Child and Adolescent Psychiatry Research

Research is another key component to our commitment to improving the lives of children and adolescents with severe mental illnesses. We foster a wide and growing range of investigations. Basic genetic and neuroscience research focuses on how the normal brain develops and why and how that development sometimes goes awry. Our clinical researchers are seeking to develop better tools for early, precise diagnoses of major psychiatric disorders and to establish effective prevention and treatment interventions that are developmentally appropriate for the specific needs of the child or adolescent. Such research enriches both our training programs and our clinical care, ensuring that our trainees are familiar with the most recent advances in the field and enabling us to offer innovative treatments to patients who previously have responded poorly to more traditional interventions.

Research at the Young Adult and Family Center

The Young Adult and Family Center [1] at UCSF has developed innovative clinical programs to provide services to adolescents in need. We are committed to evaluating how treatment enhances competence and skill, as well as reduces symptoms. The focus of our clinical interventions extends beyond the adolescent as an individual. Consistent with this emphasis, in our research program, we are assessing outcomes at the adolescent, parent, and family level.

Family therapy program evaluation

As part of the Young Adult and Family Center, the Intensive Family Therapy (IFT) Program [2] is designed to serve children, adolescents and their families, who are experiencing difficult challenges that may be interfering with school performance, life at home, health and safety, or community functioning. The goal of IFT to help families feel more connected and competent, and to better balance multiple stressors. Research regarding the efficacy of the IFT Program is supported by funding from the Mental Insight Foundation.

Eating Disorder Clinic research

A joint program between the Departments of Psychiatry and Adolescent Medicine/Pediatrics, the Eating Disorder Clinic and Program [3] aims to improve clinical care through providing evidence-based clinical services delivered by a multi-disciplinary professional team, offer specialized training experiences with comprehensive interdisciplinary education, and promote innovative research.

State-of-the-art evidence based practice protocols are being established for each disciplinary area (medicine, mental health, nutrition etc.). This will allow us to develop an evaluation system to closely follow patient progress and assess patient/family outcomes.
Dialectical behavior therapy - Adolescent (DBT-A) Program evaluation

An evidence-based treatment program for depression and anxiety disorders, dialectical behavior therapy is partially based on cognitive behavioral therapy (CBT) as it explores the relationship between thoughts, feelings and behaviors, and teaches adolescents how to change negative feelings into positive ones by changing core thoughts and beliefs about one's self. DBT extends beyond CBT by also teaching a set of skills such as mindfulness meditation and interpersonal effectiveness that enable patients to manage emotions which otherwise would be overwhelming and lead to self-destructive and/or self-defeating behaviors. DBT is especially helpful for teens who are suicidal, engage in self-injurious behaviors such as cutting, abuse substances, have eating disorders, engage in unsafe sex, or are otherwise reckless or impulsive.

A study is currently being conducted to evaluate adolescent outcomes related to participation in the DBT-A Program [4]. Adolescent research includes changes in symptoms and behaviors such as depression, self-injury, purging, risky sexual behavior, and physical violence.

Screening for depression in primary care

Developing screening systems that assist with early recognition of depression and risky health behaviors has the potential to make a huge difference in the lives of adolescents and their families. Since it is not possible for mental health professionals to screen, diagnose, or treat all adolescents, we need to develop more effective systems for the screening and diagnosis of depression.

Through a grant from the Staglin Family Fund, we have examined rates at which primary care providers screen teenagers for depression. Utilizing two large independent data sets to assess providers' rates of screening for depression among a clinic-based and population-based sample in California, we found that provider rates for screening adolescents for depression were remarkably similar across both the health plan and population data set: About one-third of California teenagers report being screened for depression during a visit with their primary care provider. The most significant factor determining screening rates was being female, with females significantly more likely than males to be asked about their emotional health.

Within the population-based data set, 27% of the adolescents endorsed emotional distress on a brief depression measure. However, only about one-third of teens endorsing emotional distress reported having been screened for depression, a rate not significantly higher than the rate for screening non-distressed teens.

Other Research in Child and Adolescent Services

brainLENS (Laboratory for Educational Neuroscience)

brainLENS (Laboratory for Educational Neuroscience) [5] focuses on developmental cognitive neuroscience research with the goal of maximizing children's potential to succeed in life. In particular, brainLENS uses the latest brain imaging techniques, genetic measures, and computational approaches to examine the process of learning, including acquisition of skills
such as reading, socio-emotional processing, motivation and resilience while investigating typical developing children, as well as those with disabilities and with exceptional abilities.

**Genetics of Autism Research Program**

The long-term goals of the Genetics of Autism Research Program are to use genetic tools to improve understanding, prevention, diagnosis, and treatment of autism and related traits. The immediate goals of the program's research are two-fold:

- to identify autism susceptibility genes by conducting studies designed to investigate quantitative trait loci, parental genetic risk factors, and genetic interaction effects such as: gene x gene, gene x environment and gene x sex
- now that we are beginning to identify robust associations between DNA variants and autism, creating models to understand how they influence neurodevelopment

The Weiss lab [6] is generating stem cells from the genetic material of research subjects and studying neuronal growth, morphology, and function in cell culture.

**Translational research in the Yang Adolescent Depression Functional Neuroimaging Lab**

The Yang Adolescent Neuroimaging Group (YANG) performs translational research in adolescent depression in order to improve the lives of youths suffering from this mental illness. Their research focuses on applying state-of-the-art functional Magnetic Resonance Imaging (fMRI) methods to understand the underlying neurobiology of adolescent depression and to translate this understanding into helping improve the clinical diagnosis and treatment of adolescents suffering from depression.

The research done by the YANG Lab enhances both the training programs and clinical care at UCSF by helping make sure that the trainees are informed of the most recent research advances and allowing UCSF to provide novel and cutting-edge clinical interventions to depressed adolescents and their families who have not responded well to more conventional treatments.

Lab director Tony T. Yang, MD, PhD [7], has an R01 grant from the National Institutes of Mental Health (NIMH) with two major aims:

- to understand the underlying neural correlates of adolescent depression by performing a cross-sectional functional MRI study of adolescents diagnosed with depression compared to a group of well-matched healthy adolescents
- to translate this understanding into a clinically helpful measure by examining whether functional MRI can be used to help determine clinical outcome in a six-month longitudinal follow-up study of depressed adolescents undergoing treatment-as-usual in the community

Based upon recent functional MRI findings in depressed adolescents, the YANG Lab published a paper in *Biological Psychiatry* suggesting that mindfulness-based therapy might be beneficial to the treatment of adolescents suffering from depression. Using the results of
our functional MRI research, lab members have recently developed a novel, mindfulness-based treatment manual for the treatment of adolescent depression. They are currently conducting a randomized clinical trial to examine the clinical effectiveness of their novel, mindfulness-based intervention as compared to treatment-as-usual for adolescent depression. Additionally, they are using fMRI to scan the depressed adolescents both prior to and after treatment in order to study the underlying neural correlates of their mindfulness-based clinical intervention as compared to treatment-as-usual. The results from their functional neuroimaging study will then be used to help modify and improve the clinical efficacy their clinical intervention for the treatment of adolescent depression.

Rubenstein Lab

The goal of the Rubenstein Lab’s research is to elucidate fundamental mechanisms that regulate development of the forebrain, with a focus on the cerebral cortex and basal ganglia. Their studies also extend into other regions of the embryo, including the developing face. Whenever possible, Rubenstein Lab members attempt to investigate whether disruption of these mechanisms underlie human disorders, such as autism, schizophrenia, mental retardation, epilepsy and craniofacial disorders. They hope that our studies will provide insights into new inroads for diagnosis, prevention and treatment of these disorders.

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