WN *Feedback*

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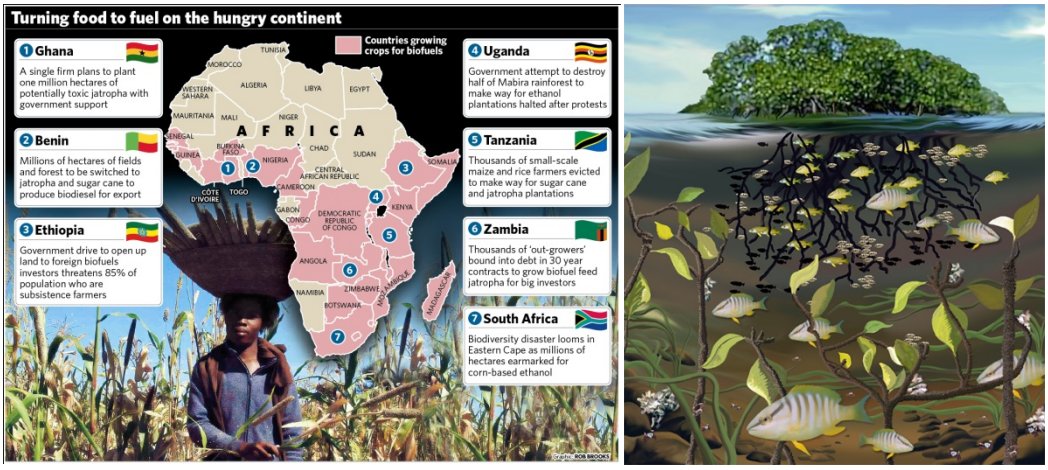
Climate. Global health goals 2015-2025

The big picture

Access The Giessen Declaration here
Access March 2013 WN Geoffrey Cannon on the new nutrition here
Access April 2013 NEJM Tony McMichael on climate change here



Land is being grabbed in many African countries (as shown in pink, left) to grow biofuels. Fish nurseries in mangroves (right) continue to be destroyed

From Tony McMichael, Canberra, Australia

Very good to see that *World Nutrition* continues to pay attention to the social, economic and environmental dimensions of nutrition, as well as to biology. These all connect. None can be grasped without understanding of the others.

I've tried to express this in my paper 'Globalisation, climate change, and human health', just published (1). In it I say 'future global health goals must be better integrated with the fundamental influences of poverty, inequity, illiteracy, climate change, land-use patterns, and food insecurity on health'. Concern for human health is nowhere near the centre of international policies on sustainable development goals as now being planned for 2015-2025. This 'reflects the continuing misperception of what health means and the dominance of a narrow, clinically based view that seemingly does not take in account the fundamental need, in improving population health, to address the poor fit between environmental and socio-cultural conditions and basic human biologic and psychological needs'.

Environmental and ecological changes on a global scale will increasingly affect world health. Just as one example, 'the decline in available seafood protein (which is important for many low-income coastal populations) is a threat to health and reflects the unprecedented combination of ocean warming, acidification, de-oxygenation, destruction of coastal fish nurseries, and overfishing'.

In what is now the epoch of the Anthropocene, we are in need of systematic thinking, judgements, and action. In nutrition, biology will always remain necessary but never sufficient. This suggests that broad minds, aware of the opportunities and also the limitations and dangers of 'development', are needed to help work out the new 2015-2025 global health goals (1,2).

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World Nutrition and world nutrition. Vitamin A
Getting in gear for ICN2

Access April 2013 WN Philip James on ICN2 here
Access May 2010 WN editorial on Vitamin A here
Access May 2010 WN Michael Latham on the Vitamin A fiasco here
Access October 2010 WN Alfred Sommer et al on vitamin A here
Access November 2010 WN Ted Greiner et al responses to the above here

From Ted Greiner, Seoul, South Korea

Congratulations to *WN*, and to Philip James for his excellent column in the April issue (1). The main question the column raises, appropriately, in its final points, is 'how [can] a progressive agenda be shaped in time for ICN2?'.

It is vital that Association members engage with this conference, whose lead UN host agency is the Food and Agriculture Organization (FAO), and obtain seats on their countries' delegations. I also suggest that it is vital that the Association itself engages, together with other qualified and influential civil society and public interest organisations. It is a rare opportunity, the first since 1992 when governments from the entire world will meet to discuss world food and nutrition strategy and policy.

Obesity and chronic non-communicable diseases are so far getting little attention. This was almost understandable in 1992 (for us veterans who were involved in 'ICN1' over 20 years ago) but it is no longer defensible. This may partly be due to the World Health Organization not engaging much so far. It may just be slow off the mark, but neither ICN+21 (as was) nor ICN2 (as now, after a recent move from 2013 to 2014) receive any hits on the search engine on WHO's website. By contrast UNICEF, which is not one of the hosting UN agencies, has an FAO document about the meeting on its website.

Breastfeeding was ignored in the initial ICN 1992 documents but received attention in the final documents due to constant pressure from members of the global breastfeeding networks who had obtained seats on member states' delegations. So far, astonishingly, breastfeeding is not as far as I can see, mentioned in the FAO documents about the meeting (2,3) this time either, except as something that was included in the 1992 declaration and plan of action.

I am preparing a background paper for ICN2. In this I argue, in agreement with Michael Latham's commentary 'The great vitamin A fiasco' in the initial May 2010

issue of *WN* (4-7), that it is time to phase out universal high-dose vitamin A supplementation. Instead, the paper calls for accountable approaches to be set up and funded for shifting from supplementation to food-based approaches.

Along the lines of planning ideas for this presented earlier (8) countries might be advised to create organizations or committees and provide them with a budget and mandate and hold them accountable to gradually achieve this shift. For example, food-based approaches could be implemented district by district and simple diet assessments done every few years to determine when each was ready to stop distributing capsules, or shift them to the more sustainably disease-based distribution approach.

With many colleagues notably in the global South, I believe the time is overdue to make this long-pledged change happen.

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Fortification. Folic acid and spina bifida
Is it safe? Is it wise? Is it right?

Access March 2013 WN editorial on fortification here
Access March 2013 WN Mark Lawrence on fortification here

From Mark Lawrence, Melbourne, Australia

I enjoyed reading the *WN* March editorial on food fortification (1). This introduces the chapter from my book on mandatory fortification of flour with folic acid, to prevent spina bifida and other neural tube defects (2,3). Yes, the public health impact of fortification can vary depending on the circumstances within which it is being implemented – it can be beneficial, detrimental, or have an uncertain effect.

Folic acid fortification shows how these different outcomes might arise. Mandatory folic acid fortification may have public health benefits when there is evidence of population-wide folate deficiency, when this is one component of a concerted intervention. Conversely, voluntary folic acid fortification that supports the marketing of high sugar- and salt-containing breakfast cereals as if they are healthy, in countries where there is lack of evidence of folate deficiency, may be overall harmful to public health. Also, mandatory folic acid fortification as an intervention aiming to reduce the prevalence of neural tube defects has uncertain public health implications.

My one disagreement with the editorial is the statement that 'Spina bifida and other neural tube defects are caused by deficiency in folate' with the subsequent implication that a folate-rich diet can be an effective solution. The major underlying cause of neural tube defects most likely is the existence of a polymorphism in a small number of women that predisposes them to having an affected pregnancy. In this circumstance folic acid administered in high doses to genetically predisposed individuals can reduce risk. It represents a new paradigm within which to assess food fortification as a public health intervention, because here folic acid is acting more as a drug than as a conventional nutrient.

The peculiar requirement for a high folic acid dose in this circumstance is a reason why the policy option to promote a conventional folate-rich diet has not been very

effective in reducing neural tube defect prevalence. It is also why the targeted nature and dosage of folic acid supplementation has a particular appeal as a policy option.

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*Please cite as: Lawrence M. Fortification. Folic acid and spina bifida. Is it safe? Is it wise? Is it right? [Feedback]. World Nutrition May 2013, **4**, 5, 312-313.*

Fortification. Folic acid and spina bifida
Is it safe? Is it wise? Is it right?

From the WN editorial writer

Food Fortification (1) should be on every public health nutrition syllabus. It examines a topic of great and immediate importance. Mark Lawrence considers technology and biology together with issues of risk, ethics, and long term implications, as is necessary in making rational judgements and decisions concerning public policy. His even-handed conclusion that fortification may be beneficial, detrimental, or uncertain in its effects, deserves comment.

Food 'fortification' or 'enrichment' (2) has been promoted as a boon to humanity ever since chemical constituents of foods were isolated, their properties identified, and synthetic analogues formulated and manufactured. Thus the first baby formulae, devised by Justus Liebig and Henri Nestlé in the mid 19th century, were designed as 'improvements' of breastmilk, being 'concentrated' with protein from cow's milk.

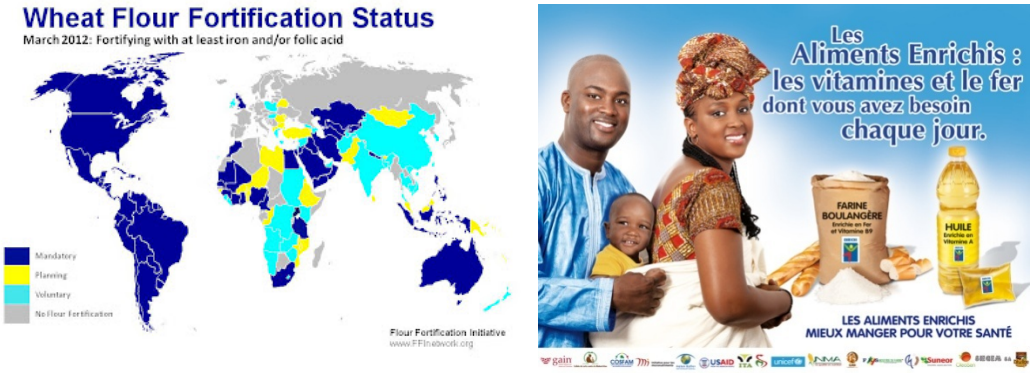
'Fortification', while right in some situations, is characteristically problematic. The 'clear-cut' example of benefit is iodisation of salt in locations and countries where goitre and cretinism is endemic (as discussed by Mark Lawrence), a practice begun in Switzerland almost a hundred years ago. In mountainous areas where iodide has been leached from soil by glaciation and erosion, and marine sources of iodine are not readily available, iodisation is not so much 'fortification', as replacement of an essential nutrient sometimes lacking in nature, using a convenient vehicle.

Given the impact of iodine deficiency on mental function, mandatory fortification in areas where deficiency is or is liable to be endemic is rational. This is not an argument for world-wide mandatory salt iodisation. Iodine is toxic at fairly low levels. Any policy that gives added salt a healthy image is not ideal. Iodine deficiency is not the sole cause of goitre and other thyroid diseases. The best policy in Ladakh will not be the best policy in Los Angeles (3-5). Sound public health judgements are based on the balance of evidence, which varies with circumstances and over time.

A case where 'fortification' or 'enrichment' (2), is highly problematic, is addition of synthetic vitamins B1 and B3 and of iron, to white wheat flour and therefore white bread. This has been mandatory in the UK since the 1950s, and 'enriched' flour is common in many countries. But only fractions of some nutrients depleted from the whole grain by milling are restored, and the many other nutrients remain depleted. This is not well-known to customers, because partial replacement enables manufacturers to make health claims on the wrapping of the product. So customers are misled into imagining that white bread is superior to wholegrain bread. It is as if a cripple is given a crutch and promoted as a superman. See the promotion below for 'Wonder' bread. The numbers refer to fortificants. Other examples can be given.

Manufacturers are allowed to make or imply health claims for fortified ultra-processed products. An example is white wheat bread, depleted of nutrients

Mark Lawrence is right to say that fortification with folic acid, the vehicle again being depleted wheat flour, is also problematic. The wide range of prevalence of neural tube defects generally between countries and over time (4), indicates that the main factors are not genetic but environmental. Folate is essential in the neurological development of the fetus, and food supplies high in ultra-processed products are poor sources of folate (as the name, with the same root as 'foliage', suggests). Hence the drive to 'fortify' white flour and so white bread with folic acid, now mandatory in the US and other countries (shown in blue in the map below). It is certain that this policy reduces the prevalence of neural tube defects.



Mandatory fortification of flour with folic acid is in place in the countries shown in blue. The policy helps to prevent birth defects, but is problematic

But the practice has problems. Synthesised folic acid is not the same substance as the folate in fresh foods, and toxicity is possible. Priority given to population-wide fortification could distract attention from the need to identify females of childbearing age at high risk and give them special attention, including high doses of folic acid before pregnancy. Monitoring of the effectiveness of the policy in practice is patchy even in well- resourced countries (7).

These are minor problems. The main problems are much more troublesome. Wheat is not native in many parts of the world, such as most of sub-Saharan Africa (see picture above, right). There, fortification is having the effect of promoting imported processed products and displacing food production that is suitable for the national or local climate and terrain. Worse, as Mark Lawrence says, because manufacturers are allowed to make health claims for added synthetic nutrients, expensive ultra-processed products such as sugared breakfast cereals 'fortified' with folic acid can be promoted for children as if they are 'health foods'.

What is most needed in Africa, and throughout the global South, is clean water supplies, effective sanitation systems, and universal primary health care. This is a

proper context for prevention of disease. Also what's need is revival and support of rational food systems that sustain local employment and economies, and that contain more fresh foods that are good sources of folate. All this together will also reduce rates of perinatal mortality and morbidity, including from neural tube defects.

But transnational manufacturers of ultra-processed products are driving hard for the 'magic bullet' of 'fortification', directly and through 'public-private partnerships' such as the Global Alliance for Improved Nutrition (GAIN). This support is not philanthropic. 'Fortification' is a 'trojan horse' designed to open gates and ensure entry into the 'emerging markets' of the global South. Fortification can reasonably be seen as a growing contribution to the pandemic of obesity and related disorders and diseases.

The drive to 'fortify' and 'enrich' will enable manufacturers to claim or suggest that more and more of their fatty, sugary or salty ready-to-consume ultra-processed products, and even by inference the entire brand range of these products, are healthy. This 'nutraceutical' strategy is pernicious. On balance it may be that 'fortification' and 'enrichment' of food ingredients and products, with important exceptions such as salt iodisation, has done and will do more harm than good (8).

References and note

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Epidemiology

Mathematics is not a good master

Access January 2013 Philip James on statistics and world health here
Access February 2013 Philip James on statistics and obesity here
Access February 2013 Geoffrey Cannon on principles and theories here

Information is not knowledge, and knowledge is not wisdom. Clever statistics can be and often are used to bewilder us and to take us in wrong directions

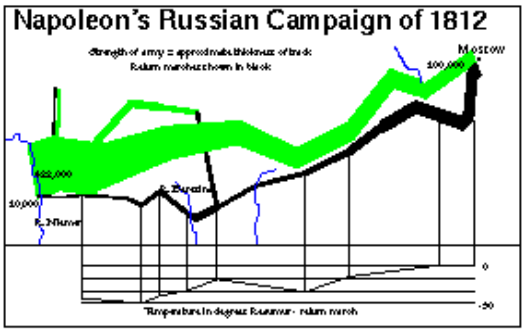
From Claudio Schuftan, Ho Chi Minh City

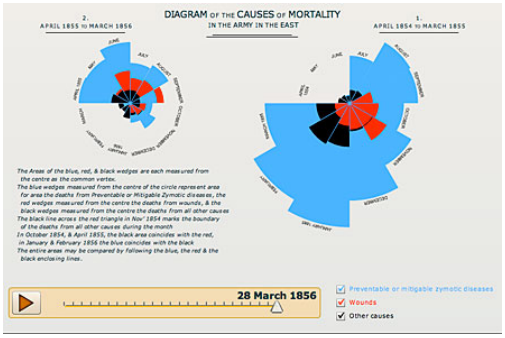
In their recent columns Philip James (1,2) and Geoffrey Cannon (3) do public health nutrition a service. They point out that numbers and statistics are being increasingly overused and abused.

Philip James exposes the fact that the 'Institute for Health Metrics and Evaluation', a US statistical epidemiology research centre funded with $US 115 million of Gates money, has been crunching some crazy numbers (1). It is now convincing global policy-makers that – as one example – diets low in nuts and seeds are the 12th most important cause of premature death in the world, causing two million deaths a year. This is based on just one data analysis! He also shows (2) that another colossal study of studies done by the US government 'Center for Health Statistics', is now dazzling and maybe even deceiving policy-makers with its conclusion that it is healthy to be somewhat obese --without apparently having controlled for cigarette smoking!

The tendency for manipulated statistics to confuse and distort public policies, magnified by the sophisticated use of computer technology, is not confined to public health. The bar graph on the left, above, with its arrow heroically ever extrapolating upwards, is of a type that lured tens of millions of people in the US to invest in the bubble economy that burst in 2007. The drawing on the right says it all. Here is the effortlessly superior mastermind man with hand in pocket, showing open-mouthed

credulous woman that all is well and getting better. Unless, that is, he is pointing to the growing incidence of multiple-drug resistant hospital infections, or something like that!





The use of statistics that could or did change public policies for the better. Common feature: presentation is compelling and also the data are transparent

Don't get me wrong. Mathematics and statistics are vital tools. See the two graphics above (4). The one (left), made by Charles Joseph Minard in 1869, shows the reduction in the 422,000 soldiers in Napoleon's Grand Army sent to Russia in 1812, first to the number that reached Moscow (green line) and finally to the 10,000 that eventually came back from Russia (black line). History could have been very different had Hitler attended to this figure. The chart (right) was made by Florence Nightingale. The red patches show the number of British and Allied forces that were killed in battle in one year in the Crimean War of 1853-1856. The blue areas show the number who died from preventable infections. This iconic pie-chart changed national policy.

These graphics are good if a bit crammed. They are based on information that you and I can understand, which is to say, they are presented clearly. Like us, policy-makers in United Nations agencies, national governments, and other powerful institutions, are usually not statisticians. They need clear recommendations based on clear evidence. As citizens, as well as professionals, so do we. Visualisation helps.

Instead, we are constantly being misled by data devised by methods that only the mathematicians in charge, and maybe not even they, can understand. The crazy optimism about global prosperity just a few years ago was based on statistical abracadabra manipulated by economists with dubious agendas, used when the going was believed to be good by bankers and speculators who made – and who continue to make – huge profits. We are still paying the price – most of all, people in impoverished countries.

To paraphrase Marshall McLuhan, the human species has moved from being hunters for food, to gatherers of data. There has been an exponential increase in disruptive and

deceptive information. Statistics have often become 'human beings with the tears wiped off'. Information may be power, but it is not knowledge, and it certainly is not wisdom.

Policy making centres around the world are increasingly influenced by economists and statisticians who, typically, are not comfortable with human beings --and certainly not interested in nutrition as a human right. Human rights are about quality, about dignity; they can be and are trampled, but cannot always be crunched in numbers. Do not take me wrong please. The right information, including statistics, can help create a culture of accountability. But questions are: What information? In whose interests is it to produce specific information? What are the assumptions behind any process of information-gathering? Words can be used to manipulate reality. So can numbers.

The academic and official research centre bosses who generate statistics, and so often end up directing the conclusions, judgements and policies that they say 'flow from the data', may be mainly interested not in justice and equality, but may have other motivations.

We need to be prepared, as is Philip James, to investigate and to challenge the assumptions on which such work is based. Is it sound? Does it contradict common sense? Who funds it? Can we trust it? Does it, for example, point towards appropriate and feasible ways of addressing, in our case, food insecurity and malnutrition in a holistic way, including measures that address the social determinants like land ownership issues and income generation opportunities for women and youth? If not, this work is to be denounced.

Documentation is always important. One of its values is that claim holders can then unmask those who are wronging them, such as politicians mainly interested in protecting the interests of elites. We need the type of governance that requires that people's voices and contributions be part of policy-making and decision-making processes. If we professionals want to get serious about empowering people to participate, then we must make sure that they are fully engaged with the processes of putting together the information being used so that the proposed policies and actions then are based on the analysis of such information.

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4 Anon. Worth a thousand words. A good graphic can tell a story, bring a lump to the throat, or even change policy. *The Economist*, 19 December 2007.

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