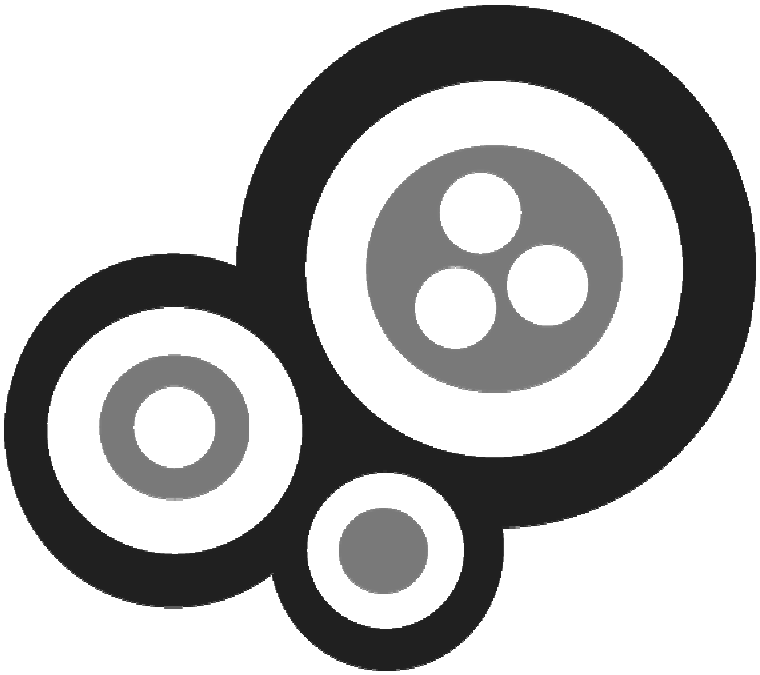

BREAKOUT 1B

FOLIC ACID: SUPPLEMENTATION AND FORTIFICATION

Moderators:
Veronique Ruiz van Haperen – The Netherlands
Janis Biermann – USA

THE UK CAMPAIGN ON THE VITAMIN FOLIC ACID AND FLOUR FORTIFICATION

Andrew Russell

Association for Spina Bifida & Hydrocephalus, Peterborough, UK

Aim: This presentation will describe a campaign to implement important public health policy based on research in the UK, to prevent neural tube defects (NTD), by introducing regulations to fortify standard flour with folic acid.

It is suggested that public health policies in Central and Eastern European nations might be influenced in favour of flour/grain fortification with folic acid, avoiding years of delay as experienced in the UK.

Background: Following the Medical Research Council's international study of folic acid (1991), and the COMA recommendation (2000) of flour fortification, the mandatory fortification of flour/grains to reduce birth malformations has been adopted by several nations, but not in Europe.

Factors militating against compulsory fortification include exaggeration of risks, cultural opposition to "mass medication", media bias, administrative inertia and the perception that NTDs are not an important health risk.

For over 10 years the UK Association for Spina Bifida & Hydrocephalus, an independent organisation, has lobbied for legislative measures, informing politicians, briefing government, communicating with the milling industry, convening symposia and influencing the media.

Method: The presentation will describe how the scientific community and the voluntary sector can work constructively together to benefit public health policy and information. The public health reasons for a population-wide measure will be listed. Prevalence trends pre- and post-fortification in countries that have fortified will be examined. The principal medical arguments against fortification, including vitamin B12 anaemia "masking", and cancer risk, will be considered.

Arguments in favour include that many pregnancies are unplanned, that folic acid supplements must be taken before conception, that health benefits have been demonstated, and that no evidence of harm has been proved.

Conclusions: The UK policy of recommending preconceptual supplements has failed to show a significant impact. Voluntary fortification fails to impact on those most at risk: educationally and economically deprived women. Of the 1100 NTD pregnancies in the UK each year, some 900 are electively terminated, making abortion the de facto policy in Great Britain to prevent NTD. Flour fortification would give effective primary prevention of between 300 and 400 NTD pregnancies annually.

POPULATION BASED FOLATE STATUS MONITORING TO EXPLORE THE CAUSES OF INSUFFICIENT FOLATE INTAKE AMONG PREGNANT WOMEN

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Among the rare opportunities for prevention of congenital anomalies is the prevention of neural tube defects by ensuring the appropriate periconceptional folate status. About 7.5% of the Hungarian women aged 18-35 enter at least 0.2 mg folic acid (FA) a day. The 0.4 mg/day intake is practically never occurred. The EUROCAT recommends the national policy formulation on FA supplementation and food fortification; operation of a FA supplementation supporting practice for planned pregnancies; fortification of a basic food for non-planned pregnancies; monitoring of FA status and its determinants and congenital anomalies; regular check for effectivity of health policy performance. Taking into consideration of these international guides, the Hungarian status can be described as: lack of declared and functioning national health policy; having appropriate FA supplementing medicines, but their application is not supported by health promotion; having food standards for food fortification, but it is not utilized because of the lack of supporting marketing; having internationally accepted registration for congenital anomalies, which can not act directly on the prevention because it is not integrated into multidisciplinary working groups. The problems could be reduced by establishing a population based neural tube defects prevention monitoring program, which could support the elaboration of the effective interventions.

Our study aimed to (1) establish a population based monitoring for pregnant women to determine FA related knowledge, to describe their nutritional habits, and to measure their red blood cell FA levels; (2) measure intervention related attitude of target group; (3) to analyse association between socio-economical characteristics, reproductive history and FA status.

Every pregnancy observed in the closed study population (10 of 18 child-and-mother-care catchment areas) of Szombathely city had been studied, where the expected number of deliveries per year is 300. The health visitor responsible for pregnant care collected data on socio-economical and psychological status, reproductive history and nutritional habit (by CDC developed food frequency questionnaire; FFQ). Blood samples had been taken during the first visit in gynaecologist office to measure red blood cell folic acid concentrations.

53% of the pregnants take folic acid containing supplement during the first weeks of pregnancy. The median folic acid nutritional intake estimated by FFQ was 0.192 mg/day (minimum 0.061; maximum 0.950). The median red blood cell folic acid concentration was 615 ng/ml (minimum 180; maximum: 1331 ng/ml) Significant correlation between FFQ results and blood concentrations had been observed. Anxiety and the preference of food fortification instead of supplementation had been observed.

It was demonstrated that the folic acid intake and status of women in periconceptional period is inappropriate in a significant proportion of women; the questionnaire based folic acid status estimation produce reliable information; the pregnants with anxiety are not target population of supplementation based interventions.

EVALUATION OF LONG-TERM VITAMIN USE AMONG PARTICIPANTS IN A REGIONAL VITAMIN DISTRIBUTION PROGRAM

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Background: Preconceptional use of folic acid reduces rates of neural tube defects (NTDs) by up to 70%. This program covers a 24-county, mostly rural region of North Carolina with historically high rates of NTDs. It is housed at a tertiary hospital that has gained regional exposure for in-kind and logistical support of the program.

Objectives: To present an overview of an ongoing multivitamin distribution program

To share findings of a survey conducted 8 –10 months after receipt of free multivitamins

To discuss public health implications of the findings

Methods: Since May 2001, free vitamins have been offered to all non-pregnant females of childbearing age receiving services through their local health department. Funds from March of Dimes, the NC Folic Acid Council and Mission Hospitals have been used to purchase vitamins at $1.15/bottle of 100 tablets. Over 85,000 bottles of multivitamins and information about folic acid have been distributed during a face-to-face interaction with a health professional. The program relies heavily on the participation of the health departments and operates in conjunction with an extensive folic acid education campaign. From October through December 2004, contact information was gathered from 3,500 vitamin recipients. Eight to ten months later, surveyors attempted to reach 500 randomly selected recipients. Surveys were completed via telephone using a computerized format (86%) and by mail (14%). Sixty-five % (322/500) completed the survey regarding vitamin use and knowledge about folic acid.

Results: Results of both survey modes were essentially identical. Vitamin use of any frequency in the surveyed population increased from 25.5% prior to the first bottle of vitamins to 82.4% at the time of the survey. Of those surveyed, 62.4% reported taking multivitamins 5-7 days/week, twice the rate among women of childbearing age in the general population (MOD 2005). The greatest positive change in vitamin-taking behavior was among Hispanics, whose risk of NTDs is higher than other ethnic groups.

Conclusions: Providing multivitamins as a part of routine healthcare for women of childbearing age appears to be an effective method for increasing regular vitamin usage. Effectiveness may be enhanced by one-on-one education and a public folic acid education campaign.

SOCIO-DEMOGRAPHIC DETERMINANTS OF FOLIC ACID SUPPLEMENTATION IN PRECONCEPTIONAL PERIOD

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Folic acid supplementation during periconceptional period reduces considerably risk of neural tube defect in offsprings. Folic acid plays a role also in preventing other congenital anomalies, as also miscarriages and pre-eclampsia.

The aim of the survey was to determine when pregnant women started folic acid supplementation in relation to pregnancy as also to analyse socio-demographic factors (age, education level, economic status, place of residence, number of children, smoking habit, knowledge about folic acid) favourable for preconceptional folic acid supplementation.

Cross-sectional study was conducted in 2007 at primary health centres in 31 randomly selected administrative subregions, proportionally to number of residents and urbanisation rate. Standard questionnaires were administered by trained staff to sample of 267 women 18-35 years of age, pregnant at the time of or during 2 years before the survey. Multiple logistic regression analysis was applied.

The proportion of pregnant women taking folic acid during the pregnancy was 86.1%. 28.5% of women started supplementation with folic acid before the pregnancy and 52.8% of women – in the first trimester. The lack of usage of folic acid before pregnancy was significantly related to age (or-5.1 for younger vs older women), economic status (OR=2.5 for women with bad vs good economic status), place of residence (OR=2.9 for women living in a city vs in a country), smoking (OR=3.4 for smoking vs non-smoking women) and knowledge about principles of periconceptional folic acid supplementation (respectively OR=4.3 for women with average knowledge and OR=22.9 for women with no knowledge vs women with good knowledge about folic acid).

The lack of folic acid supplementation before pregnancy results due to both social inequalities and inappropriate knowledge and behaviours concerning healthy lifestyle. There are comprehensive activities needed in scope of health education and health promotion among women in reproductive age for the purpose of increasing perinatal folic acid supplementation.

IMPLEMENTATION OF INFORMATION STRATEGIES ON FOLIC ACID IN THE NETHERLANDS A CHALLENGING MODEL FOR THE PROMOTION OF PRECONCEPTIONAL CARE?

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Background: The „folic acid guideline" was adopted by the Dutch health authorities in 1993. After a one-off mass and intermediaries campaign in 1995 the use in the recommended period thereafter gradually increased to 43% in 2003. It ranged from 22% in the lowest educated to 59% in the highest. Knowledge and attitude appeared to be the only independent predictors of folic acid use in NL. An Eurocat study showed a decline (until 2001) in the neural tube defects (NTD) prevalence that could very probably be attributed to the increased use of folic acid.

The following strategy was developed since 2003: implement folic acid education in regular health care settings and focus on reaching women before pregnancy and on reaching lower socioeconomic groups. From 2004 on folic acid education was given in community pharmacies on delivery of contraceptive pills. In 2006 and 2007 new mass media campaigns and new initiatives to reach the lower educated were launched. A recent study showed an adequate folic acid consumption of 51% in 2005 and the first increase in the lowest socioeconomic since 1998.

Implementation strategies: In 2003 a concise feasible educational intervention for pharmacies was developed. Thereafter a national implementation programme was developed for this intervention. In both studies action research methods were used. A same approach was adopted for the development of an intervention to be used at baby wellness centers to inform women before their second or further pregnancy (55% of all pregnancies). These centers have over 95% attendance rate from all social classes.

Results: The development studies yielded proven feasible interventions. Over 1050 (~60%) community pharmacies participated in the implementation programme. We will present process and outcome data that show a high degree of successful initial implementation in community pharmacies.

Public health implications: The Dutch approach appears to be both feasible and effective towards both folic acid consumption and prevalence of NTD's. Parts of the approach might be feasible in other health care settings as well. The now available channels to the „pre pregnant population" might in the near future be used to promote more in depth preconception consultations.