

tion if they'd seen him. My stomach was knotted with anticipation: mortality from XDR tuberculosis was over 90%.

But on the fifth floor, in a corner cot on a ward lined with patients in blue hospital gowns, I spotted a familiar fluorescent-yellow sneaker. I had found him. Mr. C.'s pupils widened over the rim of his blue mask. Tears flooded both our eyes at the improbability of the situation — somehow, against the odds, the system had worked. Mr. C. had cheated death and looked well; he was eating and had gained weight. I visited him once more before he finished his treatment. He was barely recognizable — his face had filled out, and his skin glowed. I reassured myself that there was some value left in hope.

Until the 2003 creation of the President's Emergency Plan for AIDS Relief (PEPFAR), HIV infection had been a death sentence in South Africa. Since then, millions of patients there and around the world have begun taking lifesaving medications, and millions more have been tested for HIV. Antiretroviral therapy (ART) provided to HIV-positive pregnant women has protected more than 300,000 newborns against new infections. But more broadly, PEPFAR funds have been

used to repair crumbling clinics and hospitals and train thousands of health care workers.

PEPFAR has succeeded partly because it has benefited the entire health care system in ways that vaccination drives, maternal health initiatives, and other public health interventions hadn't done. Addressing defects and holes in Africa's overall health systems, PEPFAR funded training for 140,000 new health care workers and the development of programs that used peer educators and community health workers to diagnose and treat patients with HIV at hard-to-reach rural sites. It was because of PEPFAR that Mr. C. could undergo testing, be picked up at home and shepherded to the district hospital, and survive XDR tuberculosis. In less than a decade, PEPFAR has created health care systems in regions where people had never even seen a doctor.

Now PEPFAR is at risk, as investments in AIDS give way to other global health priorities — a shift supported by some in the global health community who fail to recognize that the systems delivering ART also permit expansion of primary care, chronic disease treatment, and maternal and child health care services. I believe that rather than representing one side of an either-or

dilemma — costly ART versus babies dying of diarrhea — PEPFAR could become a platform for improving health and health care systems in developing countries. There is nothing unique to HIV about delayed diagnoses, failures in patient monitoring, and the challenges of triage, testing, and transportation. Just as PEPFAR funding helped save Mr. C.'s life, its expansion could ensure the survival of his brother with hypertension and his sister with early cervical cancer. Perhaps innovative financing ideas to fund new aid, such as the "Robin Hood tax" (a proposed small financial-transaction tax that could generate billions of dollars of revenue), could be used to support such expansion.

Mr. C.'s outcome resulted from our government's willingness to translate our hope into meaningful programs. Now I believe we have two options: improving the clinic further . . . or backtracking to the funeral parlor next door.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

From the Department of Internal Medicine, University of California, San Francisco, San Francisco, and the Department of Medicine, Highland Hospital, Oakland, CA.

DOI: 10.1056/NEJMp1301649

Copyright © 2013 Massachusetts Medical Society.

BECOMING A PHYSICIAN

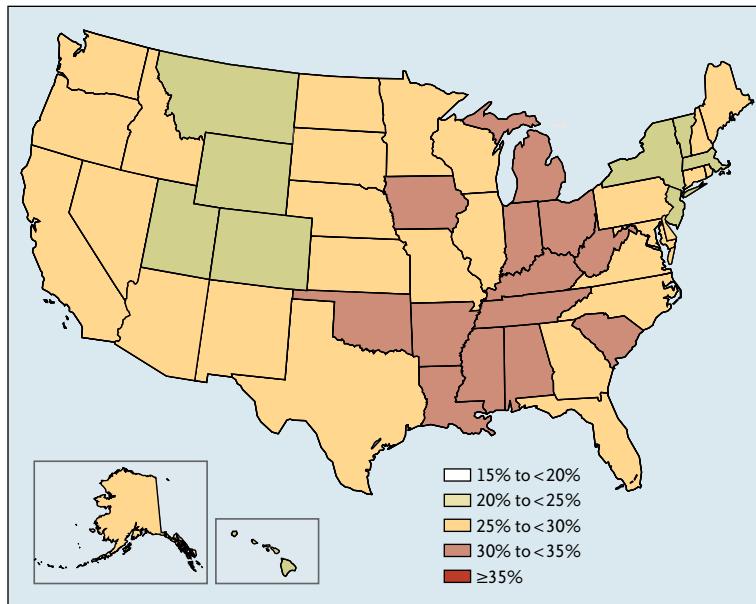
Training Physicians to Manage Obesity — Back to the Drawing Board

James A. Colbert, M.D., and Sushrut Jangi, M.D.

According to the Centers for Disease Control and Prevention, nearly one third of U.S. children and about two thirds of U.S.

adults are overweight or obese (see map) and therefore at increased risk for hypertension, diabetes, and musculoskeletal disease. If the

trend continues unchecked, half the adults in the United States may be obese by 2030. Although a few clinics specializing in weight



Prevalence of Self-Reported Obesity among U.S. Adults, 2012.

Data are from the Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention. An interactive map showing obesity prevalence over time is available at www.cdc.gov/obesity/data/adult.html.

management have sprung up around the country, not everyone is lucky enough to be able to attend a multidisciplinary weight-management program.

Thus, the front lines of the obesity epidemic often lie in a primary care doctor's office. But most primary care providers are overworked, and their attention is focused on pharmacologically treatable conditions, such as hypertension and diabetes. Obesity is often relegated to the bottom of the problem list: there are no wonder drugs, no useful biomarkers that define or predict prognosis, and no standard protocol that works for every patient. Most experts agree that the treatment of obesity should begin while patients are young and lifestyles and behaviors are easier to change. We believe that medicine should take a lesson from this approach and invest in

robust educational programs that will enable young physicians to recognize, treat, and research obesity while they are still in the early stages of their medical careers.

Physicians-in-training frequently fail to recognize obesity, are unfamiliar with treatment options, and spend relatively little clinic time treating obesity.^{1,2} Yet the protected training time of medical school and residency is critical for aligning the education of future physicians with the current and predicted needs of patients. Although most early medical education has historically been focused on acute disease, chronic diseases have become the most pressing illnesses of the 21st century. Among these diseases, obesity stands out because of its complex physiology and a treatment strategy entailing long-term behavioral management,

rather than a single clear intervention. What approaches can we take in medical education to ensure that the next generation of physicians is ready to recognize and manage complex chronic diseases such as obesity?

First, we would argue that all physicians need a rigorous background in the biologic and pathophysiological foundations of obesity. Rajesh Magrulkar, associate dean for medical education at the University of Michigan, has revamped his school's preclinical curriculum to provide the flexibility to teach such complex and multidisciplinary topics. During the first year, students are taught hormonal regulation of satiety, nutrition, and gastrointestinal absorption during multiple discipline-specific learning blocks. In the second year, these concepts are reviewed in the contexts of the pathology of metabolic syndrome, diabetes, nutritional deficiencies, and malabsorption. In addition, students pursue an integrated nutrition curriculum through an interactive Web portal that provides links to videos, learning resources, and assessment modules.

Similarly, at the University of California, San Francisco (UCSF), associate dean Susan Masters has instituted a pre-clerkship obesity curriculum built on core lectures in nutrition and obesity. The program is enriched by presentations from patients describing their struggles with weight loss. Students are also encouraged to extend their study of obesity beyond the classroom, by developing novel techniques for teaching public-school students and adults in nearby communities about nutritional health. By integrating

obesity education into the pre-clinical years, both the Michigan and the UCSF programs underline the complexity and multidisciplinary nature of the disease process and encourage early inquiry into the biology and treatment of obesity.

Once trainees have achieved a solid foundation in the science of obesity, these fundamentals must be applied clinically through mastery of behavioral medicine. Proficiency in motivational interviewing is essential for medical school graduates in the 21st century, who will be required to care for patients with “lifestyle diseases.” Steve Martino and Auguste Fortin at Yale University have implemented a 2-hour motivational-interview training session for third-year medical students, and preliminary data suggest that this short intervention can positively influence medical students’ behavior in clinical scenarios.³ Yet formal training in motivational interviewing requires a more substantial time investment. According to Joji Suzuki, who teaches motivational interviewing to primary care residents at Brigham and Women’s Hospital in Boston, the typical clinician needs at least 8 hours of initial training to learn the basic approach, followed by ongoing observation and feedback to gain proficiency in the method. Such an investment of time and resources would require substantial modification to current training programs, but this change is necessary to ensure that future physicians are prepared to manage

a growing population of obese patients.

Finally, successful management of obesity requires that students learn to function as members of interdisciplinary care teams that include physicians, nurses, medical assistants, social workers, nutritionists, and behavioralists; the earlier such collaborative models are introduced into medical education, the more likely they will be to successfully replace the antiquated model of the solo physician and patient. The Association of American Medical Colleges recently developed an online portal devoted to multidisciplinary-team-based learning. Called the Interprofessional Education Collaborative, the initiative aims to promote learning experiences that bridge the traditional divides among the disciplines of nurses, physicians, and other health professionals. The Medical University of South Carolina (MUSC) has been an early adopter of interprofessional learning, with the establishment of its Creating Collaborative Care (C3) Program.⁴ Students at MUSC participate in clinical-skill sessions, simulator trainings, semester-long elective courses, and leadership-training initiatives as members of interprofessional teams that include students of nursing, health sciences, pharmacy, and dentistry. Adoption of such frameworks in medical school and residency can help to ensure that physician trainees will integrate these collaborative practices into new models of health care delivery.

As health care costs continue

to rise, there is increasing pressure to change care delivery and provider reimbursement. One of the goals of health care reform is to start rewarding clinicians for keeping patients healthy, rather than reimbursing them on the basis of the services they provide or the procedures they perform. Our current training models are well equipped to produce physicians who can manage acute illness and the complications of obesity, but if we expect physicians to shift their focus to disease prevention and management of obesity, the educational system must also be reoriented. Once physicians are comfortable addressing complexity, motivating patients to pursue healthy lifestyles, and fostering collaboration, they will be better prepared to bring the obesity epidemic under control.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From Brigham and Women’s Hospital (J.A.C.) and Beth Israel Deaconess Medical Center (S.J.) — both in Boston; and Newton-Wellesley Hospital, Newton, MA (J.A.C.).

1. Ruser CB, Sanders L, Brescia GR, et al. Identification and management of overweight and obesity by internal medicine residents. *J Gen Intern Med* 2005;20:1139-41.
2. Block JP, DeSalvo KB, Fisher WP. Are physicians equipped to address the obesity epidemic? Knowledge and attitudes of internal medicine residents. *Prev Med* 2003;36:669-75.
3. Martino S, Haeseler F, Belitsky R, Pantalon M, Fortin AH IV. Teaching brief motivational interviewing to year three medical students. *Med Educ* 2007;41:160-7.
4. Blue AV, Garr DR. Interprofessional education and prevention: preparing the next generation of healthcare professionals. *J Public Health Manag Pract* 2007;13:539-40.

DOI: 10.1056/NEJMp1306460

Copyright © 2013 Massachusetts Medical Society.