Interdisciplinarity in Population Health Research and Teaching

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Outline

- Health inequalities bring need for interdisciplinary research into sharp focus
- Case studies of interdisciplinary research in population health
  - Obesity
  - Diabetes
- Case study of interdisciplinary teaching GEOG 221/NRSC 221 Environment and Health at McGill
- Concluding remarks
Life Expectancies Vary Widely Across Montréal

Source: Regie Regionale de la Sante et des Services Sociaux de Montreal-Centre (2002)
City-Specific Male Lung Cancer Mortality by Neighbourhood Income Quintile, Canada, 1996
Case Study 1: Obesity in Canada

- During the 15 years between 1981-1996 combined overweight and obesity (BMI ≥ 25) in Canada increased from:
  - 48% to 57% among men
  - 30% to 35% among women
- The rates increased in each province
- Unlikely major genetic shift in population during that time period – look at possibility of obesogenic environments
Projection of the prevalence of obesity by region
Females

Lepetite et al., 2005
Projection of the prevalence of obesity by region
Males

Lepetite et al., 2005
What is Going On? What Can we Do?

- Focus on the built environment: landuse, public transit, foodscapes, availability activity options
- Most successful public health interventions historically have shifted environments
INEQUALITY IN THE BUILT ENVIRONMENT

Relative odds of having at least 1 PA facility for every 100% increase in proportion of population with college or greater education (N = 42187; adjusted by population density and proportion minority)

Distribution of BMI by Education Level, Women, 20-64, Canada
Relationship Between Mean BMI and Urban Sprawl
Canadian Metropolitan Areas, 2001

- Male BMI Quebec CMAs
- Male BMI CMAs Outside Quebec
- Female BMI CMAs Outside Quebec
- Female BMI Quebec CMAs
Case Study 2 – Walking Behaviour and Glycemic Control in Type 2 Diabetes (PI Kaberi Dasgupta)

- High glucose levels of T2D contribute to blood vessel injury and complications such as blindness, kidney failure, heart disease, and stroke.
- Key hypothesis: Seasonal weather extremes, neighbourhood environments may have an important impact on walking activity, leading to deterioration in glucose control among those with T2D.
- Walking measured with pedometers, glucose control measured by hemoglobin A1C.
Boarded-up industrial building with graffiti overlooking shuffleboard,
Parc Louis-Cyr, St. Henri

Photo by S. Coen
Signs of Social Disorganization,
Parc Morgan, Hochelaga-Maisonneuve

Photo by S. Coen
High quality play structure with extensive complexity, and esthetically pleasant fence, Parc Loyola, N.D.G.
Interdisciplinary Teaching: Environment and Health (GEOG 221/NRSC 221)

- Teaching the concepts of ‘natural’ vs. ‘social’ frames
- Hurricane Katrina, Chicago Heat Wave of 1995 were public health disasters before the meteorological events hit
- Concepts of environmental justice – air pollution exposure and socioeconomic status
- Taught by physical environment scientist and social scientist
Final Thoughts

- Health research is more interdisciplinary than ever before under CIHR
- Including ‘upstream’ perspectives should aid in the development of larger scale interventions
- Truly interdisciplinary teaching has lagged behind the research – takes more time and planning than traditional teaching