Community Health Mapping to Investigate Health Disparities between Neighbourhoods in Toronto

Claus Rinner[1], Igor Dragovic[1], Jacqueline Young[1], Dianne Patychuk[2], Yogendra Shakya[3], Andrew Koch[3]

[1]Department of Geography, Ryerson University, [2]Steps to Equity, [3]Access Alliance Multicultural Health and Community Services
*corresponding author: crinner at ryerson.ca, 1 416 979 5000 x 2686

Introduction

The characteristics of places have an impact on the health of individuals living in those places. This makes place-based analysis an important tool to develop equitable health strategies. This project uses geographic information systems (GIS) and mapping to investigate health disparities between neighbourhoods in Toronto.

Approach

We created user-defined thematic maps of demographic and socio-economic health indicators and composite measures of health service priority. The maps in the first set were defined by community health centre staff and created from Census variables and the centre's client data using *ArcGIS*. The second type of maps was created using the multi-criteria analysis function within the interactive thematic mapping tool *CommonGIS*.

Results and Discussion

Map 1 (below) illustrates data issues and cartographic choices that influence the usefulness of a map for communication and decision support: Health indicators such as the shown proxy for health status are usually reported at the neighbourhood level; age- and gender-specific rates are often used for local planning purposes; and classification method and colour selection affect the apparent spatial patterns of health disparities. The map also includes major roads and health regions for orientation.

Recent Immigrant Population with Low Income in Toronto
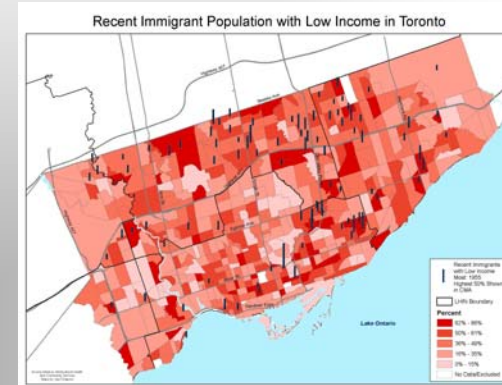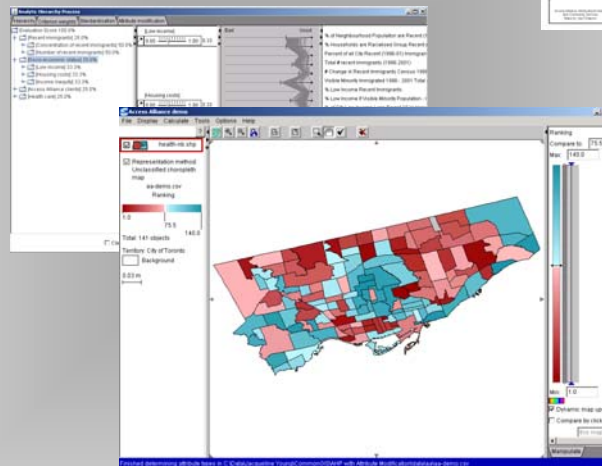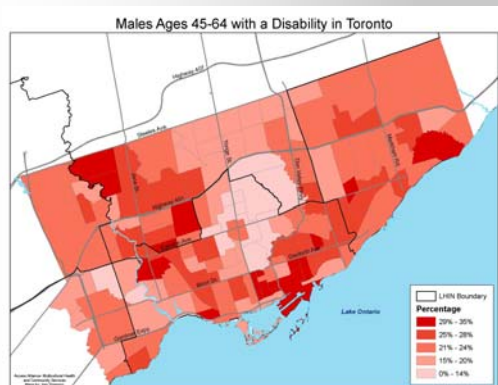
Map 2 (above) integrates two mapping methods, choropleth and proportional symbol mapping. Choropleths should only be used for area-standardized variables such as densities or proportions. However, to support health service planning, the number of disadvantaged people is equally important as their density. Therefore, the map shows the number of low-income recent immigrants through proportional bars on top of the area-shaded proportions.

Map 3 (centre) is a snapshot during the map-based exploration of composite health indices. The map shows a tentative ranking of neighbourhoods where dark red indicates highest priority for the development of new programs or services by the community health centre.

Conclusion

The user-defined maps were highly valuable for answering questions such as "what are the characteristics of the neighbourhoods where our refugee clients live?" The multi-criteria maps allowed community health planners to interactively explore how different index compositions and weightings changed which areas emerged as priority areas. Future research will study the effectiveness of mapping to reduce health disparities.

Males Ages 45-64 with a Disability in Toronto