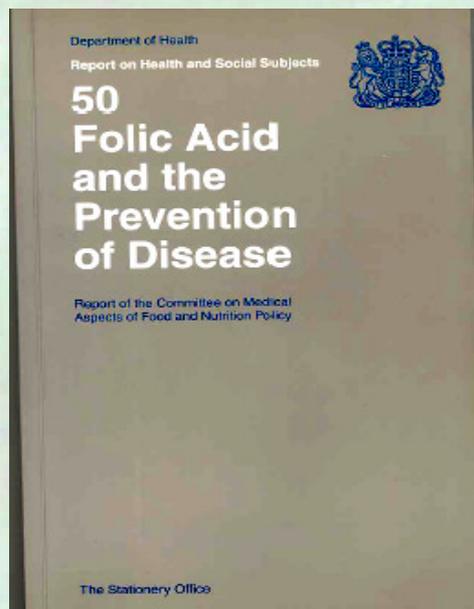


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# Folic acid: UK position

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## Current policy

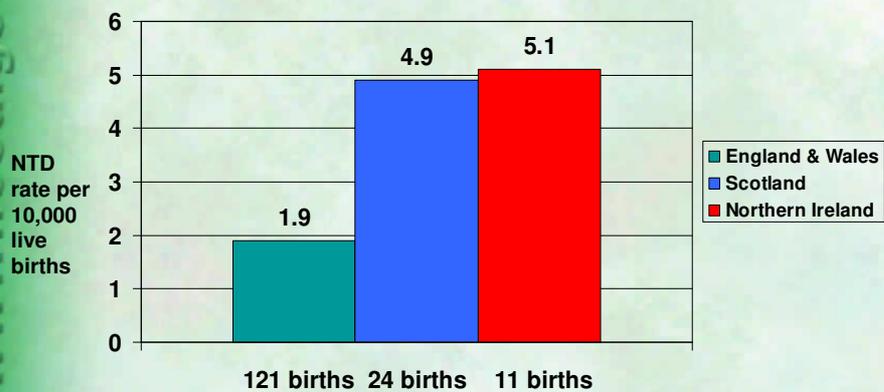
- Women who are trying to conceive or who are likely to become pregnant are advised to take a daily supplement of 400µg of folic acid until the 12th week of pregnancy
- Women who may become pregnant are advised to increase their daily intake of folic acid by eating more folate-rich foods fortified with folic acid – especially breakfast cereals



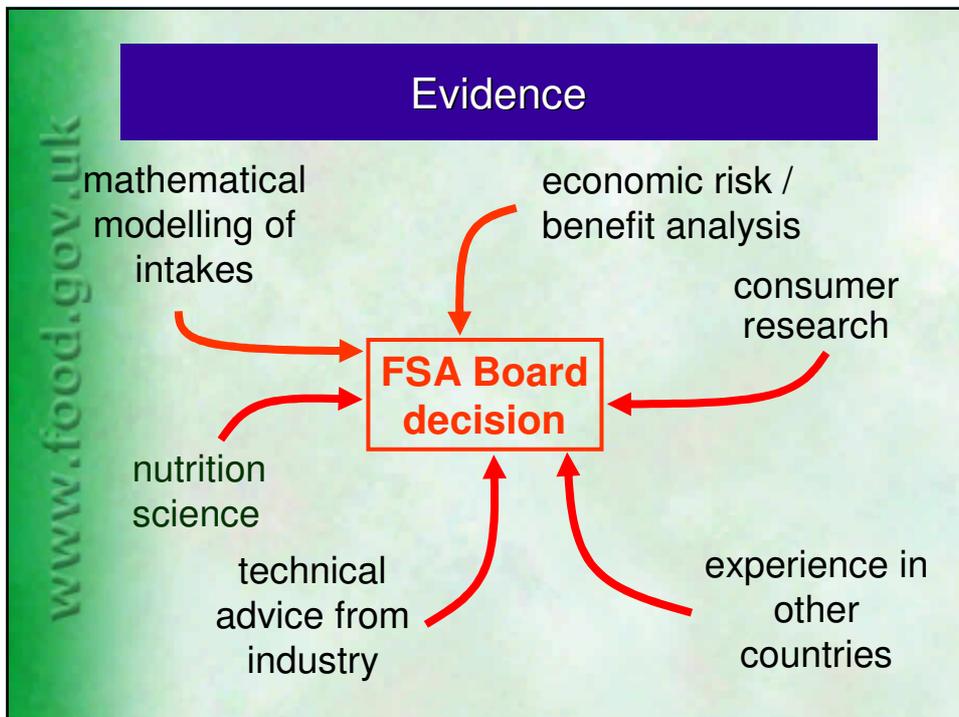
## The use of folic acid supplements in pregnancy in the UK

- 55% of mothers who planned their pregnancy reported taking supplements or modifying their diet
- Younger mothers and those from the most socio-economically deprived areas were the least likely to report taking any action
- Around 50% of pregnancies are unplanned in England

## 2003 - England, Wales, Scotland & Northern Ireland



## Policy review process



## Nutrition science

### Scientific Advisory Committee on Nutrition (SACN) - Folate and disease prevention

#### Terms of reference

- Consider the evidence that has arisen since the COMA report
- Advise on any gaps in the evidence base, with particular reference to the issue of folic acid masking vitamin B12 deficiency
- Consider when and how to review the previous COMA risk assessment

## Problem: need for risk benefit analysis

	Benefit	Harm
<b>Folate status</b>	✓	
<b>Neural tube defects</b>	✓	
<b>Cancer</b>	?	?
<b>Heart disease</b>	?	?
<b>Clinically manifest vitamin B12 deficiency</b>		✓

## Percentage below reference nutrient intake (200µg)

### Women

19-24 years	35%
25-34 years	35%
35-49 years	26%

### Elderly

Free living	25% men	48% women
Institutionalised	41% men	53% women

## Fortification and vitamin B12 deficiency masking?

### UK

- Guidance level of folic acid: 1.0mg/day
- Cases of sub-acute combined degeneration of the spinal cord - 28 (2002/2003)

### Pre or post fortification

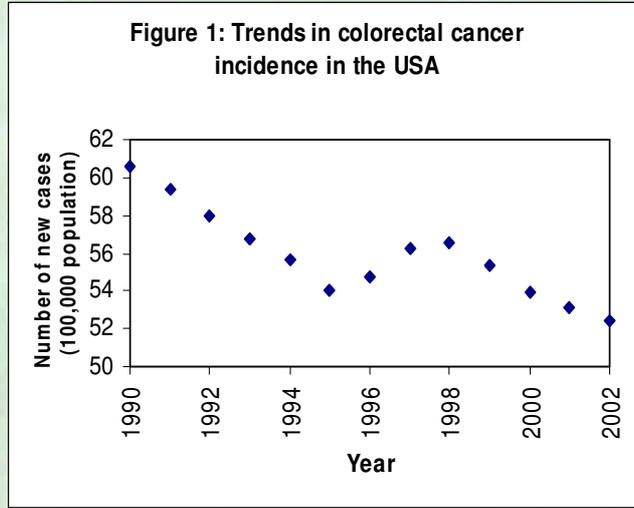
- No country systematically collected data on the incidence of clinically manifested vitamin B12 deficiency
- USA cases sub-acute combined degeneration of the spinal cord – no recorded change
- One hospital based patients study in the USA showed no change in the prevalence of megaloblastic anaemia (Mills et al 2003)

## Cancer – evidence of risk

### Summaries

- Animal models - high intakes may suppress the development of early lesions in normal tissue but may increase the progression of established neoplasms
- Trends for colon rectal cancer (CRC) incidence in the USA suggest the possibility that fortification might be implicated in excess incidence of CRC
- Preliminary results from a unpublished trial\* suggest a role of folic acid in the progression of premalignant lesions

\* Cole et al 2005 Am ASS Cancer Res 2005.



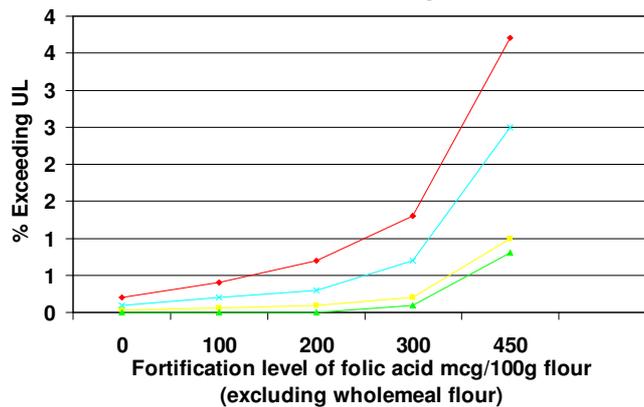
National Cancer Institute, USA, 2005

## Modelling

Effects on the UK population of fortification of flour with folic acid: includes folate and folic acid from all sources

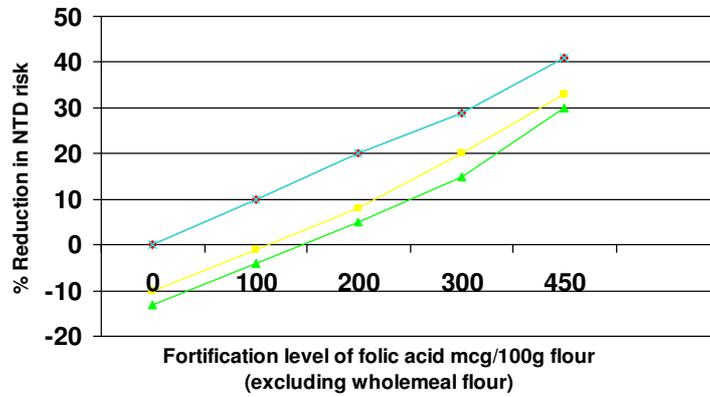
Fortification level of folic acid $\mu\text{g}/100\text{g}$ flour (level in food after processing)	Average increase in folic acid intake ( $\mu\text{g}/\text{day}$ )	Estimated numbers (%) with intakes below RNI	Estimated numbers (%) exceeding the UL of folic acid/day	Estimated number aged 65y+ with low vitamin B <sub>12</sub> status exceeding 1mg/d folic acid	Estimated NTD pregnancies prevented per year (% reduction in NTD risk)
0	0	13,261,000 (23%)	127,000 (0.2%)	900	0
100 (75)	51	6,471,000 (11%)	225,000 (0.4%)	1,700	42-93 (6-10%)
200 (150)	102	3,424,000 (6%)	404,000 (0.7%)	2,000	82-180(12-20%)
300 (225)	152	1,888,000 (3%)	773,000 (1.3%)	2,500	114-261(16-29%)
450 (338)	228	1,235,000 (2%)	2,200,000 (3.7%)	6,300	163-369 (23-41%)

Effects on the UK population of fortification of flour with folic acid: percentage exceeding UL for folic acid/day



- ◆— Includes folate and folic acid from all sources
- Excluding folic acid from fortified breakfast cereals and fat spreads
- ▲— Excluding folic acid from fortified breakfast cereals, fat spreads and supplements
- ×— Includes folate and folic acid from all sources with fortified spreads reduced by 50% folic acid

### Effect on the UK population of fortification of flour with folic acid on reduction of NTD risk



—●— Includes folate and folic acid from all sources  
—■— Excluding folic acid from fortified breakfast cereals and fat spreads  
—▲— Excluding folic acid from fortified breakfast cereals, fat spreads and supplements  
—×— Includes folate and folic acid from all sources with fortified spreads reduced by 50% folic acid

### SACN recommendations

- All women who could become pregnant should take 400µg/day folic acid prior to conception and until the twelfth week of pregnancy. (5mg/d for women with a previous NTD-affected pregnancy.)
- Mandatory fortification should only be introduced in the UK if it is accompanied by:
  - action to reduce folic acid intakes from voluntarily fortified foods
  - measures for monitoring emerging evidence on effects of long-term exposure to intakes above the GL/UL per day including postulated adverse effects.
- Clear guidance is needed on the use of folic acid containing supplements by the general population.

## FSA consultation

### *What should be done to improve the folate intake of young women?*

- *Option 1* – Continue with the current policy of advice to women
- *Option 2* – Increase the effort to encourage young women to take folic acid supplements and changes to diet to increase the consumption of folate rich foods.
- *Option 3* – Encourage industry to fortify more foods with folic acid on a voluntary basis.
- *Option 4* – Recommend the mandatory fortification of bread or flour with folic acid.

## Consumer research



## Consumer research

### Deliberative workshops

- adults aged 18 - 65+

### In-depth interviews

- adult ethnic minority women

### In-depth paired interviews

- mothers of children (under 3 years)  
living in socially deprived areas

## Phase 1 - deliberative workshops

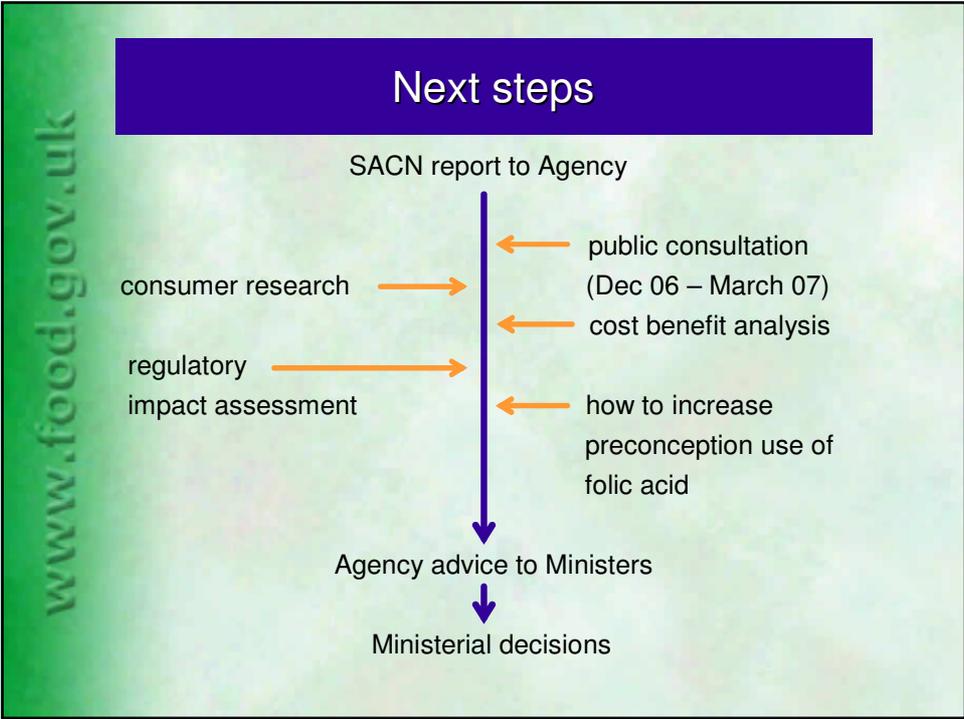
- Five pairs of consumer workshops were held across the UK
- Twelve adults aged 18 – 65+ years from all social economic backgrounds, with an even male/female ratio
- Four paired depth interviews with women from black and minority ethnic groups (BME's)
- Asked to consider options for increasing folate intake
- The workshops explored consumer knowledge of fortification and current fortification practices

## Consumer research results

- The results showed that after the first session, participants favoured options 1 (do nothing) and 2 (additional education campaigns).
- The second session showed switch in opinions towards options 3 (increased voluntary fortification) and 4 (mandatory fortification) after participants had been given time to consider the issue in some detail.

## Phase 2 – interviews with women from socially deprived areas

- Focused on new mothers from socially deprived areas
- Approximately 30 new mothers (women with a child under 3 years of age) from across the UK were interviewed on an individual basis or in pairs
- The research focused on attitudes towards fortification but also examined the lifestyle changes women made before and during their pregnancy and any barriers around making changes
- The results of the research will be published shortly



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- The slide, titled "Further information", lists two web addresses. A vertical green bar on the left contains the text "www.food.gov.uk".
- SACN web address  
[www.sacn.gov.uk](http://www.sacn.gov.uk)
  - FSA web address  
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