

7. Diabetes- Science & Technology

Diabetes Atlas projections indicate 900 million people will have diabetes in 2050. The IDF 11th Diabetes Atlas projects a global surge to nearly 900 million cases by 2050, driven primarily by urbanization and lifestyle shifts in middle-income countries like India and Pakistan. This crisis is complicated by structural healthcare gaps and the emergence of "Type 5" diabetes affecting lean individuals, necessitating urgent preventive reforms beyond just obesity management.

Core Projections- IDF 11th Diabetes Atlas

Source- International Diabetes Federation (IDF), 11th Edition.

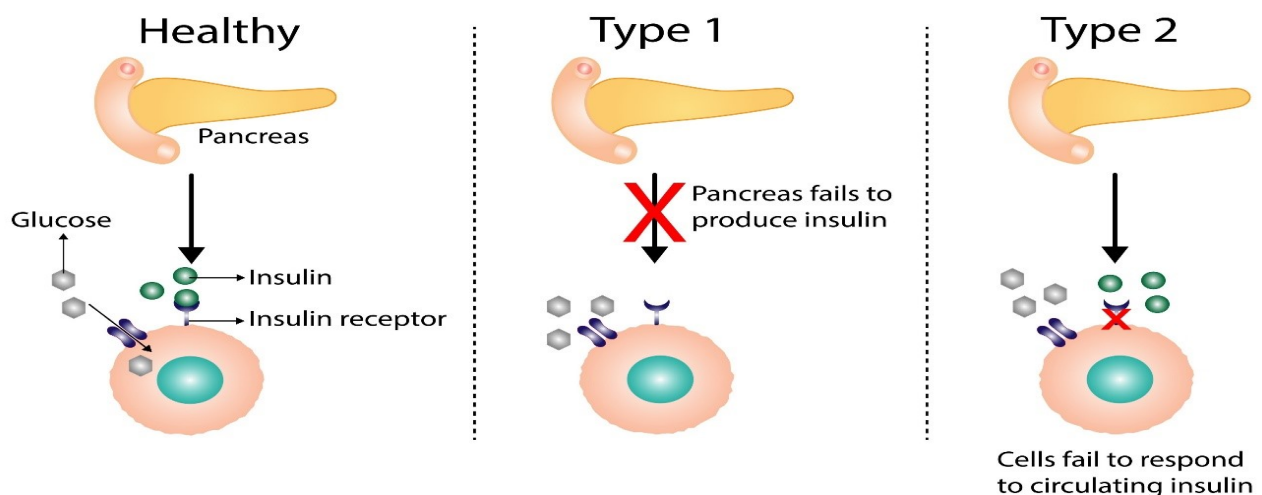
The Surge

2022 Baseline- Approximately 500 million people worldwide.

2050 Projection- Expected to rise to nearly 900 million (Age group 20–79).

Urgency- Experts emphasize the immediate need for strong preventive measures to flatten this curve.

Diabetes mellitus



Statistical Breakdown & Prevalence

Global Prevalence Trends

2024 (Current)- ~11.1% of adults (~580 million).

2050 (Projected)- ~12.6% of adults (~850–900 million).

Growth Hubs- Middle-income countries are witnessing the highest growth rates in prevalence.

Urban vs. Rural Divide

The explosion is largely an urban phenomenon.

Region	2024 Population	2050 Projection	Trend Analysis
Urban	~400 million	~655 million	Massive Increase- Driven by urbanization and life-style changes.
Rural	~198 million	~198 million	Stagnant- Numbers remain flat, likely due to under-diagnosis rather than lack of cases.

Country-wise Burden (2050 Projections)

The ranking of countries with the highest diabetic populations is expected to shift-

1. **China-** Highest burden.
2. **India-** Second highest.
3. **Pakistan-** Projected to overtake the USA to claim third place.
4. **USA-** Projected to fall to fourth place.

Drivers of the Diabetes Explosion

The rapid rise is fuelled by a convergence of three major factors.

Lifestyle Factor

Urbanisation- Shift towards sedentary habits.

Dietary Shifts- High consumption of ultra-processed foods and sugary beverages.

Health Metrics- Rising obesity rates, chronic stress, and sleep disorders.

Structural Factors

Urban Planning- Cities suffer from poor walkability and lack of active transport options.

Healthcare Gaps- Weak focus on preventive care and inadequate integration of Non-Communicable Diseases (NCDs) into primary health systems.

Socio-economic Factors

Awareness- Low health literacy among populations.

Demographics- Expansion of middle-income groups leading to lifestyle shifts.

Affordability- Reliance on cheap, calorie-dense, but nutrient-poor diets.

Understanding Diabetes

Definition- A chronic metabolic disease characterized by elevated blood glucose (blood sugar) levels.

Mechanism- Occurs when the body either cannot produce enough insulin or cannot effectively use the insulin it produces.

Impact- Over time, high blood sugar damages the heart, blood vessels, eyes, kidneys, and nerves.

Global Status- 830 million people affected worldwide. Majority live in low-and middle-income countries.

Treatment Gap- More than 50% of patients do not receive treatment.

Classification of Diabetes

Type	Description	Key Characteristics
Type 1	Autoimmune destruction of insulin-producing cells.	Requires daily insulin. Mostly affects children/young adults.
Type 2	Body becomes resistant to insulin or produces insufficient amounts.	Most Common- Accounts for >95% of cases. Linked to obesity, inactivity, genetics. Preventable via lifestyle changes.
Gestational	High blood sugar developing during pregnancy.	Increases risk for both mother and child. Raises risk of developing Type 2 later in life.
Type 5	A newly recognized form affecting specific demographics.	Affects lean teens/young adults. Associated with BMI below 18.5 kg/m ² .

Symptoms and Detection

Type 1 Symptoms- Sudden onset of frequent urination, excessive thirst, constant hunger, weight loss, vision changes, and fatigue.

Type 2 Symptoms- Similar to Type 1 but less marked/severe.

Diagnosis Delay- Often diagnosed years after onset, sometimes only after complications (like nerve damage or vision loss) have already appeared.

Importance- Awareness of risk factors is critical for early detection.

Government Initiatives (India Focus)

The government has launched several schemes to tackle NCDs and Diabetes-

Fit India Movement- To promote physical activity and active lifestyles.

Ayushman Arogya Mandirs- Strengthening primary healthcare infrastructure for screening and wellness.

Education- CBSE mandates 'sugar boards' in schools to display sugar content in foods and educate children on health risks.

NP-NCD- National Programme for Prevention and Control of Non-Communicable Diseases.

PMBJP- Pradhan Mantri Bhartiya Janaushadhi Pariyojana to provide affordable generic medicines (including insulin/diabetes drugs).

Observation- World Diabetes Day is observed to raise awareness.

Source- <https://www.thehindu.com/podcast/in-focus-parley-is-the-artificial-intelligence-boom-a-bubble/article70412059.ece>