

Case histories

Type 2 diabetes

In the space of a few months in 1921, an acute and terminal disease—type 1 diabetes—became a manageable chronic condition. The discovery of insulin by Frederick Banting, Charles Best, and their colleagues captured a mood of therapeutic optimism, the hope that a new scientific medicine, rooted in the laboratory and working through the networks of industry and state health care, could find cures for all diseases. But insulin therapy, clinicians soon realised, was effective in only a minority of patients. The remainder had what since the mid-1970s has been called type 2 diabetes—a disease that has come to represent another face of modern medicine: complex chronic diseases associated with the social, commercial, and obesogenic environments of industrial and post-industrial nations.

For physicians working in the classical tradition, diabetes took as many forms as patients, and the notion of two underlying forms of the disease came later. In 1888, the French physician Étienne Lancereaux noted that his diabetic patients tended to fall into two types: those with “diabète maigre” (thin diabetes), typically young and short-lived, and “diabète gras” (fat diabetes), usually middle-aged and succumbing gradually if at all. For Lancereaux and his contemporaries, “diabète gras” was, in the words of historian Barbara Tuchman, a “marker of civilisation”—like so many 19th-century diseases, a matter of nerves and poor digestion.

Long before Banting and Best's work, ideas emerging from physiological laboratories were changing clinical attitudes to diabetes. “Reducing diets”, a mainstay of 19th-century treatment, were redesigned according to the latest biochemical thought, replacing as much carbohydrate as possible with fat. In practice this meant bran, chewy gluten bread, and a great deal of fat and water, and patients struggled to maintain compliance. New studies of “diabète gras” also highlighted the complications of the condition: gangrene, ulcers, and damage to kidneys, retinas, and nerves.

Insulin transformed the clinical and cultural frame of “diabète maigre”, but it did little to change life for most diabetics. The clinician and historian Robert Tattersall has identified a growing sense that the future of “diabète gras” would be a matter of gradual adjustment, with no prospect of a cure or even an effective treatment. Across Europe and the USA, new clinics, set up to treat insulin-dependent diabetes, emphasised education for their non-insulin-dependent patients—what the English physician R D Lawrence, himself a diabetic, called a “diabetic creed” emphasising self-discipline and well informed decisions about diet and lifestyle.

In the aftermath of World War 2, this difficult situation began, gradually, to change—as a result of clinical innovations and a growing cultural and political sense that non-insulin-dependent diabetes posed a major challenge to public health.

The Framingham Heart Study identified chronic diabetes as a major risk factor for heart disease, urging physicians to mention the condition on death certificates, while new techniques like stenting and CABG were deployed to ameliorate its effects. But rates of non-insulin-dependent diabetes continued to rise, and the disease began to appear in cultures not previously exposed to the western lifestyle.

Recent research has shown that while very low-calorie diets and bariatric surgery can aid remission, diet and lifestyle are not the whole story, and work continues on genetic components of susceptibility. Metformin has improved the management of blood glucose, while statins and antihypertensives reduce the risk of heart disease. In Tattersall's view, though, diabetes specialist nurses “did more in the last two decades of the twentieth century to improve the standard of diabetes care than any other innovation or drug”. Newer therapies like the thiazolidinediones, incretin, and SGLT-2 inhibitors, along with insulin pumps and continuous glucose monitors, offer ways to improve glucose stabilisation. Globally, however, type 2 diabetes raises some of the most difficult questions in modern medicine. How do we provide effective personalised treatment to a large and growing group of patients? How do we prevent obesity in a calorie-rich, exercise-poor culture? Most of all, who is responsible for our long-term health?

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For more on **Case histories** see **Comment Lancet** 2016; **387**: 211 and **Perspectives Lancet** 2019; **393**: 2580

For more on **type 2 diabetes** see <https://www.thelancet.com/clinical/diseases/diabetes-type2>

Further reading

Moore MD, Food as medicine: diet, diabetes management, and the patient in twentieth-century medicine. *J Hist Med Allied Sci* 2018; **73**: 150–67

Tattersall R. Diabetes: the biography. Oxford: Oxford University Press, 2009

Tuchman AM, Diabetes and “defective” genes in the twentieth-century United States’. *J Hist Med Allied Sci* 2015; **70**: 1–33

