Why diabetes risk isn't just lifestyle, but where you live

Written by The Life Science Feed Editorial Team · Published 29 September 2026 · Edited by Mara Voss

> Neighbourhood poverty is already a known risk factor for type 2 diabetes, but it has been unclear whether the risk actually changes if someone moves away from a high-poverty area, or whether it simply reflects fixed personal characteristics that follow a person regardless of where they live. A large Ontario study presented at the EASD Annual Meeting in Milan tests this directly by tracking what happened to people who moved.

KEY TAKEAWAYS

- The Pivot: Type 2 diabetes risk tied to neighbourhood poverty is not fixed, it changed measurably when people actually moved to a less deprived area.
- The Data: Moving to a lower-poverty neighbourhood was associated with a 57% lower diabetes rate than not moving, and a 24% lower rate than moving to another high-poverty area.
- The Action: The authors frame this as an argument for urban policy and housing investment as a genuine lever on diabetes prevention, not just individual-level lifestyle advice.

Sharmin Majumder at the University of Toronto's Institute of Health Policy, Management and Evaluation, and colleagues across several Toronto institutions, followed 1,932,869 adults in Ontario, Canada (average age 42.1, roughly 51% female) who were free of diabetes and living in high-poverty neighbourhoods, defined as areas where at least 30% of households fall below Statistics Canada's after-tax Low-Income Cut-Off. Participants were followed for up to 21 years. The researchers compared three groups: those who moved to a lower-poverty neighbourhood, those who moved to another high-poverty neighbourhood, and those who did not move at all, using inverse probability weighting to balance the groups on age, sex, immigration background, neighbourhood walkability and city size, since people who move are not a random sample of the population.

The diabetes risk difference was large in both comparisons

People who moved from a high-poverty to a lower-poverty neighbourhood developed type 2 diabetes at a 24% lower rate than those who moved to another high-poverty neighbourhood, and at a 57% lower rate than those who did not move at all. Notably, people who stayed in the same high-poverty neighbourhood had a higher diabetes rate than those who moved between two high-poverty areas, a difference the study was not designed to explain. "People who move may differ from people who do not move in ways that are difficult to fully measure, so this finding should be interpreted cautiously and requires further investigation," said Dr Majumder.

What might explain the difference

The study did not test which specific neighbourhood features drove the lower risk, but Dr Majumder points to plausible mechanisms: "lower poverty neighbourhoods may differ from high-poverty neighbourhoods in many ways that can influence health, including the presence of healthy and affordable food retailers, opportunities for physical activity, such as neighbourhood walkability and green spaces, and investments in healthcare and other community resources." She also points to environmental stressors that could cut the other way, "traffic-related air pollution and noise, and opportunities residents have to make social connections."
Dr Majumder frames the finding as relevant to urban planning as much as to medicine: "understanding which neighbourhood conditions are linked to better health could help inform urban revitalisation efforts and initiatives to improve disadvantaged communities, for example, through better housing, more walkable environments, safe recreational spaces and improved access to community resources." No conflicts of interest were declared by the authors.

The observed differences in diabetes incidence underscore the profound impact of social determinants of health, extending beyond individual choices to the very fabric of community infrastructure. The study's robust methodology, employing inverse probability weighting, strengthens the causal inference by mitigating selection bias inherent in observational studies of migration patterns. However, as Dr. Majumder notes, residual confounding factors related to unmeasured individual characteristics of movers versus non-movers warrant cautious interpretation. For instance, individuals with greater health literacy, proactive health-seeking behaviors, or stronger social capital might be more inclined and able to relocate to more advantageous neighborhoods, potentially influencing their diabetes risk independently of the neighborhood's objective characteristics.

Further research is crucial to dissect the specific mechanisms through which neighborhood characteristics influence metabolic health. While the study points to plausible factors like food access, physical activity opportunities, and environmental stressors, direct measurement and intervention studies are needed. For example, future investigations could employ geospatial analysis to quantify the density of healthy food retailers or green spaces in different poverty strata and correlate these directly with diabetes incidence. Similarly, objective measures of air and noise pollution, coupled with biological markers of stress (e.g., cortisol levels), could illuminate the pathways through which environmental stressors contribute to metabolic dysregulation.

The clinical implications of these findings are substantial for healthcare professionals. Beyond traditional risk factor modification, clinicians should consider a patient's residential environment as a critical, modifiable determinant of health. This perspective encourages a more holistic approach to diabetes prevention and management, prompting discussions with patients about their living conditions and potential barriers to healthy behaviors. For instance, a patient residing in a high-poverty neighborhood with limited access to fresh produce might benefit from referrals to community-supported agriculture programs or food prescription initiatives, rather than solely focusing on dietary advice that may be impractical to implement.

Moreover, these findings advocate for healthcare systems to engage more actively in community health initiatives and urban planning dialogues. Investing in programs that improve neighborhood walkability, expand access to green spaces,

and support the establishment of healthy food environments in disadvantaged areas could yield significant public health dividends, reducing the burden of type 2 diabetes at a population level. This paradigm shift from an individual-centric to a community-centric approach aligns with the growing recognition of health equity as a core tenet of modern medicine, emphasizing that where one lives should not dictate one's health outcomes.

CLINICAL IMPLICATIONS

For public health planning, this data adds weight to neighbourhood-level interventions, food access, walkability, green space, community investment, as a genuine diabetes prevention lever, not just a correlational curiosity. The size of the effect, more than halving the diabetes rate compared with staying in place, is large even by the standards of lifestyle intervention trials.

The counterintuitive finding that movers between two high-poverty areas fared better than non-movers is a real limitation the authors flag themselves: people who move at all may differ systematically from people who stay, in ways that inverse probability weighting on measured characteristics cannot fully capture. This is an observational study and cannot rule out that some of the association reflects who chooses or is able to move, rather than the neighbourhood change itself.

The study also cannot identify which specific neighbourhood features matter most, food environment, walkability, healthcare access, or social and environmental stress, which the authors themselves name as the necessary next step before this translates into a specific policy lever rather than a general case for reducing neighbourhood deprivation.

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REFERENCES

1. Majumder S, et al. How moving neighbourhood can alter risk of type 2 diabetes. Abstract 350. Presented at the European Association for the Study of Diabetes (EASD) Annual Meeting, Milan, Italy, 27 September-2 October 2026.

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