

A Systematic Review of Interventions to Increase Awareness, Knowledge, and Folic Acid Consumption Before and During Pregnancy

Corina Mihaela Chivu, MD, MPH , DrPH trainee
(Brunel University, The Centre for Public Health Research, London, UK)

Prof Theodore H. Tulchinsky, MD, MPH & **Prof Mayer Brezis**, MD, MPH
(The Hebrew University - Braun School of Public Health, Jerusalem Israel)

Karla Soares-Weiser, MD, PhD
(Enhance Reviews, Israel)

Rony Braunstein, PhD, MSc
(The Centre for Safety and Quality Hadassah University Hospital, Jerusalem Israel)

Background & Purpose

- Folic acid supplementation before and during pregnancy prevents neural tube defects
- since 1992, the U. S. Public Health Service has recommended that all women of childbearing age consume 400 µg folic acid each day

Background & Purpose

Systematic review on interventions designed to improve awareness,

knowledge,

consumption

of folic acid supplements before and during pregnancy in order to assess which were most effective and to recommend future directions for

researchers,

health promotion practitioners,

clinicians

Methodology

- **Data Sources**

Cochrane Library and Medline

- **Study Inclusion Criteria**

(1) study design: RCT & quasi-experimental interrupted time series & follow-up & case-control & before-and-after

(2) women (15–49 years)

(3) any type of education intervention


(4) rates of women's awareness, knowledge, or consumption of folic acid supplements

(5) publication 1992 - 2005

Social marketing criteria

- **channel of communication**
- **duration of the campaign**
- **number of exposures to the message**
- **content of the message**
- **language of message**

Results

- 337 articles retrieved
- 31 studies retained
- RCT (2)
- quasi - experimental interrupted time series (1)
- follow-up (3)
- case-control (1)
- before-and-after with a control group (2)
- before-and-after without a control group (22) 

Results

studies with before-and-after design (20)

- awareness increased from 60% (range: 28%–98%)
to 72% (range: 42%–100%)
- knowledge rose from 22% (range: 5%–77%)
to 49% (range: 13%–93%)
- consumption increased from 14% (range: 4%–73%)
to 23% (range: 9%–85%)

Limitations

use of self-report data (recall bias)

heterogeneity

- study design
- interventions

Interventions

1992 – 2002: United States

Australia

Europe

Israel

channels of communication:

Media

- printed materials
- audio-visual (radio, TV, Internet)

Interpersonal communication

- counseling by health professionals

Interventions – where?

- **medical centers**

- **pharmacies**

- **kindergartens**

- **public places:**

libraries

shopping centers

bus stop

supermarkets

fitness centres

hairdressers

Summary of results

- interventions had a positive effect on folic acid intakes before and during pregnancy
- the average usage reached less than 25%
- little use of the formal social marketing tools



Discussion

**RCT-proven
technology/behavior**

e.g., statins, folic acid in pregnancy,
exercise, smoking cessation

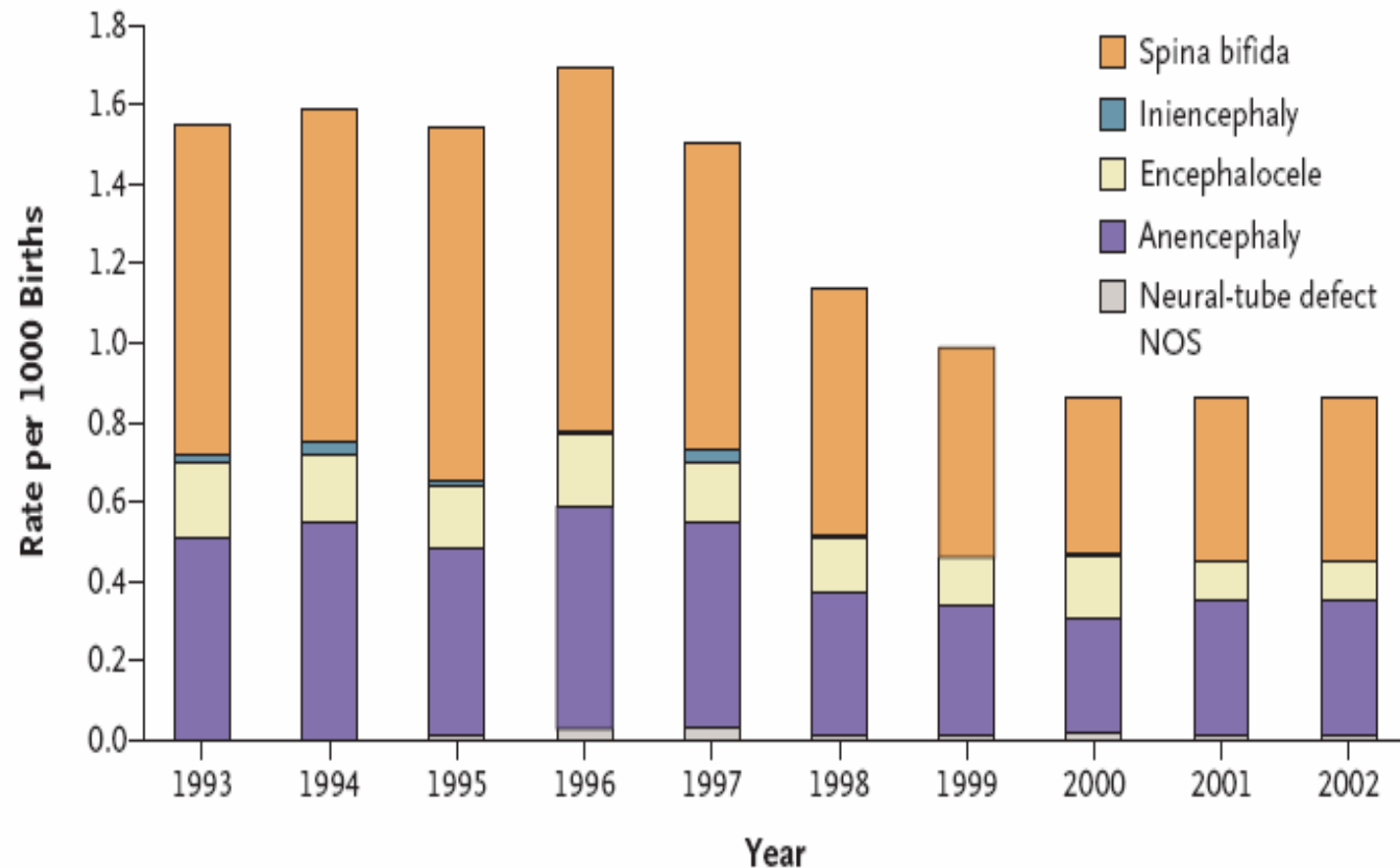
Implementation?

**Very Slow if
not industry-
supported**
e.g., exercise

**Very Fast if
industry-
supported**
e.g., drugs

**Why not use industry's strategies?
Social marketing, Quality control**

Neural-Tube Defects after Folic Acid Fortification in Canada



De Wals P et al. Reduction in Neural-Tube Defects after Folic Acid Fortification in Canada N Engl J Med 2007 357: 135-142

Neural-Tube Defects after Folic Acid Fortification

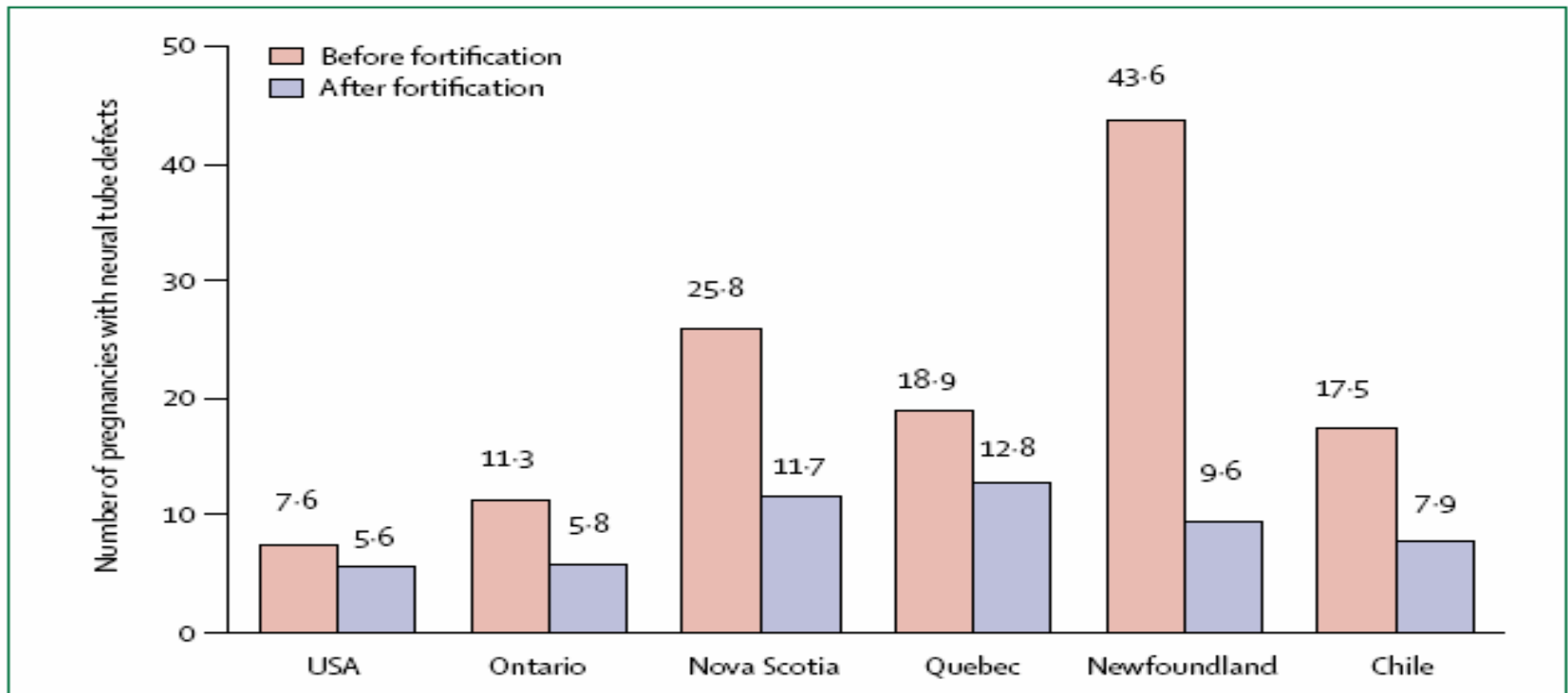


Figure: Rates of neural tube defects before and after fortification in regions with mandatory folic acid fortification

Numbers include livebirths and stillbirths, prenatally diagnosed cases, and elective abortions (Chile with livebirths and stillbirths only, USA with surveillance programmes with and without prenatal assessment).

Eichholzer M et. al., Folic acid: a public-health challenge, *Lancet* 2006; 367: 1352–61

Conclusions & Recommendations

- **need to develop and test more effective health education interventions to promote folic acid supplement use by women of reproductive age**
- **need to make mandatory fortification global**

Thank you for your attention!

