

## INTEGRATED MEDICAL STUDENT EDUCATION IN NEUROLOGY AND PSYCHIATRY: A MODEST PROPOSAL

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If one assumes that scientific base and technological application define a medical specialty, one would be forced to conclude that psychiatry and neurology should merge. Both focus on the nervous system, and both draw increasingly upon common types of scientific investigation. A Venn diagram of the two would show a large and expanding area of overlap in the study and treatment of cortical disorders, chronic diseases, and cognitive science. And yet, the non-shared areas of the two specialties—research questions, clinical practices, and history-- dwarf their common sphere. Where, between these poles of attraction and repulsion, should we place medical education?

This paper proposes that the only path to meaningful alignment, if not integration, is to begin with the person, to recognize that patients' brains and lives are inseparable, no matter which specialty professes an interest in one or the other. The overarching theory that unites both specialties, and several others besides, is that the study of health and disease requires the study of human adaptation to the physical and social environment. (1) The resources for successful adaptation are coded in our genes, expressed in the physical organs and processes of our brains and bodies as modified by experience. Ultimately, the study of adaptation is the study of behavior, ranging from the behavior of cells to the actions of bodily systems in transaction with the environment. Behavior in environmental context includes social behavior and psychological capacities such as memory, symbolic function, and use of language. These types of behavior are, in turn, shaped as much by culture and environment as by biology.

As educators, we each need to learn about and respect the domains of our sibling specialty. In my opinion, neurology, a specialty historically grounded in diagnostic technology and disease or lesion based organization of clinical knowledge, can and should guide students during their first instruction in neuroscience, with some adaptation to make this knowledge applicable to psychiatric problems. Making neuroscience relevant to both neurology and psychiatry will require at minimum a shift or extension in emphasis in basic science courses from the geography or structure of the nervous system to its functions.

Psychiatry, whose history began outside of medicine in the care of asylum patients and developed its unique character in the promotion of various therapies in offices and sanatoria, has a complementary role to play in helping neurologists and indeed all physicians respond to the effects of disorders on patients' general adaptation-- their capacity for organized thought, emotional regulation, purposeful behavior, positive social relationships and so on.

To make this broad view of health and disease concrete and useful, students will need a strong foundation in genetics, neuroanatomy and neurochemistry. Such instruction should

emphasize development along with degeneration as a key concept. Many neurologic disorders (dementia, ALS, Parkinson Disease) are neurodegenerative, but many of the major psychiatric disorders (schizophrenia, personality disorders, ADHD) appear to be neurodevelopmental. The study of functional neuroanatomy is also essential. Psychiatry is most interested in how geographically separate brain areas function in a coordinated fashion in mediating human level processes like memory, anxiety and mood (2).

However, most psychiatrists lack the scientific experience to teach these processes well. Neurologists and neuroscientists could and should take the lead in presenting this material to students, since few psychiatrists are fluent in describing structures or helping students understand the technology by which they are revealed.

Still in the preclinical years, psychiatrists could build on the basic neurological instruction to teach true behavioral science: how the brain regulates normal behaviors such as sleep, eating, sexual activity, learning, attachment/separation and responding to social circumstances of dominance and submission. (Such a focus would require extension beyond the nervous system to understanding the neuroendocrine system, which is the other great coordinator of adaptive behavior.) The study of the cultural environment in which these processes occur is also essential. Thus, the traditional behavioral sciences of anthropology, psychology and sociology would still have a role to play, perhaps taught by psychiatrists in collaboration with social science faculty in truly interdisciplinary courses like "practice of medicine" or "doctoring."

Both neurology and psychiatry could, I believe, still comfortably stay within disciplinary bounds to teach the pathology and pathophysiology or psychopathology of their clinical domains. The need for collaborative education in the clinical years is, again in my view, the place where psychiatry can most helpfully supplement the current way in which neurology is taught. Psychiatry has a great deal to teach neurologists about clinical care of patients with atypical, abnormal or damaged brains. Too often, the neurologist's job seems done when the stroke is identified, the multiple sclerosis verified, or the epilepsy proven. But the patient has to live with the condition even after its name and prognosis are known. During the clinical years psychiatrists should be teaching, for example, about the behavioral and social management of dementia (3), the way in which multiple sclerosis may manifest itself in personality changes that affect everyone close to the patient, how the effect of head injury has multiple determinants extending far beyond degree of tissue damage (4). Psychotherapy to improve morale, rehabilitation strategies to find alternative ways of accomplishing goals and tasks, family intervention to preserve patient independence and relieve caretaker burden--these are all logical extensions of the therapeutic traditions of psychiatry. We have not been sleeping on the couch for the past fifty years--the domain of psychotherapy encompasses psychoeducation, psychosocial rehabilitation, cognitive behavioral therapy or evidence based family therapy in which the identified patient remains the identified patient, but patterns of helpful or unhelpful interaction are known, along with techniques for modifying them. Moreover, our decades of experiences with psychotropic drugs, however empirical, helps us to recognize neuropsychological processes that can be modified with medication. Neurologists have the vocabulary to understand mood, sleep, appetitive behavior, cognition, emotional

regulation, impulse expression and control, but psychiatrists are the ones who have been putting these words into complex constructs that we call psychiatric disorders and conducting the treatment trials designed to modify them.

To me, this division of knowledge and labor seems almost self evident, and yet many curricula seem merely to reinforce old boundaries and outdated divisions between neuroscience, neurology and psychiatry. Real change will not occur unless we acknowledge that the greatest barrier to meaningful integration of psychiatry and neurology is the fact of competition for resources, competition which includes overt discrimination against providing care to the mentally ill. I appreciate very much being asked to speak here, but in the real world your specialty and mine suffer from social conditions that keep us at odds and serve our patients poorly. Unless neurologists can be reimbursed for tending to their patients' social and psychological needs, no matter what we teach students, they will not have models of integrated practice to follow. Psychiatrists, similarly, need to be integrated into settings where they have easy access to neurological technology, and to the information that will keep them sharp in using it wisely, rather than mindlessly subjecting patients arbitrarily to a scan and an eeg, "just in case." The stupid segregation of our offices, our billing practices, and our access to clinical support will have to change before integrated education can have a lasting effect. While these changes will not come about for educational reasons, people in both specialties can help them along by promoting mutual respect. Currently, we both suffer from devaluation by other medical colleagues, and to some extent, from mutual disregard. Neurological patients are often subject to stigma, but I think psychiatry has suffered more in this regard. The profession of neurology needs to refrain from dismissing psychiatric knowledge and practice, staying aloof from psychiatric training experiences such as required clinical psychiatry rotations for neurology residents, and, most of all, discouraging students from pursuing psychiatry as a career. We are real doctors, but unless our colleagues acknowledge us as such, we will continue as medically second class citizens.

Any marriage of our specialties must be a marriage of equals, or else both sides will be permanently dissatisfied, and each will feel demeaned. Ultimately, the goal of integrating the two fields is to ensure that whatever brings a particular patient to the office of a particular specialist will not determine how the patient is understood and treated. Psychiatrists should know when to order brain scans for headaches; neurologists when not to. To reach this goal, clinicians from either specialty will need to know both the pathophysiology of migraine head aches and the various psychosocial experiences and psychiatric conditions that may influence their severity and frequency. From this shared understanding, treatment can rationally address different problems--for the headache patient, for example, either type of physician can explain the disorder to the patient, use a variety of psychotropic or angiotropic medications, and suggest a variety of ways to reduce helplessness--by increased self understanding, changes in communication patterns, changes in behavior or a combination of these. Whether a particular doctor's training means he or she will carry out the treatment or involve another party becomes a smaller question than at present, and will depend more on the experience and interest of

the provider than on the philosophy of his or her training, since that, at least, will have been shared between them.

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