

Primary Prevention of Neural Tube Defects - Whose responsibility is it and are we doing enough?



Overview

Deficiency of folate is relatively common and occurs in association with reduced intake, increased requirement (eg pregnancy) and genetic defects (eg methylene tetrahydrofolate reductase deficiency).

Periconception supplementation with folic acid can prevent approximately 70% of neural tube defects (NTDs).

Recent research also indicates a link between folate and reduction in prevalence of other birth defects such as cleft lip and palate, limb, heart and urinary tract defects.

Possibilities

With a primary public health initiative such as folate fortification of staple foods eg. flour, all women of childbearing age are likely to be exposed to the added nutrient. Then, active dietary change or supplement use is not required for the benefits to be achieved.

Limitations

Current research indicates that 40% of pregnancies are unplanned, indicating low or poor compliance of women taking a folic acid supplement before pregnancy. Public health campaigns in conjunction with voluntary food fortification have been associated with a 25% reduction in prevalence of NTDs from 1.92/1000 to 1.41/1000 since 1995 in Western Australia.

International evidence demonstrates that a policy of food fortification will meet both public health nutrition objectives and reduce the impact of neural tube defects on the health of Western Australians.

To effect change:
Federal lead via FSANZ
AHMAC approval
Industry compliance
Community education

Objectives of Public Health Nutrition

- Minimise risk for the development of diet-related diseases
- Optimise health, wellbeing & independence
- Prevention of nutrition related conditions
- Reduce morbidity and mortality from nutrition related causes
- Reduce (eliminate) inequality in access to nutritious food
- Ecologically sustainable
- Food safety, food supply and food security
- Offer advice and reassurance

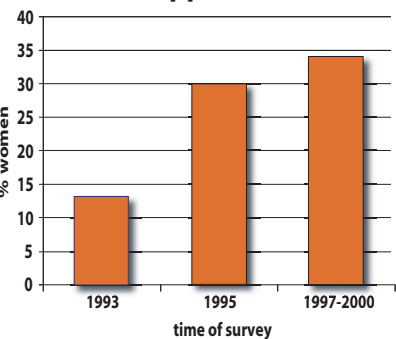
A Case Study

In Ontario, Canada, mandatory fortification of appropriate foods with folate is associated with a reduced prevalence of NTDs from 1.13 to 0.58/1000. Other countries have not shown as effective reductions with voluntary supplementation or fortification programs or public health programs.

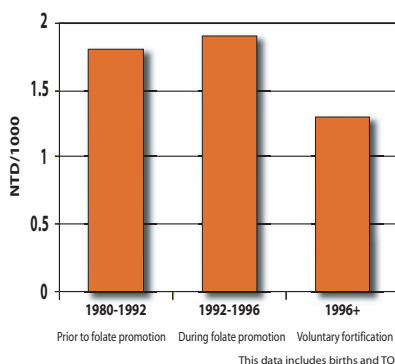
Considerations for mandatory fortification of flour

- The whole population is exposed resulting in optimal health benefits
- Dependent on current flour consumption; staple rice consumers will not benefit
- Packaging changes requires manufacturer's commitment

Proportion of women taking periconceptional folic acid supplement



Neural Tube Defects 1980-2000



NTD prevalence in relation to fortification in the USA

