Impacts of a national strategy to reduce population salt intake in England

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Importance of salt intake

• World Health Organization estimates high blood pressure responsible for ~50% cardiovascular disease worldwide (Ezzati et al 2002).

• And the cost of poor blood pressure control in the UK is estimated as 62,000 lives, and 125,600 cardiovascular events per year in 2003 (He and MacGregor 2003).

• WHO set a global target of 5 grams per day in 2002 (down from 6 g/d in 1989 recommendations)
UK picture on salt intake and blood pressure

- 24 hour urine sampling on around 800 British adults estimated levels of 9.7g/d in men, and 7.7g/d in women (National Centre for Social Research 2008).

- Blood pressure is high (=140/90) in 31.5% men, and 29.0% women (Health Survey for England 2010).

- Conservative estimate indicates that a reduction of 3 g/d would reduce strokes by 13% and ischemic heart disease (IHD) by 10%. (He and Macgregor 2003)
UK Salt reduction strategy

Implemented in 2003, and strengthened in 2006 to include a target of 6g/d by 2010

Target however, since delayed to 2012
(And one quick aside)

- This was an intervention focused on working collaboratively and mainly voluntarily with industry. In some ways similar to the direction England is moving.
What we did


This used to evaluate:
1. What have been the trends in salt (sodium) intake over this time period?
2. Have these trends been equitably distributed across the population?
Linear regression models of daily salt intake trends using:

- Age group (16–34, 35–54, 55–74 and 75+ years)
- Gender
- Ethnicity (White, South Asian, Black)
- Social Class (collapsed into manual vs. non manual)
- Hypertension status (≥140/90mmHg, or taking antihypertensive medication)
Findings on trends of salt intake

Geometric mean salt by age group

<table>
<thead>
<tr>
<th>Year</th>
<th>16-34</th>
<th>35-54</th>
<th>55-74</th>
<th>75+</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
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<td>2004</td>
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<td>2006</td>
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<tr>
<td>2007</td>
<td></td>
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</tr>
</tbody>
</table>
Trends by broad ethnic group

Geometric mean salt by ethnicity

Salt intake grams per day

Salt intake grams per day

2003 2004 2005 2006 2007
## Trends across all groups

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>Adjusted geometric mean in 2003</th>
<th>Reduction in grams per year</th>
<th>p value for differences between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>16-34</td>
<td>6.77</td>
<td>-0.242</td>
<td>&lt;0.000</td>
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<tr>
<td></td>
<td>35-54</td>
<td>5.24</td>
<td>-0.155</td>
<td>0.418</td>
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<tr>
<td></td>
<td>55-74</td>
<td>4.74</td>
<td>-0.186</td>
<td>0.788</td>
</tr>
<tr>
<td></td>
<td>75+</td>
<td>4.36</td>
<td>-0.171</td>
<td>0.903</td>
</tr>
<tr>
<td>Sex</td>
<td>Men</td>
<td>6.05</td>
<td>-0.226</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>4.66</td>
<td>-0.138</td>
<td>0.265</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White</td>
<td>5.21</td>
<td>-0.173</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td></td>
<td>South Asian</td>
<td>5.14</td>
<td>-0.051</td>
<td>0.333</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>8.09</td>
<td>-0.394</td>
<td>0.465</td>
</tr>
<tr>
<td>Social Class</td>
<td>Non Manual</td>
<td>5.01</td>
<td>-0.197</td>
<td>&lt;0.000</td>
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<tr>
<td></td>
<td>Manual</td>
<td>5.60</td>
<td>-0.165</td>
<td>0.272</td>
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<tr>
<td>Hypertension</td>
<td>Normotensive</td>
<td>5.38</td>
<td>-0.211</td>
<td>&lt;0.000</td>
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<tr>
<td></td>
<td>Hypertensive</td>
<td>4.78</td>
<td>-0.141</td>
<td>0.186</td>
</tr>
<tr>
<td>Year overall</td>
<td></td>
<td>5.25</td>
<td>-0.175</td>
<td>&lt;0.000</td>
</tr>
</tbody>
</table>
Also some quick findings on knowledge and use of salt

In 2007 knowledge of guidance of 6g per day limit low, at 33% in the whole population.

Older people even less likely to be aware of guidance, as were South Asian people, and men

These same groups also more likely to add salt at the table, and during cooking

But, overall levels of adding salt falling since 2003.
What does other evidence tell us?

• This overall fall of 0.175g/d per year consistent with evidence from 24 hour urine sampling (NDNS 2011)

• Higher intake in the young, and in black and South Asian people also consistent with other national surveys (NCSR 2008, HSE 2006)
Conclusions

- Modest reductions in salt intake
- These broadly equitable
- This means that intake still higher in men, younger people, ethnic minorities, and those in manual occupations
Thanks

Particularly to:
Christopher Millett
Utz Pape
Neophytos Stylianou

And paper available on PLOS ONE at
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0029836

Questions?


• He FJ, MacGregor GA (2003). How far should salt intake be reduced? Hypertension;42(6):1093-9


