Voluntary folic acid fortification – Monitoring and evaluation report

To support women in achieving a higher dietary folic acid intake, the New Zealand Government issued a New Zealand Food Standard in 2007 (the ‘Standard’) requiring the fortification of almost all types of bread at a level of 80-180 micrograms of folic acid per 100 grams of bread. This Standard’s implementation was subsequently deferred in 2009 with the national focus being on introducing a targeted voluntary bread fortification programme. Combined with existing health promotion and education strategies, including the promotion of folic acid supplements, the aim was to improve the blood folate levels of women of childbearing age and thereby reduce their risk of having a neural tube defect affected pregnancy.

The Standard is now being reviewed and public submissions sought on the policy options being considered by the Ministry for Primary Industries (MPI). The purpose of this report is to summarise technical information and data that has aided MPI in deriving its policy options in the review of the Standard. It summarises information on six main components including, folic acid fortified food composition and food industry compliance, consumer knowledge of folate and folic acid, folic acid intake and folic acid supplement use, folate status, health benefits; and potential adverse health effects. It considers information during the pre- and postfortification period where New Zealand’s major bread manufacturers committed to adopting greater voluntary fortification of bread products.

Information on folic acid fortified foods supplied from major food manufacturers suggests a growing number of products are being made available to New Zealand consumers. Most of these foods are contained within four broad food categories i.e. breakfast cereals, breads, non-alcoholic beverages and specialist therapeutic products, thus limiting overall variety. The amount of folic acid being added to foods within and across categories is variable. Commitments made by the bread baking industry to add folic acid at a level of 200 µg/100 g of bread to approximately one third of their range of breads have been partially implemented. The number of folic acid fortified breads has grown over the previous two years. There are at least 33 folic acid fortified breads for sale in New Zealand. It is not known whether this equates to approximately one third of their range of breads. Analytical testing of folic acid fortified breads has highlighted significant variability in the folic acid levels of the highest selling folic acid fortified breads. The mean and median for folic acid fortified breads being 151 µg and 144 µg respectively, well below the stated objective of 200 µg/100 g. MPI is working with the bread companies and their industry organisation to learn more about bread manufacturing processes, current monitoring systems and test methods to explain the variability found.

Unprompted awareness of the need for periconceptional use of folic acid among women of childbearing age is high where there is pre-existing knowledge of folate or folic acid but is low overall. Most women report not knowing why or how to identify folic acid fortified foods. Only a very small proportion of women report intentionally purchasing foods or drinks because they contain folic acid and this is accompanied by a lack of general knowledge on good food sources of folate.

No new data is available on New Zealanders’ dietary folic acid intakes following introduction of fortification. MPI was anticipating the reporting of dietary folic acid intakes in the Ministry of Health’s 2008/09 New Zealand Adult Nutrition Survey. However, the survey’s authors were concerned at the accuracy of nutrient estimates, primarily due to food composition data being insufficiently reliable or incomplete. Attempts at providing an accurate estimate of dietary folic acid...
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intakes will have to be deferred until the issues of reliability and/or completeness of the New Zealand folate food composition data can be addressed.

Several surveys of mixed methodological quality have assessed periconceptional folic acid supplement use among New Zealand women. Usage varied considerably across surveys, ranging from 4% to 58%. Mothers who reported that their pregnancy was planned were more likely to have taken a folic acid containing dietary supplement during the periconceptional period compared to mothers where the pregnancy was unplanned. Only one survey, the 2008/09 New Zealand Adult Nutrition Survey, examined folic acid supplement usage by type. In this survey, women of childbearing age derived their folic acid mainly from multivitamin and/or multivitamin and mineral supplements. These supplement types were found to have lower median levels of folic acid compared to folic acid only supplements. Folic acid only supplements contained the highest median daily dose of folic acid at 550 µg per daily dose. The lowest median daily dosage was reported in the B vitamin supplements at 200 µg per daily dose. The highest single recommended daily dose of folic acid was 1000 µg found in a multivitamin supplement.

Current data suggests that the folate status has improved between pre- and postfortification periods for women of childbearing age. Both red blood cell folate and serum folate concentrations increased significantly. Fifty-nine percent of women in the postfortification period returned a red blood cell folate measurement of ≥ 906 nmol/L, a level associated with a very low risk of having an NTD-affected pregnancy. This was up from 26% of women in the prefortification period.

Data on the number and/or rate of neural tube defects in New Zealand are not yet available for the postfortification period.

Statistics on cancer numbers in the New Zealand population are only available up until the year 2008, therefore no data is available for the postfortification period.

The association between folic acid and cancer is an emerging area of research. Since the last Food Standards Australia New Zealand (FSANZ) review of the area the results of several large randomised controlled folic acid supplementation trials and meta-analyses of these trials have become available. While these trials have been designed primarily to study the use of folic acid supplements to either prevent cardiovascular disease or colorectal adenomas (bowel cancer precursors), both in high risk groups of patients rather than the general population, their findings have been used to examine for cancer risk in these groups as well.

Based on these trials, and of meta-analyses of prospective cohort studies, the evidence suggests that there is a non-significant relationship between folic acid supplementation and total cancer incidence, colorectal cancer, and breast cancer. Data on prostate cancer are inconclusive; however the limited data available suggests a small increase in risk, of borderline significance. Similarly the results of trials investigating folic acid and incidence of recurring colorectal adenomas are inconsistent and it is unclear if a significant effect is apparent with longer duration of supplementation in populations with a prior history of colorectal adenomas.

A limitation of all studies reviewed is that the duration of follow-up may not be sufficient due to the long latency period of cancer. Furthermore, none of these trials have specifically assessed cancer as a
primary outcome and screening and reporting of cancer incidence has not been standardised across studies.

In summary, the weight of evidence available to date does not indicate that folic acid supplements would increase the risk of total cancer incidence, colorectal cancer, or breast cancer. As yet, there is insufficient evidence to evaluate the effect of folic acid supplements on either the risk of prostate cancer, or the risk of colorectal cancer among people with established adenomas. Estimated folic acid intakes at the level proposed for mandatory fortification would be lower than those consumed by participants in folic acid supplement trials, for the majority of the population.

A number of data gaps have been identified in the monitoring and evaluation report. If addressed, these would add value in answering important monitoring questions. Some of these data gaps might be addressed quite quickly but others will require more time and investment by multiple interested stakeholders.

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