PSYCHIATRY RESEARCH PATHWAY

PROGRAM OVERVIEW

The Department of Psychiatry and Western Psychiatric Institute and Clinic (WPIC) have created a specialized Psychiatry Research Pathway (PRP) for the purpose of facilitating the career development of psychiatry residents into highly successful investigators conducting high impact research on psychiatric disorders. A common major milestone for residents upon completion of the PRP is to obtain faculty positions as an Assistant Professor with an independently-funded research program. While some residents may prefer to engage in research during residency at their own initiative and time through integrated clinical training and electives, the many advantages to joining the PRP include:

- The David J. Kupfer Residency Research Fellowship for research activities. These funds (up to $50,000 per recipient) are awarded by the Chair of the Department.
- A ten week research elective during PGYII.
- One afternoon per week during PGYII for prospective PRP residents with established mentors for research-related activities.
- Otherwise flexible afternoons during PGYII inpatient rotations for research.
- Minimum 40% research time during PGYIII.
- Minimum 60% research time during PGYIV.
- No call during PGYIII and PGYIV.
- PRP Travel Fund Award which provides support for PRP residents to present their research at scientific conferences and/or attend training courses in specialized methods.
- Essential software packages provided as needed to PRP residents and prospective PRP residents with established mentors (e.g. EndNote, SPSS, SAS).
- Funding for research activities and/or salary supplements to support the preparation of a K award application is also available to PRP residents during the latter years of residency and post-doctoral fellowship years (if needed). These funds are awarded by the Chair of the Department.
- Numerous support mechanisms (e.g., the Department has 8 NIH postdoctoral training T32 grants) available for additional training after completing residency, as needed.
- Individualized mentor matching program with assistance from Co-Directors of the PRP, Director of Residency Training, and the Chair of the Department.
- Opportunities to develop high impact research projects under the mentorship of over 130 funded principal investigators on primary research grants in the Department of Psychiatry (click here to see a list of faculty research interests). Mentors are also available from the faculty of the Center for Neuroscience University of Pittsburgh and the Center for the Neural Basis of Cognition.
- Established system for developing successful K award applications.
- Exceptional track record of PRP graduates receiving grants and faculty appointments.
MISSION

1) Cultivating a passion for mental health research. Success in research, as in any other endeavor, requires a sustained passion in order to overcome the inevitable obstacles and achieve important goals. This passion emerges from the convergence of compassion for people suffering from mental illness, a deep curiosity about the nature of the underlying problem, and a conviction that solving the problem is critical for reducing the burden of psychiatric illness. A major goal of the PRP is to help residents discover and pursue a passion for research through mentorship, participation in exciting research projects, training in core research skills, and career development activities.

2) Connecting with the best mentors. Mentorship is arguably the most critical component of research training. Our PRP leadership works closely with PRP residents to find the best match for training. We have over 130 faculty within the Department of Psychiatry who serves as principal investigators on grants. Department of Psychiatry faculty members research interests, organized by NIMH Research Domain Criteria, can be located here. Other faculty mentors, outside of the Department of Psychiatry, can be found in the Center for Neuroscience University of Pittsburgh, and the Center for the Neural Basis of Cognition. Many of these faculty members have received local and national accolades for their mentoring and leadership. Furthermore, many of these faculty members are currently or have recently mentored PRP residents (see Resources and Mentorship), and many more faculty members are available to choose as potential mentors.

3) Participating in ongoing studies, writing papers, and constructing an exciting research project. With our many research faculty who are investigating core questions in psychiatry, a wide variety of research opportunities from bench to clinic are available to residents. Our research faculty members engage in cutting-edge research across a broad range of disciplines to study a number of psychiatric disorders. These studies employ state-of-the-art research techniques in many areas of investigation including (but not restricted to) the following:

- Behavioral measures (rodent, primates and humans)
- Circadian rhythms
- Clinical trials
- Cognitive neuroscience
- Electrophysiology (in vitro, EEG, MEG, etc)
- Epidemiology
- Genetics
- Molecular and cellular neuroscience
- Neuroimaging (fMRI, MRS, DTI, PET, etc)
- Neuroeconomics
- Psychotherapy
- Suicide
- Sleep
- Systems neuroscience

4) Creating time for research. As described in detail below, the program offers opportunities within the first two years for research-related activities including a 10 week research elective during the second year of residency. Dedicated research time increases throughout subsequent residency years (see
In addition, no call during the final two years of residency allows for increased focus on research activities.

5) **Consulting for career development.** PRP meetings are held every other week. These meetings frequently focus on career development with input from mentors and directors. In addition, PRP residents meet individually with their mentors and the directors of the PRP for personalized career planning. Furthermore, PRP residents are invited to participate in the WPIC Postdoctoral Survival Skills Seminar.

6) **Continuing training in grant and manuscript writing.** As a core part of the program, PRP residents learn how to write grants. In addition, a formal K-Award training program assists PRP residents with preparing a successful K award application. The department typically has 30-40 K-awards funded at any given time. Each K award applicant prepares a concept proposal on their ideas and training plans, meets with the Department Chair to discuss and refine these ideas, receives ongoing advice from a personalized committee of faculty experts in the area of interest, and has the final application reviewed by the Department’s Research Review Committee before submission. This unique process serves as an excellent learning experience and greatly enhances the likelihood of a successful review by NIH study sections.

**PROGRAM STRUCTURE & GOALS**

The PRP program is designed to emphasize these six critical components at appropriate times of training:

**Year 1**

The **first year of psychiatry residency** is focused on developing excellent clinical skills with rotations in family medicine, dual diagnosis inpatient psychiatry, psychiatry emergency intake services, and neurology, in addition to taking the United States Medical License Exam Step III. Given these important clinical activities, residents are encouraged to focus on identifying and beginning to work with the mentor who best matches their research interests and goals. The Co-Directors of the PRP, David Volk, MD, PhD, and Boris Birmaher, MD, and the Department Chair, David Lewis, MD, facilitate interactions between PRP residents and highly qualified mentors with an emphasis on the following factors:

1) A shared passion for an area of research interest.

2) The training needs of the PRP resident (i.e. MDs may require early emphasis on acquiring core research skills, while MD/PhDs may be ready to initiate a project).

3) The mentorship skills and funded research activities of the faculty member.

PRP residents are also encouraged to attend weekly research group meetings of prospective mentors in order to meet the research team, learn about ongoing research projects, and ultimately decide whether there is a good "fit" with the mentor's research program.

Another important PRP goal for the first year of residency is to plan appropriately to effectively use 10 weeks of research elective time during the second year of residency.
**Year 2**

The *second year of residency* is composed of inpatient psychiatry rotations and a consult and liaison rotation in medical hospitals. PRP residents are provided two months of protected research elective time to work on research projects with their mentors. In addition, after morning rounds on the inpatient psychiatry rotations, clinical responsibilities in the afternoon can vary greatly and frequently provide blocks of time for PRP residents to work with their mentors. An important advantage of the psychiatry residency program is that all inpatient rotations are located at the same hospital, WPIC, which can eliminate or greatly minimize travel time to the research setting.

During the PGY2 year, the Co-Directors encourage and assist PRP residents with targeting one or more of the following practical and publishable projects as appropriate for their level of training and experience:

1) Write a review article with the mentor. Review articles provide a valuable opportunity for PRP residents to increase their knowledge of a field of interest, develop a working relationship with the mentor, produce a first author publication, and be introduced to a new research community. The review article is often helpful in stimulating ideas for research projects. In addition, the act of writing a review article is inherently flexible and can be done with hours available in the afternoon and evening during the second year of residency.

2) Work on a secondary data analysis using one of the many clinical psychiatry and basic neuroscience data sets available in the Department. Such data sets are readily available and do not require "bench time". Time allotted for conducting the study can be flexible and fits well into the clinical schedule of a second year psychiatry resident.

3) Design a primary research project to be conducted beginning during the ten week research elective time as a second year resident and continued as a third and fourth year PRP resident. Typically, writing a review article and/or conducting a secondary data analysis with a mentor provides a foundation for the development of a research project. The design of the research project should 1) deepen enthusiasm for the research topic, 2) produce results that are publishable and/or serve as pilot data for a future research project, 3) be attainable given the time constraints associated with clinical responsibilities, and 4) help the PRP resident begin thinking about their own future research program.

**Year 3**

The *third year of clinical training* is composed of a series of half-day outpatient psychiatry rotations that are either 6 months or year-long, Thursday afternoon lectures. PRP residents are provided a minimum of 2 days (or 4 half-days) of research time and importantly have no call responsibilities. In the third year, non-core clinical elective rotations are utilized in a highly individualized manner to provide research time for PRP residents. For example, a basic or translational neuroscientist may prefer to participate in clinical research electives, such as the Services for the Treatment of Early Psychoses (STEP) or Child and Adolescent Bipolar Services (CABS) programs, that are closely related to their primary research interest. In addition, PRP residents participate in bimonthly meetings with PRP faculty members and leadership that provide a forum for PRP residents to access the resources they need to successfully transition into an academic career (e.g., research design, conduct of pilot studies, preparation of manuscripts for review, research survival skills, balancing life and work, and applications for NIH loan forgiveness programs, supplemental grants and K awards).
Year 4

The **fourth year of clinical training** is almost entirely composed of electives and Thursday afternoon lectures so that large blocks of time are available to conduct research. The goals of the fourth year PRP residents are to continue and complete the primary research project and to initiate the next steps in advancing their scientific careers. Some PRP residents with more extensive research backgrounds, such as MD/PhDs, may be prepared to apply for a K award during their fourth year while others may benefit from transitioning to additional postdoctoral research training by participating in one of many NIH T32 postdoctoral training grant programs.

Research time is provided in the third, fourth and fifth year for PRP residents in the Child and Adolescent Residency Track. Together with the Directors of the Residency Training, the PRP co-directors will work closely with residents interested in both the Child and Research programs to develop a flexible individualized plan for research across the 2 years of the Child and Adolescent Psychiatry Fellowship.

<table>
<thead>
<tr>
<th>Year</th>
<th>Call</th>
<th>Clinical Time</th>
<th>Dedicated Research Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGYI</td>
<td>Yes</td>
<td>Medicine, Neurology, Inpatient Psychiatry, and Psychiatric Emergency Intake Service Rotations</td>
<td>Research Elective (10 weeks)</td>
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<tr>
<td>PGYII</td>
<td>Yes</td>
<td>Inpatient Psychiatry and Consult &amp; Liaison Rotations (42 weeks)</td>
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<tr>
<td>PGYIII</td>
<td>No</td>
<td>Outpatient Psychiatry Rotations and Teaching (3 days/week)</td>
<td>Research Time (2 days/week)</td>
</tr>
<tr>
<td>PGYIV</td>
<td>No</td>
<td>Outpatient Psychiatry Rotations and Teaching (2 days/week)</td>
<td>Research Time (3 days/week)</td>
</tr>
</tbody>
</table>

In addition to the dedicated time show above, Tuesday afternoons are also available during a portion of the PGY-1 and all of the PGY-2 for research training.

**WHAT HAPPENS AFTER GRADUATION?**

To continue research training following residency, successful PRP graduates have access to a number of the Department’s T32 NIH postdoctoral training programs and many have successfully won private foundation postdoctoral awards. Our Department is committed to assisting residents with realizing their potential in research so that they may be fully prepared for a faculty position. The milestones toward achieving that goal come at different times for each resident. Understanding that residents come with a wide variety of backgrounds and experiences, individualized plans of mentoring are designed to ensure the appropriate training, access and support are supplied to achieve the final outcome: a successfully funded Assistant Professor of Psychiatry who is on track for a career in research!
Pipeline to a Research Faculty Position: the K Award Trajectory

Applying for a National Institute of Health-funded Career Development Award (i.e., the K award) is a commonly utilized approach to joining our faculty as an Assistant Professor with a primary research focus. Accordingly, the PRP is designed to assist residents in preparing for a K award application with an emphasis on finding the right area of research, the right mentor, and the right research project. In addition, the process of preparing a K award is a frequent topic emphasized in the biweekly PRP meetings.

The Department of Psychiatry is a model of success for K awardees. Our successful funding rate for NIH K awards is twice the national average, and we typically have 30-40 funded K awards at any given time. The keys to this success include the research environment, the generous availability of existing research funding, an outstanding collection of mentors, and very strong applicants. The Department also has an extensive system of supporting K award applicants including: 1) a K award writing course, 2) directly meeting with the Chair to discuss career plans and the K award application, and 3) a review committee that provides advice, constructive feedback and repeated reviews to optimize the grant proposal. This "scaffolding" of support for prospective K award applicants has proven highly successful for prior PRP residents.

Click here to see examples of PRP K Awardees who are now faculty members with primary research appointments.

PROGRAM CO-DIRECTORS

Given the wide range of interests of our PRP residents, the Co-Directors of the PRP, David Volk and Boris Birmaher, accordingly have complementary clinical and research backgrounds. David Volk, MD, PhD, is an Assistant Professor, a graduate and former Chief Resident of our PRP, and a board-certified adult psychiatrist. Dr. Volk utilizes basic and translational neuroscience techniques to study the pathophysiology of schizophrenia, and has recent experiences obtaining a K award and R01 funding. Boris Birmaher, MD, is a Professor of Psychiatry, a child and adult psychiatrist, Co-Director of Child and Adolescent Bipolar Services, and Endowed Chair in Early Onset Bipolar Disease. Dr. Birmaher has over 30 years of expertise in assessment, phenomenological, biological, course and treatment studies, particularly in youth with mood and anxiety disorders and serves as the Principal Investigator on several NIMH grants. Together, the Co-Directors are committed to providing highly individualized career guidance to PRP members. In addition, the Co-Directors meet individually with all PRP residents on a regular basis and attend all PRP meetings in conjunction with the Director of Residency Training. They work closely with the Office of Residency Training and the Office of the Chair to ensure the optimum clinical and research training environment for PRP Residents and Fellows.
A WEALTH OF RESOURCES & MENTORSHIP

The Department of Psychiatry had over $90 million in National Institute of Health (NIH) funding in federal fiscal year 2012 and has received the highest levels of NIH funding for Departments of Psychiatry for over 25 years. The Department of Psychiatry also has over 130 full-time faculty members who are principal investigators on research grants. Accordingly, the Department of Psychiatry offers an incredibly wide array of resources and mentorship for research and education with investigators examining core questions in psychiatry through several pathways. An extensive clinical therapeutics program, which includes both pharmacological and psychosocial treatments for a variety of psychiatric disorders, provides opportunities to study direct applications of research results. In addition to individual research programs and centers within our Department, residents also have access to mentors across the University of Pittsburgh and Carnegie Mellon University research programs. For example, PRP residents can work with faculty members who are part of the Center for Neuroscience University of Pittsburgh and the Center for the Neural Basis of Cognition.

“Through the program, I have really been able to explore my research interests as a resident. I have had protected time, which is absolutely essential for learning new skills. Biweekly meetings have allowed me to learn from the experiences of other residents, while also providing me with valuable input on my own projects. Most importantly, the structure of the program has provided me with amazing mentors with unique perspectives on not only the science, but also my career path. With this support, I have gained new skills (such as analyzing neuroimaging data), presented at several conferences, and published my work.” - Danella Hafeman, MD, PhD – Awarded an NIMH, NOT-MH-11-014 supplemental grant, 2012-2014

Click here to see what our current residents have to say about the program.

DAVID J. KUPFER RESIDENCY RESEARCH FELLOWSHIP

The David J. Kupfer Residency Research Fellowship provides support for the research endeavors of exceptional psychiatry residents whose career goals stem from a convergence of compassion for people suffering from mental illness, deep curiosity about the nature of the problems underlying those disorders, and a conviction that solving these problems is critical for reducing the burden of psychiatric illness. The David J. Kupfer Residency Research Fellowship Award provides research support of $50,000 per recipient.

The fellowship is named in recognition of Dr. David Kupfer’s scientific contributions and passion for mentoring. Through his work, Dr. Kupfer improved our understanding of the neurobiology of mood disorders and pioneered interventions to reduce the burden of these disorders. His life-long commitment to mentoring the next generation of investigators in psychiatry is captured in the naming of this fellowship.

Funds may be used to support specific activities that will enhance the recipient’s research activities and career development as physician-scientists. These
expenses may include resources to conduct pilot projects (e.g. participant payments, imaging services or other research-related technical services, laboratory supplies, etc.); funds to facilitate their participation at conferences, workshops and/or national meetings sponsored by scientific societies where they can obtain training, disseminate their work, and obtain valuable feedback from experienced investigators; and tuition for coursework relative to their areas of interest and research activities.

Applicants interviewing for admission to the University of Pittsburgh’s Department of Psychiatry Residency Training Program will be considered for the fellowship and are notified of the award by the Chair’s Office shortly after completing the interview.

RESIDENT BIOGRAPHIES

Selected Biographies of Current Residents in the PRP Program:

Since beginning the PRP program, Danella Hafeman, MD, PhD has had the opportunity to work with both Drs. Mary Phillips and Boris Birmaher during her residency. Under the mentorship of Dr. Mary Phillip, she has learned to use fMRI to understand neurobiological substrates of the development of mood disorders. Her work with Dr. Birmaher has involved the use of clinical data to assess the validity of diagnostic boundaries in bipolar disorder. She plans to continue to work with Drs. Birmaher and Phillips, with the goal of using neuroimaging methods (both fMRI and resting state functional connectivity) to understand the mechanisms of interventions, both pharmacological and non-pharmacological.

Brandon McKinney cites the PRP program as his primary reason for choosing the University of Pittsburgh Psychiatry Residency, he states, “I found no other psychiatry residency program in the country that would provide the degree of support in terms of time and resources for me to develop my research interests while still providing excellent clinical training.” He has a long-standing interest in the interaction among environments, brain, and psychopathology. Through the PRP program, he works in the lab of Dr. Etienne Sibille where he has developed an interest in the role of epigenetic modifications in relaying information about an individual’s environment to gene expression and thus possibly brain structure and function, and psychopathology. Using the data he has produced during his psychiatry residency, he plans to apply for an early career development award from the NIH, and embark on a career translating basic neuroscience research into treatments for individuals with major psychiatric disorders.

Heather Liebherr, DO began her residency with a strong interest in clinical research and neuroimaging. She works with Dr. Brooke Molina at the Youth and Family Research Program, whose lab focuses on ADHD and other Disruptive Behavioral Disorders, as well as Substance Use Disorders. Before choosing to work with Dr. Molina, she had the opportunity to meet with several research investigators and senior residents to learn about the research opportunities available.
“Participating in the program will help me gain skills needed to pursue my career goal of working as a child and adolescent psychiatrist, integrating clinical research and clinical practice” – Heather.

Snapshot of 2013-2014 PRP Resident Group and Candidates:

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree(s)</th>
<th>PGY</th>
<th>Mentor</th>
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<tbody>
<tr>
<td>Frank Fetterolf</td>
<td>MD</td>
<td>1 – Adult</td>
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<tr>
<td>Melanie Grubisha</td>
<td>MD, PhD</td>
<td>1 – Adult</td>
<td>David Lewis, MD</td>
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<td>Eric Loraas</td>
<td>MD</td>
<td>1 – Adult</td>
<td>TBD</td>
</tr>
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<td>Joshua Morra</td>
<td>MD, PhD</td>
<td>2 – Adult</td>
<td>Charles Bradberry, PhD</td>
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<td>Raymond Young, Jin Cho, MD</td>
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<tr>
<td>Isabella Soreca</td>
<td>MD</td>
<td>2 – Adult</td>
<td>David Kupfer, MD</td>
</tr>
<tr>
<td>Youeun Song</td>
<td>MD, PhD</td>
<td>2 – Child</td>
<td>Bernard Devlin, PhD</td>
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<tr>
<td>Xenia Borue</td>
<td>MD, PhD</td>
<td>3 – Child</td>
<td>Carla Mazefsky, PhD</td>
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<tr>
<td>Christopher Hope</td>
<td>MD MHA RPSGT</td>
<td>3 – Adult</td>
<td>Timothy Monk, DSc</td>
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<tr>
<td>Heather Liebherr</td>
<td>DO</td>
<td>3 – Child</td>
<td>Brooke Molina, PhD</td>
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<tr>
<td>Mehak Sharma</td>
<td>MD</td>
<td>3 – Adult</td>
<td>Etienne Sibille, PhD</td>
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<td>Aaron M. Koenig</td>
<td>MD</td>
<td>4 – Adult</td>
<td>Charles Reynolds, MD</td>
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<tr>
<td>Brandon McKinney</td>
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<td>Etienne Sibille, PhD</td>
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<tr>
<td>Danella Hafeman</td>
<td>MD PhD</td>
<td>5 – Adult</td>
<td>Mary Phillips, MD</td>
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<tr>
<td>Faith Rowland</td>
<td>MD</td>
<td>5 – Adult</td>
<td>Gretchen Haas, PhD</td>
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<td>Michael Travis, MD</td>
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</tbody>
</table>

Examples of PRP K Awardees who are now faculty members with primary research appointments:

- Howard Aizenstein, MD, PhD (University of Pittsburgh)
- Gregory Berns, MD, PhD (Emory)
- Matthew Botvinick, MD, PhD (Princeton)
- Jair Soares, MD (Chair – University of Texas Medical School at Houston)
- Ray Cho, MD (University of Pittsburgh)
- Frank Lotrich, MD (University of Pittsburgh)
- Katalin Szanto, MD (University of Pittsburgh)
- Andrew Gilbert, MD (Mt. Sinai)
- Konasale Prasad, MD (University of Pittsburgh)
- Guido Frank, MD (University of Colorado at Denver)
- Dara Sakolsky, MD (University of Pittsburgh)
- Lisa Pan, MD (University of Pittsburgh)
CONTACT US

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