Editorial

Diet, lifestyle and chronic disease risk: Assessing and improving strategies for preventive interventions, a global perspective

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For one and a half days, on the eve of the 17th International Congress of Nutrition, three of the committees of the International Union of Nutrition Science (urbanization and nutrition, ageing and nutrition, and environmental contamination and nutrition) and one of its taskforces (nutrition transition) convened the 'Workshop on Diet, Lifestyle and Chronic Disease risk: Assessing and Improving Strategies for Preventive Interventions – a Global Perspective' in Vienna, Austria. It assembled 150 participants from over 30 nations for a program of plenary lectures, interactive working groups and informal discussions. The experience is presented in this supplement but the circumstances and contexts of the meeting and the theme merits a certain interpretive overview epilogue, which we present here.

Poverty and public health priorities

Since the end of World War II and the founding of the United Nations, nutritional sciences has been largely dedicated to the solution of problems related to under-nutrition and food insecurity. The populations of concern are the 80% of the world's residents who live in developing countries or in disadvantaged sectors of industrialized nations. The focus has been on the diagnosis of nutrient deficiency states and the response of improving the accessibility and availability (quantity) and nutrient composition and bioavailability (quality) of foods in the human diet. The agents and protagonists for the research and technology effort over these 50 years and 17 International Congresses on Nutrition have generally been like us, professionals from affluent nations or from the privileged elite within developing nations. As we publish this supplement, over a year after the event, the academic considerations cannot be separated from the global context in the anticipation – and immediate aftermath – of our Workshop and Vienna Congress. At the turn of the millennium, both developed and developing countries faced economic stagnation or recession. In relative terms, it proved harder for institutions in developing countries to send delegates to Vienna than it had been for the two previous ICNs in Montreal (1997) or Adelaide (1993). The poverty effect had reached into the ranks of the nutritional sciences community; the sacrifice for attendance was more severe for Vienna and more aspirants were finally left home in developing (and developed) countries. Back in the low-income countries, malaria is increasingly out of control and another mosquito-borne threat, dengue fever, is on the rise. Pathogenic bacteria of all types are increasingly resistant to antibiotics; emerging infections, most notably that of HIV/AIDS which has infected 50 000 000 people over its 20 year history, and which is slated to double and triple in size in the coming decade, are impacting on the demography of African and Asian nations and on their abilities to field a productive agricultural workforce.

None of those attending the Workshop, moreover, could have foreseen that, within a fortnight, a new global state of warfare would arise from the rubble of the World Trade Center towers in New York and of the Pentagon in Washington. This attack would also accentuate the regional tensions and highlight our awareness of the smoldering disintegration of social and political institutions throughout the world. All of these point in the direction of traditional issues of poverty and food insecurity, the underlying factors in under-nutrition, being on the rebound.

Chronic disease risk, non-communicable disease prevention and long-term health

Why then would 'chronic disease risk' emerge onto the agenda of international nutritional science? These are, after all, diseases of affluence! Does this not present a paradox in terms of the foregoing consideration? It would, indeed were it not for the facts – the actual statistical evaluations and health predictions – that show that poverty can no longer be viewed as a 'protective factor' against chronic illnesses. Pekka Puska in his keynote lecture to our Workshop points out that violence, accidents and non-communicable diseases

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constitute three-fifths of all deaths worldwide and cardiovascular disease causes one-third of the world's mortality. Moreover, in his conceptualization of 'Eco-Nutrition', before the plenary of our conclave, he insists that malnutrition, be it deficient or excessive exposure to dietary nutrients, should be classified within the burden of chronic diseases. What the professionals and students gathering in Vienna for this pre-Congress Workshop were to be delving into was, indeed, a sea of paradoxes and shifting paradigms. This becomes even clearer now as the text of the talks and working group deliberations have been laid out together in this supplement.

Paradoxes and paradigm shifts

If the tone of the plenary talks and the deliberations in the working groups illustrate anything, it is that grappling with diet and health interactions confront(s) us with paradoxes. Faced with this, Professor Wahlqvist challenged us to think outside of the box with his statement: 'With the wrong descriptions, people will not find solutions.' Implicit in the considerations is the phenomenon of globilization, an important overall paradigm shift in the consideration of health problems. With changes in commercial trading patterns and free markets in food commodities, a new tension between local actions and food supply realities is joined. 'For example, it gives transnational industry powerful means to promote tobacco products as well as highly processed foods and drinks that replace healthier traditional food habits.' Changes in residential patterns are another part of the paradigm shift, as close to half the world's residents live in urban areas, a 300% increase since the end of World War II. Changes in lifestyle are implicit with reduction in the agricultural labour force and settlement in towns and cities.

In the paper by Rachel Nugent an interesting and pioneering perspective is offered. When asked to address the question of how feasible or how difficult it would be for those living in developing countries to comply with, or exhibit concordance with, the goals and guidelines of the World Cancer Research Fund, Nugent returned to the paradoxical reality that such populations might still be facing food shortages. She pointed out that half the people in developing countries live in rural areas and are dependent upon subsistence farming. These populations are at risk of shortfalls in meeting their total protein and caloric needs, especially if some of the more pessimistic climatic and agricultural scenarios come to pass. It is only within the risk of overall hunger and food security as a credible risk does this author address the nuances of dietary pattern for disease prevention. But she takes various components of the WCRF recommendations for the prevention of cancer and analyses the barriers to compliance with them in low-income nations of the world based on first principles of macro-economics and cultures and traditions. The Concordance Study[1] that our two research groups have joined with others to execute is actually trying to put quantitative descriptions on the degree to which different social strata in nations in distinct stages of nutrition transition are in concordance or compliance with the behavioural guidelines of the WCRF 1997 report.[2]

The environment and eco-nutrition

Wahlqvist framed the approach to solutions in how we define the problems. Wahlqvist challenges the notion of limiting the concept of nutrition and the view of nutritional sciences to the physiological and metabolic flow of nutrients. He takes a holistic view with a new definition, that of eco-nutrition. From this, he proposes that public health policy works through sustainable community development at the educational, health, economic and environmental levels. He and other contributors extended and developed this ultimate (environmental) theme in its interaction with a sustainability of the food supply, dietary selection and nutrition.

Inescapable in the considerations of the speakers and the deliberations of the working groups was the common thread of the environment and the complex relationship of maintenance of human health to the natural and man-made surroundings and the exploitation of renewable and non-renewable resources. Dr Rainer Gross looks at how environmental insults can influence our nutritional status – and at great distances. In his plenary lecture presentation he showed us how the world's prevailing wind currents can move pollutants from their site of generation to regions far removed. This is not only true of the slash-and-burn fires of Sumatra fouling the air of Singapore and Kuala Lumpur, but particles and volatile gases such as carbon monoxide arising in Asia and Africa can be deposited over the North American continent or Europe. This can contribute to non-communicable diseases in humans and animals outside of any relationship to diet.

Rainer Gross was requested to go beyond the dietary paradigm to examine how the trend toward urbanization can contribute to ill health, even as slum-dwellers are far from affluent. He comes up with a credible roster including: social deterioration leading to drug abuse, criminality, homelessness; lack of physical activity and sedentarism; pollution with substances of inorganic, organic, biological, and radioactive natures as well as excess noise and artificial illumination. According to Pekka Puska, social and physical environmental factors, influenced by tobacco use and physical inactivity and the pathologies caused by abuse of ethanol, narcotics and recreational drugs, would fall under the same umbrella. Wahlqvist follows up the theme in terms of how maintaining life-long physical fitness would help promote the compression of morbidity in growing older, such that persons would remain healthy and with a greater sense of wellbeing throughout their lifespan.

Responsibility, quality and transparency

Another important current was the insistence for quality and transparency in public pronouncements about public health. The very fact of globalized communications would mean, at a minimum, that United Nations recommendations would reach further and wider than they have in the past. The working-groups focused in on actual documents as the basis

of their deliberations. Groups 1, 2 and 3 used the 1997 WCRF report *Food, Nutrition and Prevention of Cancer: A Global Perspective*[2] as the centrepiece of their discussions, whereas Group 4 focused in on the 1990 WHO Technical Report 797 *Diet, Nutrition, and the Prevention of Chronic Diseases*.[3]

The mission of Working Group 1 was the use of the WCRF document in education. They stressed that the educational objectives must take account of social and cultural norms tending toward practices deemed culturally acceptable by the population. Recognizing that large portions of the population may not want to change their eating habits, the requirement for strategies for change 'to reach way beyond information transfer to motivational prompts and clever social marketing'. The considerations for a meaningful food variety score, eating for pleasure, using concepts of family (or social) eating as a focus for advice, and using the school career as an opportunity for nutrition education represent a new generation and dimension of inputs that contribute to the quality of the process of revising and modernising approaches to disease prevention with a life-stage focus. Beyond the appropriate templates for the global reform of dietary habits and lifestyle, the responsibilities for implementation of action were assigned. Mark Wahlqvist called for public health policy to promote a decreasing burden of chronic illness and increased survival through the life stages. Group 1 pinned the responsibility for transformation to health, agriculture and rural affairs ministries armed with adequate budgetary resources and using taxation and regulation of advertising as appropriate tools as well as individual education. From the discussion in Working Group 3, a suggestion to apply the risk–analysis approach to issues of diet and chronic disease was advanced.

The focus of Working Group 2 related to a similar topic. They insisted that the degree of concordance of a population with practices that are deemed beneficial for the prevention of cancer or other chronic illnesses can be assessed as a baseline to determine which behaviours need to be changed and which others might merit being conserved and reinforced. This assessment should be ongoing as a surveillance of the compliance with educational and transformation strategies taken by authorities and the private sector. Experience in the four-nation (UK, the Netherlands, Mexico, Guatemala) WCRF-funded project[1] will provide ways to develop both rapid assessment and detailed analyses of concordance and compliance possible in other regions. Australia is another nation with experience in relating recommendations to population behaviour and norms.

Working Groups 3 and 4 concentrated on the future of processes to renew and update guidelines from the WCRF[2] and the World Health Organization.[3] Clarity, competence and transparency were viewed as the most important characteristics with which these processes should be imbued. The goal and guidelines should be operational, expressed in a terminology that is unambiguous. The criteria for strength of evidence should be established a priori. Selection of the consultants and panels must be made with equivalent transparency. The 1997 process of the WCRF was viewed as a model, and even the plenary of the Workshop urged the WHO in their then upcoming readdress of the diet and chronic disease recommendations to emulate most of the process features in that model. Moreover, the effort to mutually harmonize recommendations for specific disease, for example, cancer or cardiovascular disease, when possible was lauded.

Keys to the future

'Dying healthy in old age' was seized upon as a universal motto for the goals of the efforts in public health epidemiology. Just how potent is diet as a determinant of long-term health is still to be confirmed. In the keynote lecture we heard: 'dietary changes have a great potential in reducing the needs for drugs and will remain the main method from the public health point of view for reducing the NCD rates in the population'. Clearly, the cost of pharmaceutical agents can become a yoke in the battle against diseases, as the issues surrounding accessibility of retroviral agents in sub-Saharan Africa demonstrate. Avoiding dependence on the pharmaceutical route is highly prudent. However, reducing chronic disease prevalence may not be so important as preventing its extension, and here maintenance of current dietary and lifestyle practices may be the key to curtailing the rise of ill health.

The locus of action to promote dietary and lifestyle change and to conserve positive traditional practices remains in debate, as the Workshop reveals. The locus of primary action, among international, national or local was vigorously debated. A skepticism about universal solutions, that is the 'one size (of guideline recommendations), fits all' groups and individuals around the world, was voiced in the Workshop. Rachel Nugent felt that the focus for solutions was at a national basis. Such is the diversity of ethnicities, cultural traditions, income, and penetration of modernization in most developing countries that we would offer the notion that community action might be the most important health-promoting locus of all. Mark Wahlqvist felt that a sustainable community-based process was the recipe.

In the more than a year's interval that has elapsed since the Workshop in Vienna, the world's economy has not made major recovery and the dynamic of conflict and violence within and between nations has accelerated. The populations of developing countries may be poorer and at greater risk, including food security risk, than they were in August of 2001. The relevance of chronic disease epidemiology considerations for low-income societies, however, is not likely to be turned back by these dislocations.

Over this same interval, moreover, a consultation on 'Diet, nutrition, and the prevention of chronic diseases' was convened in Geneva, and began the task of updating this theme for the WHO, while the WCRF has begun to move forward on the revision of its guidelines for prevention of cancer through diet and lifestyle. Although we cannot attribute any cause-and-effect influence from our deliberations in Vienna, we have been pleased by the fulfillment of

many of the suggestions from our attendees in the activities and plans of the two major international organizations. The WHO provided voluminous background 'white papers' with an analysis of the published evidence for each area of consideration. Moreover, it is planned to put it on the worldwide web for consideration of all who would care to review and contribute their thoughts. This is a transparency and participation that the 1990 technical report[3] never dreamt off. The WCRF has firmed up and revamped its criteria for strength of evidence and is mounting an exhaustive search of the literature from the last decade, including searches in non-English language publications that might make even more global and robust the description of associations. If not directly influencing the processes, at least our discussions in Vienna foreshadowed the new issues of paradigm shift, transparency, and quality of standards.

The remaining challenge is in the domain of responsibility. Who will be the agents of change and what will be the funding sources and mobilization of resources that will conduct the campaigns to adjust the behavioral realities of populations from communities to nations into a compliance with the diet and disease recommendations and their specific goals and guidelines? Much was commented on that aspect of public health priorities in the Workshop in Vienna. It will clearly be breaking new ground if inter-sectorial cooperation and appropriate assignment of public and private resources comes forth behind the revised blueprints from the WCRF and WHO. Some 150 persons who gave of their own time and effort to contribute thoughts and comments to this large process will be among the most interested observers, and hopefully contributors, to the future evolution of the processes of implementation.

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We, the senior organizers are pleased with the enduring impact of this meeting in Vienna and we thank all who participated and contributed to make it a reality, especially the authors and supporters in this supplement. Several persons from around the world merit specific mention for their unique contributions, including Marilyn Gentry, Ritva Butrum, Cathy McDonald, Kurt Widhalm, Mark Walhqvist, Marieke Vossenaar, and Roxana Valdés-Ramos.

References

1. Solomons NW, Valdés-Ramos R. Preventive nutrition. It changing context in MesoAmerica. Nutr Res 2002; 22: 145–151.
2. World Cancer Research Fund/American Institute of Cancer Reseach. Food, nutrition and prevention of cancer: A global perspective. AICR, Washington DC, 1997.
3. World Health Organization. Diet, Nutrition, and the Prevention of Chronic Diseases. WHO technical report #797. WHO: Geneva, 1990.