Putting Marmot into practice

The use of administrative data to profile the health and well being of populations at any geographical scale and drive forward change

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Priorities:
1. Give every child the best start in life.
2. Enable all children, young people and adults to maximise their capabilities and have control over their lives.
3. Create fair employment and good work for all.
4. Ensure a healthy standard of living for all.
5. Create and develop healthy and sustainable places and communities.
6. Strengthen the role and impact of ill health prevention.
The Gap in Life Expectancy between the least and most deprived decile is 11.2 in males and 6.5 in females. What can we do about it?
Diagnostic approach to the problem posed

Principles

• Marmot framework
• Slope Indicator a lever to drive a health inequalities strategy
• Elucidate which of the ‘accumulation of positive/negative’ impacts can be locally influenced
• Need to address
  – What is the local picture?
  – What should we be doing?
  – What are we doing?
  – How more do we need to do?
  – What more do we need to know?
• Started developing a deeper insight into the socioeconomic gradient of health locally (local picture)
• Working through how to use this to drive further action

Approach

• Characterise each deprivation decile?
  – Social determinants
  – Health behaviours
  – Health outcomes
  – Health and social costs
• How does this translate?
  – At locality level
• How do social characteristics link to health?
• How do the insights shape an inequalities strategy?
  – Priorities
  – Partners
  – Settings
  – Interventions

"The definition of insanity is doing the same thing over and over again and expecting different results“
Albert Einstein
This translates to predictable geographical variation in death rates linked to ward level deprivation....
What are the factors driving deprivation?

IMD is a composite score of:

- Income
- Employment
- Health Deprivation and disability
- Education, skills and employment
- Housing and services
- Crime
- Living Environment

- % means tested benefits
- % social tenure
- % Bangladeshi
- % <65 living in households with 3+
- % single parent household
- % in 3-generational households
- % aged 65+ living alone

IMD decile (1 = least deprived; 10 = most deprived)

% of population within each decile

G
F
E
D
C
B
A

% of population within each decile

0 10 20 30 40 50 60 70
1
2
3
4
5
6
7
8
9
10

IMD decile (1 = least deprived; 10 = most deprived)
The Marmot Review provides evidence of the association between social determinants across the life course and health outcomes.
We built on the existing population growth model, and linked further health and social care datasets.

Further data sets added. Linked at:

- Household level where key fields e.g. NHS no: in dataset
- SOA where data quality less robust
Our approach enables us to quantify the relationship at a very local level through data linkage

<table>
<thead>
<tr>
<th>Demography/Population</th>
<th>Wider determinants</th>
<th>Healthy lifestyles/ Risk factors</th>
<th>Services</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Receiving means tested benefit</td>
<td>Smoking</td>
<td>Admission rates</td>
<td>Life expectancy</td>
</tr>
<tr>
<td>Gender</td>
<td>Social tenure</td>
<td>Alcohol use</td>
<td>Elective/non elective</td>
<td>CVD mortality</td>
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<tr>
<td>Ethnicity</td>
<td>Single parent</td>
<td>Diet</td>
<td>Secondary care costs</td>
<td>Cancer mortality</td>
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<tr>
<td>Social service group</td>
<td>3 generation households</td>
<td>Physical activity</td>
<td>Cancer screening</td>
<td>Births</td>
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<td>learning disability</td>
<td>3+ children living alone</td>
<td>Low birth weight</td>
<td>GP practices</td>
<td>Deaths</td>
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<td>vulnerable adult</td>
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<td>Access to fast food outlets</td>
<td>Social care packages</td>
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<td>mental health</td>
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</tbody>
</table>

Aspiration to further include: Incapacity benefit, children’s services data, health visiting, district nursing, primary care
How do we analyse this data?

Started from a neutral position

• Analysed data to show key variables that explain >95% of variance.

• Used regression modelling to estimate cost of individual factors.

• As geo-referenced database carried out some spatial analysis e.g. proximity of transport nodes etc.
• We can profile people according to their socio-demographic characteristics

• We can further characterise them by their association with health behaviours and health outcomes
Example: People who live in social housing

- Around 54% live in social rented accommodation or LA stock compared to 35% nationally
- The odds of being economically inactive is nearly twice that of people living in other tenure
Example: People who live in social housing

**Tower Hamlets Picture**
- Around 54% live in social rented accommodation or LA stock compared to 35% nationally
- The odds of being economically inactive is nearly twice that of people living in other tenure

**Health Behaviours**
- Chance of being a current smoker is 50% higher
- Chance of having a BMI of 30+ is 40% higher
- Chance of being physically active 3 times a week is 20% lower
- Chance of drinking 2+ units a day is 40% lower

**Health Outcomes**

Tower Hamlets Partnership
improving today, shaping tomorrow
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HEALTH OUTCOMES
- Chance of having a low birth weight baby is nearly 1.5 higher
- Chance of having general bad health is 2.5 times higher
- Chance of having a long standing illness is 2.6 times higher
- Chance of having problems with mobility is 2.9 times higher
Example: People who are Bangladeshi

TOWER HAMLETS PICTURE

- 33% of the Tower Hamlets population is Bangladeshi
- Nearly twice as likely to live in social housing
- Over twice as likely to be on means tested benefits
- Over 65s six times less likely to live alone
- 60% more likely to be economically inactive

HEALTH BEHAVIOURS

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- 30% less likely to do physical activity 3 times a week
- 40% less likely to smoke
- 90% less likely to drink 2+ units a day
- 20% less likely to have a BMI of 30+

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HEALTH OUTCOMES
- 50% higher fertility rate
- 20% more likely to have a low birth weight
- 20% more likely to have general bad health
- 30% less likely to have a long standing illness or disability
The economic argument for targeting resources more intelligently – socio-demographic factors are predictive of secondary care expenditure.

- **Baseline for age group NO RISK FACTORS**
- **Single parent household**
- **Social housing**
- **Receiving benefits**
- **3+ children in household**
- **Living alone**
- **Aged 75+**

- **Under 20**
  - £25
  - £19
  - £120

- **20 - 64**
  - £37
  - £123
  - £80
  - £137
  - £84

- **Over 65**
  - £393
  - £91
  - £157
  - £551
• We can profile areas at different levels of geography according to different requirements.

• Examples: localities, wards, lower super output areas, deprivation deciles, GP catchment areas, people living within 500 metres of a given children’s centre, etc.
We can produce local area profiles using this intelligence.

**Local Area Partnership 2**
- Covers 2 wards
- 48% of households on means tested benefits
- 45% Bangladeshi
- 5.5% Lone parent households
- 10% households are 3 generational
- Hospital admission rates and costs similar to Tower Hamlets average
What does this mean in practice?
Example: Small area inequalities
Example: Small area inequalities

• Bangladeshi population 50% below the borough average
• 10% of households receiving means tested benefits
• 50% less people in general bad health
• 50% less mobile difficulties
• 56 hospital admissions per 1000 population annually
• Secondary care costs £80 per head

• Bangladeshi population 15% above the average
• 35% of households receiving means tested benefits
• 10% more people in general bad health
• Mobility problems consistent with borough average
• 151 hospital admissions per 1000 population annually
• Secondary care costs £210 per head
• We can combine this health intelligence with the broad evidence base supporting best practice community-based intervention

• Public Health can inform commissioners of local priorities and evidence of what works in response to this. We can support providers to make these recommendations relevant and practical to local services.
The evidence base enables constructive engagement on how we can put this into action.

**Prerequisites**
- Recs. 1-5
  - Policy Development
  - Long-term investment
  - Organisational and cultural change
  - Levels of engagement and power
  - Mutual trust and respect

**Infrastructure**
- Recs. 6-8
  - Training and resources
  - Partnership working
  - Area-based initiatives

**Approaches**
- Recs. 9-12
  - Community members as agents of change
  - Community workshops
  - Resident consultancy
  - EVALUATION
Public Health, through Health and Wellbeing Boards, have a role in engagement and enabling

- SMALL AREA DATA
- EVIDENCE BASE
- JSNA
- TARGETING INEQUALITIES
- HEALTH & WELLBEING BOARD
- PEOPLE: Eg. Bangladeshi advocates, RSLs
- PLACE: Eg. GPs, councillors
- ENGAGEMENT
  1. Endorsement
  2. Consultation
  3. Implementation
Conclusion & Discussion

• For Tower Hamlets – need data at a small area level
• Overcomes some of the problems around ecological fallacy and Modifiable Areal Unit Problem
• No new data collected – using what we have more effectively. It is important that we maintain data flows as public health moves out of the NHS
• Ability to finally put a service cost on inequality
• This should be Public Health core business
• Analysis is only the start – needs to flow through to change on the ground