

# APPENDIX 9: Obesity Costing Report

## 1.0. Purpose

- 1.1 The aim of this paper is to demonstrate the estimated costs in treating obesity if we were to scale up investment in the management of obesity. This does not include the costs of preventative interventions which are as, if not more, important than the treatment costs.

## 2.0 Background

- 2.1 Obesity is rising. Almost two-thirds of adults and a third of children are either overweight or obese, and work by the Government Office for Science's [Foresight](#) programme suggests that, without clear action, these figures will rise to almost nine in ten adults and two-thirds of children by 2050. Childhood obesity levels have risen dramatically, particularly in the last 20 years.
- 2.2 Severely obese individuals (BMI>45) are likely to die on average 11 years earlier (13 years for a severely obese man between 20 and 30 years of age) than those with a healthy weight<sup>1</sup>. Obesity levels are related to socio-economic status with people from more deprived areas more likely to be obese.
- 2.3 It is estimated that there are about 3000 children in Newcastle aged 2-10 who are classified as obese (over the 95<sup>th</sup> centile), with a further 2600 classified as overweight (over 85<sup>th</sup> centile). It is estimated that there are over 45,000 adults in Newcastle who are classified as obese (Body Mass Index or BMI over 30) with a further 77,000 classified as overweight (BMI between 25 and 30). Measurements of Year 6 pupils show that schools in areas with higher deprivation are more likely to have higher levels of overweight and obesity. A map of estimates of levels of obesity in the adult population is shown in **Error! Reference source not found.** These estimates are produced by the Department of Health, based on applying national data to the demographics of the local population and are indicative only.
- 2.4 The Foresight report predicts that the costs of obesity are very likely to grow significantly in the next few decades. Apart from the personal and social costs such as morbidity, mortality, discrimination and social exclusion, there are significant health and social care costs associated with the treatment of obesity and its consequences, as well as costs to the wider economy arising from chronic ill health. The House of Commons Health Select Committee estimated that the total annual cost of obesity and overweight for England in 2002 was nearly £7 billion. This total includes direct costs of treatment, the cost of dependence on state benefits, and indirect costs such as loss of earnings and reduced productivity including an annual total of 45,000 lost working years.
- 2.5 If the current trend in rising obesity continues, the estimated NHS costs attributable to elevated BMI (overweight and obesity) for Newcastle<sup>2</sup> are set to

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<sup>1</sup> Fontaine, K.R., Redden, D.T., Wang, C. et al (2003) Years of Life Lost Due to Obesity. *Journal of the American Medical Association*; 289:187–93

<sup>2</sup> using proportion of national estimates for Newcastle PCT 2006/07 allocations

grow from £24.9 million in 2007/08 to £37.4 million in 2015 and £57.5 million in 2050.

### 3.0 Method

- 3.1 The NICE costing tool<sup>3</sup> for its obesity guideline (CG46) was used as the basis for this exercise. It has been extended to include all current intervention options for the treatment of obesity in Newcastle, when obesity has been identified. The model has been split between childhood and adult interventions
- 3.2. Assumptions have been made on the extent of the problem and the costs of some of the procedures. These have been highlighted as comments in the Excel spreadsheet (see Appendix A and B). The current costs and percentage uptake are based on current activity, except for paediatric referrals, where it is not possible to disaggregate obesity outpatient referrals as obesity is not coded.
- 3.3. The Excel spreadsheet should be used to model different scenarios to quantify approximate costs. The important variables are the proportion of the estimated obese population who are referred or access interventions.
- 3.4. The modelling does not take into account opportunistic or structured care which currently takes place in primary care, except for anti-obesity drug medication. A recent survey of GP practices in Newcastle shows that of the 18/36 practices (50% response rate) that returned questionnaires, three (17%) provide weight management clinics. Most (16, 89%) provide written information, 10 (56%) direct patients to voluntary sector or commercial weight management programmes, 16 (89%) use exercise on referral, 15 (83%) prescribe anti-obesity medication. 10 practices (56%) screen all adult patients for BMI, with most screening high risk groups (e.g. chronic disease clinics).

### 4.0 Types of Intervention

On the Go	A multi-component intervention for children aged 8-16 years in Newcastle. 'On the Go' staff meet them in their homes with their family and develop a bespoke 12 week nutrition, exercise and lifestyle plan, which they are mentored through by the 'On the Go' staff. This programme is necessarily intensive in terms of staff: child ratios – it's the personal attention; coaching and leadership which makes it work and fits in with NICE guidance.
Level 2 Weight Management Service	This programme is provided for adults (over 16 years) with a BMI >30 or >28 with related co-morbidities. It is a programme of twice weekly physical activity sessions, one of which is preceded by a lifestyle/education session. It is group based and lasts for 10 weeks

<sup>3</sup> <http://www.nice.org.uk/Guidance/CG43/CostTemplate/xls/English>

Level Weight Management Service	3	This specialist programme is provided for adults (over 16 years) with a BMI >40 or >35 with related co-morbidities. It includes assessment and a tailored programme depending on needs with input from nursing, dietetics and psychology where indicated.
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## 5.0 Results

- 5.1. Current costs for childhood obesity interventions (paediatric referrals, 'On the Go'<sup>4</sup> and anti-obesity drug prescriptions) are estimated at £233K.
- 5.2. Current costs for adult obesity interventions (anti-obesity drugs, bariatric surgery, level 2 and level 3 weight management programme) are estimated at £786K.
- 5.3. Current capacity and uptake of interventions to deal with the need for the treatment of obesity is very low when compared with need. For adults, less than 1% of patients eligible for surgery have it, around 1% of people eligible for a level 2 weight management programme are able to access it, and around 3% of people eligible for a level 3 weight management programme are able to access it. Only 3% of people eligible for anti-obesity medication are prescribed it. For children, only 4% of children eligible for 'On the go' are able to access it. However, an estimated 50% of children eligible for anti-obesity medication are prescribed it (but these numbers are low)
- 5.4. Scaling up childhood interventions so that 5% of the estimated 13,000 children aged 2-16 years who are overweight or obese are referred to paediatrics, with 2% of those seen by the specialist endocrinology paediatricians, 12% of the overweight or obese children aged 8-16 years seen by 'On the go', and 70% of eligible children for anti-obesity medication taking up the offer would cost an estimated £762K.
- 5.5. Scaling up adult interventions so that 10% of the estimated 54500 adults who are eligible for anti-obesity medication, 5% of the estimated 7500 people eligible for surgery, 10% of the estimated 54500 adults eligible for the level 2 weight management programme and 10% of the

## 6.0 Conclusions

- 6.1. There is a huge mismatch between current supply and need for the treatment of obesity.
- 6.2. Scaling up interventions to cope with more of the need would require considerable investment.
- 6.3. Investment in preventative measures are as, if not more, important for the future.

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<sup>4</sup> 'On the go' is an a multicomponent intervention for children aged 8-16 years in Newcastle involving physical activity, nutrition, psychological support with goal setting and is provided by the .

6.4. There may be issues (which are not dealt with here) about people's engagement with a scaled up programme. There are some expressed concerns from practitioners that people do not want to access anti-obesity interventions as obesity is not seen as a problem to them.

## Appendix A

### Adults (activity and estimated costing per year)

	Fixed estimates	Current	scaling up services			
			Mid estimate	High estimate		
<b>Pharmacological interventions</b>						
Estimated Number of adults with BMI >30	45224 <sup>1</sup>					1. NICE costing tool
Estimated Number with BMI >27.5 and <30 with co-morbidities	9348 <sup>2</sup>					2. Based on 30% (local GP data) of 2/5ths of estimated adult population with BMI between 25-30
Estimated % uptake of drug therapy			3%	5%	10%	
Estimated number taking up drug therapy			1637	2729	5457	
% opting for Sibutramine	18% <sup>3</sup>					
% opting for Orlistat	82%					
% opting for Rimonabant (assume not first line therefore in addition to Sibutramine and Orlistat)			1%	5%	10%	3. based on proportion of sib:orlistat July-Dec 2007 NPCT
<i>Sibutramine</i>						
Cost of one tablet once per day	£	1.56				
Total cost for 9 months	£	421				
Estimated Cost for all eligible patients			£ 124,026	£ 206,731	£ 413,463	
<i>Orlistat</i>						
Cost of one tablet three times per day	£	1.20				
Total cost for 9 months	£	324				
Estimated Cost for all eligible patients			£ 434,659	£ 724,509	£ 1,449,019	
<i>Rimonabant</i>						
Cost of one tablet once per day	£	1.57				
Total cost for 9 months	£	424				
Estimated Cost for all eligible patients			£ 6,946	£ 57,886	£ 231,543	
<b>Surgery</b>						
Adults with BMI over 40	3288 <sup>4</sup>					4. NICE costing tool
Adults with BMI >35 with co-morbidities	4175 <sup>5</sup>					5. Estimate based on 30% (estimate from local GP data of proportion with co-morbidities) of 1/3rd of all adults with BMI 30-39
Number of people potentially for surgery	7463					
% referred for surgery			0.08%	1%	5%	
% where surgery appropriate	80% <sup>6</sup>					6. NICE costing tool
number of people fit for surgery			5	60	299	
cost of procedure	£	4,155 <sup>7</sup>				7. Based on mean tariff 2:1 lap gastric banding;bypass
total cost for surgery			£ 20,773	£ 248,037	£ 1,240,185	
<b>Level 2 service</b>						
Estimated Number of adults with BMI >30 (or >28 with co-morbidities)	54572 <sup>8</sup>					8. See above (pharmacological interventions)
% referred to Level 2 service			1%	5%	10%	
% uptake of Level 2 service			90%	90%	90%	
Number of adults seen by Level 2 service			400	2456	4912	
Estimated cost per adult for Level 2 service	£	225				
Estimated Cost of Level 2 service			£ 90,000	£ 552,546	£ 1,105,093	
<b>Level 3 service</b>						
Estimated Number of adults with BMI >40 or >35 with 2 or more co-morbidities	7463					
% referred to Level 3 service			3%	5%	10%	
% uptake of Level 3 service	90%					
Number of adults seen by Level 3 service			200	336	672	
Estimated cost per adult for Level 3 service	£	550				
Estimated Cost of Level 3 service			£ 110,000	£ 184,699	£ 369,399	
<b>Total costs</b>			£ 786,404	£ 1,974,409	£ 4,808,701	

# Appendix B

## Children (activity and estimated costing per year)

	Fixed estimates	Current	Mid estimate	High estimate
<b>Paediatric referrals</b>				
Estimated Number of children (aged 2-16) overweight and obese	12760 <sup>1</sup>	128	255	638
% obese children referred to general paed		1%	2%	5%
Number of children for referral to paediatricians	100%	128	255	638
Estimated % uptake of referral to paediatricians				
Number of children seen by paediatricians	362 <sup>3</sup>	46,192	92,384	230,960
Cost per paediatrician referral	£	3	5	13
Costs for referral to paediatrics				
proportion referred on to Paediatric endocrinology				
number seen by paediatric endocrinology	513 <sup>5</sup>	1,309	2,618	6,546
Cost per endocrinology paediatrician referral	£	47,501	95,002	237,506
cost for referral to paediatric endocrinology				
Estimated Cost of referrals		£	£	£
<b>'On the go' referrals</b>				
Number of children (aged 8-16) above 85th centile	10683 <sup>6</sup>	400	769	1154
% referred to On the Go		4%	8%	12%
% uptake of on the go	90%			
Number of children seen by On the go	446			
cost per child for On the go	£			
Estimated Cost of On the Go		£	£	£
<b>Pharmacological interventions</b>				
Estimated Number of children (aged 12-16) obese	2658 <sup>7</sup>			
Estimated % with complex needs or co-morbidities	1.5% <sup>8</sup>			
Number of children eligible for drug therapy	40			
Estimated % uptake of drug therapy		50%	60%	70%
estimated number of children eligible		20	24	28
% opting for Sibutramine	25%			
<b>Sibutramine</b>				
Cost of one tablet once per day	£			
Total cost for 9 months	£	2,098	2,518	2,937
Estimated Cost for all eligible patients				
<b>Orlistat</b>				
Cost of one tablet three times per day	£			
Total cost for 9 months	£	4,842	5,810	6,779
Estimated Cost for all eligible patients				
<b>Total costs</b>		£	£	£
		232,771	446,236	761,581

1. 29.5% is average proportion of this age group over 85th centile (from HSE 2006). Likely to be underestimate as Newcastle has higher levels than England.

2. unable to quantify - needs further validation

3. Tariff price (2008/09) for 1st appointment plus one follow up

4. unable to quantify - needs further validation

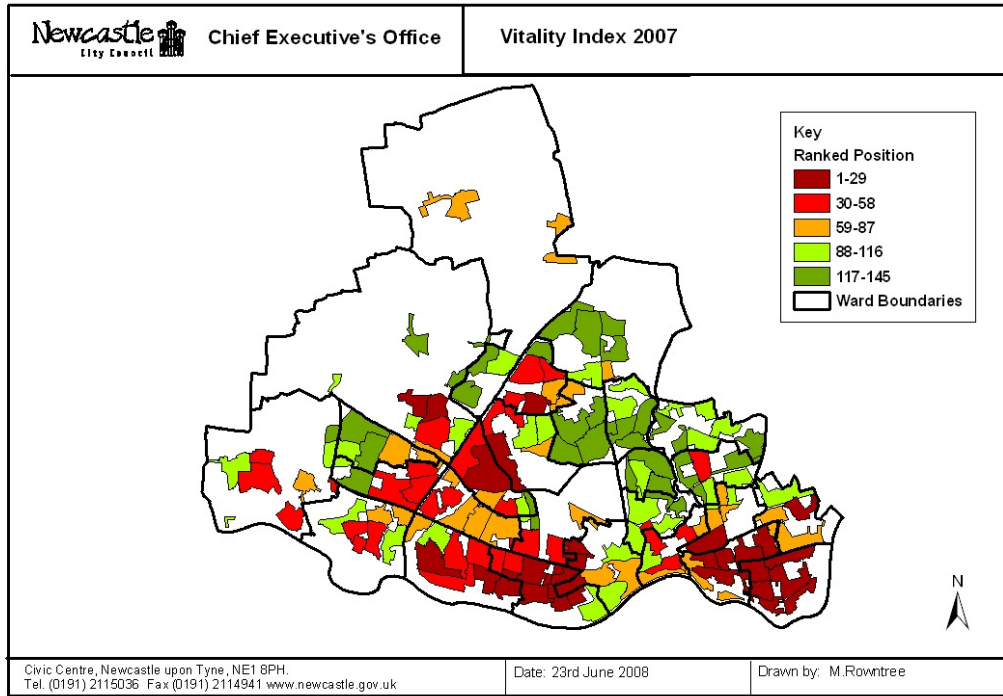
5. Tariff price (2008/09) for 1st appointment plus one follow up

6. 30.5% is average proportion for this age group who are over 85th centile in 2006 HSE. Likely to be under estimate as Newcastle has higher rates of overweight and obesity than England

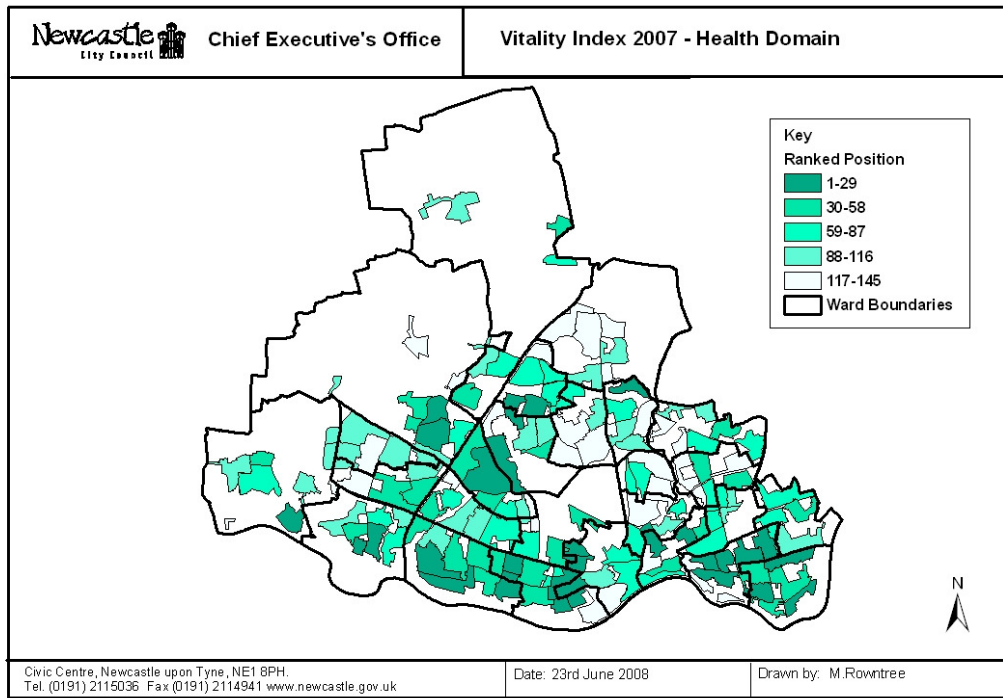
7. 17.1% is average proportion in this age group who are obese (95th centile) from 2006 HSE. It is likely to be an underestimate as Newcastle has higher rates than England

8. taken from NICE costing tool

## Map showing Vitality Index 2007



## Map showing the Vitality Index Health Theme

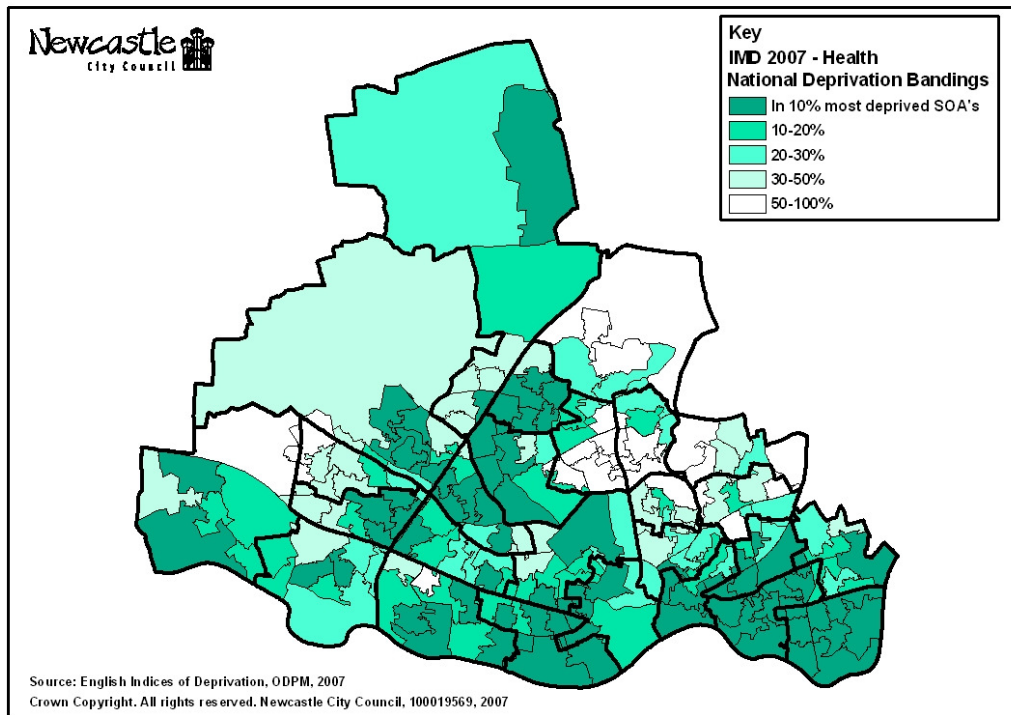


## 2. Index of Multiple Deprivation (IMD) 2007 - Health Theme

This theme contributes 13.5% towards the overall IMD 2007 and covers:

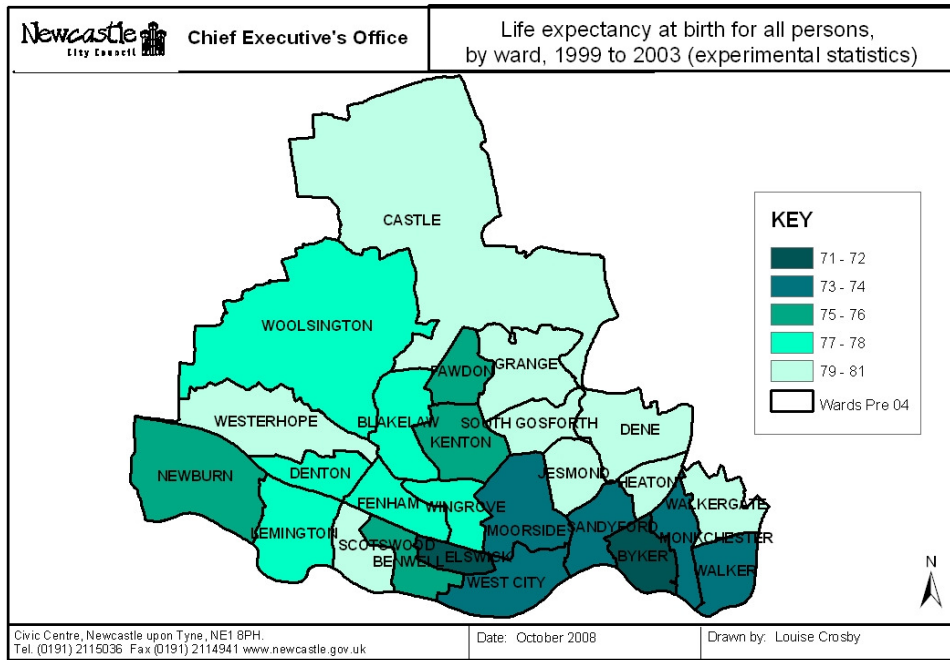
- Mortality Rates – Years of Potential Life Loss (YPLL)
- Comparative Illness and Disability Ratio
- Measures of acute morbidity derived from Hospital Episode Statistics

The Health domain remains the most deprived of all the IMD domains within Newcastle. 66 of the 173 Lower Level Super Output Areas are in the 10% most deprived nationally. However, this figure has fallen from 78 since 2004. Conversely, 20 Lower Level Super Output Areas are now in the most affluent 50% nationally compared with only 12 in 2004.



### 3. Life Expectancy at birth

Source: ONS (1999 to 2003). Data by old ward

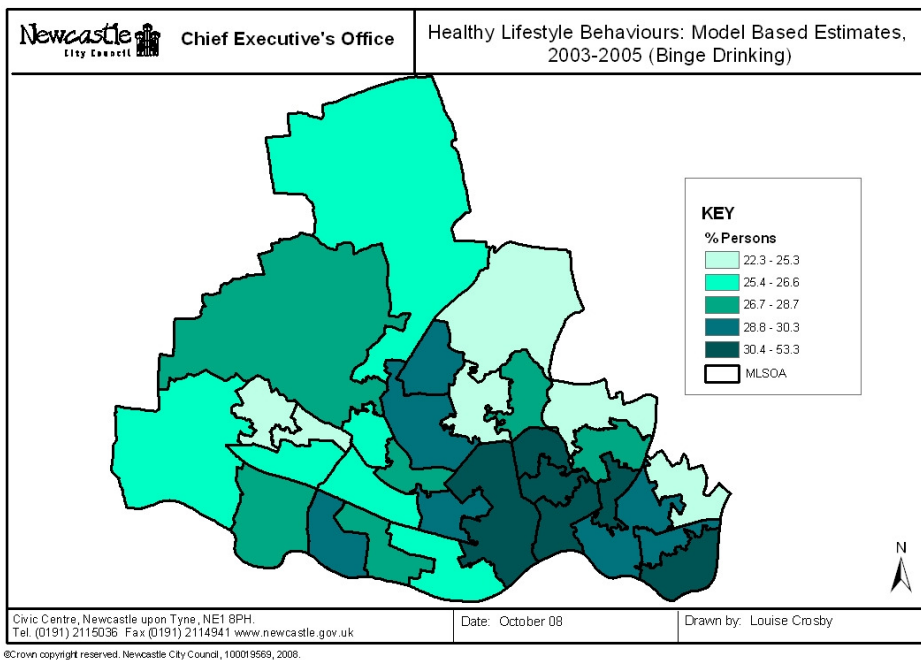


Source: ONS

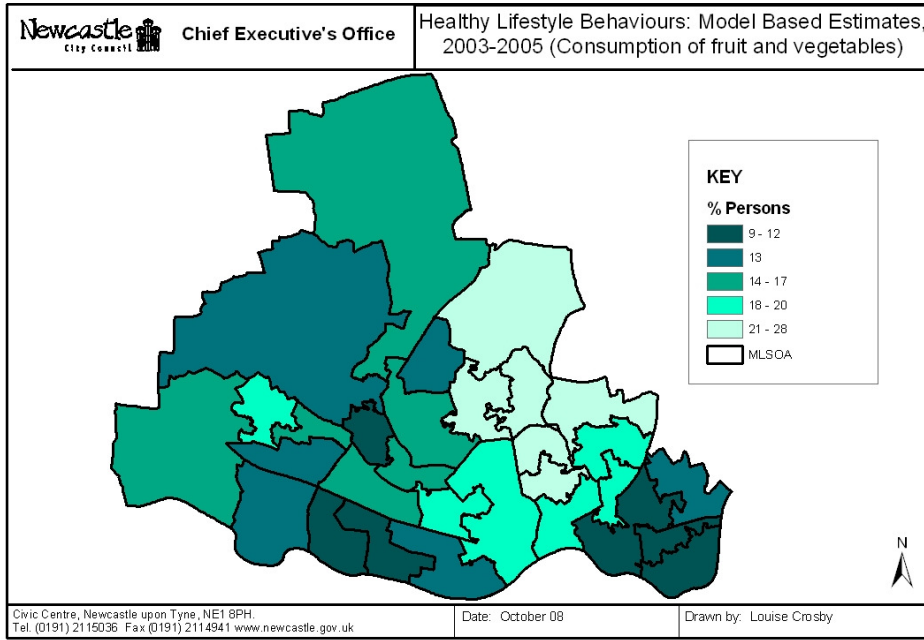
### 4. Healthy Lifestyle Behaviours - model based estimates (2003/05)

ONS experimental statistics by old ward. Data supplier: The NHS Information Centre for health and social care (The NHS IC)

#### Binge drinking

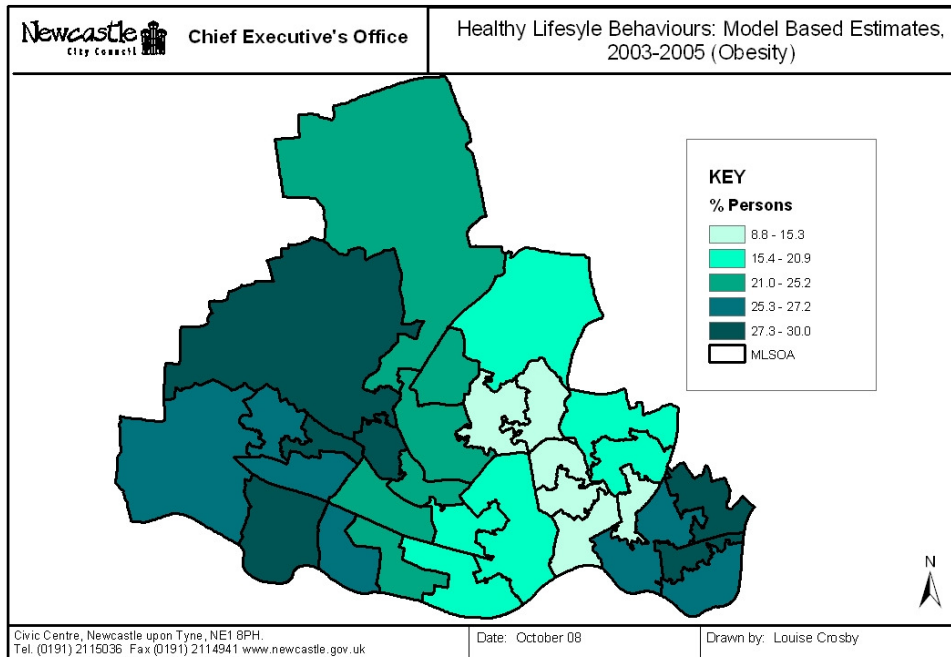


# Consumption of fruit and vegetables



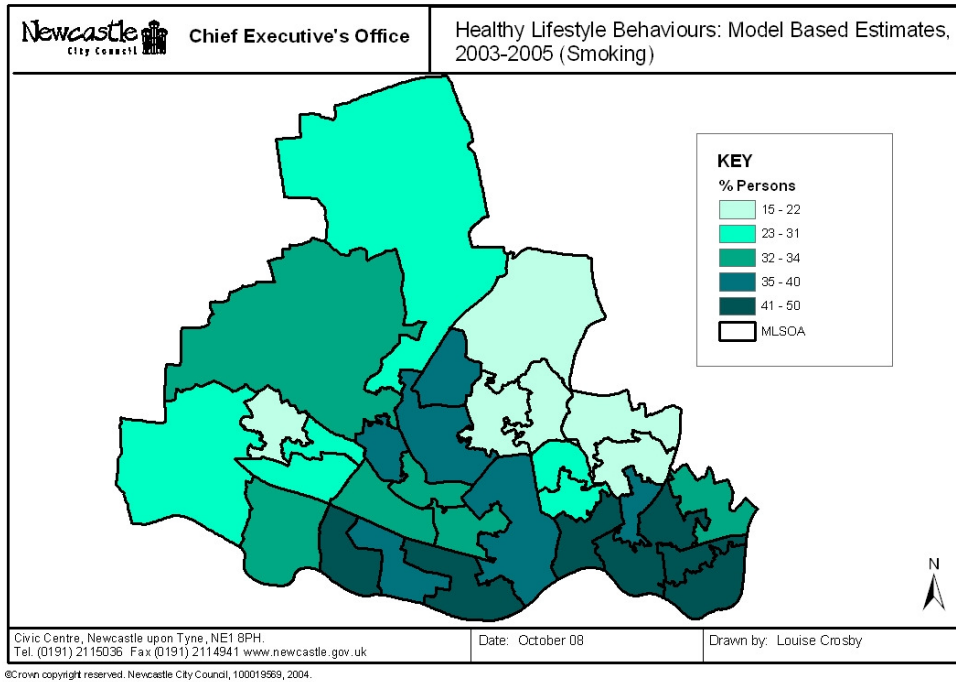
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# Obesity

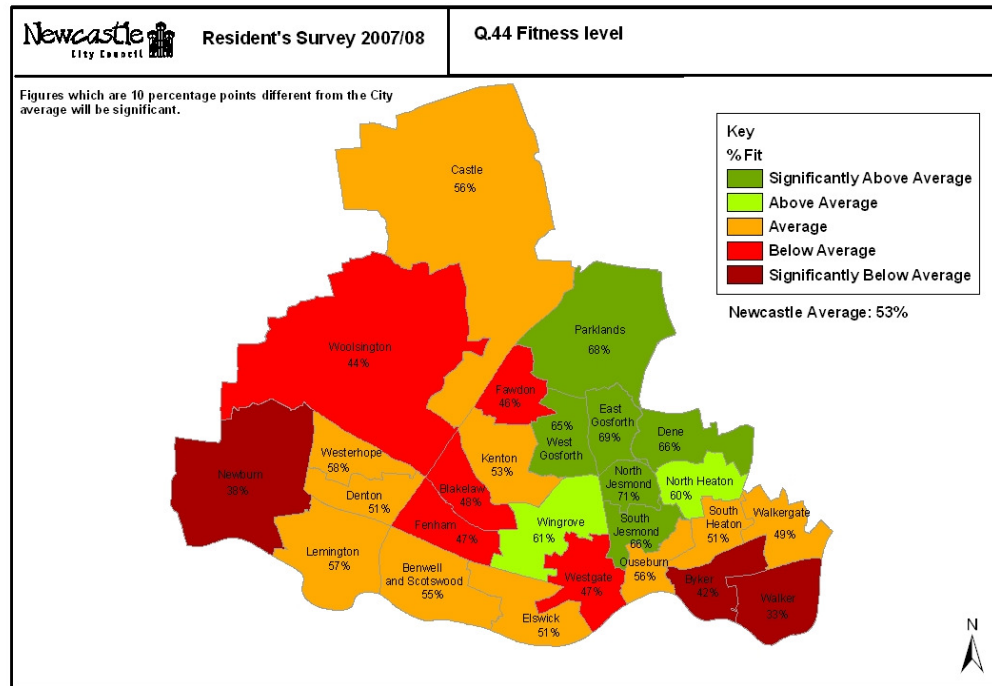


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# Smoking



## 5. Residents Survey 2007/08 % of residents who consider themselves 'very fit' or 'quite fit'



% of residents who smoke

