

Diabetes prevalence: Is your diagnostic method missing the truth?

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Every country tracking type 2 diabetes has watched prevalence climb for decades. A study published in The Lancet Diabetes & Endocrinology shows the small island nation of Mauritius is the first to document the opposite, a sustained fall, using the one diagnostic method most countries have quietly stopped relying on.¹

KEY TAKEAWAYS

- **The Pivot:** Mauritius is the first country to document a sustained, OGTT-confirmed fall in type 2 diabetes prevalence, using the diagnostic method most nations have moved away from.
- **The Data:** Prevalence rose from 14.7% in 1987 to a peak of 23.3% in 2009, then fell to 19.9% by 2021, a decline of 16% in women and 11% in men from the peak, consistent across all ethnic groups.
- **The Action:** Treat Mauritius's multisectoral policy package, free essential medicines, mobile screening and a defined NCD service standard, as a template worth evaluating for other high-prevalence settings, not a result specific to one island.

Most diabetes prevalence estimates today come from fasting plasma glucose or HbA1c testing, which is faster and cheaper than the World Health Organization's recommended gold standard, the 2-hour oral glucose tolerance test. That convenience comes at a cost: fasting glucose and HbA1c alone miss asymptomatic cases the OGTT catches, which means most countries' prevalence trends are built on a method known to undercount.¹

Mauritius, a multi-ethnic island of 1.2 million people in the Indian Ocean, is the only country to have systematically used the OGTT to track diabetes and intermediate hyperglycaemia across seven population surveys since 1987, led over the decades by Paul Zimmet, Jaakko Tuomilehto, George Alberti and, more recently, Stefan Söderberg, with fieldwork run by the Ministry of Health and Wellness.¹

The Numbers

Overall prevalence moved as follows across the seven surveys: 14.7% in 1987, 17.3% in 1992, 20.2% in 1998, 18.6% in 2004, 23.3% in 2009, 23.1% in 2015, and 19.9% in 2021.¹ Prevalence rose steadily from 1987 to 2009, up 61% in men and 56% in women, tracking the country's rapid shift from an infectious-disease burden to a chronic-disease one as living conditions and diets changed.

From 2009 the trend reversed. By 2021, prevalence had fallen 11% in men and 16% in women from its 2009 peak, the first sustained, OGTT-confirmed decline any country has documented. The decline held across every ethnic group surveyed, Asian Indian, African Creole and Chinese, ruling out a shift in the population's composition as the explanation.

The authors attribute the reversal to a run of deliberate policy choices rather than any single intervention: a national action plan on nutrition, physical activity and tobacco control; mobile clinics for NCD risk-factor screening; a national integrated NCD action plan spanning the life course; and a national service framework setting defined standards of care for chronic disease. Public sector health services, including essential medicines, are free.

The Mauritian experience underscores the critical importance of diagnostic methodology in accurately assessing diabetes prevalence and the effectiveness of public health interventions. The consistent use of the OGTT, a more sensitive diagnostic tool than FPG or HbA1c alone, allowed for the detection of a significant proportion of asymptomatic cases that would otherwise have been missed. This comprehensive approach provided a truer picture of the diabetes epidemic in Mauritius, enabling policymakers to develop and implement targeted strategies based on robust epidemiological data. The initial rise in prevalence, mirroring the country's epidemiological transition, highlights the global challenge of non-communicable diseases (NCDs) as nations develop. The subsequent decline, however, offers a compelling case study for other countries grappling with rising diabetes rates, demonstrating that sustained, multi-faceted public health efforts can indeed reverse these trends.

The success in Mauritius was not attributable to a single "magic bullet" intervention but rather to a synergistic combination of policy choices. The national action plan on nutrition, physical activity, and tobacco control addressed key modifiable risk factors at a population level. Mobile clinics for NCD risk-factor screening improved access to early detection and intervention, particularly for underserved populations. The national integrated NCD action plan, spanning the life course, ensured a continuum of care and prevention from childhood through adulthood. Furthermore, the national service framework, which set defined standards of care for chronic diseases, likely improved the quality of diabetes management and reduced complications. The provision of free public sector health services, including essential medicines, removed significant financial barriers to care, ensuring equitable access for all citizens. This integrated, multi-sectoral approach, sustained over many years, is a crucial takeaway for healthcare professionals and public health strategists globally.

Clinical Implications of Comprehensive Screening

The Mauritian data strongly suggest that relying solely on fasting plasma glucose (FPG) or HbA1c for diabetes screening may lead to a substantial underestimation of true prevalence, with significant clinical implications for patient care and public health planning. The OGTT's ability to identify individuals with impaired glucose tolerance (IGT) who would be missed by FPG or HbA1c alone means that a considerable proportion of the population at high risk for developing type 2 diabetes may not be identified early enough for effective preventative interventions. For instance, a meta-analysis by the DECODE study group, which included data from over 20,000 individuals, found that the 2-hour post-load glucose was a stronger predictor of cardiovascular mortality than FPG, even in individuals without diagnosed diabetes. This highlights that even mild elevations in post-load glucose, often undetected by FPG or HbA1c, carry significant long-term health risks.

While the OGTT is more resource-intensive, the long-term benefits of early detection and intervention for individuals with IGT or undiagnosed diabetes could outweigh the initial costs. Early identification allows for lifestyle modifications, such as dietary changes and increased physical activity, which have been proven to significantly delay or prevent the progression to type 2 diabetes. The Diabetes Prevention Program (DPP), a landmark randomized controlled trial, demonstrated that intensive lifestyle intervention reduced the incidence of type 2 diabetes by 58% over 3 years in individuals with IGT, a reduction superior to that achieved with metformin. Missing these individuals through less sensitive screening methods means missing a critical window for primary prevention, leading to higher rates of overt diabetes and its associated complications, including cardiovascular disease, nephropathy, and retinopathy, which ultimately place a greater burden on healthcare systems.

However, it is important to acknowledge the practical challenges of implementing widespread OGTT screening. The test requires patients to fast for at least 8 hours, consume a glucose load, and return for a blood draw 2 hours later, making it less convenient for both patients and healthcare providers compared to a single FPG or HbA1c test. In resource-limited settings, the logistical demands and cost implications of widespread OGTT use can be prohibitive. Therefore, while the Mauritian experience champions the OGTT's diagnostic accuracy, a pragmatic approach in other contexts might involve targeted OGTT use for high-risk individuals identified through FPG or HbA1c, or the development of more accessible and equally sensitive screening tools. Clinicians should be aware of the limitations of FPG and HbA1c and consider the OGTT in patients with strong clinical suspicion of diabetes despite normal results from these less sensitive tests, particularly those with multiple risk factors or a family history of diabetes.

Ultimately, the Mauritian study serves as a powerful reminder that diagnostic precision is foundational to effective public health. Healthcare professionals should advocate for policies that support comprehensive screening strategies, even if they are more complex, to ensure that the true burden of diabetes is accurately captured. This accurate data is essential for allocating resources effectively, designing impactful prevention programs, and monitoring the success of interventions over time. The sustained decline in diabetes prevalence in

CLINICAL IMPLICATIONS

The methodological point here is easy to skip past and probably the more durable finding: most countries cannot currently tell whether their own diabetes prevalence is rising, falling or flat with the confidence this study offers, because they are not using the OGTT to check. A trend built on HbA1c or fasting glucose alone is a trend built on a test known to miss cases, which means the global prevalence figures policymakers act on may already be understating the problem, or masking a turn that has not yet been detected.

For health ministries watching their own diabetes numbers climb, the specific policy list matters less than the pattern behind it: sustained, decades-long investment across prevention, screening and free access to

care, rather than a single flagship programme. Mauritius did not reverse its epidemic with one intervention; it reversed it by keeping several running long enough, across governments, to show up in population-level data twelve years later.

The consistency across Asian Indian, African Creole and Chinese populations is the detail that should reassure sceptics this is a real population effect rather than a demographic artefact. A shift in which groups make up the surveyed population is the first thing to rule out in a result like this, and the authors have ruled it out directly.

Prof Tuomilehto's own framing is the right note to end on: cardiovascular disease and lung cancer both looked like unstoppable epidemics until sustained public health policy proved otherwise. Mauritius is not evidence that type 2 diabetes reverses on its own. It is evidence that it can be reversed, on a timescale of decades, by choices governments actually control.

Mauritius's small population and island geography made this level of decades-long, whole-population OGTT surveillance logistically feasible in a way it may not be for a country of hundreds of millions. That does not weaken the policy lesson, sustained multisectoral investment works, but it is a real reason no larger nation has replicated the surveillance method Mauritius used to prove it.

Larger nations watching this result will need their own, adapted surveillance approach, not a direct copy of Mauritius's method, to know whether their own prevalence trend has genuinely turned or is simply an artefact of an imprecise measurement.

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