next step.”

A hospital-based, outpatient, group psychotherapy program, CAIMP is offered in two formats, one for children under 14 years of age and one for those 14 and older. In both, families and patients — individually and together — participate in education and therapy groups for 10 consecutive weekdays from 8:00 a.m. to 4:00 p.m. A variety of evidence-based interventions for pediatric mood disorders are used, including cognitive behavioral therapy, mindfulness and interpersonal techniques. Other interventions focus on psychoeducation, wellness — sleep, exercise and diet — and behavioral activation.

“Our groups are led by highly experienced providers — psychologists, licensed clinical social workers, nurses, dietitians, and occupational and recreational therapists. In two weeks, families receive more hours of treatment than they would in a year of weekly outpatient therapy, but from a variety of providers,” Dr. Leffler says.

Integrated medication management is a crucial part of the program; providers see patients every day and can modify medications in real time. A family-based treatment model also is central to CAIMP.

“Often, a parent may not only be struggling to help a child but may experience a mood disorder as well, so our interventions focus on how parents can help both their child and themselves,” Dr. Leffler says. “If you change one element in a family system, the rest of the system has to change; when a child in an outpatient setting is working toward change but the family system is stuck, then the change can’t happen in a healthy way. We help enhance the system so that family members are working in concert instead of against each other.”

Families also learn to be better consumers of mental health services — to take advantage of standard outpatient care rather than relying on the emergency department in times of crisis. That message is folded into the follow-up care plan, which identifies interventions that support each patient’s needs and goals.

“We have a plan for outpatient therapy, medication management, and returning to or re-engaging in school in a productive and healthy way,” Dr. Leffler explains. “Many young patients are notably behind academically, so that is a focus of follow-up care. If they need a case manager through the county, we assist the family in connecting with those services.”
Outcomes
Since CAIMP’s inception in 2012, 295 patients have been referred to the program and 209 have attended — a 71 percent referral-to-attendance rate, with an overall completion rate of 91 percent. Sixty-two percent of patients had multiple caregivers attend with them.

“For the 12 months following CAIMP completion, there is an 80 percent reduction in inpatient hospital re-admissions,” Dr. Leffler says. “Mood symptoms also show improvement or stability, and parents report they strongly agree that their children benefit from attending CAIMP; children agree that parents also benefit. Most think the program has improved the parent-child relationship. Ordinarily, when a child is in crisis, families are not actively involved in treatment. Our approach enhances the parent-child interaction in therapy.”

Booster sessions also are offered — what Dr. Leffler calls the dental model of care, where routine checkups help prevent the need for larger and more expensive interventions.

“Mood disorders are episodic, and sometimes previously learned skills have changed or families need a refresher on how to help their child,” he says. “But overall, we believe our graduates and their families are better health care consumers and are psychologically healthier.”

Study to Evaluate Pharmacogenomic Testing for Adolescent Depression

Approximately 2.5 percent of U.S. children under age 18 take antidepressant medications. The type of medication — most often a selective serotonin reuptake inhibitor (SSRI) — is based on symptoms and medical history and often involves a lengthy trial-and-error process.

Around 40 percent of pediatric patients show no response to a first SSRI, and only half of those respond to a second, with increasingly poor response rates with each subsequent medication. SSRIs are also associated with serious psychiatric side effects and other adverse events. Still, with no new drugs in development, attention is increasingly focused on doing better with existing ones.

One area of growing interest — and some controversy — is neuropsychiatric pharmacogenomic testing, which uses genetic information to predict responses to medications based on known gene-drug interactions. Both drug metabolism (pharmacokinetic) and mechanism of drug action (pharmacodynamic) genes play a role in variability of response and potential side effects.

For that reason, and because most psychiatric medications are metabolized by several cytochrome P450 enzymes, single-gene tests have shown limited clinical benefit. But a few studies suggest that testing a combination of gene interactions can provide information that improves medication decisions.

One open-label study, published in Pharmacogenetics and Genomics in 2013, looked at a multigene pharmacogenomic testing platform (GeneSight) for managing drugs used to treat major depression in adults. At eight weeks, participants whose treatment was based on testing demonstrated a greater improvement in depression scores and higher remission rates compared with controls.

No studies have looked at pharmacogenomic testing for children and adolescents, however. So investigators at Mayo Clinic’s campus in Minnesota are enrolling pediatric patients with major depressive disorder in a trial using the same testing platform used in adult trials.

“These tests are expensive, and we need more data before ordering them on a routine basis,” explains co-investigator Jennifer L. Vande Voort, M.D., a child and adolescent psychiatrist at Mayo Clinic’s campus in Rochester, Minnesota. “Although the goal of the study is to evaluate the GeneSight platform, it is not intended to promote the technology, but rather to see whether it can improve response to treatment, minimize side effects and increase treatment adherence.”

The randomized, double-blind, prospective study is ambitious, hoping to enroll a total of 276 patients, ages 13 to 18 years, with moderate to severe major depression. All will undergo GeneSight testing for the following genotypes:

- CYP2D6
- CYP2C19
- CYP2C9
- CYP3A4
- CYP2B6
- CYP1A2
- SLC6A4 and HTR2A (serotonin transporters)
- COMT and ADRA2A (may be important for ADHD medications)
The number of children and adolescents hospitalized for chronic pain — defined as recurrent or continuous pain lasting more than three months — increased ninefold between 2004 and 2010. For these young patients, adjusting to and living with pain can be overwhelming.

At Mayo Clinic’s campus in Rochester, Minnesota, a team of psychologists and pain and physical medicine specialists sees adolescents and young adults with chronic pain in the outpatient pediatric pain clinic. A three-week pediatric pain rehabilitation program serves those whose chronic pain and other symptoms negatively affect functioning or mood. A two-day program is a bridge between the longer rehabilitation program and clinic.

The goal in every case is to help teens learn how to relieve pain-related emotional distress and return to a normal, active life. But the strategies can be challenging for them to implement and may sometimes seem as unmanageable as pain itself. The process can be frustrating for providers, too, who may struggle to frame their recommendations so that teens can understand and relate to them.

“We wanted to provide patients with an individualized list of recommendations they could take with them. We have brochures, but that’s not what kids respond to,” explains Cynthia Harbeck-Weber, Ph.D., L.P., a pediatric psychologist at Mayo’s Minnesota campus. “So we thought about designing an app they could use to individualize their pain rehabilitation goals.”

That led to a collaboration with the Mayo Clinic Center for Innovation and the creation of the iBeatPain for Teens app, which has been available for download in the iTunes store for almost a year (Figure).

The app features five main goals:

- Practice relaxation
- Exercise
- Participate in school
- Get regular sleep
- Engage in self-care, such as basic hygiene and drinking enough water

“If kids want to practice relaxation techniques twice a day, they can click on that goal and set a reminder,” Dr. Harbeck-Weber says.

Half will then be randomized to a guided group, where the treating clinician will know the genetic results at baseline. The other half will be randomized to a treatment-as-usual group, where the treating clinician will not have the results until week eight. Patients, families and raters will also be masked until the end of the trial.

The primary outcome is a change from baseline to endpoint in the Children’s Depression Rating Scale, Revised. Secondary outcomes include changes in depressive symptoms on clinician, patient and parent reports and global assessments as well as adherence to treatment based on concordance or nonconcordance of gene test results and clinical interventions.

“We would hope to see maximal benefit from any medication in three to six visits, but if patients aren’t responding, genetic testing may help guide us to a better medication with a shorter response time,” Dr. Vande Voort says.

For more information


**App Helps Teens Manage Chronic Pain**

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**Figure.** The iBeatPain for Teens app helps teens manage chronic pain and other symptoms. Credit: Apple iTunes/Take The Wind, Lda.
“This is not a medical assessment as to what’s causing pain; it’s a tool designed to help patients set well-defined goals that help them learn to function despite pain — and to see that chronic pain is a hurdle they can overcome.”

She points out that although some teens with chronic pain do very well, others struggle. “They’re not in school, they’re anxious, they can’t do homework, and some are in bed most of the day. Our goal is to help them learn to relax their bodies to take the focus off pain and instead move forward with the lives they want to have. They don’t have to participate in the pain rehabilitation program to use the app, but it’s consistent with the goals and strategies we teach there,” she says.

The app, which also has a discussion board and an inspiration box where users can add meaningful quotes, photos and videos, is not intended to be a stand-alone device. Dr. Harbeck-Weber says its success will depend on a strong collaboration among therapists, physicians, parents and patients. “We see families from across the country and internationally, and many have tried every medication and had physical therapy and surgery and nothing has worked for them. We have a large medical team, including psychologists, physicians, and physical, occupational and recreational therapists, and have had great success with the patients who come to us. If you want to reach teenagers, you have to do it in a way they will respond to,” she says.

**In The News**

**Society for Health Psychology Program Chair**

Shawna L. Ehlers, Ph.D., L.P., a psycho-oncologist at Mayo Clinic’s campus in Minnesota, is the new program chair for the Society for Health Psychology, a division of the American Psychological Association. Dr. Ehlers was also among those attending the Hominis 2016 conference in Havana.