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Diabetes Training for Medical Residents



In the second half of the 20th century, a wide range of medical specialties emerged, often more closely linked to academic knowledge than to clinical realities. From the general trunk of Internal Medicine, and driven by the advent of new technologies, specialties were promoted with the aim of facilitating the integration of these new findings. Cardiologists, for instance, would study heart diseases; nephrologists, kidney diseases; and neurologists, nervous system disorders. Naturally, electrocardiography, catheterizations, ultrasounds, electroencephalograms, and renal dialysis, among other techniques, became fundamental to the conception of the above-mentioned specialties. However, there's more to it: as doctors, we also treat patients suffering from illnesses that cannot be neatly categorized by a specific organ or system—diseases that are transversal. The paradigm of such a transversal disease is diabetes mellitus, in its various forms, be it type 1 or type 2 diabetes mellitus, or genetically based diabetes.

"We are not students of subjects, but students of problems; and problems may cut right across the boundaries of any subject or discipline (...) We are students of problems, not of disciplines." (Karl R. Popper, 1902-1994)

In the clinical course of diabetes, it's often advisable for individuals to be attended by a variety of healthcare professionals. This can include nurses, primary care physicians, pediatricians, ophthalmologists, nephrologists, and, of course, endocrinologists. There's no single specialty that "owns" diabetes. We need to consider two main reasons for this multidisciplinary approach. Firstly, diabetes, regardless of its cause, is a chronic disease that will accompany the person throughout their life. Secondly, it's »

» a complex illness, not only because of its nature (its underlying causes) and diverse clinical presentations, but also due to the need for different therapeutic approaches. These include nutritional and physical activity programs, monitoring systems, prescriptions for oral antidiabetics and insulin, technological aids, and even immunomodulatory treatments. Its complexity also stems from the need to adapt these therapeutic guidelines to an individual's lifestyle, social context, and other concurrent illnesses. The emergence of chronic complications is particularly relevant, as these will require the involvement of specialists focused on problem resolution—for example, ophthalmologists for diabetic retinopathy or vitreous hemorrhage, or nephrologists for advanced kidney failure requiring dialysis or a renal transplant.

The complexity of diabetes demands convergence, meaning we must remember that the patient is at the center of our healthcare attention. It's not about bouncing from one specialist to another—from an educator nurse to an endocrinologist, or from a pediatrician to an internist. That's not the goal. The required care is global and convergent, therefore necessitating the training of professionals in this mode of operation. Diabetes, as a condition, doesn't belong to any single mentioned specialty; it doesn't allow for the isolated compartments often seen in professional practice. Applying convergence is key in training new generations of residents and should be the prominent objective in the educational activities of a society dedicated to solving the problems posed by diabetic disease—focusing on “the problem, not the topic,” as the British philosopher Karl Popper stated.

This suggested training requires us to

approach the science of complexity. It means orienting our knowledge toward understanding how systems composed of many interacting elements function, beyond just the individual response to a single problem. It's not just about teaching how to control the disease; it's about educating in this new way of thinking, which only societies geared towards it, like the Spanish Society of Diabetes, can truly implement. Exploring the problem, its hierarchy (what's most important), and its feedback loops are crucial. Achieving an understanding of how diabetes emerges and develops, and how it should be diagnosed and treated, requires a holistic view of the entire system: the genetic basis, the molecular aspects, pathophysiological alterations, cellular damage, adaptation to the disease, and the impact of treatment.

Based on its chronicity and complexity, we understand why mandatory training in diabetes for resident physicians is essential, especially given that it's a frequent and prevalent disease. How this education and training should be delivered falls to the scientific societies where professionals focused on the study and, of course, research in diabetes are grouped. These societies can foster multi-faceted training, ranging from therapeutic education to new treatment challenges, the use of sensors and insulin pumps, immunomodulatory treatments, or the application of artificial intelligence. This training should be linked to clinical practice, specifically to specialized units—which exist in both hospital centers and primary care units. It's vital to remember that in medicine, training mandates problem-solving—addressing the illness—not merely describing academic theory, as is still often taught in classrooms. This isn't always easy, but there are various examples of this multi-faceted training

in our country, connected to scientific societies and clinical centers.

The priority group for receiving this training is the resident physician, eager to acquire new knowledge, receptive to innovation in diagnosis, care, and treatment, and open to providing the best patient care in the near future. This is why the Spanish Society of Diabetes, and other societies focused on responding to diseases and those who suffer from them, have prioritized training courses for residents for many years now.

This resident training must never neglect to transmit up-to-date knowledge, not repetitive medical popularization—the kind that floods even social media today, sometimes erroneously. Education must be given by front-line professionals who understand the disease, research it, provide newly acquired innovations they already apply, and who are willing, as good educators, to share this knowledge and transmit it to new generations of healthcare professionals. Only with adequate diabetes training for resident physicians can we expect improved healthcare for those affected by the disease, preventing complications, alleviating its course, and, as much as possible, generating intellectual foundations and discoveries that lead to a cure. This stimulus, the stimulus to research in diabetes—from nursing, from primary care, from specialized fields—is the basis for achieving the best outcomes for the individual patient and, by extension, for our entire society. The many years of experience from the Spanish Society of Diabetes, a pioneer in organizing diabetes courses for resident physicians, supports this. It's an objective that justifies and elevates the society and the professionals who promoted and continue to promote it: educating new generations of doctors in diabetes. **D**

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