

## International comparison in walkable environments and hospital burden in type 2 diabetes patients

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### Introduction

While some comparative work has provided evidence for a universally positive impact of built environment features that promote physical activity, less is known about chronic diseases and hospitalization among different social contexts and health care systems. Parallel international linkage efforts present an opportunity to study health impacts of the built environment.

### Objectives and Approach

This study compares the impact of neighbourhood environments on health outcomes for patients with type 2 diabetes (T2D) in two countries. Neighborhood-level measures for walkable environments were derived for Canada and Wales using Geographic Information Systems. Hospitalization admissions from routine data sources and linked survey data responses (from the Welsh Health Survey and Canadian Community Health Survey) allow for the generation of population-based descriptive statistics on socio-demographic information, self-reported health, diagnostic patterns, and health care use. We examine the feasibility of investigating contextual differences in walkable environments, T2D, and hospitalization between Wales and Canada.

### Results

Data linkage in respective privacy protecting safe havens in the Canada Research Data Centre Network (CRDCN) and the Wales Secure Anonymised Information Linkage (SAIL) Data-bank show promise for a comparative study, enabling parallel modelling of environmental and socio-demographic factors with hospitalization data. Both the Canadian and Welsh surveys ask respondents about their current diabetes status, allowing us to compare hospitalization rates and neighborhood effects of those who report having diabetes with the those who do not. Moreover, the linking of survey responses and similarity in geographic scale permitted consistent measurement of walkable environments across countries. Key administrative variables have been identified relating to health and behaviors,

such as socio-demographic information, smoking status, and body mass index, and hospitalization metrics in both countries are commensurable.

### Conclusion/Implications

The generation of comparable linked datasets, built environment indicators and comparative research for T2D patients will have wider implications for international assessment of the impacts of environment on chronic diseases, and the hospital burden associated with these conditions.

