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Correction:

In the December issue of O&A, Dr. Angela Healy's last name was spelled incorrectly in the article about the Basic Skills Qualification pilot workshop. We apologize to Dr. Healy!

Progress Report: Educational Strategic Plan

The Tufts University School of Medicine (TUSM) Educational Strategic Plan (ESP) Working Groups have made significant progress over the last two months. The challenging work of defining educational objectives and course content is nearly complete. Many of the groups are now defining teaching strategies and assessment tools. An important element of the ESP is early implementation of several key initiatives. The following elements are slated for implementation in the Fall of 2008.

- **Student Advising System:** The four Learning Communities, a hallmark of the ESP, will be structured around a new system of student advising. The primary objective is to have students feel connected to a faculty member/advisor who is respectful, personable, resourceful, and knowledgeable about TUSM and the Curriculum. Students will be assigned to an advisor, available to them on Day One of medical school. There will be seven advisors per Learning Community, with six first- and six second-year students per advisor. Advisors will host a dinner for students early in the academic year. One-on-one meetings between student and advisor will occur in the Fall and Spring. Periodic meetings between the advisors and their student group will focus on aspects of the Key Themes. The nine Key Themes are Professionalism and Ethics; Communication Skills; Compassionate Care; Evidence based Medicine; Physical Well Being; Life Cycles; Community Service/Citizenship; Culturally Competent Care; Population Medicine and Health Care Systems. A nominating committee will be convened shortly to select advisors for the Class of 2013, entering in August 2009.
- **Integration of Courses:** The new From Health to Disease Course will fully integrate Pathophysiology, Systemic Pathology, Pharmacology and organ specific Physiology. A potential first step, continuing on the superb work of Dr. Susan Hadley (Division of Infectious Diseases and Geographic Medicine) and Drs. Joan Meccas and Andrew Camilli (Department of Molecular Microbiology), would be to fully integrate the Microbiology and Infectious Diseases courses for this Fall. Such a proposal will be discussed at an upcoming meeting of the Curriculum Committee.
- **Student Roles during Clerkships:** After conducting a comprehensive survey of Tufts' clerkship directors, the Core Clerkships Working Group, created a set of 21 roles and responsibilities for third-year students during the clerkship rotations (see [OEA Newsletter December 2007](#)). The roles were defined under three main categories (Care of Patients; Be an Active Learner; and, Be a Valuable Team Member). These roles are currently being vetted at affiliate teaching hospitals to better understand any barriers to implementation. The roles will be distributed to students, faculty, residents and nurses for implementation in July of this year.
- **Community Service Learning:** Active citizenship is a hallmark of a Tufts University education, not just at the undergraduate campus but also at the medical school. Students have been limited to the Tuesday afternoon Selective slot to fulfill the community service requirement. The Community Service/Selectives Working Group of the ESP has expanded community service learning opportunities. The required *(continued on page two)*



Prof. Rubin and Bella

Featured Faculty: Bev Rubin, PhD

Co-Director, Neurosciences Course

The Neurosciences Course is among the most highly rated at the school. To what do you attribute the success of the course?

I attribute the success of the course to the fascinating nature and intrinsic interest of the material covered and to a very talented and dedicated faculty as well as a group of students who really want to learn. We have been very fortunate to have so many wonderful faculty interested in lecturing as well as teaching in the conference groups and labs. Several residents also participate in labs and conference groups each year, and they play an important role as tutors for the course. The dedication of the faculty and the residents over the years has been remarkable as has the dedication of Lester Adelman and Barbara Talamo, the co-course directors who are heavily invested in monitoring and improving the quality of the course and in identifying new ways to enhance learning.

What strategies do you find helpful for integrating basic science with clinical neurology?

We first try to merge the basic science with clinical neurology in the lecture hall by following the basic science lectures with the presentation of clinical correlations relevant to the anatomy or other concepts being taught. Our computer based laboratories provide students with another opportunity to merge the basic anatomy of the nervous system with clinical correlations and localization of disease. The ultimate integration probably occurs in the weekly small group conferences that are run by clinicians. In these sessions students are required to utilize their knowledge of the basic anatomy to solve clinical cases. The conference groups clearly facilitate and further solidify the integration of the basic science with clinical neurology. For many students, conference group is the place where everything starts to fall into place.

What do you find most challenging about teaching 2nd year medical students? What is most rewarding?

I consider it a privilege to teach 2nd year medical students. They are talented, bright and motivated young men and women with incredible energy and stamina. By the start of second year, they know what it takes to make it through their pre-clinical training. They work very hard to plow through the sometimes tough and often very dense material to finally reach an impressive level of understanding. Every year, it is incredible to witness the transition of the class from a group of students who at times may appear lost, confused, or panicked to students who have mastered the material. Although they may be floundering during the presentation of the brainstem, their persistence and hard work gets them through. Their ability to learn so much in such a short period of time is remarkable and is a testimony to their determination and resolve.

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ESP progress report

(Continued from page one)

experience can now be satisfied through a number of different mechanisms including: new longitudinal experiences expanding beyond the eight weeks of the current Selective system (including weekday or weekend experiences); summer programs; and, programs that include service to global populations. The Working Group plans to collaborate with the [Jonathan M. Tisch College of Citizenship and Public Service](#) to create criteria to recognize worthy students as achieving distinction in Community Service. A yearly Community Service Fair will allow students to share their experiences with others in the Tufts community.

Much work has been accomplished and much remains to be done. We encourage and welcome all faculty and students to become involved in the ESP. For further information please contact Dr. Maria Blanco at maria.blanco@tufts.edu, ph. 617-636-6588.

Evaluation: the test-management system

Many schools across the country, including our colleagues at the Tufts University School of Dental Medicine (TUSDM), have implemented a standardized test-management system. Within a test-management system, or item/test creation and management software, each test question is tied to a specific course objective and categorized by difficulty and how well it differentiates between low and high performing students. Within this system, the software's built-in parameters (e.g. standard formatting, question construction guidelines, etc.) streamline test authorship. Additionally, exams created within a test management system tend to provide a more accurate reflection of student performance and may be uniformly structured to align more closely with board-style questions. This system also provides for the timely creation of course exams so that they may be reviewed and calibrated far in advance of scheduled exam dates, enabling course directors and the OEA to properly adjust unclear directions and/or test items. In addition, this software and associated system make possible the efficient generation of multiple exam forms (e.g. Form A and B, etc.); a function that is very useful when classroom space is limited and students are required to sit side-by-side or for make-up exams. Finally, a test-management system provides a secure environment in which items and exams may be amended and collected from year to year, leading to an eventual pool of high-quality exam items. *(Continued on page four)*

Student Spotlight:

Charlie McCormick, M'08

I am impressed by the commitment of Tufts students to participate in the many committees working on improving our curriculum and bringing it to the next level of excellence. What motivated you?

I realized early on that unlike other educational pursuits, obtaining a medical degree cannot be a passive process: simply attending lectures, taking exams, and preparing for rounds does not make someone a doctor. Rather, to reach our potential as physicians, we have to take an active role in our education; this involves judging critically how well we understand a topic, thinking about how we learn different kinds of information best, and making changes to our learning accordingly. Taking this approach one step further means also working to improve the incoming information--for example, by evaluating the effectiveness of different teaching styles and methods, and providing feedback and suggestions. This is especially important considering the volume of information we encounter in medical school. Students who are active learners can contribute some of the most trenchant observations about what works well and what doesn't, and my classmates have generated some very innovative proposals to improve the curriculum; first and foremost, I joined the Curriculum Committee to serve as a conduit for all of this great input. In addition, service--both to my classmates today and those affected by the Committee's work in years to come--is very important to me, and I've always enjoyed interacting with colleagues at different levels (students, professors, deans): it's a unique opportunity to learn about the inner workings of the medical school and what goes in to making a high-quality education.

Briefly describe your involvement in the Curriculum Committee and the Educational Strategic Plan. These committees/working groups are comprised of faculty and students. How would you characterize the interaction? What role do you see yourself playing on these committees?

In addition to providing student input during general Curriculum Committee meetings, I joined the subcommittee tasked with designing the learning and teaching policies for the new curriculum. This covers everything from the role of wireless Internet access to what makes a good syllabus (relevant text only!) or an effective lecture (less than 100 slides!). Student input on issues like these is absolutely vital, because our faculty can put their best good-faith efforts into teaching but they need to know from us how it comes across in real life and what's ultimately effective (or not). We're fortunate that the faculty know this and are very conscientious about being the best teachers possible; as a result, they take the students' input very seriously, and are constantly trying to involve us in the process even more. In addition to channeling feedback and suggestions from my classmates to the Committee, I serve as a sounding board and occasional test-pilot for new proposals, an informal pollster among my classmates, and as a reference on "the student perspective."

What elements of the ESP do you find most exciting?

There are a lot of exciting changes coming, but I'll focus on the preclinical curriculum. In my opinion, a chief weakness has been that the course content is very "siloe": we intensively learn about one subject (like immunology or pulmonary pathophysiology), take a test, then repeat the process with a new subject. Thus, we become very good at short-term memorization and single-subject test-taking, but this makes it harder to see themes spanning multiple disciplines or to take exams (like USMLE Step 1) that test such concepts. The ESP reorganizes courses into groups of related subjects--encouraging course directors to collaborate more closely--and integrates subjects that weave through multiple disciplines, like pharmacology and geriatrics. It also uses a key group of disease processes to build a knowledge base that

links multiple disciplines; for example, diabetes mellitus can be used to teach different concepts in biochemistry, genetics, population medicine, and endocrinology. Each time it recurs in the curriculum, then, students build on the way they understand diabetes, rather than seeing it as a collection of facts from different courses. These changes, among many others, will help turn an already good curriculum into a great one.

What is your plan for next year and beyond?

I've just finished interviewing for combined Internal Medicine/Psychiatry residency programs. I love each field for different reasons: the thrill of solving a diagnostic puzzle "from the outside in" in medicine, the challenge of stepping inside a patient's mind to unravel mental illness "from the inside out" in psychiatry. The interest in and need for dual training is growing, considering, for example, that schizophrenics die on average 25 years earlier than their mentally healthy peers, and that many diseases have a brain-body link (e.g., "sad heart" syndrome after cardiac surgery). I was worried about what specialty to choose until I discovered that dual training existed midway through my third year, and I'm excited to develop my skills in and encourage greater collaboration between the two fields. In addition, with MPH fieldwork in East Africa and India, global health has been an important part of my medical school experience, and I hope to continue going overseas during residency.



Faculty Medical Education Journal Club - Maria Blanco, EdD

In this new edition of our Faculty Medical Education Journal Club, you will learn about: **Science is fundamental: the role of biomedical knowledge in clinical reasoning.** Woods, N. *Medical Education*, 41: 1173-1177, 2007.

Description: This paper presents evidence in support of different views regarding the role of biomedical knowledge in clinical reasoning and examines their implications for clinical teaching. It focuses on the impact of basic science during the processing of a clinical case. The authors argue that medical training should be structured so that the relationship between biomedical concepts and clinical facts is made explicit, concise and clear. Clinical information and the supporting biomedical concepts should be integrated into a coherent package throughout the early stages of the medical training. This can be accomplished by clinical teachers choosing to infuse basic science concepts into traditional lectures or by having basic scientists and clinicians work together to create clinical curricula.

Implications for TUSM: The effective integration of basic science concepts and clinical training is a key goal of TUSM's Educational Strategic Plan. Working Groups are discussing pedagogical approaches that would best help us achieve this goal. This article might contribute to furthering our dialogue about this issue.

This article is available at:

<http://ezproxy.library.tufts.edu/login?url=http://www.blackwell-synergy.com/issue/med>

(Browse under December 2007)

Introducing Tom Kilduff

We are happy to welcome Tom Kilduff to the OEA! Tom is a freelance writer during his time away from the front desk at the OEA. A native of Greater Boston, he has also spent time in Guatemala learning Spanish and volunteering for Habitat for Humanity. Tom lives with his partner, Eric, his calico cat, Brandy and his Japanese Chin dog, Ziggy. He finds that Tufts has high standards, worker friendly policies and a great staff.



Bev Rubin, PhD (continued from page two)

Please describe your area of research especially those elements that would be most interesting to our students?

I was trained as a reproductive neuroendocrinologist. I am particularly interested in the development, function, and aging of the reproductive axis. There are two major research projects in my lab. One examines age-related changes in the brain that contribute to the loss of female reproductive cyclicity and fertility. This research utilizes a rat model and centers on age-related changes that are intrinsic and extrinsic to the population of gonadotropin releasing hormone (GnRH) neurons in the hypothalamus. GnRH neurons are the primary regulators of the synthesis and release of the pituitary gonadotropins and as such they are essential for ovulation, estrous cyclicity, and fertility. The second project examines the effects of perinatal exposure to bisphenol A (BPA), a widespread environmental contaminant with known estrogenic action on estrogen target tissues. BPA is used in the manufacture of polycarbonate and other plastics as well as the resin used to line many food cans. Humans routinely ingest BPA which has recently been detected in urine samples from 93% of individuals tested by the CDC. This work is being done in collaboration with Dr. Ana Soto. While Dr Soto is particularly interested in the effect of early BPA exposure on mammary gland development, the work in our lab focuses on the ability of early exposure to bisphenol A to alter sexual differentiation of the brain and reproductive axis function. We have noted altered patterns of estrous cyclicity and alterations in sexually dimorphic behaviors and sexually dimorphic markers in brain regions important for the regulation of gonadotropin release in offspring born to mothers exposed to bisphenol A from mid-pregnancy through day 16 of lactation. We are currently examining the mechanisms through which BPA can influence the developing brain. Our observations to date suggest that these influences may reach beyond the regulation of reproductive axis function to the regulation of body weight.

Anything else, personal interests, hobbies, etc?

I am an avid gardener, a serious cat lover (I cannot resist adopting any stray cat that appears on my doorstep), and a bird watcher. I love the outdoors and the water. During the winter months, I spend several hours in the pool each week. It is a fabulous way to reduce the stress of a tough day.

EVALUATION: TEST MANAGEMENT (Continued from page 2)

Standardized test-management systems are not perfect. Students would be allowed to review exam items only within the confines of an exam review session. Since course exams will be used as indicators of student performance and not necessarily opportunities for student learning, professors will have to be vigilant about providing students with ample assessment opportunities in which they may learn and grow. Exam-style quizzes and practice items, in conjunction with guided instruction are essential to making a standardized test-management system effective. Students get additional formative feedback when the returned answer key contains information about the concept tested for each question. To be effective there must be complete student and professorial buy-in when using standardized test-management systems. If one professor continues to return exams, or if one student "hacks" into the system, many of the benefits gained from the adoption of this type of system would be lost.

If you would like more information about test-management systems or evaluation in general, please contact Keith White, PhD; Director of Evaluation and Assessment, phone 617-636-3660, or email keith.white@tufts.edu.