Do linguistic barriers have an impact on health disparities in Québec? A look at the situation for myocardial infarction cases.

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Outline

- Background
- Objective
- Methods
- Results
- Discussion
• Health disparities

• Differences in regard to a disease, health issues or health care access\(^1\)
  – Unfair and avoidable\(^2\)
  – Affecting a population that can be defined by social status, economic status, demographics or geographically \(^3\)

• In public health, health disparities should be considered as a chain of events leading to differences in … \(^4\)
  » The living environment
  » Access, use and quality of care
  » Level of health
  » A specific health problem

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1. *Eliminating health disparities in the US, 2001*  
2. Braveman 2006  
3. The International Society for Equity in Health 2005  
Background

- **Health determinants**
  
  Social services and health care
  Health care system
  Individual characteristics
  Environment
  Social
  Physical

  Genetics
  Gender

  Social status
  Social Network
  Education
  Employment
  Childhood
  Culture
  Stress
  Social exclusion
  Drug and Alcohol
  Diet
  Transportation
  Housing
  First nations

1. Shah 2003  
2. Wilkinson & Marmot 2003  
3. Raphael 2004  
4. Starfield 1998  
5. Health Canada 2002
Background

• Could a language barrier also cause health disparities?

• Knowing that…
  • …communication is very important in a patient-health care provider relationship\(^1\)
  • …having a second language ≠ an appropriate comprehension in a health-related situation\(^2,3\)

• But ⇒ not enough data available on linguistic minorities, their needs or their health\(^4,5\)

Background

• Why consider myocardial infarction cases?
  • One of the most important causes of incapacity and death in Canada
  1
  • Cardiovascular diseases have the biggest impact on economy
  1
  • Treatment efficacy is time dependant
  2
  • Established link with some social characteristics
    – Rurality
    3
    – Immigration
    4
    – Deprivation
    5
  • Treatment availability does not explain disparities
  6

Background

Acute myocardial infarction length of stay and hospital mortality are not associated with language preference

Grubbs, V. et al, J GEN INTERN MED 2008;23(2):190-194

Both recommended to look at longer-term issues after hospitalization

The effect of English language proficiency on length of stay and in-hospital mortality

John-Baptiste, A. et al, J GEN INTERN MED 2004;19:221-228
Objective

- Determine if differences in outcomes related with myocardial infarction can be associated with differences in the linguistic composition of communities in the province of Québec
Methods

• Design
  – Ecological analysis of secondary data

• Unit of analysis
  – Census Subdivision (CSD)

• Data sources
  – Statistic Canada
  – RAMQ registry
  – Québec’s hospital discharge database

Data sources are linked using geocoding.
Methods

• Population
  – Population of the province of Québec living outside the Montréal metropolitan area.
  – 2001 Census

• Cases of myocardial infarction (MI)
  – Patients aged 25 and up
  – Hospitalized in Québec between January 1\textsuperscript{st} 2000 and December 31\textsuperscript{st} 2003
  – Primary diagnosis: myocardial infarction, ICD-9: 410
• Correlations
  – Independent variable
    • % first language ≠ French
  – Dependant variables
    • MI outcomes
  – Confounding factors
    • % of men
    • % of aged 65 and up
    • Social deprivation
    • Material deprivation
Methods

<table>
<thead>
<tr>
<th>Classes</th>
<th>% of first language ≠ French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francophone</td>
<td>[0,0000 - 6,3317]</td>
</tr>
<tr>
<td>Partially francophone</td>
<td>[6,3317 - 20,4301]</td>
</tr>
<tr>
<td>Mixed</td>
<td>[20,4301 - 42,6230]</td>
</tr>
<tr>
<td>Partially non-francophone</td>
<td>[42,6230 - 73,8562]</td>
</tr>
<tr>
<td>Non-francophone</td>
<td>[73,8562 - 100,0000]</td>
</tr>
<tr>
<td>Rate of...</td>
<td>Bêta coefficient for language</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
<td>Uni. model</td>
</tr>
<tr>
<td>Incidence</td>
<td>0.005</td>
</tr>
<tr>
<td>Death at IH</td>
<td>-0.038</td>
</tr>
<tr>
<td>Death at 12 months</td>
<td>0.087 **</td>
</tr>
<tr>
<td>Death by CVD at 12 m.</td>
<td>0.024</td>
</tr>
<tr>
<td>Rehospitalization at 12 m.</td>
<td>0.039</td>
</tr>
<tr>
<td>Rehosp. for MI at 12 m.</td>
<td>0.002</td>
</tr>
<tr>
<td>Rehosp. for CVD at 12 m.</td>
<td>-0.023</td>
</tr>
<tr>
<td>Revascularization at IH</td>
<td>-0.092 **</td>
</tr>
<tr>
<td>PTCA at IH</td>
<td>-0.051</td>
</tr>
<tr>
<td>PAC at IH</td>
<td>0.009 *</td>
</tr>
<tr>
<td>Revascularization at 12 m.</td>
<td>-0.123 ***</td>
</tr>
<tr>
<td>PTCA at 12 m.</td>
<td>-0.082 **</td>
</tr>
<tr>
<td>PAC at 12 m.</td>
<td>-0.085 **</td>
</tr>
<tr>
<td>Patients who did not consult a family physician during the 12 month period following MI</td>
<td>0.284 ***</td>
</tr>
<tr>
<td>Patients who did not consult a specialist during the 12 months period following MI</td>
<td>0.204 ***</td>
</tr>
<tr>
<td>Patients who did not consult at an emergency room during the 12 month period following MI</td>
<td>0.038</td>
</tr>
<tr>
<td>Patients who did not consult at an outpatient clinic during the 12 month period following MI</td>
<td>0.177 ***</td>
</tr>
</tbody>
</table>

* p < 0.05  ** p < 0.01  *** p ≤ 0.001
Discussion

• Biggest impact of language barrier on service utilization
  • Accessibility, Availability, Acceptability
• At a population level, no significant influence from social and economic variables
• Possible bias
  • Ecological bias
  • Selection bias
  • MAUP and Geocoding accuracy
Thank you!

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