

Adding folic acid to staple foods can prevent birth defects, but most countries don't do it

March 9 2016, by Vijaya Kancharla, Emory University



Fortified. Credit: Melissa Wiese, CC BY

Imagine that scientists find an indisputable link between microcephaly and the Zika virus. Then imagine that they find a simple way to prevent it, but that the solution is not implemented.

A similar scenario is playing out with [neural tube defects](#). We have known for decades that [folic acid](#) can prevent most common neural tube defects like [spina bifida](#) (where the fetal spinal column does not close

properly) and anencephaly (where a baby is born missing parts of the skull and brain).

The solution is pretty simple: just make sure that women eat enough folic acid before and during the early stages of pregnancy. Some [countries](#), including the United States, fortify staple foods with folic acid to make sure this happens. But most countries haven't taken this critical step.

A little bit of folic acid goes a long way

Folic acid is the synthetic form of vitamin B9. Folate is the naturally occurring form of vitamin B9, which is found in foods like dried beans, lentils and green leafy vegetables. We've had [unequivocal scientific evidence](#) since 1991 that folic acid prevents a majority of spina bifida and anencephaly.

Babies with spina bifida can have lifelong disabilities and health complications, including paralysis, incontinence and intellectual disabilities. Most babies born with anencephaly die shortly after birth. Many affected pregnancies end in miscarriage or are [electively terminated](#) after a prenatal diagnosis of spinda bifida or anencephaly.

These neural tube defects occur between three and four weeks after conception, early enough that many women don't even know they are pregnant. Considering that many pregnancies are unplanned (as many as [45 percent in the U.S.](#)), relying on women to take folic acid supplements or change their diets to avoid these birth defects isn't a good strategy.

The easiest way to ensure that women of childbearing age are getting enough folic acid is to fortify staple foods, like wheat and corn masa flour, rice or other products like salt, with the vitamin.

Fifty-eight countries, mostly in the Americas and relatively developed regions of Africa and Asia, have mandated and are actively implementing such fortification programs. Most of these countries [have shown remarkable reductions](#), ranging from [50 percent](#) to [70 percent](#), in the occurrence of both spina bifida and anencephaly.

Since mandatory [folic acid fortification](#) began in the U.S. in 1998, the Centers for Disease Control and Prevention (CDC) estimates that it has prevented [about 1,300 babies from being born with spina bifida and anencephaly](#) each year in the country. This benefit comes cheaply – the estimated yearly cost of fortification is about US\$4 million, but the annual savings in averted medical care costs alone are estimated at [\\$600 million](#).

Folic acid fortification is also good for adults. It can eliminate [folate-deficiency anemia](#), and [certain types of strokes](#).

But despite such clear evidence about the benefits of folic acid fortification, prevention efforts have been progressing at a snail's pace in many regions of the world.

Other methods of increasing folic acid intake just don't work as well

Folic acid fortification is done on a voluntary basis in some European countries. And most low- and middle-income countries in [Asia](#) and Africa have yet to implement mandatory fortification. As a result, rates of folate preventable cases of spina bifida and anencephaly for countries in Asia and Africa are as high as [50 per 10,000 births](#).

Instead, many countries rely on behavior-based health education interventions. This usually entails asking women of reproductive age to

take daily [folic acid supplements](#) before and during pregnancy. But because of low compliance rates, neural tube defects have not dropped in these countries. For instance, in some regions of [Europe](#) rates are as high as nine per 10,000 births, compared with just under [five per 10,000 births](#) in the U.S.

And gaps remain even in countries that do have mandatory folic acid fortification programs. In the United States, for instance, Hispanics are at a disproportionately high risk of spina bifida and anencephaly. This is in part because corn masa [is not fortified with folic acid](#). The U.S. Food and Drug Administration is now considering a proposal to begin fortifying corn masa.

We still have a long way to go with folic acid fortification

The unfortunate reality is that many countries still lack the political will to implement mandatory fortification programs. And that means many babies are still being born with neural tube defects that could be prevented with folic [acid fortification](#).

Research from Emory University's [Center for Spina Bifida Prevention](#), where I work as an epidemiologist, and the [Food Fortification Initiative](#) shows that at the current pace of mandatory grain fortification, we are preventing only 15 percent of all folic acid-preventable [neural tube](#) defects globally.

The year 2016 marks 20 years since the [Food and Drug Administration publication](#) changed the U.S. fortification standard to include folic acid. Let's use this milestone to highlight the urgent need for resources, support and action to speed up the slow pace of prevention. With better fortification programs, folic acid-preventable spina bifida and

anencephaly could become a thing of the past within the next two decades.

This article was originally published on [The Conversation](#). Read the [original article](#).

Source: The Conversation

Citation: Adding folic acid to staple foods can prevent birth defects, but most countries don't do it (2016, March 9) retrieved 1 February 2024 from <https://medicalxpress.com/news/2016-03-adding-folic-acid-staple-foods.html>

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