

2018-19

IMPACT REPORT

TRANSLATING RESEARCH TO COMMUNITIES



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2 EXECUTIVE DIRECTOR'S LETTER

RESEARCH IN ACTION

- 5** UMDC by the Numbers
- 6** Depression Center Research Awards Overview
- 7** The Heinz C. Prechter Bipolar Research Program: Longitudinal and iPSC Studies
- 8** UMDC Scholar Studies Effect of Air Quality on Depression Symptomology and Suicidality
- 9** U-M Physicians Invest Depression Center STAR Funding for Research Looking at Brain-Related Complications Following Sepsis
- 10** Depression Center Scholar Expands M-SPAN's Buddy-to-Buddy Volunteer Program

PRECISION HEALTH

- 11** Bonert, Sen Tackle Precision Health Research
- 11** Prechter Bipolar Research Program's PRIORI Study
- 12** Pharmacogenomics
- 13** Sleep Disorders
- 13** ECT and Genomics Study

MOVING RESEARCH INTO CLINICAL CARE

- 15** Michigan Child Collaborative Care Program (MC3)
- 16** Zero to Thrive Program
- 17** Interventional Psychiatry

A NEW GENERATION OF SCHOLARS

- 19** Eisenberg Award Scholars
- 20** Weaver Receives Michigan Health Integration Award
- 21** Fitzgerald Installed as Phil F. Jenkins Research Professor in Depression

EDUCATION AND OUTREACH

- 23** Reducing Stigma and Increasing Help-Seeking

STUDENT PROGRAMS & SERVICES

- Athletes Connected
- Campus Mind Works
- Depression on College Campuses Conference
- Maxwell Gray Film Fellowship
- Military Support Programs & Networks (M-SPAN)
- Peer-to-Peer Depression Awareness Initiative
- Transforming Research into Action to Improve the Lives of Students (TRAILS)

30 COMMUNITY COLLABORATION

- Mid-Michigan Partnership
- Workplace Mental Health Initiatives
- Bright Nights and Colloquium
- Depression on College Campuses Conference
- Event at Ford Rouge Plant

THE FUTURE IS NOW

- 34** The National Network of Depression Centers
- 36** Depression Center Leadership Team

Did you know?

Over \$83.9 million was raised for mental health during the Victors for Michigan campaign. Learn more on the inside back cover.



A LETTER FROM OUR EXECUTIVE DIRECTOR

I am pleased to share the Depression Center's 2018-19 Impact Report. This is our yearly opportunity to inform our colleagues, collaborators, friends, supporters, partners and those we serve about selected accomplishments. This issue provides updates, details some of our accomplishments, renews our lofty goals, and with humility, reflects on our awareness of how much we still need to do.

The University of Michigan Depression Center, the inaugural Center of its kind, was established following encouragement from the Prechter family. It was endorsed by the Board of Regents in 2001.

The Center was proposed because the World Health Organization had long been pointing out that clinical depression, bipolar illness and related disorders were increasingly taking a toll on individuals across the globe. Advances have occurred in the past two decades, but to this day mental health disorders remain the second-costliest illness in the U.S. These disorders are the primary underlying contributors to the more than 40,000 tragic suicide deaths each year, causing agonizing turmoil and stress to those affected.

Initial goals were to develop an interdisciplinary, unified Center to counteract these brain/mind/mood illnesses and to collaborate with other universities and communities. We wanted to emphasize the vital role of integrating innovative basic science research with clinical delivery and to recognize that new knowledge must be translated promptly into clinical practice to save families and lives.

It has been a challenging, but exhilarating ride. Starting from 75 members, the Center's current 344 faculty and staff members come from 17 affiliated U-M colleges, centers and institutes. They represent more than 22 departments. Knowing that one Center would never be enough, U-M's Depression Center catalyzed a growing global network.

The National Network of Depression Centers (NNDC) started in 2008 with 16 Centers and has grown to partnering with 25 centers across the U.S., plus seven affiliates in Canada, one in Germany, and most recently, NNDC-India. Depression and bipolar illness know no global boundaries; neither should boundaries that interfere with sharing research, clinical translation, and new clinical breakthroughs.

So far we have learned that depression, bipolar illness, anxiety and related brain/mental/behavior illnesses have many underlying causes. This means that "one size treatment" would never fit all. Precision treatments for each person would be required and developing and disseminating such precision treatments should remain the key mission for our Center.

We have learned that recurrences of bipolar or depression episodes are the norm if untreated, that each recurrence becomes more difficult to treat, so attaining and maintaining wellness is the only truly rewarding clinical target.

We have learned that good partnerships enhance power to do good. Thus, our efforts to improve treatment and maintenance of wellness are being aided by collaborations with tech industries to develop mobile monitors, artificial intelligence teams to aid suicide prevention, and major corporations to improve workplace mental health.

Dr. Srijan Sen is leading efforts to link stress and genetic risk variables among 20,000 physicians to help reduce their encounters with depression and suicide.

The Heinz C. Prechter Bipolar Research Program's team collaborates with the College of Engineering, Department of Mathematics and 11 other U-M departments and schools to create bold efforts to translate stem cell investigations into clinical care. Collaborations with internal

medicine researchers enable studying brain related complications following sepsis. This brief listing is the tip of a Precision Health iceberg. Please view the descriptions and pictures of these and others in subsequent pages.

"It has been a challenging, but exhilarating ride. Starting from 75 members, the Center's current 344 faculty and staff members come from 17 affiliating U-M colleges, centers and institutes. They represent more than 22 departments. Knowing that one Center would never be enough, U-M's Depression Center catalyzed a growing global network."

— John F. Greden, M.D.

Perhaps most promising for all of us who yearn for better solutions is that we have made progress in translating new research findings into more effective treatments. Dr. Sagar Parikh is leading Center and Department of Psychiatry faculty in a new Interventional Psychiatry program to deliver ketamine for those with difficult-to-treat depressions and suicide ideation. Steps are being taken to work with obstetrics and gynecology to deliver brexanolone for women with postpartum depression. Transcranial magnetic stimulation is being improved by new theta-burst approaches. And new approaches for sleep disturbances are being refined. Exciting progress is being made by those who investigate and treat.

Incrementally, stigma had to be overcome among those who struggle with these illnesses to encourage them to seek help. As illustrated in this issue, Dr. Daniel Eisenberg's Healthy Minds team shows that we can win the stigma struggle among the nation's college students; we are doing so. Similar progress is occurring among athletes, the military, and physicians. And word is spreading. The Center's Peer-to-Peer program in high school and middle schools, as described in the following pages, recently won the National Gold Medal from the American Psychiatric Association. Additionally, the Prechter Bipolar Research Program earned a national award from the National Alliance on Mental Illness and our online Toolkit earned a distinction from the 2019 eHealthcare Leadership Awards.

The future becomes brighter by accelerating breakthrough discoveries, creating personalized, precision approaches to care, defeating stigma, teaching and learning from the world, and supporting extraordinary scholars, scientists and investigators. With your help we are becoming rather good at these.

As some of you have heard, in 2020 I will cease my 18 years as founder and executive director of the Center and transition into active emeritus status. I will not be departing from these causes. Indeed, I will do my best to continue to help our efforts from a new perspective. A national search for my successor is being conducted by Michigan Medicine and I am confident it will build upon and accelerate the firm foundation that has been laid. As I am fond of saying, the best is yet to come.

Thank you so much for helping to achieve it. **M**

John J. Greden MD



RESEARCH IN ACTION

Depression Center research draws from expertise of investigators from across the University of Michigan, one of the nation's premier research institutions. UMDc researchers are committed to learning more about the causes of depression, bipolar disorder, stress, and related conditions; preventing and treating those diseases with tailored, personalized treatments; and helping people stay well. Since its inception, the Depression Center has provided faculty and trainees with over \$11.5 million in donor funds for pilot projects.



THE DEPRESSION CENTER BY THE NUMBERS

344

MEMBERS

17

**AFFILIATED U-M COLLEGES, CENTERS, AND
INSTITUTES** REPRESENTING 22 DEPARTMENTS

82

UNIQUE GRANTS IN FISCAL YEAR 2018-19 RELATED TO DEPRESSION,
BIPOLAR, ANXIETY, RELATED ILLNESSES OR NEUROSCIENCE

\$67.4M

TOTAL GRANT MONEY
EARNED BY UMDC MEMBERS

DEPRESSION CENTER RESEARCH AWARDS FROM GIFT FUNDS

The Depression Center funded over \$400,000 towards mental health and brain research projects over fiscal year 2018-19. Some of these will be described in greater detail in subsequent pages.

FRANCES AND KENNETH EISENBERG RESEARCH AWARDS

\$100K

Eisenberg Scholar Award

Brendon Watson, M.D., Ph.D.

Biomarkers and mechanism of the antidepressant action of ketamine in rodents

\$50K

Eisenberg Scholar Award

Jonathan Morrow, M.D., Ph.D.

Mast cells as a target for psychiatric treatment

\$50K

Eisenberg Translational Research Award

Ada Eban-Rothschild, Ph.D.

Neuronal mechanisms underlying sleep disturbances in depression

DEPRESSION CENTER SCHOLAR AWARDS

\$50K

Oscar Stern Award for Depression Research

Yanni Lu, Ph.D.

A longitudinal study of error-monitoring Process in children and adolescents

\$50K

Oscar Stern Award for Depression Research

Natalie Tronson, Ph.D.

A translational model of hormone exposure and depression: A new approach for understanding vulnerability and optimizing treatment in women

\$50K

Rachel Upjohn Clinical Scholar Award

Adrienne Lapidus, Ph.D.

Preparing veteran peer mentors for Suicide prevention and depression support

\$13K

Rachel Upjohn Strategic Translational Research Award

Patricia Greco, M.D.

Can the development of post-partum depression be predicted using urinary metabolite markers?

\$10K EACH

Oscar Stern Strategic Translational Research Awards

- Rachel Bergmans, Ph.D., M.P.H.** . . . The influence of climatic factors and air quality on depression severity and suicidality
- Katarzyna Glanowska, Ph.D.** . . . Utilizing patient-specific IPS Cells-derived neurons to study neuronal maturation in bipolar disorder
- Victor Cazares, Ph.D.** . . . Using neuroimaging to visualize circuits in prefrontal cortex that underlie the reduction of maladaptive fear
- Daniel Schill, Ph.D.** . . . Transcriptional regulation of CACNA1C in bipolar disorder
- Tomorrow Wilson, Ph.D.** . . . Depression and discrimination as risk factors for alcohol, cannabis, and prescription medication misuse among older african americans

MOBILIZING THE POWER OF CAMPUS: INTRODUCING LINC

The U-M Depression Center Liaison Committee (LINC) was created to improve and expand bidirectional communication between the Center and its 300+ members throughout the university. Committee members engage UMDC leaders to catalyze projects, education, dissemination, and implementation throughout the various schools, colleges, institutes and centers of the entire university. Aims are to improve the lives of those affected by mood disorders through research, education, clinical care, implementation, and public policy.

Committee members consist of one representative from each school and college associated with the Depression Center. They constitute an impressive group. Members inform both stakeholders in their home departments, other LINC members, and UMDC leaders of relevant needs, new initiatives, grants, events, and other opportunities. They suggest new approaches to facilitate networking, collaborations, and introductions of UMDC members from their departments, as well as participate in development and media opportunities. The collaborative exchanges at these meetings become a much-needed interdisciplinary tour de force. **M**

HEINZ C. PRECHTER BIPOLAR RESEARCH PROGRAM: ON THE FOREFRONT OF BIPOLAR RESEARCH



LONGITUDINAL STUDY OF BIPOLAR DISORDER: THE PRECHTER PROGRAM'S FLAGSHIP STUDY

The Longitudinal Study of Bipolar Disorder is in its 13th year with more than 1,300 research participants enrolled and is expanding through collaborations with the Michigan Genomics Initiative.

Bipolar illnesses tend to have lifelong impact on patients. The Prechter Program studies participants over their lifespan and records detailed clinical and biological data on the course of the illness. There are now over 100 peer-reviewed scientific publications based on Prechter Program research and centered around achieving basic knowledge on bipolar disorder -- what causes illness episodes and how can we prevent them? Why do some patients do well and others not?

In 2020, the Prechter Program will make study enrollment possible for people living outside of the State of Michigan. By moving "online," allowing local collection of biological samples, and conducting clinical interviews over the phone vs. in-person, the Program will be able to increase the number of participants as well as the diversity within the study sample.

In October 2019, the Prechter Program hosted a global conference of leading bipolar scientists engaged in longitudinal research. Participants were energized by the opportunities for international collaborations and data sharing as a conduit to new ideas and novel research approaches.

THE iPSC STUDY – BIPOLAR RESEARCH IN CELL BIOLOGY

The field of cell biology studies structures and functions within and between cells. Since 2011, the Prechter Program has studied neurons and glial cells from individuals with bipolar disorder. The induced pluripotent stem cell (iPSC) lab is focused on human brain development, the biological processes that go awry, and how they contribute causally to bipolar disorder.

This highly innovative technology in the lab begins with a personal skin sample and growing the skin tissue in a manner that induces the cells to grow into pluripotent stem cells, which can then be transformed biologically into brain cells. Researchers, led by K. Sue O'Shea, Ph.D., compare the biological mechanisms of the brain cells from people with and without bipolar.

The Prechter Program has found that neuronal cells derived from people with bipolar disorder signal to each other more frequently and more strongly. Now, the lab is investigating underlying cellular activity to determine the root cause of this difference and how normal function might be restored through pharmacological or other treatments.

Brain cells communicate with each other, often by secreting chemical signals. Sometimes the chemical is released directly into the fluid between brain cells as neurotransmitters, other times, it is secreted in a membrane-bound packet that binds to the surface of target cells and then releases its contents directly into the cells. These packets are called exosomes and they are released from supporting cells to give information to neurons in the brain. **M**

Current studies are focused on researching exosomes and their contents – the types of chemicals they carry and the implications of variation in the numbers, size and uptake of exosomes between control and bipolar brain cells. Researchers are looking at neurons and astrocytes, the star-shaped cells that help support neurons, and exploring how lithium and brief electric impulse (similar to ECT) change the content or behavior of exosomes. Lithium and ECT are the most commonly effective treatments for patients with bipolar depression. Knowledge about these underlying mechanisms will advance the search for novel treatments.

NAMI RECOGNIZES PRECHTER PROGRAM RESEARCH



The National Alliance on Mental Illness (NAMI) bestowed the 2018 Award for Research Excellence to the Prechter Program's research director, Melvin McInnis, M.D., and K. Sue O'Shea, Ph.D., the director of the pluripotent stem cell research lab. The award, which was presented by former NAMI CEO Mary Giliberti (pictured below), celebrates their innovative approaches, significant achievements and contributions to a better understanding of mood disorders.



EFFECT OF AIR QUALITY ON DEPRESSION SYMPTOMS AND SUICIDAL IDEATION

Depression Center Stern scholar seeks to understand why suicide attempts peak in spring and fall



In fall of 2018, **Rachel S. Bergmans, Ph.D., M.P.H.**, a National Institute of Mental Health Postdoctoral Fellow with the University of Michigan Department of Psychiatry, earned a Depression Center award to study the influence of climatic factors and air quality on depression symptoms and suicidal thoughts.

Dr. Bergmans was awarded a \$10,000 Oscar Stern Strategic Translational Research Award (STAR) to complete this project. STAR awards are available to students, residents, fellows, or post-doctoral candidates and are designed for exploring or testing pilot research ideas. Dr. Bergmans used her funding to determine whether pollen concentrations are linked with depression symptomology and tragic deaths by suicide.

Dr. Bergmans' program of research focuses on the underlying biological pathways by which social and environmental factors influence health. Inflammation has been linked with depression and suicide, and there is growing realization that some people may have "inflammatory depression." Allergens can cause an inflammatory response and are common, but this area has not been studied adequately. Paradoxically, use of certain antihistamine medications used to alleviate symptoms of seasonal allergies can actually accentuate depression and suicidal thinking or behavior.

"We know that temperature and sunlight can predict mental health outcomes. Now, we want to study whether air pollution and pollen levels affect mental health as well."

— Rachel Bergmans, Ph.D., M.P.H.

Worldwide, seasonal peaks in suicide have been linked with the release of tree, grass and ragweed pollen. However, previous research that examines these associations is primarily limited to data at the country or state level, and looks at estimates of total pollen concentrations. Dr. Bergmans and her collaborators aim to examine the influence of speciated pollen concentrations on depressive and suicide risk.

"We know that temperature and sunlight can predict mental health outcomes," Dr. Bergmans said. "Now, we want to study whether air pollution and pollen levels affect mental health as well."

Emerging data from her study will make this project unique. Dr. Bergmans is using unique collaborators and three primary data sources for her research:

1. Speciated Pollen Concentrations at the 25-km scale from a peer-review model developed by collaborator Dr. Allison Steiner in the U-M Department of Climate and Space Sciences and Engineering.
2. Ohio Mortality Data, which provide information on completed suicides.
3. Change in Depression Symptomology Overtime. These data are obtained through collaboration with Pine Rest Christian Mental Health Services, one of the largest behavioral health clinics in country.

In addition to Dr. Steiner, other key collaborators of this study include Drs. Carina Gronlund, Briana Mezuk and Eric Achtyes.

Dr. Bergmans hopes to have preliminary findings by the end of 2019. Results could inform tailored or supplemental strategies and lead to incremental grant support for evaluating the divergent causes of depression and preventing suicide. **M**

U-M PHYSICIANS INVEST INITIAL DEPRESSION CENTER STAR AWARD FOR ADDITIONAL NIH FUNDED RESEARCH LOOKING AT BRAIN-RELATED COMPLICATIONS FOLLOWING SEPSIS

Established in 2015, Strategic Translational Research awards (STAR) are available to U-M Depression Center members who are students, residents, fellows, or post-doctoral candidates. STAR funding is designed for exploring or testing research ideas by gathering additional and new quantitative or qualitative pilot data, refining methodology, testing tools, analyzing data, or furthering any aspect of depression-related research.

Benjamin Singer, M.D., Ph.D., an assistant professor in pulmonary and critical care medicine in the U-M Department of Internal Medicine was among the first recipients of the STAR award in 2015. Singer, along with **Joanna Spencer-Segal, M.D., Ph.D.**, an assistant professor in the U-M Department of Internal Medicine and research assistant professor in the Molecular and Behavioral Neuroscience Institute (MBNI), used their initial STAR funding to study sepsis and survivorship.

Sepsis can be a life-threatening condition that is caused by the body releasing chemicals into the bloodstream to fight an infection. When the body does not respond to the chemicals appropriately, it causes damage to multiple organ systems, resulting in sepsis. Even when patients survive sepsis, they are known to have brain-related problems such as anxiety, depression, or cognitive impairment that last for months to years and significantly change their quality of life.

Using their STAR funding, Singer and Spencer-Segal studied behavior in sepsis survivors and found a particular behavioral phenotype that resembles anxiety-like behavior, involving decreased exploration of novel environments. The researchers were able to conduct experiments with mice which uncovered involvement of an unanticipated pathway in the brain, sending their research in an unanticipated direction.

Singer and Spencer-Segal were able to use data generated from the experiments funded from the STAR award as the preliminary data for their ensuing work to study the mechanisms of brain dysfunction after sepsis, and as preliminary data to obtain career development awards and more funding from the National Institute of Health (NIH) to continue their research.

Their initial findings allowed for them to apply to receive NIH K awards which earned them each an additional \$200,000 to continue their research.



At the time of the award, both Singer and Spencer-Segal were fellows in their respective clinical training programs.

“The STAR award is very unique,” Spencer-Segal said. “It was the first time we had total validation that someone else thought our idea was interesting and important. There are very few things that you can apply for when you’re only a fellow because you’re not eligible for a lot until you have a faculty position. The assumption is that you’re working in your mentor’s lab, and as a fellow you don’t want to ask your mentor to fund new experiments.”

“At the time, many people told me ‘Just because something is clinically important, doesn’t mean you can study it,’” Singer said. “This year for the first time, I’ve had people come up to me at conferences saying, ‘You’re the one doing this work that I’m now interested in pursuing.’ People are just now trying to understand the long term effects of sepsis, and I think we’re going to see more investigators come into this work.”

“The STAR award is very unique. It was the first time we had total validation that someone else thought our idea was interesting and important.”

— **Joanna Spencer-Segal, M.D., Ph.D.**

“Joanna and Benjamin are exactly the types of researchers we created STAR Awards for,” said Dr. Melvin McInnis, Depression Center associate director for research. “STAR awards are for trainees with original research ideas that need resources to take these ideas to the next level. These candidates exemplify the energy and innovation that the Depression Center seeks.” **M**

EXPANDING THE POOL OF PROVIDERS: **DISSEMINATING THE U-M BUDDY-TO-BUDDY VOLUNTEER VETERAN PROGRAM**

UMDC Scholar seeks to prevent suicide and depression among veterans through peer support



In the winter of 2018, **Adrienne L. Lapidos, Ph.D.**, clinical assistant professor for the University of Michigan Department of Psychiatry, earned a Depression Center award to develop and evaluate training for veteran peer mentors on suicide prevention and depression support. Lapidos received a \$50,000 Rachel Upjohn Clinical Scholar Award. These awards are given to early career investigators to aid the study, treatment, and prevention of depression, bipolar disorder, and related illnesses.

Lapidos used her funding to enhance the Buddy-to-Buddy Volunteer Veteran Program (B2B) launched at U-M in 2009. B2B is an outreach program that supports veteran mental health through peer support by pairing veteran volunteers with other veterans and service members to provide support and linkages to mental healthcare and other services.

Buddy-to-Buddy volunteers are not mental health professionals. They are trusted and trained peers. Their new skill sets enable them to provide valuable support for veterans and service members with depression, anxiety, thoughts of suicide, and substance misuse. The goal of Lapidos' work is to develop, implement, and formatively evaluate a suicide prevention and depression support training module within the B2B veteran volunteer corps.

"Receiving the Rachel Upjohn Clinical Scholars award allowed us to enhance our new volunteer training to include new information on depression and suicide risk that is informed by best evidence and tailored for use by volunteers in the field," said Lapidos. "We draw on the Depression Center Toolkit. It helps to train our volunteers to provide outreach, support, and resources to

"Receiving the Rachel Upjohn Clinical Scholars award allowed us to enhance our new volunteer training to include new information on depression and suicide risk that is informed by best evidence and tailored for use by volunteers in the field."

— **Adrienne Lapidos, Ph.D.**

veterans and service members throughout Michigan. This Rachel Upjohn Clinical Scholar funding has enabled us to rigorously evaluate this new training experience so that we can continuously improve our program and show its impact."

The study's aims are to:

1. Systematically review best practices for lay-delivered suicide prevention and depression interventions;
2. Design a suicide-prevention and depression support training module that is tailored for veteran peer mentors;
3. Implement the training module to enhance current B2B practices;
4. Formatively evaluate the module's impact on volunteer attitudes and behaviors, and;
5. Disseminate results at local and national venues.

In addition to the resources found through the Depression Center Toolkit, the VA Veterans Research Engagement Council helped Lapidos with consultation. The project will contribute to the general understanding of best practices by developing, delivering, and evaluating a training program for lay-delivered suicide prevention and depression support for veterans. **M**



Buddy-to-Buddy program volunteers gathered at the annual Volunteer Recognition event, held in Clare, Mich.

PRECISION HEALTH

PRECISION HEALTH: ONE SIZE TREATMENT DOES NOT FIT ALL

Precision Health is an emerging field that aims to tailor treatment to each unique individual, rather than something that treats all patients. Through measuring genetics, environment and lifestyle, the goal is to determine optimal treatment and prevention strategies for various health conditions. Precision Health has enormous potential to advance treatment, accelerate recovery, and improve patient outcomes. The Depression Center has a number of Initiatives underway, a few of which are mentioned over the next few pages.

ENHANCING MENTAL HEALTH CARE THROUGH GENOMICS AND MOBILE TECHNOLOGY

Determining the mental health treatment most likely to be effective for each patient can be challenging. Clinicians, including those at U-M, rely heavily on evidence-based practice to maximize patient recovery and try to meet the growing need for care. Nevertheless, mental health treatment remains largely subjective and typically involves a trial and error approach.

The Providing Mental Health Precision Treatment (PROMPT) study, led by principle investigators **Amy Bohnert, Ph.D.** and **Srijan Sen, M.D., Ph.D.**, of the Depression Center, joins collaborators from departments across U-M, including engineering, LSA, pharmacy, and public health. The project aims to reduce the burden of depression and other mental health conditions by two means.



First, patients waiting for their first appointment in outpatient psychiatry and University Health Service (UHS) will be provided access to mobile technology interventions. These include wearable technology, mental health smartphone applications, and daily, individualized app-based feedback on behavioral and health data such as sleep and physical activity.

Second, the study will gather both subjective and objective patient data (i.e., self-report surveys, wearable technology and smartphone data, data from the medical record, and DNA samples) before, during, and after outpatient care to better understand the factors that influence patient recovery. The project is innovative in its collection and analysis of combined objective and subjective data, and hopes to advance knowledge about how to accelerate recovery from mental health conditions by better matching pharmacological, psychological, and mobile-based treatments to patients. The PROMPT study has begun recruiting at the Rachel Upjohn Building and UHS in fall 2019. **M**

THE PRIORI STUDY: AN UPDATE

The Prechter Program's *PRIORI* (Predicting Individual Outcomes for Rapid Intervention) project is inspired by years of caring for individuals with bipolar disorder and listening to reports from families on illness patterns of their loved ones. So many times, clinicians heard those close to someone with bipolar disorder tell them that they can 'hear it in their voice' when something is amiss. Prechter researchers asked: How can we train computers to identify points in time when risk is elevated?



The Program harnessed the power of artificial intelligence and personal technology to monitor personal health states. Can we use information in speech to assess the patterns of mood and emotional states over time? Can we use this same information to predict when an individual will develop a manic or depressive episode? Voice and expression patterns are dependent on many things, personal and social. These changes are subtle, hidden or missed in the bustle of day-to-day life. The Prechter team is developing methods to observe and quantify critical personal and social changes so early signs won't be missed.

The PRIORI system is a smartphone app that captures one-sided audio from the individual who agrees to allow access to telephone conversations for health monitoring and computational strategies to evaluate mood patterns. This is a research project and all privacy and security policies are reviewed, approved, and governed by the ethics and compliance committees of the University of Michigan.

Presently, there are over 5,000 hours of speech in the database from over 100 participants that have used the PRIORI system for up to one year. The Prechter team has worked diligently together for seven years and the team has grown to include five engineering and eight clinical researchers. Prechter research is backed both by technology and clinical knowledge. For example, recent efforts in automatically identifying emotion in speech were enabled by detailed evaluation by human listeners who rated the intensity of emotion in 13,611 segments of speech (6-8 seconds each). Researchers used this information to train algorithms. The program also uses computational tools to identify patterns in language that associate with emotions and mood severity. The research team has published widely in the computational literature.

Continued on page 12

PRECISION HEALTH

HELPING DOCTORS MAKE BETTER DECISIONS: **NEW GENETIC TEST MAY HELP PHYSICIANS** CHOOSE THE MOST EFFECTIVE ANTIDEPRESSANT MEDICATIONS FOR PATIENTS

Those struggling with illnesses such as breast or lung cancer have reasons to be more optimistic knowing that genetic tests now are being shown to improve responses to different pharmacological medications. Clinicians treating other illnesses understandably wish for similar pharmacogenomic tests to help guide their treatment selections.

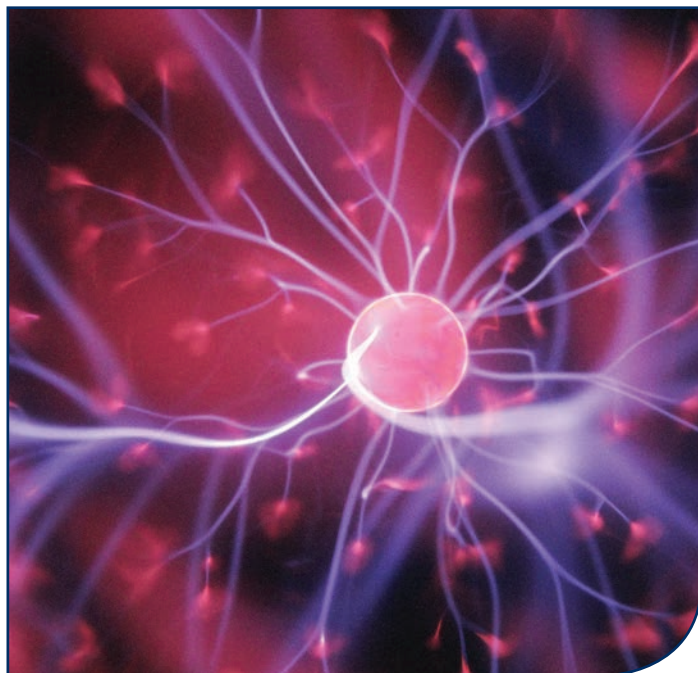
For those seeking to develop such tests for major depressive or bipolar illnesses, early attempts were disappointing. Findings were plagued by studies being limited to single genes or enzymes, small samples, no controls, short durations, and no double-blind ratings. Then combinatorial pharmacogenomic approaches were developed. This technical term describes genetic tests based on an algorithm that weighs multiple specific-variant effects on multiple genes and multiple medications.

A simple cheek swab is used to collect saliva that is used to determine an individual's genetic profile and the combinatorial algorithm then focuses on genes that help regulate pharmacokinetic (metabolism) and pharmacodynamic (gene-gene or gene-drug interaction) patterns.

Using such a combinatorial test, John Greden, M.D., served as the principal investigator of an initiative to overcome prior shortcomings. He helped lead the largest, longest, randomized, blinded rating study available in the literature. The study evaluated 1,117 patients who previously had failed to respond to an average of 3.5 treatments; they were truly treatment resistant. Patients who received medications that were guided by the pharmacogenomic test so that the treatment medication was "congruent" with their genetic composition were 30 percent more likely to respond than when their medication was given by doctors using best clinical judgment ("Treatment as Usual"). They also were 50 percent more likely to achieve remission, returning to normal.

While the pharmacogenomic measures did not convey to the clinician which treatments would be most effective, they successfully provided guidance about which medications would be most likely to produce negative consequences and should be avoided. Test results were equally beneficial for individuals over the age of 65.

Considering the complexity of the terms, perhaps it is understandable that this study has been nicknamed the "GUIDED" trial: Genomics Used to Improve DEpression Decisions." Much work remains to be done but results to date, much of it led by the team at the UMDC, now have opened the door to a refreshing sense of optimism. The best is yet to come. **M**



PRIORI UPDATE

Continued from page 11

The Prechter Program is able to measure patterns in emotions, associate these patterns with changes in moods, and use this information to identify when clinical adjustments are needed! The 'beta' testing is a success, and Prechter investigators are now moving to more formal clinical trials to test if we can change the trajectory of bipolar disorder.

Over the past year Prechter investigators have shown that speech collected in clinical environments and in natural personal interactions can be measured to detect changes in mood symptom severity. The program is more enthusiastic than ever about the development of PRIORI in partnership with our research participants and donors. The ability to detect mood swings earlier has potential to transform care for bipolar disorder, giving clinicians an opportunity to adjust a patient's treatments. **M**

PRECISION HEALTH

SLEEP DISORDERS

UMDC MEMBERS STUDY THE RELATIONSHIP BETWEEN SLEEP DISORDERS, MENTAL WELLNESS

Sleep disorders are strongly associated with depression and bipolar illnesses. Insomnia, characterized by nighttime difficulties falling and staying asleep, affects about one third of U.S. adults. More than 20% experience persistent nighttime difficulties with significant daytime impairment. Insomnia is pervasive—perhaps the norm—among depressed individuals. People with insomnia have a ten-fold risk of developing depression compared to those without a sleep disorder.

Circadian disorders, wreaking havoc and turmoil for our 24-hour rhythms, and obstructive sleep apnea are similarly linked and widespread. Common factors and forms include shift work (affecting ≈15% of adults), delayed sleep-wake phase disorder (affecting ≈7% of adolescents and young adults) and some forms of insomnia (≈20% of those with insomnia have a circadian misalignment component). Recently, social jet lag, which occurs when work schedules lead to suboptimal sleep timing was estimated to affect ≈30% of the general population.

The RAND corporation has estimated the effects of insufficient sleep on health, wellbeing and productivity to be up to \$411 billion a year, or ≈2% of the GDP. One-quarter of older males, especially if they are struggling with abdominal obesity and consuming alcohol are vulnerable to sleep apnea and associated depression. The depressive features are often indistinguishable from other causes of depression, while the required treatments may differ dramatically. While people with depression are five times more likely to suffer from sleep disordered breathing, and many who treat their sleep apnea show significant and long lasting improvements in depressive symptoms.

Objective measures are often needed to clarify the sleep/rhythm abnormalities. The Sleep and Circadian Research Laboratory (SCRL) that enables Depression Center and psychiatry evaluations can offer comprehensive state-of-the art sleep (polysomnography, wrist actigraphy) and circadian (dim light melatonin onset, circadian photoreceptor sensitivity) assessments. The SCRL also offers integrated sleep and circadian-based treatments, light treatment, melatonin treatment.

To our knowledge we are one of only a few laboratories in the U.S. that can conduct comprehensive sleep and circadian science, and perhaps the only one housed within a psychiatry department and Depression Center. Thus, we are well-positioned to examine, develop, translate and disseminate sleep and circadian science findings for a variety of psychiatric conditions. Principal Investigators include J. Todd Arnedt, Ph.D. (Co-Director), Helen Burgess, Ph.D. (Co-Director), Leslie Swanson, Ph.D., and Deidre Conroy, Ph.D. **M**

PRECISION HEALTH

ECT & GENOMICS STUDY

UNIVERSITY OF MICHIGAN PARTICIPATING IN LARGEST STUDY OF ECT EVER CONDUCTED

The University of Michigan is participating in the largest study of electroconvulsive therapy (ECT) ever conducted. This global study will be carried out by seven ECT centers in the U.S., in collaboration with the Psychiatric Genomics Consortium and a number of other NNDC sites. This study aims to collect genetic samples from 15,000 patients in the U.S. plus an additional 10,000 across the globe who are receiving ECT for severe depression.

While ECT is one of the most effective treatments for individuals suffering from severe major depressive disorder, not everyone responds to this treatment. The goals of this research study are to identify genetic variations that:

1. are associated with severe major depressive disorder and indicate which patients are candidates for ECT, and
2. influence response to ECT and predict which patients may benefit from treatment.

This five-year study is funded by a \$5 million grant from the National Institutes of Mental Health.

“Our hope is that this research will help us better identify those who have resistant forms of depression and eventually assist us in providing ECT to those more likely to respond,” said Dan Maixner, M.D., Depression Center member and ECT program director for Michigan Medicine. **M**

“Although ECT has been available for over 80 years, research and clinical advancements over the last one to two decades continue to be discovered enhancing outcomes and minimizing side effects. When other treatments fail or depression symptoms are life threatening, ECT is one of the most important options to consider.”



— Dr. Daniel Maixner, associate professor of psychiatry; ECT program director, Michigan Medicine

MOVING RESEARCH INTO CLINICAL

The Depression Center translates cutting-edge scientific research into more effective depression care to address patients throughout the lifespan.

We provide first-class patient care in partnership with the U-M Department of Psychiatry and Michigan Medicine.



MICHIGAN CHILD COLLABORATIVE CARE PROGRAM (MC3)

An estimated one of five children in the U.S. has a diagnosable mental health illness, but the majority remain undiagnosed, and only 20-25 percent receive any treatment. A key reason is that most counties in Michigan as well as in other rural areas in the U.S. don't have access to a child psychiatrist or others trained in these brain-behavior illnesses. Similarly, there is a severe shortage of perinatal psychiatrists, leaving primary care providers to handle high-risk women with complex behavioral health disorders with little support. The Michigan Child Collaborative Care Program (MC3) was developed to address this treatment gap.

The MC3 program, led by Sheila Marcus, M.D., section chief of the Department of Psychiatry's Child and Adolescent program and one of the original faculty leaders of the U-M Depression Center, offers crucial services to primary care providers as well as patients and families. These vital services include:

- Same-day phone consultation from U-M child and perinatal psychiatrists to primary care providers for diagnostic clarification and evidence-based pharmacologic and behavioral health treatment recommendations.
- Telepsychiatry (telehealth) consultations for the more complex children and families and high-risk pregnant and postpartum women so that these patients can be assessed through videoconference by a U-M psychiatrist without having to travel to Ann Arbor.
- Behavioral health consultants (advanced degree mental health clinicians) who triage consultations; facilitate referrals across systems of care (schools, protective services, foster care, juvenile justice); and monitor outcomes over time.
- Psycho-education and brief interventions for patients and families provided by behavioral health consultants who are embedded in select primary care practices.
- Group case consultation from U-M psychiatrists by telephone and videoconference so that primary care practices and nurse practitioners can discuss multiple patients.
- Web-based educational programs for primary care providers.

"I learn from every call—not just about the individual patient but about how to approach behavioral health problems in my patients and their families."

— MC3 Primary Care Physician

MC3 is now in 70 out of 83 counties in Michigan and continues to expand. A total of 2,415 primary care providers are enrolled in the program. As of July 2019, 10,516 patients and families have been served. Ninety-seven percent of patients served by MC3 are not currently being seen by a psychiatrist, and the vast majority do not have access to a psychiatrist in their county. A major void in health care delivery is now being remedied.

In 2019, the Michigan Department of Health and Human Services (MDHHS) received multi-year funding to expand coverage of MC3 to the entire state of Michigan. The newly awarded grant from the U.S. Department of Health and Human Services Health Resources and Services Administration (HRSA) will allow expansion to all 83 counties in Michigan with a special focus on the Upper Peninsula and Thumb regions. The grant also includes expansion of the provider education component of MC3, which will be implemented in collaboration with Michigan State University.

Through MC3, the U-M Depression Center and Department of Psychiatry have been successful in leveraging scarce psychiatry resources on behalf of Michigan's most vulnerable children. It is also one of the few programs in the country providing these services to high-risk peri- and postpartum women. MC3 is a collaboration with the Michigan Department of Health and Human Services. It was launched initially in 2012 with a grant from the Ravitz Foundation. **M**

ZERO TO THRIVE: PROMOTING RELATIONAL HEALTH IN THE EARLY YEARS



The first thousand days of life are critically important, and strong early relationships are the foundation for developmental success. Adversity experienced during pregnancy, infancy, and early childhood can interfere with children’s ability to reach their fullest potential.

Kate Rosenblum, Ph.D., and Maria Muzik, M.D., of the U-M Depression Center and Department of Psychiatry, together with Alison Miller, Ph.D., at the U-M School of Public Health, lead the Zero to Thrive (ZTT) program. ZTT is an innovative multidisciplinary initiative aiming to mitigate the impact of adversity faced in early childhood through integration of science, increased public awareness, and development and delivery of programs and services targeted at innovative solutions.

VISION: The Zero to Thrive team envisions a ground-breaking, multilayered, two-generation initiative that harnesses the academic strengths of U-M to transform the lives of the youngest, most vulnerable children and their families, and impact the long-term health and resilience of our most at-risk communities. The necessary next step is clear: take these tested programs and implement them widely to make a dramatic impact in the lives of infants and families.

THE “STRONG ROOTS” PROGRAMS: Early relationships provide needed strong foundations to support and fuel young children’s developmental success. When caregivers meet their children’s needs for connection, they build the strong roots that support young children as they branch out, grow, and thrive. The Strong Roots Programs, which includes our flagship “Mom Power” and “Fraternity of Fathers” interventions, aim to promote the health and resilience of children, parents, families, agencies and communities facing adversity by fostering safe, strong and positive relationships. Our experiential, evidence-based programs strengthen protective factors to promote child and family resilience.

The programs also have been field-tested by hundreds of participants in multiple states. Our research has confirmed that these interventions not only improve parent and child mental health, but that participation in these programs also leads to changes in the “parent brain” as demonstrated through brain imagining research.

Selected Zero to Thrive activities currently underway to enhance dissemination, regionally and nationally:

- **Resilience Rally:** Together with partners from across the county, including the public schools, YMCA, libraries, and the public health system, the ZTT team has engaged hundreds of early childhood providers to foster and support resilience in families with young children. In early 2019, ZTT sponsored a county-wide Resilience Rally attended by 150+ early childhood providers, and participants in this rally are currently delivering evidence based Strong Roots programming and content to the families they serve.
- **Clinical services:** Our specialty clinics for perinatal, infant and early childhood clinics serve hundreds of women, children and families each year. These are truly ‘destination clinics.’ Children and families come from across the state to benefit from the expertise of our faculty and staff. ZTT faculty and staff members partner with pediatrics and OB/GYN practices, screening parents and children for mental/behavioral and relational health, and providing services in primary care and in communities. Aims are to increase access and engagement.
- **Educational activities:** In addition to educating ‘in-house’ medical and allied health provider students and trainees, ZTT faculty and staff have been engaged in outreach to community-based providers not only across Michigan but nationally.
- **Research activities:** ZTT faculty studiously integrate program evaluation to ensure that what we do is effective.
- **Policy activities:** ZTT aims to translate research to shape clinical practice and policy. ZTT sponsors presentations and panel discussions translating relevant ZTT research to current events and issues facing families with young children.
- **Future promise:** Our faculty have been invited to present the activities of Zero to Thrive nationally and internationally. Dissemination elsewhere is a key priority. **M**



INTERVENTIONAL PSYCHIATRY: BETTER AND FASTER RESULTS FOR OUR PATIENTS

Many treatments in psychiatry, while well supported by research, work only for some people. Most treatments for depression or bipolar disorder take weeks to have a noticeable effect, and months to provide major relief, and some do not work at all—which leads to a frustrating “wait and see” approach.

Interventional psychiatry – the use of brain stimulation techniques and other minimally invasive intravenous (IV) drug strategies, leads us to a tipping point towards a new model of care in psychiatry. Through research, many novel treatments under the interventional psychiatry umbrella are emerging, involving primarily IV medications and novel brain stimulation techniques. There are a number of interventional psychiatry initiatives underway within the U-M Department of Psychiatry and Depression Center. Below we lay out a few examples.

IV KETAMINE: RESEARCH AND CLINICAL CARE

In 2017, the UMDc and the Department of Psychiatry launched a study on the biomarkers of response to intravenous (IV) ketamine, with the goal of finding a blood test to predict who would most benefit from ketamine. This study is a multi-university collaboration facilitated by the National Network of Depression Centers (NNDC), funded by philanthropic support to U-M, and is co-led by Mayo Clinic and U-M faculty. Ketamine has been used for decades and has multiple uses, with one method being to treat treatment-resistant depression when given intravenously. The benefit of administering ketamine via IV is that it improves the timeline for patients getting back to health.

The department uses a low dose of a non-fully sedating dose of ketamine, and three to six sessions are typically required for patients. The outpatient procedures typically last one or two hours. In some cases, people receiving this treatment achieve remission after their first treatment.

The U-M study, being led by Drs. Sagar Parikh and John Greden, has recruited 14 out of a planned 15 patients so far, and has been approved to recruit an additional 15 individuals. After analyzing study results, the team hopes to host a fully functioning IV ketamine clinic at Michigan Medicine by 2020.

“Ketamine is not a miracle drug – some people respond and others do not, we still need to figure out who is effected positively. But multiple studies from many countries now show good results, so it is clearly a major advance in the treatment of depression”

— Dr. Sagar Parikh, the John F. Greden Professor of Depression and Clinical Neuroscience



ELECTROCONVULSIVE THERAPY (ECT)

ECT is one of the oldest forms of interventional psychiatry in the country and has been used at U-M for decades. After a patient falls asleep with the help of sedative medication and has been given a muscle relaxant to prevent muscle movements, ECT is administered with a brief electrical stimulation to the head, which produces seizure activity seen on brainwave monitoring (EEG monitor), without significant body movement. A typical course is six to twelve sessions over three to four weeks. ECT is still the most effective treatment for severe depression, and is useful for various other conditions. Though ECT has been stigmatized in the media for years, its effectiveness among the most severely depressed individuals cannot be ignored as it produces remission from depressive symptoms better than any other treatment.

NEW DRUG FOR TREATING POSTPARTUM DEPRESSION (PPD) QUICKLY

The department is currently working with OB/GYN and pharmacy colleagues to explore the possibility of adding Zulresso™ (brexanolone) to its suite of treatment options for women suffering from postpartum depression (PPD), a serious and often treatment resistant disorder. Zulresso™ is the first ever designed treatment to specifically treat PPD and shows efficacy within a week of administration. The downsides of the drug include high costs and that it requires a 60-hour IV infusion; however patients who have received it are showing signs of remission within two weeks. The new drug has potential to help more of the many women who experience symptoms of postpartum depression.

INTERVENTIONAL PSYCHIATRY FELLOWSHIP

The Department of Psychiatry has launched a brand new fellowship in interventional psychiatry. The fellowship provides one year of focused clinical and research training in all modalities of treatment, with particular emphasis on ECT, IV ketamine, and transcranial magnetic stimulation, with the opportunity for training in transcranial direct current stimulation. Additional training in other emerging technologies including e-health (apps, websites, and computer tools) as well as other emerging IV medications will be possible. This will be an opportunity for the department and Depression Center to showcase its leadership in the field on an international platform as the field hits its stride.

Early philanthropic support has made the Interventional Psychiatry initiatives discussed in this article possible, and we thank these donors for their vision and commitment to improving outcomes for people with mood disorders. **M**

A NEW GENERATION OF SCHOLARS

Depression Center research draws from the expertise of investigators across the University of Michigan, one of the nation's premier research institutions. Depression Center researchers are committed to learning more about the causes of depression, bipolar disorder, and related conditions, preventing and treating those diseases, and helping people stay well.



FRANCES AND KENNETH EISENBERG RESEARCH AWARDS

Frances and Kenneth Eisenberg Scholar Award Winners for 2018 are conducting projects that will help establish foundations for new, more-precise treatments.

Jonathan Morrow, M.D., Ph.D., assistant professor in the U-M department of psychiatry, was named a winner of the U-M Depression Center's 2018 Frances and Kenneth Eisenberg Scholar Award. Morrow will be studying "Mast Cells as a Target for Psychiatry Treatment." **Brendon Watson, M.D., Ph.D.**, assistant professor in the U-M department of psychiatry, another winner of the Frances and Kenneth Eisenberg Scholar Award is evaluating "Biomarkers and mechanism of the antidepressant action of ketamine in rodents." These are new explorations to improve newly developing treatments or explore new strategies.

MAST CELLS AS A TARGET FOR PSYCHIATRY TREATMENT

Dr. Morrow's study will use animal models to test whether modification of an existing allergy medication can be used to calm immune cell activity within the brain of those with psychiatric disorders to reduce emotional urgency. Emotional urgency is when individuals have a dangerous tendency to engage in rash actions when in a heightened emotional state. This can lead to many of the most devastating consequences of depression, including suicide, violence, and substance abuse.

"Psychiatric research too often focuses on each diagnosis separately, and in some ways they are easier to understand in isolation," said Dr. Morrow. "However, my aim is to find out how these symptom clusters interact with each other, so that we can design new treatments for individual patients, instead of individual disorders."

Emotional urgency is the most impairing symptom that some high-risk depression patients are diagnosed with. Morrow's project has the potential to identify a completely novel target for the development of new drugs to treat multiple psychiatric disorders, including depression, substance use disorders, anxiety, and personality disorders.



BIOMARKERS AND MECHANISM OF THE ANTIDEPRESSANT ACTION OF KETAMINE IN RODENTS

Dr. Watson aims to study the mechanisms of depression and treatment for depression using a neurobiological approach in mice combined with inspirations from recent clinical findings using the drug ketamine. While it is unclear how ketamine will affect the depressed patient, it is evident that it acts in a new and much faster manner than other drugs, suggesting a novel mechanism of action. To leverage that fact, Watson's group proposed to use mouse models of stress-induced depression-like symptoms and to then assess how ketamine can help stressed mice recover.

To assess outcomes, the Watson lab will use high-throughput electrophysiologic measurement techniques that push the boundaries of current technology and are capable of revealing brain dynamics at high spatial and temporal resolution. In addition, he proposes a new system to measure behavioral correlates of depression-related behavior in rodents that will both increase the resolution of his own studies and can serve to help future rodent researchers more precisely define the rodent depressive syndrome.



Continued on page 20

POSTPARTUM DEPRESSION SCREENING AND REFERRAL IN RURAL MICHIGAN

Weaver Receives MIP Scholars Award



In January 2019, **Addie Weaver, Ph.D., M.S.W., M.P.A.**, an assistant professor in the U-M School of Social Work was awarded with the 2019 Michigan Mental Health Integration Partnership (MIP) Scholars Award. This award supports U-M faculty implementing and evaluating mental health services that promote integrated care designed to improve access to evidence-based practices for lower income and Medicaid eligible populations with behavioral health care needs in Michigan. The \$50,000 award was provided by the U-M Depression Center Frances and Kenneth Eisenberg Collaborative Innovations

Fund and received a 1:1 match with Michigan Medicaid funds.

Dr. Weaver's project titled "Implementing Postpartum Depression Screening and Referral in Rural Women Infant and Children (WIC) Clinics" began in 2019. The project will identify and tailor an implementation intervention to initiate postpartum depression (PPD) screening and treatment referrals in rural WIC clinics. A related aim is to develop a resource and referral directory for WIC staff to disseminate information for women who screen positive for PPD.

Dr. Weaver serves as co-director of the Treatment Innovation and Dissemination Lab at the School of Social Work and is a member of the U-M Depression Center and Institute for Healthcare Policy and Innovation.

She is a mental health intervention researcher committed to improving access to evidence-based treatment for underserved populations, with specific attention to addressing treatment access disparities experienced by rural Americans. Rural populations arguably encounter the highest hurdles in finding evidence-based care. Her work utilizes innovative approaches to increase access to care, including technology-assisted treatment and building capacity to deliver care in community settings that are accessible and acceptable to individuals experiencing mental health needs.

Dr. Weaver is currently working on a project, supported by an NIMH Mentored Research Scientist Career Development Award (K01), focused on adapting and testing an internet-based cognitive behavioral therapy for depression for group-based delivery in rural churches in Michigan. **M**

EISENBERG RESEARCH AWARDS

Continued from page 19

"The Eisenberg Scholar Award has been key to allowing us to push forward an innovative and potentially high-reward project. We got the award at a time where we really needed bridge funding. It enabled us to hire an engineer to refine our project and obtain key proof-of-principle data," explained Watson.

With the completion of these experiments, Watson will both have greatly increased our knowledge base regarding brain mechanisms relating to depression and new tools to enable more future work. Furthermore, the Watson lab was already able to publish an article detailing some preliminary findings relating to this work in May 2019.

"We are now aiming to ramp up our efforts to create a series of monitoring environments customized to the mouse circadian cycle. We can then use these environmental chambers to study a range of questions including stress, medication effects, and how individual variation plays into important psychiatric questions," said Watson. "We are extremely grateful to have had the Eisenberg Scholar funding and are excited to translate it into both further funding and exciting science."

The U-M Depression Center's Frances and Kenneth Eisenberg Scholar Award is intended to expand the number of innovative research projects focused on understanding causes of depression and develop personalized, precise treatments that target each individual's unique profile. The award was launched in 2016, and is one of four Eisenberg Research Awards. In addition to the Depression Center, the Eisenberg family supports the U-M School of Education and TeachingWorks, LSA, the School of Social Work, the Taubman Medical Research Institute, the University Musical Society, and the Athletic Department. **M**



Frances and Kenneth Eisenberg

KATE FITZGERALD INSTALLED AS THE PHIL F. JENKINS RESEARCH PROFESSOR IN DEPRESSION

Work focuses on child and adolescent anxiety, obsessive compulsive disorder, and depression

Kate Fitzgerald, M.D., M.S. was installed as the Phil F. Jenkins Research Professor of Depression. Fitzgerald also serves as the Academic Director of Child and Adolescent Psychiatry and as Co-Director of the Child OCD & Anxiety Disorders Program within the Michigan Medicine Department of Psychiatry. She is a longtime member of the U-M Depression Center.

Phil F. Jenkins (1923–2019) was a philanthropist who donated to many organizations anonymously, but chose to give to the U-M Depression Center under his name because he hoped to inspire others to follow his lead. Jenkins began giving to the U-M Medical School in 1999 to support depression and bipolar disorder research as his wife Lyn struggled with depression prior to her death. Recognizing the toll depression had on his spouse, he dedicated his efforts to reducing the stigma around depression. Jenkins believed that people should be open about their experiences with depression rather than hiding their illnesses from the world.

In 2006, Jenkins established the Phil F. Jenkins Research Professorship in Depression to advance the understanding of the causes of depression and bipolar disorder using genetics, brain imaging and molecular neuroscience, as well to find more effective treatments for the illnesses. Fitzgerald was 'sworn in' as the new holder of the professorship on June 6, 2019.

Fitzgerald earned her medical degree and a masters of Psychiatry and Behavioral Neuroscience (M.S.) from Wayne State University School of Medicine in 2000. She then completed her psychiatry residency, a neuroimaging fellowship, and child and adolescent psychiatry fellowship at the University of Michigan Medical School.

Her decision to practice and pursue research in the field of child psychiatry was heavily influenced by her medical school mentor Dr. David Rosenberg, at Wayne State University. He demonstrated that attaining excellence in both research and clinical work was achievable. After rotating in Dr. Rosenberg's outpatient child psychiatry clinic and spending a research year in his lab, Dr. Fitzgerald knew she wanted to focus on childhood OCD, anxiety and depression.

"Dr. Rosenberg's research showed that pediatric OCD has a biological basis that can actually be visualized in a MRI scanner. It was exciting," Fitzgerald said. "I got the idea that maybe brain development could be 'encouraged' to help kids achieve mental health and well-being. And I chose child psychiatry because I love the resiliency of children."

As her career has advanced, Fitzgerald has received notable awards that have provided critical support to establish her independent research program at the U-M. Currently, she leads or co-leads



Pictured from L-R: Carol Bradford, M.D.; Gregory Dalack, M.D.; Kate Fitzgerald, M.D.; John Greden, M.D.

three studies funded by the National Institute of Mental Health. In 2016, she received the AIM Sullivan Family Rising Star Award through the One Mind Institute and AIM Foundation to develop an effortful control training 'camp' for clinically anxious preschoolers. She has published 65 peer-reviewed articles, and has been invited to present her research regionally, nationally, and internationally.

Fitzgerald's current work focuses on brain function in youth with anxiety, OCD and depression. Her lab uses functional magnetic resonance imaging (fMRI), electroencephalogram (EEG), and behavioral assessments to identify and modulate developmentally sensitive biomarkers as targets for early intervention. Currently, she is conducting research to elucidate developmentally sensitive mechanisms of CBT for OCD and pediatric anxiety disorders. She is also studying a cognitive training strategy designed to reduce early childhood anxiety by increasing neural capacity for cognitive control.

"Being named the Phil F. Jenkins Research Professor of Depression is incredibly humbling and I am honored to have been chosen," Fitzgerald said. "I certainly wish I had known Phil! I've learned from Dr. John Greden that he was a genuine and generous soul who worked to help children through support of the Ann Arbor Hands-On Museum, Neutral Zone, YMCA and the Depression Center. I hope that, in my own way, I can contribute to Phil's vision and legacy by helping to promote youth mental health through my work." **M**

EDUCATION AND OUTREACH

The U-M Depression Center serves as a source of reliable and comprehensive patient, family, public and professional education about depression, bipolar disorders and related illnesses. Effective education helps people break through the barriers of stigma and misinformation.

We reach out to special populations, providing resources, education, tools and various services to individuals and communities touched by the broad spectrum of depression, bipolar disorder and related illnesses.



STIGMA OF MENTAL HEALTH AMONG COLLEGE STUDENTS IS DECLINING; MORE WILLING TO SEEK TREATMENTS

In a 2018 study aimed at documenting population-level trends in mental health service utilization by college students, Daniel Eisenberg, Ph.D., S.J. Axelrod Collegiate Professor of Health Management and Policy in the U-M School of Public Health, along with Sarah Ketchen Lipson, Ph.D., Ed.M, inaugural Eisenberg Scholar and current faculty member at Boston University, used data from the Healthy Minds Study to look at the rising use of mental health services by college students. The study found that medication and therapy use have both nearly doubled over the last 10-15 years, which can be attributed to increased symptoms of depression and anxiety, as well as reduced mental health stigma.

“These basic trends are not surprising to most people, but the contribution of our study is to quantify these trends with national data,” said Eisenberg. “So now we have numbers that give a more precise picture of how service use, symptoms, and stigma are evolving. The overall picture is both concerning and encouraging: levels of distress appear to be rising, but at the same time there is greater willingness and ability to seek help.”

The results of the study reveal that counseling services on college campuses are being strained by the growing number of students seeking help, with many being under-resourced and having long wait lists. One potential solution is to offer students online services as a supplement to traditional services. Eisenberg and Lipson are part of a research team conducting a multi-campus randomized trial funded by the National Institute of Mental Health to test this approach.

Eisenberg also serves on the planning committee for the Depression Center’s annual Depression on College Campuses (DOCC) conference. Learn more about DOCC on page 28. **M**



Reducing stigma starts early. The Peer-to-Peer program has a middle school component that allows young students to learn about depression, spread awareness and increase help seeking.

MIDDLE & HIGH SCHOOLS

PEER-TO-PEER (P2P) DEPRESSION AWARENESS INITIATIVE CELEBRATES 10 YEARS



The Peer-to-Peer Depression Awareness Program is another pillar of the Center's efforts to identify and intervene in mood disorders earlier in life. Started in 2009 in collaboration with schools throughout Washtenaw County, P2P provides information and support to student teams, empowering them to effectively reach peers within their schools through unique mental health awareness and stigma reduction campaigns.

With the support of private donors and the Ethel & James Flinn Foundation, the number of participating schools has continued to increase from five Ann Arbor high schools in 2009, to 16 high schools and 11 middle schools throughout Washtenaw County in the 2018-2019 academic year. P2P staff also created a program manual and resource website, the program was piloted at two schools in Rhode Island, and educators throughout the state and nation have been able to model and implement similar programs.

This initiative is tier one of a three-tiered prevention-to-intervention model of school-based outreach. The Center's efforts in these areas also include TRAILS (Transforming Research Into Action to Support the Lives of Students) and suicide prevention trainings for Washtenaw County counselors, teachers, and administrators. During the 2018-2019 academic year, approximately 200 WISD staff were trained in SafeTALK (Suicide Alertness for Everyone) and 30 counselors trained in ASIST (Applied Suicide Intervention Skills Training), with additional trainings scheduled for the fall.

P2P evaluation continues to show positive results. Following campaign rollouts in the fall, students who attended participating schools reported being:

- More knowledgeable about depression;
- More confident in their ability to identify and refer peers who may be struggling with depression or anxiety;
- More willing to seek help for themselves if they were experiencing symptoms of depression, and;
- Aware of lower stigma in their school environment related to students with mental health problems. **M**

"I liked feeling connected to a community of teen helpers from my area."

— P2P Student Participant

P2P BY THE NUMBERS

1,250

STUDENTS WHO HAVE DIRECTLY PARTICIPATED SINCE 2009

225

STUDENT-RUN EVENTS SINCE 2009

16

PARTICIPATING HIGH SCHOOLS IN 2019-20

11

PARTICIPATING MIDDLE SCHOOLS IN 2019-20



APA HONORS P2P PROGRAM WITH GOLD MEDAL

This year, the P2P team was honored to have earned a Gold Award from the American Psychiatric Association. Since 1949, the Psychiatric Services Achievement Awards program has recognized creative models of service delivery and innovative programs for persons with mental illness or disabilities.

Pictured L-R: Bruce Schwartz, M.D., APA president; Lizelle Salazar, UMDC education & outreach program coordinator, Stephanie Salazar, UMDC education & outreach program manager; Sagar Parikh, M.D., UMDC associate director

TRAILS CONTINUES EXPANSION, LOOKS FORWARD

Continued from page 25



**TRAILS Program Director
Elizabeth Koschmann, Ph.D.**

presence, a partnership with the Youth Policy Lab (YPL) at the Ford School of Public Policy will enable a 3-year evaluation of the impact of the TRAILS model on the whole school community, including students, teachers, administrators, and families.

Recently announced Michigan Department of Education funding earmarked for mental health services will allow for further expansion of TRAILS. Initial communications indicate that these funds will pave the way for TRAILS to be introduced into areas of Michigan that have not yet had the financial ability to engage with our program.

TRAILS is also at the midpoint of a two-year clinical trial involving 94 schools, 169 school professionals and more than 1,300 students throughout Michigan. Led by Dr. Amy Kilbourne and funded by the National Institute of Mental Health (NIMH), this trial is rigorously testing the TRAILS coaching model to determine the impact on school professional training benchmarks, student

clinical symptoms of depression and anxiety, and economic return on investment. As part of this study, TRAILS embarked on its largest CBT training to-date. The training, held earlier this year, involved more than 230 school mental health professionals and was simulcast from Ann Arbor to five locations throughout the state, including the Upper Peninsula.

But there's still so much more work to be done.

"We are incredibly proud of our program's impact and growth, as well as our commitment to fine-tuning TRAILS based on rigorous research," Koschmann said. "But each day we hear from more schools in need. In response, we continue to push to expand TRAILS both in content and reach."

Priorities have included adapting CBT and mindfulness resources for a K-8 audience, developing a parallel classroom-based curriculum appropriate for teacher delivery, and designing a web-based platform that will allow schools to serve students even in buildings lacking sufficient mental health staff, such as social workers, counselors, or nurses.

"We need help. We need TRAILS."

"Right now, we have to be focused on securing program-sustaining funding" Koschmann said. "We hear

stories from every corner of the state, and really, from all over the country, of the deep toll that mental illness is having on these kids and on their communities. TRAILS is making a difference – the success stories are incredibly powerful. We are confident that those stories will be buttressed by concrete results from our current research and further enhance the compelling case to large-scale funders interested in making effective mental health services accessible in all schools."

Visit trailstowellness.org to learn more. **M**

HIGH SCHOOLS

CLASSROOM MENTAL HEALTH

To expand outreach in 2015, the U-M Depression Center launched classroommentalhealth.org, a website designed to support educators of grades 8-12 in communicating with their students about mental health concerns. The website was developed in collaboration with multiple organizations including the State of Wyoming Department of Education, Prevention Management Organization of Wyoming, Teton County School District, Gull Lake Community Schools (Gull Lake, Michigan), and Ann Arbor Public Schools. Special efforts were made to tailor the messages to each school and community. Within the last year there were **nearly 70,000 page views** on the website.

classroommentalhealth.org



The Classroom Mental Health website provides school staff with a variety of tools and resources which can be easily accessed and utilized within the context of a teacher's regular classroom routine. The website can also serve as an additional resource for existing school-based mental health and suicide prevention programs by:

- Providing brief, environmental and action-based strategies that can help to create a classroom atmosphere beneficial to student mental health;
- Supporting communication and collaboration between school staff and the parents/families of students who are struggling with mental health concerns and;
- Helping to facilitate the referral process for students in distress through a customized database of local support resources. **M**

COLLEGES

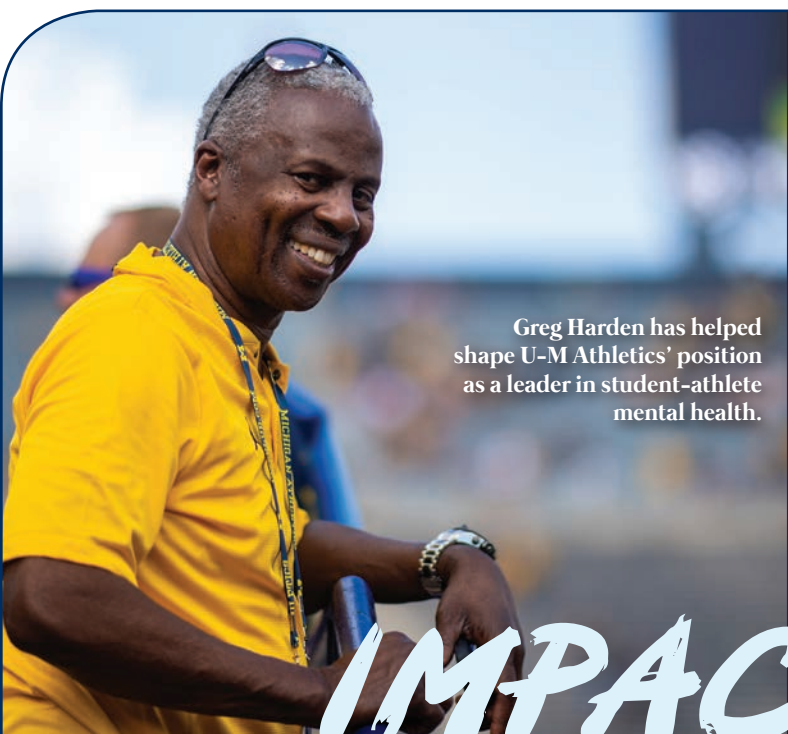
ATHLETES CONNECTED

Many student-athletes experience mental health problems such as depression and anxiety, but for a variety of reasons, they often are reluctant to seek help. The **Athletes Connected** program, developed with initial funding from an NCAA Innovations in Research Grant, is a unique collaboration between the U-M Depression Center, School of Public Health, and Athletic Department. Athletes Connected uses a comprehensive approach that involves student engagement, targeted interventions and scientific research to increase awareness of mental health issues, reduce the stigma of help-seeking, and promote positive coping skills among student-athletes. Core components of the program are education & awareness through team presentations and digital content through videos, social media, and the website as well as biweekly wellness groups.

2018-19 UPDATES

- Creation and dissemination of additional videos highlighting student-athlete mental health
 - Depression, Anxiety and Gender Dysphoria, featuring G Ryan (swim team)
 - Transition to College, featuring Mira Shane (lacrosse)
 - Interview with Greg Harden, executive associate athletic director for U-M Athletics
 - Parent and coach perspective
- Introduction of biweekly restorative yoga sessions, 14 sessions held between October and April with 126 attendees. Groups continue to take place.
- Additional research started on student athlete mental health
- Website updated with original content, including a new section on 'Life After Sport'

Many of the athletes aided by these programs choose to continue participation by volunteering to aid others, a growing illustration of "peers helping peers." **M**



Greg Harden has helped shape U-M Athletics' position as a leader in student-athlete mental health.

COLLEGES

CAMPUS MIND WORKS

The Depression Center created the **Campus Mind Works** program in 2009 to support student mental health at U-M. The Campus Mind Works website (campusmindworks.org) was designed to provide customized mental health support for U-M students through an easy-to-search comprehensive database of community resources, educational modules, and a variety of self-care tools to be used in conjunction with treatment, or independently. The launch of the website, also in 2009, was accompanied by intensive outreach efforts that targeted U-M faculty, staff, students and their families. The goal of Campus Mind Works is to raise awareness about depression and related illnesses, and to promote help-seeking behaviors. With support and with feedback from students and staff, a newly updated version was launched in September 2018. Within the past year there were **78,689** visits to the website.

"It was really great, amazing to have a discussion about stuff that isn't usually talked about."

— **Campus Mind Works Wellness Group Attendee**

CAMPUS MIND WORKS WELLNESS GROUPS

The Campus Mind Works outreach initiative offers free educational support groups on U-M's Ann Arbor campus to undergraduate and graduate students who are managing a mental health condition. The support groups are organized through a partnership between the U-M Depression Center, College of Engineering, and the Newnan LSA Academic Advising Center. Groups convene twice a month during the school year. Recently, the groups saw a 109 percent increase in attendance, and an additional summer series for graduate students was added due to student demand.



SELECTED WELLNESS GROUPS TOPICS

- Managing Depression and Anxiety
- Loneliness
- Embracing Failure **M**

COLLEGES

DEPRESSION ON COLLEGE CAMPUSES CONFERENCE



The 17th annual **Depression on College Campuses Conference**, held in March 2019, brought together a multi-disciplinary group of 450 registrants from across the country, with representation from 19 states (plus Canada) and over 80 different colleges, universities, and organizations.

Workshops and presentations explored how colleges and universities can utilize more effective and efficient strategies for providing support to a large population of students with unique and varying needs. **M**



GEORGE ORLEY STUDENT MENTAL HEALTH ADVOCATE AWARD

During the conference, two students were honored with the newly established George Orley Student Mental Health Advocate Award. Selected from a number of exemplary nominations from throughout the country, the students were recognized for their outstanding student leadership in the area of campus mental health. With a generous endowment from Randy, Diane, Amanda and Sam Orley, the award is named to honor the memory of their son and brother, George Orley, who lost his battle with depression prior to his junior year at the University of Michigan.

Pictured L-R: Kimberly Snodgrass, University of Michigan; Mehak Hafeez, Illinois Institute of Technology

SAVE THE DATE

DEPRESSION ON COLLEGE CAMPUSES CONFERENCE
Diversity, Equity, and Belonging
MARCH 18-19, 2020 • ANN ARBOR, MICHIGAN



Join us for the 18th annual *Depression on College Campuses Conference* on March 18-19, 2020 in Ann Arbor. Register online.

depressioncenter.org/docc

COLLEGES

MAXWELL GRAY FILM FELLOWSHIP

With funding from the Pritzker Foundation, the **Maxwell Gray Film Fellowship** was established in 2016 to promote student mental health by producing original video content. This year marked the start of a three-year program to create a series of student stories highlighting special student populations in conjunction with the Campus Mind Works website (e.g. students of color, LGBTQ students, graduate students, transfer students, students in recovery, student veterans), with the aim of increasing knowledge of depression and related illnesses, reducing stigma, and increasing help-seeking. **M**

depressioncenter.org/maxwellgray

VETERANS

MILITARY SUPPORT PROGRAMS AND NETWORKS (M-SPAN): CELEBRATING 10 YEARS OF EXCELLENCE

Military Support Programs and Networks (M-SPAN) was originally founded in 2009 with support from Major League Baseball and the McCormick Foundation when the University of Michigan Depression Center was chosen as one of the first three academic programs in the country to be part of the Welcome Back Veterans (WBV) initiative. The year 2019 marks 10 years of excellence for the Center's M-SPAN programs. It is committed to addressing gaps in mental health and wellness services for the military and veteran population.

Many programs offer traditional, one-on-one clinical treatment. M-SPAN's approach is unique. Its team aims to address bigger issues that impact entire populations within the veteran space, such as stigma, isolation, and access to resources. Programs that address these specific challenges are developed, piloted, and evaluated.

M-SPAN tailors its programs to the needs of sub-populations, including the National Guard and Reserve Component, student veterans returning to college on the Post-9/11 GI Bill, military families with young children, military and veteran spouses/partners, and female veterans. It now includes five flagship programs: Buddy-to-Buddy; Peer Advisors for Veteran Education (PAVE); After Her Service; HomeFront Strong; and Strong Military Families. More than 15 faculty and staff are affiliated with M-SPAN.

Similar to other collaborative dissemination and implementation strategies for the Center, efforts to enhance capacity occur by educating community clinicians and training the next generation of mental health professionals

Continued on page 30

Buddy-to-Buddy volunteers are crucial to the program's success.

PROGRAMS FOR SERVICE MEMBERS AND VETERANS

BUDDY-TO-BUDDY

Outreach, support, and linkage to resources for service members and veterans

PAVE

Outreach, peer support, and linkage to resources for student veterans returning to college on the Post-9-11 GI Bill

AFTER HER SERVICE

Resiliency skills and professional development for Post-9/11 female veterans

PROGRAMS FOR MILITARY FAMILIES

HOMEFRONT STRONG

Resiliency and positive coping skills for military and veteran spouses and partners

STRONG MILITARY FAMILIES

Parenting skills and support for military and veteran families with young children



M-SPAN THROUGH THE YEARS, BY THE NUMBERS

Continued from page 29

The program's faculty members have special expertise in peer programs; early childhood interventions; and interventions to support resilience in female veterans, spouses, and families. To develop and remain at the "cutting edge," M-SPAN team members have trained hundreds of professionals nationally to deliver its evidence-based programs. These include clinicians from across the state and thousands of veteran peers to serve as mentors to fellow veterans.

How has this delivery of services been made possible? The Depression Center's M-SPAN team leveraged its initial gift of \$250,000 at inception to a total of over \$18 million in funding over its first 10 years. Its programs have been funded through private foundations, federal and Department of Defense grants, and individual donors. It is through such support that M-SPAN has become a "force-multiplying" initiative impacting thousands of service members, veterans, and military families. They have served us admirably. Their needs remain pressing. We all must be poised to continue to aid them. **M**

The overall impact is broad. Through the delivery of its programs, M-SPAN has impacted thousands of lives statewide and nationally:

25,000

VOLUNTEER HOURS LOGGED
(Buddy-to-Buddy)

5,500

SERVICE MEMBERS AND VETERANS ASSISTED
(Buddy-to-Buddy)

375

VOLUNTEER VETERANS TRAINED
(Buddy-to-Buddy)

12,000

STUDENT VETERANS ASSISTED
(PAVE)

47

PARTNER COLLEGES ENROLLED
(PAVE)

50

FEMALE VETERANS SERVED
(After Her Service)

270

COMMUNITY AND VA CLINICIANS TRAINED
(M-SPAN)

250

MILITARY FAMILIES AND CHILDREN SERVED
(Strong Military Families)

200

MILITARY SPOUSES SERVED
(HomeFront Strong)

The M-SPAN team hosts an annual tailgate for Michigan football's Military Appreciation Game.



COMMUNITY COLLABORATION

WORKPLACE MENTAL HEALTH

World Health Organization (WHO) data confirm that major depressive disorder (MDD) is the leading cause of disability worldwide. It has been estimated that lost productivity in the workplace will reach \$1.15 trillion per year globally. As a result, workplaces pay a huge price for unrecognized and unresolved depressions and anxiety.

After recognizing this need in the workplace, the University of Michigan Depression Center created an innovative program called **Mental Health in the Workplace Consulting (MHWC)**. Program leaders include a unique group of mental health experts with decades of unparalleled experience. MHWC members include John Greden, M.D., Michelle Riba, M.D., Sagar Parikh, M.D., Rosalind Garcia-Tosi, Sc.D., Anne Harrington, Ph.D., Laura O'Brien, BScN, M.B.A. and Christopher Blazes, M.D.

In addition, Drs. Riba, Parikh and Greden have recently published a book on workplace mental health titled "Mental Health in the Workplace-Strategies and Tools to Optimize Outcomes." This comprehensive book covers business challenges, mental health treatment, and it includes Australian, British and Canadian perspectives.

The objective of the MHWC program is to provide mental health solutions for organizations and their employees. These solutions can include recommendations, education and training. The various disorders addressed include coping and wellness issues, mild to severe mental health issues, and substance use disorders.

Using a multiphase consulting process, workplace mental health concerns and needs are determined. A specific plan and program are designed then implemented in the workplace.

The MHWC has been connecting and working with companies within the Michigan area since 2017. **M**

COMMUNITY COLLABORATION

GREAT LAKES PARTNERSHIP



The **Great Lakes Bay Region Mental Health Partnership** is a community-driven initiative that began in 2018 to proactively address the mental health crisis that that community members perceived as growing in central Michigan. Catalyzed by a tragic suicide death, community leaders mobilized, partnered, planned, sought collaborations, and went into action.

Their initial aims were to ensure that everyone in the Great Lakes Bay Region:

- Knows where to turn for help when struggling with a mental health issue;
- Seeks help without fear of stigma; and
- Receives prompt access to excellent care. A number of task groups were formed, leaders emerged, and plans were formulated.

Community leaders determined they would not waste effort by "reinventing the wheel." Recognizing that others previously helped pave the way, to help learn what has worked and what hasn't, they sought to partner with the U-M Depression Center. Linking Midland, Saginaw, Central Michigan University Medical School and its Department of Psychiatry, and many other entities, as well as some corporate entities, progress has been notable.

Drs. Greden, Garcia-Tosi and other staff members have collaborated to accelerate the momentum. Current plans are to have this region serve as a national model for earlier detection, intervention, care delivery and prevention throughout an entire territory that integrates rural areas, rather than just in community settings.

The Great Lakes Partnership recently became an Associate Member of the National Network of Depression Centers. **M**

COMMUNITY COLLABORATION

BRIGHT NIGHTS COMMUNITY FORUM SERIES

The **Bright Nights Community Forum** series attracts hundreds of people each year for educational presentations and discussions on a variety of topics related to depression. The forums, typically held at local libraries, feature a panel of topical experts from the Depression Center and the community, followed by question & answer sessions with audience members. Bright Nights began as a partnership between the UMDC and the Ann Arbor District Library, and has since grown to include presentations in neighboring communities of Plymouth, Saline, and Ypsilanti.

2018-19 PRESENTATIONS

- Suicide and Our Community
- Postpartum Depression: What You Don't Expect When You're Expecting
- Depression Center Toolkit
- What is Neuroscience and How Can it Change Psychiatry?
- Understanding Depression
- Understanding Bipolar Disorder **M**

DEPRESSION AWARENESS EVENT HELD AT FORD ROUGE FACTORY

The Ford Rouge Factory was the backdrop for a special depression and bipolar awareness-raising event held on September 17, 2019 in Dearborn, Michigan.

Hosted by longtime Depression Center friends and supporters Bill and Lisa Ford and Jim and Kathy Hackett, the Depression Center showcased a variety of innovative programs during an "Evening of Exploration" that took place in the Legacy Gallery at the Rouge. The evening's program opened in the Rouge Theater where guests enjoyed welcoming remarks from the hosts, the UMDC Executive Director John F. Greden, M.D., U-M President Mark Schlissel, M.D., Ph.D., and special guest Joshua Gordon, M.D., Ph.D. director of the National Institute of Mental Health.

Participants were then given the opportunity to visit nine learning stations in the Legacy Gallery. During this interactive and educational activity, guests were able to ask questions of the U-M faculty present who are experts on the stress/biological/genomic underpinnings of anxiety, stress, depression, and bipolar disorder; to learn about programs developed for Detroit K-12 students, veterans and their families, college students, high-risk young parents and their babies, and athletes; to hear about new approaches to addressing substance misuse; and to be introduced to new promising treatment strategies. It was a gift to have corporate leaders open their doors to foster community exchange.

The Depression Center is grateful to all who joined the event for a memorable, informative and stigma-busting evening, with very special thanks to the Ford and Hackett families.



Bill and Kristen Nicholson learn about school-based mental health programs at the TRAILS station.

Jim and Kathy Hackett, John Greden, M.D., U-M President Mark Schlissel, M.D., Ph.D., Lisa and Bill Ford



EDUCATION AND RESEARCH



Sue Ellen Eisenberg,
John Greden, M.D.,
Kenneth Eisenberg,
Bill Ford



THE FUTURE IS NOW

The Depression Center has a vision that stigma will be a vestige of the past; people will be empowered with knowledge; better detection, outcomes, and fewer recurrences will be a reality; and prevention will no longer be a dream.



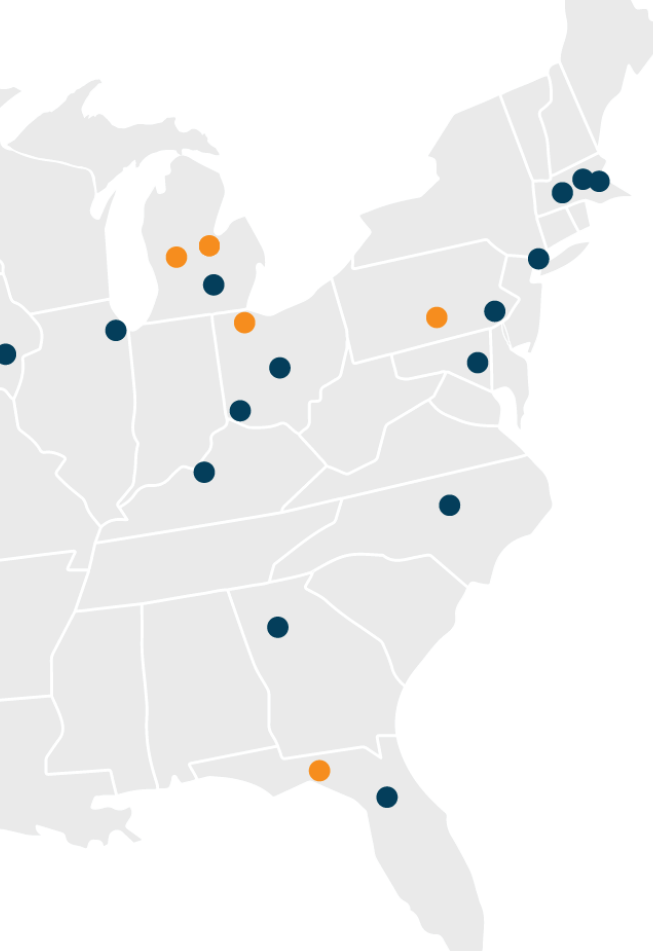
ADVANCING COLLABORATIONS GLOBALLY WITH THE NNDC

The University of Michigan Depression Center (UMDC) was the originator and catalyst to bring together 16 founding members and establish the National Network of Depression Centers (NNDC). NNDC is a nonprofit research consortium dedicated to improving research, education, screening methods, treatments and prevention approaches for depressions, bipolar illnesses, and related mood disorders through large-scale, long-term, collaborative research projects. John Greden, M.D. was founding chair of the Network. The NNDC's home office is located in Ann Arbor, with University of Michigan alum Patricia Rinvelt, M.B.A. serving as executive director.

FACULTY SPOTLIGHT

Sagar V. Parikh, M.D., FRCPC, joined the U-M Depression Center faculty in March 2015 as the John F. Greden Professor of Depression and Clinical Neuroscience, and shortly afterwards was appointed Medical Director at the National Network of Depression Centers. Since joining the NNDC team, Dr. Parikh has taken on a number of leadership roles in the NNDC, including designing and implementing educational initiatives like the NNDC Visiting Professor Program and acting as a dedicated ambassador for the NNDC across the country and internationally. Dr. Parikh has served as a member of the NNDC board of directors representing the U-M since 2016, along with Dr. Greden.

Every year, Dr. Parikh leads the design and implementation of the NNDC Visiting Professor Program, a grant-funded program which sends NNDC experts across the Network for two days of Grand Rounds, individual mentorships, and free public education sessions. To that end, the Visiting Professor Program was



NATIONAL NETWORK *of* DEPRESSION CENTERS

CENTERS OF EXCELLENCE

- Brigham & Women's Hospital—Harvard Medical School, Partners HealthCare
- Weill Cornell Medical College
- Duke University
- Emory University
- Johns Hopkins University
- Mayo Clinic
- McLean Hospital—Harvard Medical School, Partners HealthCare
- Ohio State University—Wexner Medical Center
- Medical University of South Carolina
- Stanford University
- University of California San Francisco
- University of Cincinnati & Lindner Center of HOPE
- University of Colorado Denver
- University of Florida
- University of Illinois at Chicago
- University of Iowa
- University of Louisville
- University of Massachusetts Medical School
- University of Michigan
- University of Pennsylvania
- University of Texas Austin, Dell Medical School
- University of Texas Health Science Center at Houston, McGovern Medical School

ASSOCIATE MEMBERS

- Florida State University
- Great Lakes Partnership
- Michigan State University College of Human Medicine & Pine Rest Christian Mental Health Services
- Penn State Milton S. Hershey Medical Center
- University of Toledo

INTERNATIONAL AFFILIATES

- Canadian Depression Research & Intervention Network
- The Institute of Psychiatric Phenomics and Genomics at the Ludwig-Maximilian University of Munich
- National Network of Depression Centers India

designed to be customized to fit the specific clinical and research needs of individual host sites. Now in its fourth year of funding, the Visiting Professor Program continues to be one of the Network's most popular knowledge translation events.

Through his involvement with the NNDC's Biomarker and Treatment Resistant Depression Task Groups, Dr. Parikh also has a leadership role in the BIO-K Study, a multi-site, open label clinical trial designed to identify biomarkers of acute response patterns to ketamine in patients with treatment resistant depression. This study, which is enrolling participants at several NNDC Member Centers, was funded by a generous gift from a U-M donor who was interested in supporting multi-site biomarker research for mood disorders. Dr. Parikh and Dr. Greden serve as the lead investigators for the BIO-K Study at U-M, and the clinical leads for the study overall. Now halfway through participant enrollment, the study's team of investigators are beginning to plan for analysis of the samples collected thus far.

Dr. Parikh also serves as conference chair for the NNDC's annual conference. Each year, Dr. Parikh works closely with the conference program committee and NNDC staff to identify topics at the forefront of mood disorders treatment and research. They invite researchers and clinicians who are widely regarded as innovators in the field. And as it turns out, many of those speakers are sourced from within the NNDC itself. The annual conference has brought in esteemed speakers such as Joshua A. Gordon, M.D., Ph.D, director of the National Institute of Mental Health, and Myrna Weissman, Ph.D., the Diane Goldman Kemper Family Professor of Epidemiology at Columbia University.

mood outcomes

— NNDC

MEASUREMENT-BASED CARE MEETS NATIONAL RESEARCH DATABASE

One of the Network's major goals is to establish a large, growing, long-term registry to promote the development of personalized, measurement-based treatments for mood disorders. This registry – the Mood Outcomes Program – now has more than 10,000 registrants and continues growing towards the target of 25,000. Measurement-Based Care is a hallmark of Precision Health Approaches.

The NNDC has also engaged with Epic Systems, one of the nation's largest electronic medical record software companies, to build the Mood Outcomes measures directly into the Epic system. This will allow for more rapid, widespread uptake of the Mood Outcomes Program across NNDC sites and their related healthcare systems, many of which use Epic. This Epic implementation to automate Measurement-Based Care is being piloted by Paresch Patel, M.D., Ph.D. at the University of Michigan and Peter Zandi, Ph.D., M.H.S. at Johns Hopkins University.

DEPRESSION CENTER LEADERSHIP TEAM

FOUNDER AND EXECUTIVE DIRECTOR

John Greden, M.D.

Rachel Upjohn Professor of Psychiatry and Clinical Neurosciences
Research Professor, Molecular & Behavioral Neuroscience Institute
Founder and Chair, National Network of Depression Centers

STANDING MEMBER

Gregory Dalack, M.D.

Professor of Psychiatry
Chair of Psychiatry

ASSOCIATE DIRECTORS

Patricia Deldin, Ph.D.

Professor of Psychology, College of Literature, Science & the Arts
Professor of Psychiatry

Rosalind Garcia-Tosi, Sc.D, M.PH., M.S.W.

Associate Director of Administration

Amy M. Kilbourne, Ph.D., M.PH.

Director, Quality Enhancement Research Initiative (QUERI), U.S. Department of Veterans Affairs
Professor of Psychiatry and Learning Health Sciences, University of Michigan Medical School

Srijan Sen, M.D., Ph.D.

Associate Vice President for Research, University of Michigan Office of Research
Associate Professor, University of Michigan Medical School
Frances and Kenneth Eisenberg Professor of Depression and Neurosciences

Melvin McInnis, M.D.

Thomas B. and Nancy Upjohn Woodworth Professor of Bipolar Disorder and Depression, Department of Psychiatry
Director of Prechter Bipolar Research Programs

Sagar V. Parikh, M.D., FRCPC

John F. Greden Professor of Depression and Clinical Neuroscience
Professor of Psychiatry, University of Michigan

Michelle Riba, M.D., M.S.

Professor, Department of Psychiatry
Associate Chair for Integrated Medical and Psychiatric Services, Department of Psychiatry
Zonal Representative (Area 2, USA), World Psychiatric Association
Past President, American Psychiatric Association

EX OFFICIO MEMBERS

Carly Collins, M.H.A.

Chief Department Administrator and U-M Depression Center Administrator

Nancy Davis

Director of Development, Mental Health Programs
Michigan Medicine Office of Development

NATIONAL ADVISORY BOARD MEMBERS

Marianne Udow-Phillips

Chair, U-M Depression Center National Advisory Board

Executive Director, Center for Health and Research Transformation at the University of Michigan

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Professor Emeritus of Information and Professor Emeritus of Electrical Engineering and Computer Science, University of Michigan

Linda Aikens

Mental Health Advocate and Volunteer

Kathy Cronkite

Author and Mental Health Advocate

Deborah I. Dingell

U.S. Representative, 12th District, Michigan

Kenneth Duckworth, M.D.

Medical Director, National Alliance on Mental Illness

Sue Ellen Eisenberg, P.C.

President, Sue Ellen Eisenberg & Associates, P.C.

Stephen Eisenberg

President, Kenwal Steel

Robert Fairchild

Executive Vice President, Sales & Engineering, Martinrea

Michael J. Flood

Founder, Good Deed Investments

Kathy Hackett

Mental Health Advocate and Volunteer

Earl Lewis, Ph.D.

Thomas C. Holt Distinguished University Professor of History, Afroamerican and African Studies, and Public Policy; and Director of the Center for Social Solutions, University of Michigan

Michael Mackey

Chief Business Development Officer, 15 Seconds of Fame

Herbert Ouida

Co-Founder, Todd Ouida Children's Foundation

Waltraud "Wally" E. Prechter, B.A., Ed.

President, World Heritage Foundation
Founder, Heinz C. Prechter Bipolar Research Fund

John J.H. Schwarz, M.D.

Surgeon and Former U.S. Congressman
Lecturer, U-M Ford School of Public Policy

Dapo Tomori, M.D., M.B.A.

VP, Population Health, Proteus Digital Health, Inc.

AMBASSADOR CIRCLE

Lisa V. Ford

Community Advocate and Volunteer

Kay Redfield Jamison, Ph.D.

Author and Professor of Psychiatry
Johns Hopkins University

Patrick J. Kennedy

Former Congressman, Rhode Island
Co-Founder, One Mind for Research

Harris R. Schwartzberg

CEO, The Schwartzberg Companies

Matthew Shaw

Editor at BBC News and Co-Founder of The Whole Man Academy

Andrew Solomon

Author and Mental Health Advocate

VICTORS FOR MICHIGAN: FINAL RESULTS

\$83.9M

TOTAL RAISED FOR MENTAL HEALTH

10,293

GIFTS (76% OF WHICH WERE OVER \$250)

5,621

DONORS

FROM WHERE?

We received gifts from all 50 states!

FOR WHEN?

Endowment (Forever): \$29,802,332 (35.5%)
Expendable (Spend it now!): \$54,159,988 (64.5%)

FOR WHAT?

Student Support: \$430,136 (0.5%)
Facilities: \$2,041,500 (2.4%)
Discretionary: \$2,439,058 (3%)
Faculty Support: \$8,270,583 (9.8%)
Programmatic Support: \$13,861,024 (16.5%)
Research: \$56,920,011 (67.8%)

HOW?

- One time gifts
- Realized bequests
- Sponsored grants
- Annual appeals
- Tribute gifts
- Online gifts
- Memorial gifts
- Giving Blue Day
- Pledges
- Planned and estate gifts
- Third party fundraisers
- Crowdfunding
- Corporate matches

Thank you to our Victors! December 31, 2018 marked the conclusion of the Victors for Michigan Campaign. Our Mental Health Development Team is still here of course – recognizing that we must continue to work our hardest to help fund the programs and researchers who are fighting for improved treatments and outcomes for people living with mental illnesses. Reflecting back on the campaign, we are inspired by and thankful for every donor and every single gift.

Thank you, one and all, for partnering with us!

To learn more about ways to support our program, please contact Nancy Davis, Director of Development, 734-763-4858 or nandavis@umich.edu.



(L-R) Lisa Fabian, Associate Director of Development, Heinz C. Prechter Bipolar Research Program; Nancy Davis, Director of Development, Depression Center; Courtney Metzger, Assistant Director of Development, Department of Psychiatry

Since its inception, gift to the Depression Center have exceeded \$126m from individuals, families and foundations. Growth has been continued and steady, and we look forward to keeping this momentum!

