

VIEWPOINT

Integrating a Neuroscience Perspective Into Clinical Psychiatry Today

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As psychiatrists, we are asked to treat patients with extremely complex illnesses. There are many possible ways to think about and formulate cases, including a range of psychological and social perspectives, each with their own strengths and limitations. To varying degrees, these perspectives have rightfully guided the development of our field and continue to shape the standards of our practice.

During the past 20 years, revolutionary new tools and approaches in neuroscience have led to unprecedented progress in our ability to understand the biological underpinnings of psychiatric illnesses.¹ This work very much complements rather than competes with our other rich traditions. In fact, distinctions between “psychological” and “biological” are rapidly fading as evidence demonstrates that all effective treatments (whether psychotherapy or pharmacologic agents) alter core brain networks and thus are all biological in nature.² Cognitive neuroscience is providing contemporary neural system models for understanding psychodynamic concepts such as our sense of self, defenses and drives, and unconscious thoughts and motivations.¹ In addition, an understanding of epigenetics offers novel insights into how social context and environmental factors translate into biological changes at the level of gene expression.³

Collectively, these advances offer a new framework for drawing together the seemingly diverse perspectives of a traditional biopsychosocial formulation.⁴ They present an opportunity to create a new dialogue with our patients, their families, and other health care professionals about the cause and meaning of psychiatric symptoms. They ground psychiatric disorders and associated maladaptive behaviors in the context of a brain disease and away from issues of character and moral fiber that often drive the shame, blame, and stigma many patients face. While many of these findings have not yet translated into novel therapeutic approaches, they can still guide and inform our treatment choices. For example, understanding the role that fear conditioning and learning plays in posttraumatic stress disorder helps to clarify why trauma-focused psychotherapies are currently our most effective treatments.^{5,6}

Despite the relevance of neuroscience to the practice of psychiatry, figuring out how to best integrate this perspective into our field remains a challenge.⁷ Psychiatry has been a well-established clinical discipline since long before we had the power to study the brain in a nuanced manner, let alone to develop sophisticated biological explanations of psychiatric illness. Accordingly, it is no surprise that such a large practice gap should exist: although mental illness is increasingly understood in terms of genetics, developmental neurobiology, and underlying neural circuitry, these essential perspectives are

frequently absent from clinical work. This practice gap is also evident within residency training: program directors in psychiatry overwhelmingly believe that it is important to incorporate neuroscience teaching into their curricula; yet, for a host of reasons, few programs have been able to do so in a comprehensive manner.⁷

In response to these challenges, the National Neuroscience Curriculum Initiative (NNCI) was developed to help improve the teaching of neuroscience in psychiatry, with an initial focus on residency programs. Through a collaboration between educators and neuroscientists, the overarching aim of the NNCI has been to create, pilot, and disseminate a comprehensive set of shared resources, rooted in principles of adult learning, that will help train psychiatrists to integrate a modern neuroscience perspective into every facet of their clinical work. Interest in this effort has exceeded expectations. Between March 2015 and November 2016, the NNCI website (<http://www.NNCIonline.org>) has hosted more than 15 000 unique users from 130 countries with more than 127 000 page views. Most importantly, more than 75 psychiatry training programs have reported implementing NNCI teaching materials.

While these efforts are transforming neuroscience teaching in the classroom, such gains will have limited effect if they are not reinforced in clinical settings. If residents spend most of their time training on clinical services where a neuroscience perspective is essentially absent, the implication is that it is not important. To this end, we must address the challenge of “translational teaching”: how do we bridge the gap in neuroscience education from the classroom to the clinic?

This is a particularly daunting task. As modern medicine becomes increasingly complex, we have each become specialists in our own narrow niches. Most teaching faculty—and psychiatrists in general—are understandably immersed in the practical demands of clinical work. At the same time, neuroscientists are immersed in cutting-edge research, which is often focused on molecular studies or animal models that may seem remote from the clinical reality of patient care. As seen in various sociopolitical contexts, each group may exist in its own echo chamber and communicate primarily (if not exclusively) with those who share similar perspectives. Opportunities for dialogue between researchers and clinicians are limited, all the more so because each group speaks a fundamentally different language. Thus, a major part of the challenge at hand is to facilitate communication across this deep cultural divide.

With all of these issues in mind, we are pleased to be able to publish the inaugural Educational Review in the *JAMA Psychiatry*. In many ways, this article⁶ is the embodiment of all the ideas and principles that we have

described herein. The Educational Review was crafted as a collaboration between a group of clinician-educators and expert neuroscientists. The article is written in a manner that we hope will be accessible to all parties: the main text focuses on core ideas and principles; for those interested, the figures contain additional depth about specific concepts. We cite additional references throughout, largely aiming for reviews rather than primary literature.

We focus on 5 core neuroscience themes relevant to a clinical case of a patient with posttraumatic stress disorder (presented separately as a Clinical Challenge in this issue).⁵ For each theme, we discuss its current and potential future relevance to clinical practice. We also discuss the relationship of each theme to psychological and social perspectives. Our ultimate aim is to capture something akin

to “neuroscience literacy”: what do we hope a practicing psychiatrist would think about when sitting with a patient with posttraumatic stress disorder? What are the core concepts he or she may call on? At what level would we hope that he or she could discuss these findings with a patient or a family member?

We hope that clinicians will use these resources both for their own education and to inform their patient care. For clinician-educators, we hope these will be accessible, inform their teaching, and be a gateway to guide further reading and educational development. For scientists, we hope these resources will further highlight the clinical significance of modern neuroscience and provide potential narratives to aid in the dissemination of cutting-edge findings.

ARTICLE INFORMATION

Published Online: March 8, 2017.

doi:[10.1001/jamapsychiatry.2016.3849](https://doi.org/10.1001/jamapsychiatry.2016.3849)

Conflict of Interest Disclosures: Drs Ross, Arbuckle, and Travis, as cochairs of the National Neuroscience Curriculum Initiative, receive support from the National Institutes of Health (R25 MH10107602S1 and R25 MH086466 07S1).

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