

Mark Rich wondered if the baffling affliction he saw in many critically ill patients and the biological process he was studying in

Translational Research:

Shortening the path from bench to bedside

an unrelated basic science lab might be connected in surprising and fundamental ways.

Phil Neal

John Bullock was determined to find answers—to understand why dozens of people around the world were suddenly developing a rare condition and losing their eyesight, especially given his strong suspicion that nobody else was asking the right questions.

Sonia Michail wanted to provide powerful and painless interventions to bring relief to her young patients, even if she had to venture beyond the limits of current medical knowledge to find a way to do so.

For all three of these physicians, compassion, curiosity, and a chance to contribute something new to the field of medicine led to forays into the exciting and increasingly important territory on the border between clinical practice and basic scientific investigation: the world of translational research.

Breaking down barriers

In communication, translation can be a powerful, unifying tool, capable of connecting people and ideas separated by seemingly insurmountable barriers of language and culture. In a similar way, translational research, in the biomedical arena, seeks to break down the walls between scientists and physicians, laboratories and hospitals, fundamental theory and practical applications.

At heart, translational research involves moving between “bench” and “bedside.” When basic science investigators consider the implications of their work for the treatment of disease, or when physicians’ experiences with patients lead them to rethink scientific principles or care guidelines, translational research is underway.

Traditional research, conducted by isolated investigators narrowly focused on a specific topic, can certainly yield great benefits and have a far-reaching impact. A primary goal of translational research is simply to accelerate this process, to make the



“...this bench-to-bedside approach to translational research is really a two-way street. Basic scientists provide clinicians with new tools for use in patients and for assessment of their impact, and clinical researchers make novel observations about the nature and progression of disease that often stimulate basic investigations.”

—NIH Roadmap for Medical Research

implications of a given study for additional fields or contexts less of an afterthought, and more of an integral consideration.

A new era in collaborative research

Nationally, support for translational research may be stronger than ever before. Since the launch of their Roadmap for Medical Research in 2004, the National Institutes of Health (NIH) have placed a strong emphasis on translational research. In 2006, the NIH created the Clinical and Translational Science Awards (CTSA) Consortium to help institutions promote innovative, interdisciplinary clinical and translational research.

The Boonshoft School of Medicine also has done a great deal to emphasize translational research, especially in recent years. Dean Howard Part, M.D., expressed this idea in his remarks to open the medical school’s 2009 Central Research Forum, whose theme was “Translational Research.”

In his two decades at the medical school, Part said, “the growth in the research domain has been astounding, particularly in the last seven or eight years... The basic scientists here on campus have really

done a terrific job in not only linking up with our clinicians, but have been passionate about looking for opportunities to collaborate.”

Tales of translation

To shine a spotlight on some of the outstanding translational research underway at the medical school, this issue of *Vital Signs* features three stories on groundbreaking work by faculty physicians and scientists.

The achievements and aspirations of Rich, Bullock, and Michail, in collaboration with their partners within and beyond the university, are exemplary, but they are hardly unique. Throughout the medical school, the university, and our wider community, talented and dedicated researchers are forging new connections, asking novel questions, expanding the boundaries of medical science, and rapidly bringing the benefits of each discovery to patients and populations in need.

These specific stories are presented with the intention of honoring similarly innovative work done by so many others and, we hope, of inspiring readers to seek out—or create—their own opportunities to engage in translational research. **WS**