Overview

1. Setting the scene: the ‘localism’ agenda
2. Monitoring geographical inequalities in health
3. The place of the neighbourhood
4. Environmental inequalities and health
Localism in the UK

- May 2010 – **Coalition Government** (Conservative/Liberal Democrats)
- Implementing radical agenda
  - Budget cuts
  - Central government spend
  - Local government spend
  - Greatest cuts – most disadvantaged groups/places
- Implications include:
  - Increase Value Added Tax (VAT)
  - Removing ‘Education Maintenance Allowance’
  - Tripling student fees
  - Welfare
  - National Health Service restructuring
- Wholesale redefinition of the relationship between the individual and the state...?

Localism Agenda

- ‘Big Society’:
  - transfer of power & rights from centre to local
  - Increase role for community groups and third sector organisations – delivery of services
  - do things for yourself rather than the state
- Localism Bill:
  - Placing power at the heart of local communities?
  - Reinforce local democracy?
  - Devolving responsibility?
- Implications include:
  - return funds from business rates to councils that earn them rather than distribute according to need
  - removal of national housing targets
- Localism the shield for a sizeable redistribution from poor to rich?
Deficit reduction, localism and SDOH

Socio-ecological perspective:
- Social distribution in health - underlain by unequal distribution of resources fundamental to a healthful life
- Wealth, education, employment, access to health care, environment (physical, social, built etc) in which people live....

Fundamental implications for SDOH?
- rise in social & economic inequalities
- welfare support
- food security
- housing
- migration
- etc

Local environment (neighbourhoods)
- increasingly pertinent – public health/ health inequalities?

Monitoring geographical inequalities in health
Life expectancy in Glasgow

Calton
Life expectancy=54

Lenzie
Life expectancy=82

14km apart: 28 year difference in life expectancy

Table 1: Age and sex standardised mortality ratios (SMRs) and relative index of inequality* (RII) for age 0-74 according to tenth of poverty, 1990-2007

<table>
<thead>
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<td>1.67</td>
<td>1.75</td>
<td>1.79</td>
<td>2.06</td>
<td>2.58</td>
<td>2.90</td>
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<td>1.53</td>
<td>1.74</td>
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<td>2.73</td>
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<td>6</td>
<td>1.41</td>
<td>1.48</td>
<td>1.67</td>
<td>1.81</td>
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<td>5</td>
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<td>1.43</td>
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<td>4</td>
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<td>1.38</td>
<td>1.57</td>
<td>1.71</td>
<td>1.97</td>
<td>2.51</td>
<td>2.85</td>
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<tr>
<td>3</td>
<td>1.26</td>
<td>1.33</td>
<td>1.44</td>
<td>1.58</td>
<td>1.83</td>
<td>2.37</td>
<td>2.71</td>
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<td>2</td>
<td>1.22</td>
<td>1.29</td>
<td>1.33</td>
<td>1.47</td>
<td>1.69</td>
<td>2.21</td>
<td>2.55</td>
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<tr>
<td>1</td>
<td>1.18</td>
<td>1.25</td>
<td>1.26</td>
<td>1.35</td>
<td>1.52</td>
<td>2.04</td>
<td>2.38</td>
<td>2.38</td>
<td>2.38</td>
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The place of the neighbourhood

Figure 2. Travel time from population weighted meshblock centroids to closest food establishment in Christchurch.

Table 3. Food and alcohol outlets per 10,000 population in main urban areas in meshblocks divided into deprivation quintiles

<table>
<thead>
<tr>
<th>Deprivation quintile</th>
<th>N</th>
<th>1 Low</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 High</th>
<th>Ratio Q5:Q1</th>
<th>r*</th>
<th>p-Value</th>
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</thead>
<tbody>
<tr>
<td>Convenience stores</td>
<td>2473</td>
<td>4.1</td>
<td>6.8</td>
<td>11.3</td>
<td>12.2</td>
<td>12.8</td>
<td>3.09</td>
<td>0.95</td>
<td>0.01</td>
</tr>
<tr>
<td>Fast food outlets</td>
<td>2233</td>
<td>3.1</td>
<td>5.9</td>
<td>10.3</td>
<td>11.6</td>
<td>11.7</td>
<td>3.82</td>
<td>0.94</td>
<td>0.02</td>
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<tr>
<td>Multinational</td>
<td>395</td>
<td>0.4</td>
<td>0.7</td>
<td>1.7</td>
<td>2.4</td>
<td>2.4</td>
<td>6.36</td>
<td>0.96</td>
<td>0.01</td>
</tr>
<tr>
<td>Local</td>
<td>1828</td>
<td>2.7</td>
<td>5.1</td>
<td>8.6</td>
<td>9.2</td>
<td>9.3</td>
<td>3.46</td>
<td>0.93</td>
<td>0.02</td>
</tr>
<tr>
<td>Alcohol licensed outlets</td>
<td>3544</td>
<td>4.0</td>
<td>8.1</td>
<td>13.1</td>
<td>20.3</td>
<td>26.1</td>
<td>4.99</td>
<td>0.96</td>
<td>0.01</td>
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<tr>
<td>Hotels, taverns, clubs</td>
<td>2226</td>
<td>1.9</td>
<td>4.5</td>
<td>9.3</td>
<td>13.5</td>
<td>13.3</td>
<td>7.07</td>
<td>0.97</td>
<td>0.01</td>
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<tr>
<td>Bottle stores</td>
<td>770</td>
<td>1.1</td>
<td>2.3</td>
<td>3.6</td>
<td>3.8</td>
<td>3.9</td>
<td>3.51</td>
<td>0.92</td>
<td>0.02</td>
</tr>
<tr>
<td>Supermarkets, grocery stores</td>
<td>548</td>
<td>1.0</td>
<td>1.4</td>
<td>2.2</td>
<td>3.0</td>
<td>2.8</td>
<td>2.76</td>
<td>0.95</td>
<td>0.01</td>
</tr>
</tbody>
</table>

* Pearson correlation coefficients.
* Includes on and off-premise licences.
Gambling venues in NZ

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Summary of individual- (count and percentage) and neighbourhood-level variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depretration quintile (Health Survey)</td>
</tr>
<tr>
<td></td>
<td>1 (Low)</td>
</tr>
<tr>
<td>Respondents in survey</td>
<td>1703 (13.7)</td>
</tr>
<tr>
<td>Respondents in survey - Males</td>
<td>735 (15.1)</td>
</tr>
<tr>
<td>Respondents in survey - Females</td>
<td>968 (12.7)</td>
</tr>
<tr>
<td>Gamblers (all venues)</td>
<td>249 (12.5)</td>
</tr>
<tr>
<td>Gamblers (NCCS)</td>
<td>155 (9.9)</td>
</tr>
<tr>
<td>Gamblers (TADS)</td>
<td>162 (13.8)</td>
</tr>
<tr>
<td>Problem gamblers (TADS)</td>
<td>11 (13.8)</td>
</tr>
<tr>
<td>Problem gamblers (NCCS)</td>
<td>10 (14)</td>
</tr>
<tr>
<td>Problem gamblers (all venues)</td>
<td>5 (13.8)</td>
</tr>
</tbody>
</table>

Median travel distance (miles)
- All gambling venues: 1906 1691 1170 941 934 1261
- NCCS: 1666 1706 1223 977 964 1317
- TADS: 2305 2375 1770 1395 1350 1654
- Motion number of gambling venues ($ km): 17 12 15 24 26 19

Fast food outlets

Figure 1: Median travel distance to closest fast food outlet by New Zealand deprivation decile. Median travel distances all 99 m; NCCS: operated; TADS: 1005 m; analysis of variance, p<0.001.


**K Function Clustering**

High degree clustering around schools

Up to **5.5 times** more than expected

Particularly socially deprived schools

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**Table 1:** Distribution of fixed assets per 1,000 pupils by school level and school deprivation quintile

<table>
<thead>
<tr>
<th>School level</th>
<th>School deprivation quintile</th>
<th>Primary</th>
<th>Middle</th>
<th>Secondary</th>
<th>Δ (high)</th>
<th>2</th>
<th>2</th>
<th>1</th>
<th>Δ (low)</th>
<th>Q2, Q3, Q4, Q5</th>
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<tr>
<td><strong>WITHIN 500 m of schools</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast food</td>
<td></td>
<td>3.0</td>
<td>2.0</td>
<td>0.7</td>
<td>3.6</td>
<td>3.2</td>
<td>2.7</td>
<td>3.2</td>
<td>2.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Convenience</td>
<td></td>
<td>2.0</td>
<td>1.5</td>
<td>0.7</td>
<td>2.5</td>
<td>2.5</td>
<td>1.9</td>
<td>2.5</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>HI</td>
<td></td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
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<tr>
<td><strong>WITHIN 800 m of schools</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Fast food</td>
<td></td>
<td>3.0</td>
<td>2.0</td>
<td>0.7</td>
<td>3.6</td>
<td>3.2</td>
<td>2.7</td>
<td>3.2</td>
<td>2.1</td>
<td>2.7</td>
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<tr>
<td>Convenience</td>
<td></td>
<td>2.0</td>
<td>1.5</td>
<td>0.7</td>
<td>2.5</td>
<td>2.5</td>
<td>1.9</td>
<td>2.5</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>HI</td>
<td></td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*Excludes intervention-type schools.

*P < 0.05, difference compared to no-choice of food outlets within 400 m of schools.

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**Call to restrict junk-food sale near schools**

Guide children and pupils to purchase healthier foods in that way to prevent obesity, research shows.

The high volume of junk food around schools has been a source of concern in recent years. The new guidelines are expected to help reduce the prevalence of obesity and improve overall health outcomes.

Advertising around schools

- Route to school mapped for all pupils
- Average no. of food advertisements (unhealthy) greatest for pupils at most deprived school


Tobacco outlets and smoking

<table>
<thead>
<tr>
<th>Neighborhood access (min)</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>West -6.54</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Worse 3.22-4.58</td>
<td>1</td>
<td>1.22 (0.89 to 1.63)</td>
<td>1.18 (0.94 to 1.49)</td>
<td>1.06 (0.84 to 1.33)</td>
</tr>
<tr>
<td>Outside 1.60-3.02</td>
<td>1.17 (0.83 to 1.65)</td>
<td>1.12 (0.97 to 1.29)</td>
<td>1.12 (0.97 to 1.29)</td>
<td>1.06 (0.84 to 1.33)</td>
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<tr>
<td>Best &lt;1.60</td>
<td>1.22 (0.89 to 1.63)</td>
<td>1.12 (0.97 to 1.29)</td>
<td>1.12 (0.97 to 1.29)</td>
<td>1.06 (0.84 to 1.33)</td>
</tr>
</tbody>
</table>

Neighbourhood Destination Accessibility Index (NDAI): infrastructure support for neighbourhood physical activity

Median travel time to 16 sub-domains of community resources in deprivation quintiles across New Zealand


Health/ behaviour effects

- Associations between community resource access and health in NZ neighbourhoods:

  - **Access to supermarkets & convenience stores**
    - No association with fruit consumption
    - No association with vegetable consumption
    (Pearce et al. Journal of Epidemiology and Community Health 2008; 62, 198-200)

  - **Access to fast food outlets**
    - No association with BMI
    - No association with diet
    (Pearce et al. Health and Place 2009; 15, 193-197)

  - **Access to green space**
    - No association with CVD
    (Richardson, Pearce et al. BMC Public Health 2010; 10(1):240.)
Environmental inequalities & health

Funded by Natural and Environmental Research Council (NERC) 2008-10 (with R Mitchell and N Shortt)

Environmental justice and health inequalities

- Lack of work at intersection:
  - health inequalities – environmental disparities (environmental (in)justice)
- Implications of environmental inequalities for health inequalities?
  - Dissimilar effects on communities with varying socio-economic profiles?
  - Does SES modify the relationship between the environment and health?
Research Aims

Consider the social dimensions of multiple environmental risk factors:

1. Assess socio-spatial distribution of multiple dimensions of the physical environment (related to health)

2. Test the tool to assess implications for health and health inequalities

Socioeconomic deprivation

Socioeconomic deprivation:
- Multi-dimensional, e.g.:

Measures of Multiple Socioeconomic Deprivation
Environmental deprivation

Physical environmental deprivation:
- Multi-dimensional, e.g.:

Measures of Multiple Physical Environmental Deprivation?

Table 1 Environmental characteristics included in MEDIFs and the variables and data sources used to capture them

<table>
<thead>
<tr>
<th>Environmental Domain</th>
<th>Specific environmental variable</th>
<th>Data source</th>
<th>Measure defined</th>
<th>Examples of relevance for health</th>
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<tbody>
<tr>
<td>Industrial facilities</td>
<td>Locations of waste management</td>
<td>European Pollutant Emission Register (EPER) (grid references, 2001-2002)</td>
<td>Proportion of ward population living within 1 km of waste site or 1.6 km of metal site (2001-2002)</td>
<td>Cancer risk</td>
</tr>
<tr>
<td></td>
<td>and metal recycling sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salutogenic factors</td>
<td>UV radiation</td>
<td>UVR Index (Mo and Green 1974) calculated using Met Office monthly cloud cover data (1 km grid, 1994-2000) and latitude</td>
<td>Population-weighted average UVR for ward (1991-2000)</td>
<td>Protective effect against breast, prostate and colorectal cancers</td>
</tr>
<tr>
<td></td>
<td>Greenspace</td>
<td>Generalized Land Use Database (GLUD, England, 2001) and CORINE Land Cover Data (UK, 2003)</td>
<td>Estimated proportion of small area land surface classified as greenspace</td>
<td>Beneficial effect on self-perceived health, blood pressure, overweight and obesity</td>
</tr>
</tbody>
</table>

Multiple Environmental Deprivation Index (MEDIx)

MEDIX score -2 = Least environmentally deprived wards (‘healthiest’ places, theoretically)

MEDIX score +3 = Most environmentally deprived wards (‘unhealthiest’ places)

Mean values for environmental factors that influence health in the UK by quintiles of income deprivation (1=low, 5=high)
Figure 3  Mean per cent income-deprived population for each MEDIX score (a measure of multiple environmental deprivation)

Figure 4  Distribution of population across the six MEDIX scores, by income-deprivation quintile, in 2001
Figure 6  All-cause mortality Standardised Mortality Ratios (SMRs) by MEDix score adjusted for age and sex and age, sex and social deprivation (income-deprivation quintile). Bars indicate 95% confidence intervals.
Conclusion

- **Triple jeopardy?**
  - UK evidence supportive

- **Mixed evidence from neighbourhoods in NZ**
  - Questions some aspects of the neo-material understanding of health inequalities

- **Public health perspective on ‘Big Society’**
  - Localism agenda
  - Building community resilience and devolving local services?
  - Or putting a sticking plaster over the wound caused by macro-structural inequalities in power and resources?
  - Challenge to efforts to reduce health inequalities?