

The Slow Crisis: why global diabetes is failing millions despite available solutions

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Abstract

The global diabetes crisis is a slow-moving yet devastating public health emergency that is disproportionately affecting underserved populations despite the availability of effective treatments and guidelines. With over 580 million people currently living with diabetes and projections reaching 853 million by 2050, this crisis is characterized by systemic failures in access, equity, financing, and health system design. Weak health infrastructure, fragmented data systems, underinvestment in primary care, and social determinants such as income level, food insecurity, and geographic isolation are factors that exacerbate this burden. Access to insulin remains highly inequitable, with over 95% of global supply controlled by three companies, resulting in unaffordable prices and widespread shortages in low- and middle-income countries. Additionally, current diabetes technologies and digital health solutions often fail to address the evolving and context-specific needs of patients. Addressing this crisis requires a paradigm shift from reactive, treatment-focused models to integrated strategies that combine clinical care with social policies, equity-driven digital innovation, and structural reforms across food, economic, and urban systems. To avert this trajectory, a fundamental paradigm shift is required, moving from siloed treatment to integrated strategies that combine clinical innovation with structural action on the social, economic, and commercial determinants of health.

Keywords: Diabetes, Insulin access, Health equity, social determinants of health

Introduction

Non-communicable diseases (NCDs) are the defining public health challenge of the 21st century, and diabetes stands at their forefront. More than 580 million adults worldwide live with diabetes, and this number is projected to rise to 853 million by 2050 [1]. Despite the availability of effective medications, evidence-based guidelines, and low-cost diagnostics, diabetes remains a leading cause of blindness, kidney failure, amputation, and premature death.

The global diabetes crisis is slow-moving yet an immense health challenge that continues to affect millions of people despite the existence of known effective solutions [2]. This failure can be attributed to multiple interrelated issues, including poor quality of health systems, systemic barriers in care

delivery, persistent residual risks in treatment, underutilization of patient-centered digital tools for diabetes management, chronic underfunding, supply chain issues, workforce shortages, lack of clinical training, and fragmented data systems [3,4]. This growing mismatch between available solutions and worsening outcomes underscores a systemic failure rooted in inequity, underinvestment in primary care, and poor integration of community-based prevention [5].

Compounding this crisis is the increasing onset of diabetes among younger adults [5], and a rapid rise of type 2 diabetes in low- and middle-income countries is being fueled by a set of well-known and largely preventable risk factors such as high body mass index, poor diet, sedentary behaviour, smoking, and air pollution [2,6].

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Between 1990 and 2019, type 2 diabetes prevalence among adolescents and young adults in Western Europe surged by over 120%, with years lived with disability rising in parallel [7]. This trend signals a worrying expansion of the crisis into earlier life stages, where the lifelong burden of complications, mental health challenges, and social disruption becomes even more profound [7].

Global diabetes is also associated with frequent co-occurrence of cardiovascular and kidney diseases, creating a complex web of multimorbidity. Fewer than 10% of individuals with type 2 diabetes live with the condition in isolation. Most also suffer from cardiovascular or renal complications. These diseases mutually reinforce one another, accelerating decline and increasing both the cost and complexity of care [8].

Type 2 diabetes accounts for 96% of cases [2], has continued to surge globally [5] doubling in just three decades, with adult prevalence rising from 7% in 1990 to 14% in 2022 [2,5] and is no longer confined to high-income countries, many Low- and middle-income regions such as North Africa, the Middle East, and Oceania are witnessing the fastest rise in prevalence [2]. Despite the presence of pharmaceutical access programs and advances such as GLP-1 receptor agonists, access to effective diabetes care in low- and middle-income countries remains limited and uneven [2]. These interventions are fragmented and largely shaped by high-income market structures, leaving populations in the most affected settings underserved. Consequently, health systems continue to intervene late, favoring treatment over early screening, education, and prevention [9]. This pattern reflects a deeper failure of equity and health system design, rooted in chronic underinvestment in primary care and weak integration of community-based preventive strategies [5].

Although diabetes constitutes a global public health crisis, its consequences are disproportionately borne by LMICs, where weak health systems, limited fiscal structure, and dependency in pharmaceutical markets magnify existing inequities. Accordingly, this commentary adopts a global lens while foregrounding LMICs as critical sites of structural failure. The aim of this commentary is to examine the structural, economic, and political determinants that undermine equitable diabetes care globally, and to propose policy-relevant recommendations

that move beyond pharmacologic solutions toward prevention-oriented, system-level reform.

Structural and Social Determinants of Diabetes Inequities

A defining feature of the global diabetes crisis is the social inequalities that determine who develop the disease, who is diagnosed early, and who ultimately receives effective care. Socioeconomic disadvantage, racial marginalisation, and geographic exclusion consistently shape diabetes risk and outcomes, with individuals in poorer and underserved communities experiencing higher rates of complications and mortality. These disparities persist not because of gaps in biomedical knowledge, but because of structural barriers embedded in social and economic systems. Interventions that fail to address these upstream determinants risk reinforcing, rather than reducing inequity [10,11].

Food insecurity and micronutrient deficiencies further complicate diabetes management, increasing the risk of infections and worsening glycemic control. Despite the availability of clinical solutions, populations are often left behind due to geographic isolation, health workforce shortages, and systemic neglect. However, promising community-based interventions including mobile health technologies, task-shifting to local health workers, and nutrition-focused support have demonstrated effectiveness in improving care outcomes. These localised solutions show that progress is possible when interventions are adapted to context and rooted in equity. Yet, such models remain underutilised in global strategies [12]. It is not enough to prescribe insulin or oral hypoglycemics when patients cannot afford or access nutritious food to stabilise their blood sugar. The slow crisis of diabetes is thus perpetuated not only by weak health systems but also by the lack of integrated social policies [13]. The root drivers of diabetes, such as early-life obesity and socioeconomic inequities, also remain insufficiently addressed [7]. Combating diabetes at scale demands a broader vision, including action on food systems, urban design, and environmental policy [13].

Despite overwhelming evidence that marginalised populations suffer a disproportionate burden of diabetes-related complications and mortality, most quality improvement (QI) programs fail to address these disparities. In a review of 278 diabetes trials, only 95 incorporated any equity lens, and less than one-third were intentionally designed for disadvantaged groups. This lack of systematic

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attention to social determinants and vulnerable populations exposes a deeper structural failure [14].

A UK study revealed that individuals in the most deprived neighborhoods are significantly less likely to receive the full spectrum of diabetes care (e.g., regular HbA1c, blood pressure, and cholesterol checks), and far fewer achieve combined treatment targets: only about 15% of deprived Type 1 and 39% of deprived Type 2 patients met benchmarks, compared to 22% and 41%, respectively, in the least deprived groups. Remarkably, insulin pump usage among Type 1 patients varies tenfold between specialist centres and is markedly lower in more deprived patients (15% vs 24%), underscoring inequitable access to advanced technologies [15]. These disparities exist even in systems with universal coverage, evidence that further illustrates that universal health coverage, while essential, is not sufficient to ensure equity, illustrating. This shows that the crisis is not only global but also deeply rooted in local social structures [16].

Weaknesses in Health Service Delivery as a Factor

The state of diabetes care in low- and middle-income countries (LMICs) exposes the deep cracks in the global health system's response to this slow-moving crisis [17,18]. Global healthcare systems, especially in low- and middle-income countries (LMICs), are struggling to provide high-quality care that meets changing needs and growing expectations [3,19]. With the rising rates of non-communicable conditions like diabetes coexisting with persistent infectious diseases such as tuberculosis, hepatitis C, and COVID-19 [3]. Coupled with fragile or collapsing health systems, the diabetes crisis becomes even more acute, exposing the deep inequities in global health preparedness. Regional inequities persist, with countries in Sub-Saharan Africa and Oceania lagging far behind others like those in Latin America [20,21]. Compared to high-income countries, LMICs exhibit a substantial coverage gap, not due to a lack of medical knowledge, but because of weak health systems, poor policy implementation, and chronic under-investment. The gaps persist, even in the face of scalable programs like the WHO HEARTS initiative and the Global Diabetes Compact. These failures illustrate the heart of the slow crisis, where existing solutions are available but remain inaccessible to the very populations that need them

most [17, 21,22].

The global diabetes crisis is not simply a matter of access to treatment, but a reflection of deep-seated weaknesses in health system design and equity failures that disproportionately endanger the world's most marginalised communities [4,23]. Despite the availability of life-saving treatments like insulin, many crisis-affected regions struggle to provide insulin. According to *The Lancet*, only about two-thirds of humanitarian sites offer insulin, and just 3% provide a full care package that includes education, testing, medication, trained staff, and follow-up [4]. High staff turnover, lack of clinical training, and fragmented data systems further disrupt continuity of care, leaving displaced and vulnerable populations at risk of unmanaged complications [4,23]. The lack of comprehensive national registries in most countries hampers the design of effective interventions, while fragmented health care models fail to bridge pediatric and adult services [7]. These reflect systemic gaps not only in healthcare access but also in preventive public health strategies, pointing to deeper structural failures that mirror global patterns. Even in high-resource settings, the diabetes response is faltering, demonstrating that the crisis is driven not by a lack of solutions but by a lack of equity, political will, and comprehensive system-level reform [24]. Taken together, these failures are not incidental but reflect a historical global health architecture that has prioritised vertical, disease-specific programmes over horizontally integrated primary care systems, leaving many countries structurally unprepared for the continuous, prevention-oriented demands of diabetes care.

Health Financing Constraints and Treatment Gaps

The financial burden of diabetes care remains a major driver of inequality and a key reason why millions are left behind despite the availability of effective treatments. In countries like India, the cost of managing diabetes is largely borne out-of-pocket, with medicines accounting for the majority of these expenses even in public facilities. For the poorest households, this burden is catastrophic: nearly 36% of families in the lowest income quintile experience severe financial distress when accessing diabetes care, often leading to debt or the sale of essential assets. The situation is worsened by the reliance on private-sector care, which can cost up to four times more than public options. These inequities reveal a critical gap in healthcare financing, one that transforms a treatable condition into a pathway to

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deeper poverty and poorer health outcomes [25]. Financial strain imposed by diabetes is a clear signal that current strategies are failing diabetes management, not because solutions are unavailable, but because prevention, early detection, and cost-effective interventions are under-prioritised. This economic lens reveals that the global community is not just ignoring a health issue, but also mismanaging a development crisis with long-term socioeconomic consequences, particularly for vulnerable nations [26].

Beyond individual financial hardship, these financing failures translate into systemic gaps in treatment provision. Middle-income countries, despite having fewer resources, are disproportionately affected relative to their GDP, highlighting the inequity in global health financing and resilience [26]. Although these regions account for nearly 80% of the global diabetes burden, only about 4.6% of diagnosed adults receive all three core recommended treatments, which include glucose-lowering medication, blood pressure control, and cholesterol-lowering therapy, along with lifestyle counselling. This means that millions are left with only partial or inadequate care, even after being diagnosed [16]. While financial barriers are being addressed in some settings, systemic failures such as inadequate drug supply and unequal facility readiness continue to hinder effective care. The crisis, therefore, is not merely about affordability; it is about a failure to translate financial coverage into consistent, quality service delivery [27].

The insulin supply crisis is a striking illustration of how global diabetes management is failing millions despite the existence of effective treatments. Over 95% of the world's insulin is produced by just three multinational companies, creating a fragile and highly concentrated supply chain that drives up costs and limits access, particularly in low- and middle-income countries. This concentration limits competition and keeps prices high, with government procurement costs ranging from US\$4.30 to US\$6.90 per vial, typically higher in Africa and low- and middle-income countries. This monopolisation, coupled with inadequate procurement systems and weak regulatory oversight, has left half of the people with type 2 diabetes without the insulin they need. In many settings, patients must pay out-of-pocket for overpriced insulin, while governments struggle to manage procurement and distribution due to poor

infrastructure and governance gaps. Moreover, a WHO report revealed that half of the people who need insulin for type 2 diabetes do not receive it, particularly in LMICs where demand has outpaced supply and costs are compounded by the shift from affordable human insulin to pricier analogues [28,29].

"The Digital Divide: How Technology Deepens Inequities" for more Impact

While diabetes technology, such as continuous glucose monitors, insulin pumps, and telemedicine, offers transformative potential for improving disease management, it is increasingly becoming a symbol of the inequities driving the slow crisis [19,30]. These tools remain largely inaccessible to the very populations most burdened by diabetes, including those who are uninsured, under-insured, or from racial and ethnic minority groups. Multilevel barriers ranging from high costs and inadequate patient education to systemic provider bias continue to limit access. As a result, technological advancements risk deepening existing health divides, benefiting the already advantaged while leaving millions behind [19].

Many of these digital health tool solutions aimed at managing type 2 diabetes fail to resonate with the real-life needs of patients. They are designed around clinical priorities rather than the daily realities of patients. A key reason is the disconnect between top-down technological innovation and the daily experiences of those living with diabetes. Research has shown that patients' needs evolve over time, yet most digital solutions remain static and one-size-fits-all [30]. A Co-design study shows that patients' needs evolve, shifting from diagnosis to disease management and long-term maintenance, yet most apps remain static and inflexible. What consistently resonates with users is tools that support structured self-monitoring of blood glucose, thus empowering them with actionable data that fits into their routines [31]. When technological solutions are developed without alignment to patients' evolving needs and contexts, innovation risks privileging clinical efficiency over equity, widening the very gaps it seeks to close.

Recommendation

Combating diabetes at scale requires a shift from fragmented, treatment-centric responses toward a comprehensive systems approach that addresses both the clinical and social realities shaping disease risk and outcomes. It calls for bold structural reform beyond the health sector, including action on food

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systems, urban design, and environmental policy [7,13]. A coherent response can be framed around three interdependent pillars: strengthening health system foundations, addressing social drivers, and harnessing innovation explicitly for equity.

1. Fixing the foundation of health systems is essential. Diabetes is a chronic condition that demands continuous, coordinated care, yet many health systems, particularly in LMICs, remain oriented toward episodic, acute service delivery. Substantial investment in primary healthcare is required to support early detection, long-term follow-up, and patient education. Strategies such as task-shifting to trained community health workers, integrated referral pathways, and strengthened health information systems can improve continuity of care while alleviating workforce shortages. On the supply side, pooled procurement mechanisms, price regulation, and regional purchasing platforms are critical to reducing costs and stabilising access to essential medicines and diagnostics. Without these foundational reforms, even the most effective therapies remain functionally inaccessible to large segments of the population.
2. Meaningful progress depends on attacking the root social and commercial determinants of diabetes. Health systems alone cannot counteract the powerful upstream forces driving the epidemic. Cross-sectoral policies are required to reshape food systems, urban environments, and commercial practices that promote unhealthy consumption. This includes subsidies and fiscal incentives to make nutritious foods affordable, regulation of ultra-processed foods and sugar-sweetened beverages, and urban planning that supports physical activity and reduces environmental risk exposures. Culturally sensitive care models and provider training to address implicit bias are also necessary to ensure that marginalised populations are not systematically excluded from prevention and care. Framing access to quality diabetes care as a social right rather than a market commodity is central to reducing entrenched inequities [18].
3. Innovation must be deliberately designed for equity rather than efficiency alone. Digital health tools and novel technologies hold promise for improving diabetes self-management, but only when they are co-

created with communities and adapted to patients' evolving needs. Equity-by-design requires affordability mandates, multilingual and low-literacy interfaces, offline functionality, and integration into routine care pathways. Evidence suggests that patient-centred digital tools, such as personalised glucose monitoring platforms and adaptive web-based education, can empower self-management when they align with lived realities rather than abstract clinical priorities [31]. Without such safeguards, innovation risks amplifying existing disparities.

WHO and its partners have called for expanded production of human insulin, increased biosimilar competition, pooled procurement, price regulation, and the inclusion of insulin and monitoring technologies in international prequalification lists [29].

Ultimately, the persistence of the global diabetes crisis reflects not a lack of knowledge or innovation, but a failure of political will and coordinated action. Without sustained investment in integrated health systems, cross-sectoral prevention, and equity-driven innovation, diabetes will continue to exact a slow but devastating toll, particularly among young people and marginalised communities. Addressing diabetes effectively, therefore, requires life-course, youth-centred prevention strategies and structural reforms that acknowledge and confront the social conditions shaping health from childhood through adulthood [19].

Global policy recommendations provide a concrete roadmap but remain inadequately implemented. WHO and its partners are calling for expanded human insulin production, bio-similar competition, price regulation, pooled procurement, and inclusion of insulin and monitoring tools in prequalification lists, but without rapid implementation, millions will continue to suffer from a lack of basic, life-saving medication [29]. Progress has been slow due to political and economic barriers, including restrictive trade agreements, limited manufacturing capacity in LMICs, and the weak negotiating power of low-income countries within global pharmaceutical markets [32]. These constraints reflect an economy that prioritises commercial interests over population health, undermining the translation of technical solutions into equitable access.

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systems, cross-sectoral prevention, and equity-driven innovation, diabetes will continue to exact a slow but devastating toll. Addressing diabetes effectively, therefore, requires structural reforms that acknowledge and confront the social conditions shaping health [7].

Conclusion

Despite the availability of effective therapies and growing global attention, diabetes continues to represent a slow-moving crisis driven less by scientific limitation than by political and structural inaction. This commentary demonstrates that inequitable financing, weak health systems, and neglected social determinants are central to persistent treatment gaps. Addressing diabetes, therefore, requires coordinated, cross-sector reforms that align health systems strengthening, preventive policy, and equity-oriented innovation.

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