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## Measuring Active Living Environments: An international comparison between Canada and Wales

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### Background

The impacts of the built environment on health is a widely studied international area of research. One area of research is how urban morphology (e.g. active living environments, also known as neighbourhood walkability) may promote healthy behaviour within a population. However urban morphology and data relating to the built environment varies across different countries.

### Objectives

One of the challenges in international studies is producing consistent, comparable measures of the built environment, in this case active living environments. As part of a study which compares the impact of neighbourhood environments on health outcomes for patients with type 2 diabetes (T2D), neighbourhood-level measures for walkable environments were derived for Canada and Wales using Geographic Information Systems (GIS).

### Methods

Using method based upon the Canadian Active Living Environments Database (Can-ALE) we created walkability indicators for Wales, UK. We created GIS models using OpenStreetMap and Office for National Statistics (ONS) Open Data to produce walkability metrics for each Lower Layer Super Output Area (LSOA) in Wales for linkage into the SAIL databank. We compared the GIS generated walkability metrics for Wales with those produced for Canada to evaluate whether the GIS methods are internationally transferable in the context of generating walkability indicators and associations with T2D.

### Findings

This work highlights the challenges in creating internationally comparable environmental exposure metrics. The differences in urban morphology and scale in Canada and Wales are significant, however this work demonstrates how with considered methodological choices these differences can be overcome to generate comparable built environment indicators.

### Conclusions

The generation of comparable walkability indicators for the built environment has allowed subsequent analysis into hospital admissions for people living with T2D in Canada and Wales. This study has wider implications for international research into the impacts of the built environment on population health and are reproducible on future studies.

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