Fruit and Vegetable Summit Proceedings

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PLENARY SESSIONS

In brown, sessions no validated by their authors

SESSION 1

OFFICIAL WELCOME OPENING

S. Barnat, R. Lemaire, E. Riboli and **S. Hercberg**

KEYNOTE LECTURES

- The Role of Fruits and Vegetables in the Genesis of Noncommunicable Diseases. **A. Schatzkin**
- Riding Pillion with the Marlboro Cowboy. **G. Hastings** and **Gareth Broughton**

Ouverture

Saida BARNAT
Coordinator of the Fruit and Vegetable Summit, Head of the scientific department of APRIFEL, France

Mesdames, Messieurs, Chers Collègues, Chers Amis, bonsoir.

En tant que coordinatrice scientifique de ce 1er sommet international des fruits et légumes, je suis très heureuse de vous souhaiter la bienvenue ce soir, à l'Unesco, symbole de la diversité des cultures mondiales et du maintien de nos héritages culturels et peut-être demain garant de nos gastronomies et cultures culinaires.

Il y a 7 ans déjà, Aprifel, l'agence française pour la recherche et l'information en fruits et légumes lançait une série de colloques scientifiques internationaux sur les bénéfices santé d'une alimentation riche en fruits et légumes.
L'objectif était de réunir les plus grands experts du domaine pour échanger, débattre et trouver des consensus scientifiques sur le rôle des fruits et légumes au regard de la prévention des maladies non transmissibles, tels que les cancers, les MCV, le diabète, l'obésité…

Depuis, les Etats, l'Union Européenne mais aussi l'OMS, ont défini des recommandations pour une consommation quotidienne minimale de fruits et légumes : 5 par jour, 6 par jour, 5 à 10 par jour selon les pays et au moins 400g d'après l'Organisation Mondiale de la Santé.

Parallèlement, de nombreux Etats à travers le monde ont mis en place des politiques nutritionnelles de santé publique encourageant la consommation journalière de fruits et légumes.

Néanmoins si chacun sait qu'il est nécessaire d'augmenter sa consommation de fruits et légumes, le passage à l'acte semble difficile. La connaissance ne suffit donc pas. La consommation ne suit pas et les comportements alimentaires en matière de fruits et légumes n'évoluent pas.

Ainsi, l'enjeu fondamental aujourd'hui n'est plus uniquement de savoir si les fruits et légumes sont bénéfiques pour la santé, l'enjeu est de parvenir à changer les comportements de nos concitoyens, et ceci au niveau mondial, régional, national, et même local.

C'est pourquoi ce premier sommet des fruits et légumes ne réunit pas uniquement des nutritionnistes, mais rassemble des chercheurs de santé publique, des spécialistes du marketing, de la communication, des sociologues et psychologues, des économistes et des politiques, des producteurs et des distributeurs, des élus… car l'enjeu est multi dimensionnel, la problématique est transversale :
Changer les comportements et l'environnement demande un travail collectif.

Tel est l'objectif de notre sommet…

Et nous sommes fiers d'avoir pu réunir aujourd'hui des représentants de toutes les parties prenantes liées à la consommation des fruits et légumes, représentant ainsi des secteurs complémentaires et des horizons si différents.

L'urgence d'une action concertée à l'échelle mondiale s'exprime également au travers du soutien que nous accorde les instances internationales FAO et OMS.
Et je tiens particulièrement à remercier le Bureau Régional pour l'Europe de Copenhague, le département des Maladies Chroniques et Promotion de la Santé et l'équipe de la Stratégie Mondiale d'alimentation, activité physique et santé de Genève. Mes remerciements vont aussi au groupe Récolte horticole, division de la production végétale et protection des plantes de la FAO.
De même je remercie, au nom des organisateurs, la Délégation permanente de la France auprès de l'UNESCO et en particulier Son Excellence Mme Bourgois, pour nous avoir permis de nous retrouver ici, dans ces locaux prestigieux des Nations Unies, pour affronter ensemble un problème de l'obésité qui affecte et menace toutes les cultures du monde.

L'année dernière lors de notre Conférence nutrition EGEA 2007 qui s'est tenue au siège bruxellois de la Commission Européenne sur le thème du « rôle des fruits et légumes dans la lutte contre l'obésité », de nombreuses solutions novatrices avaient été identifiées pour accroître de manière significative la consommation de fruits et légumes. Parmi l'ensemble de ces solutions, la priorité avait été donnée à trois domaines d'intervention principaux dont 2 seront particulièrement débattus au cours de ces prochains jours. Ces deux axes sont :
D'abord, favoriser l'accessibilité et la disponibilité des fruits et légumes à l'école : Ce sujet sera largement débattu le 29 mai et Lars Hoelgaard, directeur général adjoint à la DG Agriculture nous présentera les différentes possibilités à l'échelle communautaire. Nous traiterons également de l'accessibilité des F&L sur le lieu de travail. Le monde économique joue un rôle important dans l'aménagement d'un environnement plus favorable à la santé, en facilitant l'accès et la disponibilité des F&L. Vous trouverez dans vos mallettes une fiche traitant du sujet et qui émane d'un partenariat entre les pouvoirs publics et les différentes organisations du secteur des fruits et légumes. D'ailleurs, la proposition de la mise en place de ce partenariat émane de l'édition Egea 2004 qui s'était tenue à Perpignan.
Le 2ème axe d'action défini à Egea 2007 concerne la réduction des inégalités sociales en matière de consommation de fruits et légumes : Nous y consacrons la journée du 30 mai, qui a été conçue afin de répondre à des questions aussi centrales
que celle des modes d'intervention réellement efficaces (faut-il intervenir sur les subventions, les prix, la publicité, le marketing, les allégations nutritionnelles)
que celle du rôle des responsables politiques, ainsi que de nombreuses autres questions qui j'en suis sûre, seront l'objet d'un débat passionnant, le 30 mai.

Quant' à la journée de demain, elle sera consacrée au thème de l'impact de la consommation de fruits et légumes sur notre bien être, sur la prévention de la prise de poids indésirable ainsi sur la prévention des maladies non transmissibles. Nous étudierons à cette occasion les possibilités de modifier un environnement dit « obésogène ».

Clairement, nous savons aujourd'hui qu'il ne peut y avoir d'alimentation saine sans fruits et légumes, qu'il ne peut exister d'équilibre alimentaire sans fruits et légumes et que la diversité alimentaire passe par la diversité des fruits et légumes. Encourager leur consommation constitue donc un véritable enjeu de santé publique.

Et je suis très heureuse de pouvoir ce soir remercier celui qui est à l'origine de la politique française appelée Programme National Nutrition-Santé, le Pr. Serge Hecberg, qui a accepté de coprésider le Sommet fruits et légumes. Je laisserai le soin au Prof Elio Riboli de nous présenter Serge Hercberg.

Je tiens à remercier tous les intervenants des 23 sessions de ce sommet pour leur engagement et leur collaboration et pour avoir répondu présents dès que nous les avons sollicités.

Mais s'il y en a un que je tiens à remercier tout particulièrement c'est le Pr Elio Riboli, qui a depuis 7 ans toujours été à nos côtés, présidé nos colloques et est de nouveau parmi nous ce soir en tant que co-président de ce Sommet.

Je tiens à souligner en outre que l'organisation de ce sommet mondial est le fruit d'une coordination étroite entre différentes associations nationales de plusieurs pays réunis depuis plus de 5 ans au sein de l'Alliance internationale pour les fruits et légumes : IFAVA, dont je tiens à saluer le travail remarquable et remercier ses membres.

En effet, la dimension mondiale du problème de l'obésité et de la sous consommation de fruits et légumes, nous ont amené à unir nos efforts et à créer une organisation internationale, dont le président est Ron Lemaire qui vient du Canada, que j'invite à la tribune. Merci de bien vouloir l'accueillir.

Introduction

Ron LEMAIRE
Canadian Produce Marketing Association, Ottawa, Canada

Good evening, welcome everyone. I'm going to be very brief in my comments. I would like to move on to hear some of our other speakers this evening, and to get the summit off to a wonderful start.

I would like to reiterate some of the comments that Saïda had made during her presentation on the importance of partnership. We could not have pulled together this event without the partners that Saïda had mentioned in her presentation, as well as members of the Organizing Committee, and the members of IFAVA. I'd like to thank you all again for your support, and the partners for enabling us to reach our goals in pulling together this event, and enabling you to come to Paris and enjoy the next 3 days of information.

The International Fruit and Vegetable Alliance is a fairly new organization, and I quickly wanted to just bring you through what we've done in the last few years. Launched in 2005, the IFAVA Group, the International Fruit and Vegetable Alliance, was basically created to do one core objective. A mission that was focused on the encouragement and fostering of efforts to increase the consumption of fruit and vegetables globally for better health, by supporting national initiatives, promoting efficiencies, and facilitating collaboration on shared aims and providing global leadership. This Summit is one of those core tactics to achieving the aims of global leadership and bringing together collaborative efforts to understand how we can increase consumption.

Beyond that, we've been very active on a yearly basis running specific programs that can support the consumption of fruits and vegetables for our members and the global marketplace.

After we launched in 2005, we began creating a monthly newsletter, a scientific newsletter, that goes out to a network of, right now with our media exposure in different markets, over a million through media, definitely within straight distribution in North America, we are looking at approximately 200,000-300,000 in total distribution. And beyond that in other markets, as well, through Europe. We are very proud of the newsletter, and Saïda is our scientific lead on that publication that supports our membership in their core activities around the science of fruit and vegetables.

As well, we created our scientific overview, which is a short document that outlines the scientific benefits of eating fruits and vegetables around pulmonary health and other areas. We've also had an international summit in 2006, similar to this event that brought together world leaders to discuss and focus on efforts to increase

consumption and the science behind it. We've been very fortunate to host a workshop in Brussels just last year focusing on policy and school snack programs, school fruit programs, and how we can try and move the agenda forward to have more national governments focused on supporting fruit in schools, or vegetables.

And this Friday, we will be launching a new tool, a practical toolkit, for countries that are looking at how they can develop 5-a-day type programs. It's something that has been a good year in development and it will be an online tool that you will see more on Friday during the midday session.

It's interesting; our membership has grown since that launch in 2005. Current national representation within IFAVA included Canada, United States, France, Denmark, New Zealand, Australia, South Africa, Peru, Japan, China, Argentina, and Chile. We are a member-driven organization. And I would encourage any organization or group that's here during the summit, to consider joining IFAVA and being a part of our international group. It's through the network and shared collaboration that we see the greatest strength.

An interesting comment was brought up earlier. When we have a tendency--being in Paris, unfortunately, with the weather, we don't get a chance to see the stars. But individually, looking up at the sky, we see many of the same things. Everyone looks up, we see the stars. As an individual, you interpret those stars in a very unique way. As a group, we have an opportunity to discuss what that interpretation is, and what those stars mean to you, and how those stars impact how you live.

Similar to this Summit, I'd like to take that approach of looking at the stars. Looking at the stars in isolation won't do us any good. As a collaborative group here, together, looking at the issue around fruit and vegetables, it's key that we do it together as a group and find solutions as a group. So again, as a group, I encourage us to work during the remainder of the week to find solutions towards how we can increase consumption of fruit and vegetable, globally. Thank you.

Saida BARNAT

Merci Ron,

Je voudrais maintenant vous présenter celui qu'il n'est en réalité plus nécessaire de présenter : Le professeur Elio Riboli.
Depuis 2005, Elio est Professeur d'épidémiologie du cancer au collège Impérial de Londres où il dirige le département d'épidémiologie de santé publique et premiers soins.
C'est en 1983 qu'Elio avait intégré le Centre international de recherche sur le cancer de l'OMS à Lyon où ses travaux de recherche se sont concentrés sur la relation entre nutrition, statut nutritionnel et cancer. C'est ainsi qu'en 1989 Elio a initié et coordonné la plus grande cohorte européenne EPIC, qui comprend 500,000 sujets venant de 26 centres appartenant à 10 pays européens.
EPIC fut initialement conçue pour étudier la relation nutrition/cancer. A présent, EPIC a évolué et élargi son domaine d'investigation aux maladies cardiovasculaires, à l'obésité et au vieillissement. Dans ce contexte, le passage d'Elio et de la coordination d'EPIC à la Faculté de médecine du Collège Impérial à Londres représente une évolution naturelle qui facilite cette nouvelle phase d'EPIC, dédiée à la recherche sur toutes les maladies chroniques les plus répandues

Elio je te cède la parole, merci à tous de bien vouloir l'accueillir.

Elio RIBOLI
Division of Epidemiology, Public Health and Primary Care, Imperial College London, UK

I would like to start by saying that if you are here once again in this new edition of EGEA, first of all it's because of Saïda's determination in keeping us all together in building up, I think, a very good scientific program. And I think the demonstration that you are here in participation prove the interest of this new edition. So Saïda, thank you for all your efforts.

And I would also say thank you to Aprifel that has, once more, supported this conference. I must say that I've been really delighted to see how Aprifel has provided all the support for us to get together to meet, to discuss, with complete and total independence, and how this can be cited as a fantastic example of sponsoring research, science, discussion about policy, in complete independence of the outcomes.

Again, I think EGEA has a particular role in the many meetings that there are around the world on nutrition and health. And one of the specificities is that from the very beginning - and this is thanks to Saïda and to Laurent Damien who have been organizing these meetings until last year - we have brought together researchers on the link between nutrition and health, cancer, cardiovascular diseases, but also policymakers, and the researcher's interest in the translation of research into public health. And this link between research, public health, and policymaking is extremely important.

And that helps me to introduce Serge Hercberg who, besides being a very good friend, is someone who has really been at the intersection of research with public health in an extremely effective way, he is recognized as being the father, and the mother of the National Program on Nutrition and Health that has been adopted officially in France, and is one of the models that are around, at least in Europe, on how public health can be translated into policy at the national level. Serge will, I think, address the audience in a moment.

I take advantage of being here to introduce the first of the two speakers, the keynote lecturer, Arthur Schatzkin. Arthur is the Director of the Nutrition Epidemiology Branch of the National Cancer Institute, United States. Arthur has attended a few of the previous EGEA meetings, and just a word to say that when Saïda said that EPIC is the largest prospective cohort study on nutrition and cancer, and she said in Europe, she was right. Because, in fact, Arthur has been working in this field for a long time, is leading what is now the largest worldwide prospective cohort study on nutrition and cancer that is based on the American Association of Retired Persons. If I am right, I think it includes 650,000 people. So we've been beaten by about 100,000 people by the AARP and NIH study which is a major project that has provided fantastic results in top journals over the past few years. So that says that when we started EPIC 15 years ago, and we aimed at collecting data from [...] subjects, we

knew that that was just the beginning. In fact, we need this very large study to have a better understanding of the links, complex links, between nutrition and health. And fruit and vegetables play a key role on this link. And the understanding of the relationship is not always easy. I would say on the contrary, it's rather complex. And these very large studies play a key role.

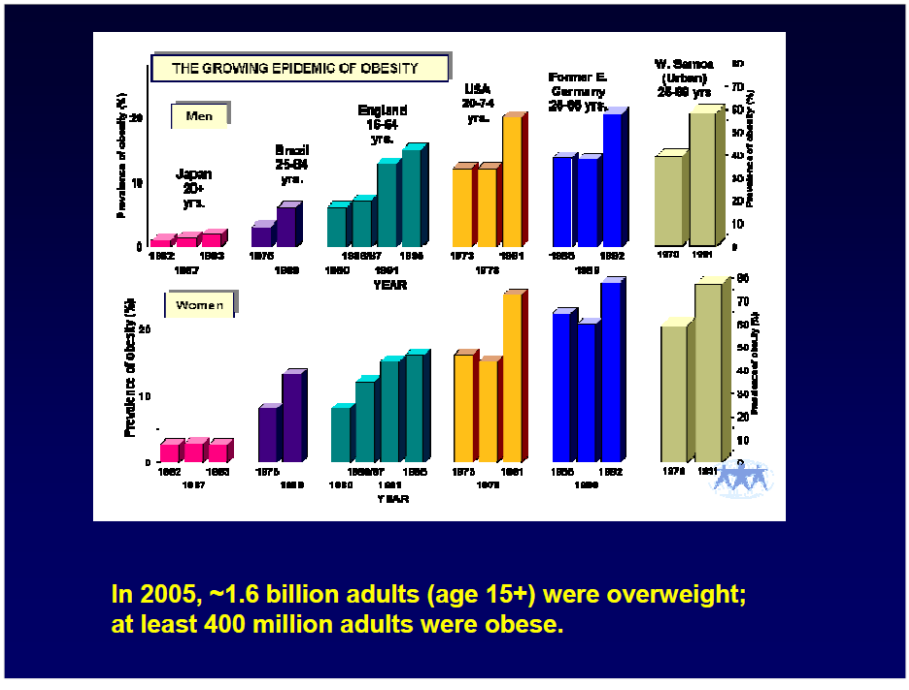
I would like to conclude by thanking all the organizers for making it possible for us to be here, and thank you for your presence. I look forward, as usual, with EGEA, to interesting presentations, with interesting discussion, and the final day, an in-depth discussion on how research results can be translated into public health. And I give the floor to Serge now.
Have we done the first hour of the meeting? Is it Serge or Arthur? It's Arthur. Okay, so it's Arthur, sorry.

The role of fruits and vegetables in the development of chronic diseases

Arthur SCHATZKIN
National Cancer Institute, Division of Cancer Epidemiology and Genetics, Maryland, USA

What I'd like to do first is just say a little bit about why this is important. I'm going to show just a couple of slides from the World Health Organization, which gives an idea of the magnitude of some of these non-communicable/chronic diseases. And what you see here at the bottom is that over 7 and half million people died from coronary heart disease in 2005. More than 60% of the global burden of heart disease occurs in developing countries. With regard to strokes, over 5 and a half million people died a couple of years ago from stroke, and if you add coronary heart disease and strokes together, it adds up to 30% of the deaths around the world. And the stroke burden, as you see in the circle, is projecting a more than 50% increase in disability due to strokes worldwide. Over 7 and a half million people would have died from cancer in 2005. You see some of the leading anatomical sites, cancers of the lung, stomach, and colon. And again, with regard to the distribution in the world, more than 70% of all the cancer deaths in 2005 occurred in low and middle income countries. And finally, over a million people died of diabetes in 2005. And over 170 million people in the world have diabetes and the numbers are increasing. So that's some evidence on the global burden of chronic disease to which I am now going to try and relate fruits and vegetables.

Now, I can't talk about the global burden of disease without saying something about the obesity epidemic which you are going to hear more about tomorrow morning in the early session.



This slide depicts the epidemic of obesity, throughout the world, which is not simply restricted to developed countries. 1.6 billion adults 15 and over were overweight in

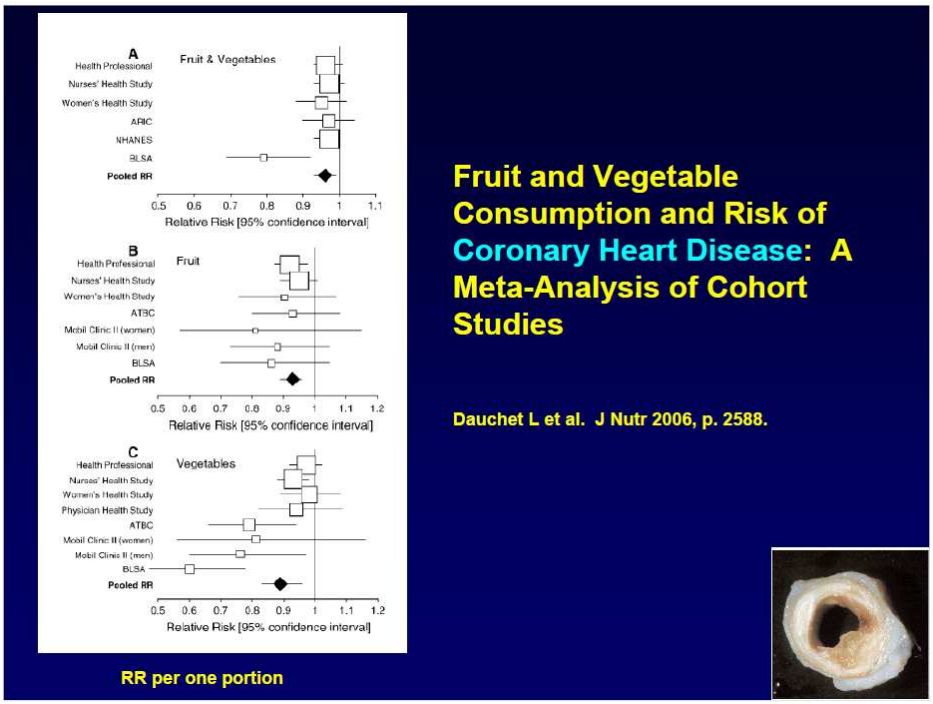
2005, and at least 400 million adults were classified as obese.

Now, this slide (of Moses-like figure carrying two tables, with onlookers asking,) '*what does it say about fruits and vegetables*?' There has been historical interest in the role of fruits and vegetables in preventing chronic/non-communicable diseases for some time. Now a key question is how do we know for a fact that fruits and vegetables do any good with regard to chronic non-communicable diseases. And there are all kinds of public relations commercial claims made, as you see here from a commercial for Lycopene or a book that I got out of my local drugstore about the foods that combat cancer. So, *how do we know, definitively, whether fruits and vegetables help prevent these diseases?*

Now, when one talks about fruits and vegetables, you can look at it at several levels. You can think about the specific nutrient biochemical components of fruits and vegetables. Here you see folic acid as an example. You can talk about particular vegetables or particular fruits, garlic as an example. You can talk about classes of fruits or classes of vegetables, say, cruciferi. And finally you can talk about fruits and vegetables in total, or fruits and vegetables. Now I'm going to focus my remarks in this short talk just on total fruits and vegetables. You'll hear more throughout the meeting on these other dimensions of the fruit and vegetable question.

Now, animal studies have been informative and continue to be. Ecologic data where, for example, you look at the correlation between the international distribution of diseases and rates of consumption or disappearance of foods, are also informative. But the strongest evidence on this question really comes from the individual-level epidemiologic studies. Either observational studies, particularly prospective cohort studies which are not subject to the recall bias effective retrospective case-control studies, or in some cases, intervention studies, randomized controlled trials in people.

Now I am going to show you a couple of slides that reflect recent meta-analyses that have been done from prospective cohort studies, individual level epidemiologic studies that had information on human diet. And first is a meta-analysis that recently appeared on fruit and vegetable consumption and risk of coronary heart disease.



And what you see here for fruits and vegetables total, then for fruits, and then for vegetables, you notice the black diamond is off to the left of the line that represents 1, which is a relative risk of 1, or no effect. This black diamond means that in summing up all these cohort studies, taken in the aggregate, there is a statistically significant protective association for fruits and vegetables, and fruits and vegetables considered separately, in these prospective cohort studies. And although the relative risk here doesn't look enormous, this is for 1 increment serving. So if we are talking about several increment servings, then the relative risk protection would be that much greater.

Here is a similar slide for another recent meta-analysis on stroke. And again, you see here the white diamond by and large, shows a protective association for fruits, not quite as strong for vegetables, and also for total fruits and vegetables, with respect to cerebral vascular disease, stroke.

There was a recent meta-analysis for diabetes. Here the evidence is not quite so strong or impressive. And the diamonds here are closer to the line representing no change in risk. And the confidence interval clearly includes 1. So for diabetes, in these prospective cohort studies, we don't yet have clear-cut evidence that fruits and vegetables are protective. And an interesting thing from one study that's recently come out (not a meta-analysis) is that for fruit juices there is actually an increased risk in diabetes, which is something I think you'll hear more about tomorrow.

Now, with regard to cancer, here, things are quite complicated, but quite important. You are going to hear tomorrow, in the cancer session, more detail about the recent report that came out from the World Cancer Research Fund/ American Institute of Cancer Research on diet, nutrition, physical activity, and cancer. This is the recommendation on plant foods, and this recommendation was based, not only on

cancer, but also on other non-communicable diseases: adults should consume a minimum amount of fruits and vegetables, 600 grams at the population level per day, and for individuals, at least 400 grams. But if you look at the report, what it says is that the evidence that diets high in vegetables and fruits protect against cancer is overall less compelling than in the mid-1990's, when most of the evidence was coming from retrospective case-control studies. Now, a number of the prospective cohort studies have provided data on this, and on balance, the data were less impressive. However, the scientific panel--and there are a number of people here who were a part of that group--did conclude that although the evidence was not convincing that vegetables and fruits protected against malignant disease, it was deemed sufficiently high enough to rate "probable," which was the minimum level for setting recommendations.

The essence of this slide is that when looking at vegetables across a number of cancer sites, the evidence from the cohort studies, in particular, but also from some case-control studies, was deemed probable. This goes for total vegetable in relation to cancers of the mouth, pharynx, larynx, oesophagus, and stomach; allium vegetables for stomach cancer; and total fruits for cancers of the mouth, pharynx, larynx, oesophagus, and lung. Here are the meta-analysis data showing the relation between vegetables and stomach cancer. Again, most of the data here that were most convincing were from the case-control studies, not from the cohort studies, which is a little troubling because of the potential for recall bias in the case-control investigations.

Let's look at the relation between fruits and lung cancer. There has been a consistent association between fruit intake and lung cancer, and we are even beginning to see that now in prospective studies among never-smokers, although the data there are very sparse. The problem with lung cancer is, as you might suspect, residual confounding with smoking. People who smoke tend to eat less fruits than people who don't smoke, and if you have even a little failure to properly control for smoking, then what you could be picking up as fruit protection could really be the smoking effect, which is clearly a much more potent risk factor than diet. And for colo-rectum, which was long thought to be kind of the key site in cancer that was going to be related to fruits and vegetables, the data were deemed limited or limited-suggestive for vegetables, fruits, and foods containing folate.

Now this is a slide I got from Walter Willett, a wonderful slide. It says, *"I can't remember anything anymore. I can't even remember what I had for lunch. I can't even remember what I had for supper. And I had dog food."* The clear message from this slide is, it is not easy to measure fruits and vegetables, what people eat in general, or fruits and vegetables in particular. And the error that comes from the typical instrument that's used in our epidemiological studies, the food frequency questionnaire, that error will, on balance, tend to dilute or attenuate true associations. So a true relative risk of 2, a doubling of risk for those in the highest level as opposed to the lowest level of fruit and vegetable intake, might be knocked down to a 1.2 or lower which

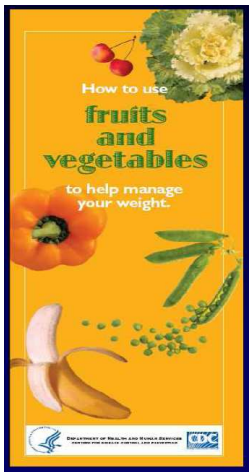
makes it very tough to detect that association with statistical significance. In addition, most of the instruments that are used for assessing diet have very little about preparation of fruits and vegetables, and very little on early life consumption of fruits and vegetables. And that plays a potential role in cancer prevention effects, and we don't have much data on that.

You are going to hear tomorrow from Mazda Jenab and his colleagues from EPIC tomorrow a very interesting study that recently came out on vitamin C and gastric cancer. When they looked at dietary vitamin C in the lower row there, measured from our typical questionnaire food frequency questionnaire, there was no association. You see the relative risk around 1, nothing going on there. But when they looked at blood levels of vitamin C, plasma vitamin C, there was a clear inverse protective association. And where is vitamin C coming from? It's coming from fruits and vegetables. And it suggests, perhaps, that our standard instruments are not measuring fruits and vegetables as well as we would like.

Now this is "Star Trek the Next Generation." And there has been a lot of discussion among epidemiologists around the world as to what the next generation of studies might look like, particularly to deal with this problem of dietary measurement error. And this is one example of an instrument that we're developing at NCI. It's an automated internet-based 24-hour recall. 24-hour recalls are generally considered to be superior measures of dietary intake, particularly if they are administered multiple times over the course of a year. The problem has been simply that they are way too expensive to use on an interviewer administered basis. There is also a similar effort that Dr. Hercberg is involved here in France, and perhaps in some other places around the world. This has real potential. And the beauty of these things is that aside from being very inexpensive to administer over the internet, you can have many, many more foods built into this instrument with a hierarchical list. So here you see cereals and energy bars. The participant then presses this and goes down to the bran flakes that you see there in blue. The respondent is then prompted to select foods, such as milk or fruit that has been added to the bran flakes. You can have, again, many thousands of foods and, many thousands of pictures on the internet that can be used to get a better handle on portion size, which is a potential contributor to the error in assessing fruit and vegetable intake. So we'll see if in the next generation, the coming years, whether these instruments can be incorporated in our prospective cohort studies, and whether it will make a difference in the level of evidence.

Now, a little bit more on obesity here. Obesity is clearly a strong risk factor for cardiovascular disease, for diabetes, and for cancer. And with regard to cancer, one of the things that came out from that World Cancer Research Fund, the American Institute of Cancer research report was: *the really potentially important role of obesity in the genesis of malignant disease*. And the conclusion was that the evidence that overweight and obesity increase the risk of a number of cancers is now even more impressive than it was in the earlier edition of that report in the 1990's. Since that time, rates of overweight and obesity in adults, as well as children, have increased in

most countries, as you've seen. And the evidence, just to give you a couple of examples: this is colorectal cancer. And down below there in pink is a little diamond that shows obesity, even overweight, increases the risk of colorectal cancer. The same thing for post-menopausal breast cancer. The meta-analysis was quite clear that obesity increases the risk of post-menopausal breast cancer. And even less frequently occurring, less common cancers like pancreatic cancer, are now being shown to be obesity-related malignancies.

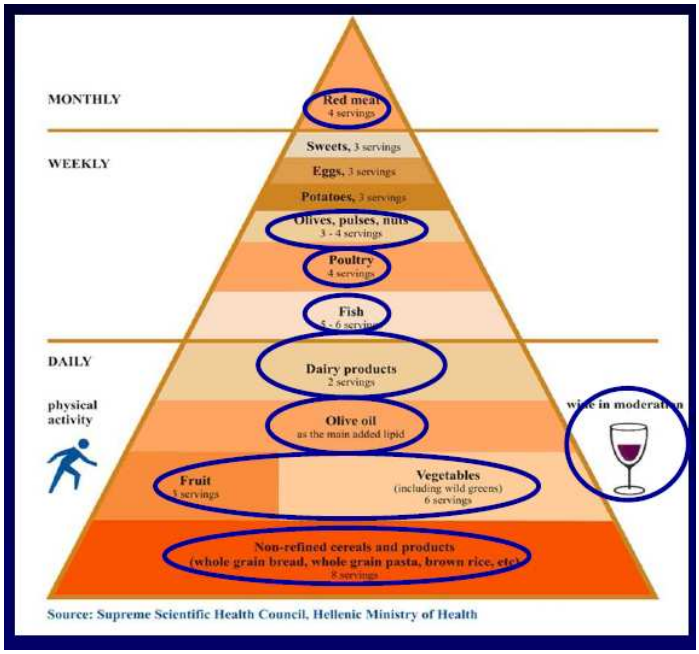


And the point of all this with the obesity element here, with reference to fruit and vegetable intake, is that fruits and vegetables can be an important aspect to weight control and weight management. And this is just the cover from a U.S. Centers for Disease Control pamphlet, it's called: How to Use Fruits and Vegetables to Help Manage Your Weight. And they have little pictures like this where they show that on the left is a bowl of corn chips, and on the right are 3 fruits and vegetables, and simply eating one or 2 of these is equal in energy intake to the chips, but can be just as satisfying, and this implies a role for fruits and vegetables in obesity, which is clearly related to cancer.

And finally, on dietary patterns. There have been some interesting studies that have appeared over the last several years where investigators, either in an intervention setting in a randomized control trial or in observational studies, have looked at overall eating plans or dietary patterns, of which fruits and vegetables played a major role. This is the DASH study, Dietary Approaches to Stopping Hypertension. And what you see is the fruit and vegetable diet down below along with the combination diet, which added low fat foods, made a substantial significant contribution to lowering hypertension which, of course, would have its impact in stroke and coronary heart disease. And here is the DASH eating plan which you can find on the web site derived from that trial, and you see here the specific recommendations for vegetables and fruits.

The Diabetes Prevention program, if you have not heard it, was a spectacular trial which showed that lifestyle interventions, particularly involving weight control and physical activity, but there was also a dietary component, and that dietary component did involve fruits and vegetables intake to reduce caloric intake. This lifestyle intervention reduced diabetes as you see in the survival curves on the right, compared to a drug regimen, and compared to placebo. The differences here are all statistically significant.

And finally, you've heard about the Mediterranean diet, and an element of the Mediterranean diet down near the bottom, is fruits and vegetables intake. Epidemiologists have created indices of the Mediterranean diet to be applied in different settings, and have related this in observational contexts to various non-communicable/chronic diseases. These are some data from the AARP study that Elio mentioned, looking at the Mediterranean diet and total mortality, all causes, cancer, cardiovascular disease, and other causes. And you see a protective association between people who consumed a Mediterranean diet with a high index, as opposed to those with a low index.



There is evidence that I don't have time to go into for other chronic diseases. Fruits and vegetables have been shown to have some protection for cataracts, for diverticular disease of the colon, and even for chronic obstructive pulmonary disease, particularly asthma.

Now, having shown evidence that makes the association, or in some cases, even shows effects in randomized controlled trials: *are there plausible pathophysiologic processes, mechanisms, to explain causal links between fruit and vegetable consumption and non-communicable diseases*? And the answer to that is clearly, yes. Among the many mechanisms that have been suggested for how fruits and vegetables could be protecting against chronic diseases are the antioxidants activity of a number of components of fruits and vegetables, prevention of nitrosamine formation, modulation of metabolizing enzymes that could be involved in the detoxification of carcinogens, a direct role in cell-proliferation and programmed cell death or apoptosis, and direct effects, potentially, on immune function.

There are mechanisms involving the fiber content of fruits and vegetables; insulin sensitization has been proposed as a fiber-related mechanism for fruits and vegetables. Several effects related to gastrointestinal physiology, including stool bulking with decreased carcinogen contact via the dilution, and possibly even increased motility. The direct binding of mutagens and carcinogens by fiber, and then the fermentation of certain kinds of fiber leading to short chain fatty acid production has been shown to have anti-carcinogenic effects. And fruits and vegetables may have anti-obesity effects and the anti-hypertensive effects, perhaps, also via calcium and other minerals.

So in summary, there is reasonably strong evidence, and that evidence may get stronger in the coming years, particularly as we incorporate new dietary assessment tools in our epidemiologic studies, that fruits and vegetables prevent chronic disease. And that you should eat your greens, even your yellows, and your reds that go along with that, so that you can eat right, live long, and prosper. Thank you very much.

Serge HERCBERG
U557 Inserm/ U1125 Inra/Cnam/P13, Bobigny, France

Ceux qui ont organisé cette manifestation ont tout prévu pour que nous ayons des jours de grand intérêt sur un plan scientifique ; ils ont même commandé la pluie pour être sûrs que vous n'ayez aucune frustration pour ceux qui viennent de loin de faire du tourisme pendant ces jours-ci.

Je voudrais surtout remercier tous les organisateurs IFAVA, APRIFEL et l'ensemble des partenaires pour avoir organisé cette grande manifestation et je voudrais surtout rendre hommage au Comité Scientifique et surtout à la coordinatrice scientifique, Saïda Barnat, dont l'enthousiasme, la motivation, la ténacité, le pouvoir de conviction et le pouvoir de persuasion a permis de rassembler pendant ces trois jours, les grands experts mondiaux du domaine et nous a permis de mettre sur pied un programme de grand intérêt qui, je pense, répondra aux attentes de tous ceux qui sont aujourd'hui présents.

Je crois que ce programme scientifique qui nous attend est exemplaire à plusieurs niveaux. Il est exemplaire d'abord, parce qu'il est global. Il passe en revue les différentes approches et les transes disciplinaires multi-dimensionnellles et s'en fait une grande richesse.

Il est *exemplaire* également parce qu'il est universel. On va aborder à la fois les problématiques des pays industrialisés, mais également des pays en voie de développement ; *universel*, par le fait que l'on va également s'intéresser aux problématiques à l'intérieur de ces deux contextes de toutes les populations : les enfants, les populations les plus défavorisées, les groupes à risque, les malades, etc.

Et enfin, je crois que ce programme est *exemplaire* parce qu'au-delà de la problématique spécifique des fruits et légumes qui fait l'objet de ce sommet, on retrouve ici tous les ingrédients de la démarche nutritionnelle de santé publique qui sert aujourd'hui à l'élaboration de politique nutritionnelle de santé publique.
On va, en effet, retrouver et ceci a été illustré par le merveilleux exposé d'Arthur Schatzkin, l'importance des connaissances, de l'état des connaissances issues de la recherche. Nous avons besoin aujourd'hui de recherches de qualité, d'expertises collectives, qui permettent de fonder les bases scientifiques sur des preuves suffisantes pour à la fois fournir des éléments d'objectifs nutritionnels de santé publique pour les décideurs en santé publique au niveau de populations et servir également de base pour les recommandations nutritionnelles qui elles, sont applicables au niveau des individus. Donc, je pense que l'on va largement revenir dans les sessions qui viennent sur ces aspects scientifiques, sur l'importance et la qualité des recherches qui sont aujourd'hui disponibles dans ce domaine et qui permettent donc, à la fois, de fixer des objectifs et des recommandations nutritionnelles.

Bien évidemment, il ne suffit plus en terme de santé publique de considérer que l'on a terminé le travail une fois que l'on a fixé des objectifs de santé publique, que l'on a défini des recommandations nutritionnelles, encore faut-il mettre en œuvre les moyens nécessaires pour faire tendre les populations vers ces objectifs ou tendre des individus vers ces recommandations nutritionnelles.
Ceci est complexe, bien évidemment – je n'apprends rien à personne – il faut mettre en place de véritables politiques qui associent des actions, des mesures, des régulations, voire des réglementations ou des lois sachant qu'il n'y a aucune action universelle dans le domaine des fruits et légumes comme dans d'autres qui soit seule efficace ; faire une campagne de promotion des fruits et légumes à elle seule n'est sûrement pas suffisante, interdire comme nous l'avons fait en France les distributeurs de produits de « snacking » dans les enceintes scolaires n'est sûrement pas efficace à elle seule, distribuer des coupons fruits et légumes à des populations défavorisées ne résout pas l'ensemble des problèmes ; bref, aucune action n'est efficace à elle seule, mais c'est la cohérence, la synergie et la complémentarité de l'ensemble de ces actions qui peut permettre de tendre vers les objectifs de santé publique, amener les populations à suivre les recommandations nutritionnelles. C'est bien évidemment sur la base de la compréhension, les déterminants des comportements nutritionnels alimentaires de l'état nutritionnel, de l'état de santé, que l'on peut bâtir ces politiques nutritionnelles, ceci veut dire que comprendre nécessite d'avoir des approches qui ne sont pas que celles du domaine biomédical, nous avons besoin de faire appel à d'autres approches, notamment celles des sciences humaines et sociales pour à la fois mieux communiquer auprès de la population, mieux informer, mieux former, former les professions relais, les professionnels de santé, d'éducation, de la recherche ou du monde social ; agir également sur l'environnement alimentaire, c'est-à-dire à la fois l'offre alimentaire qui est faite auprès de nos concitoyens, ce qui touche le domaine de la production, la régulation économique des filières, etc. Il faut également, donc, pouvoir faire appel à des approches qui touchent celles du domaine de la science du comportement, et je crois qu'à l'intérieur des journées qui nous attendent, on va retrouver cet équilibre entre les sciences biomédicales qui fournissent les recherches, qui permettent d'évaluer les actions elles-mêmes et de servir de support à nos actions et puis tout ce qui permet de mieux comprendre les déterminant sociologiques, culturels, économiques, psychologiques, et toutes les applications que ceci veut dire en terme de politique nutritionnelle de santé publique.

Pour introduire la deuxième partie de cette séance inaugurale, et notre collègue Gérard Hastings, je voudrais rappeler que « Marketing social » fait partie justement de cette dimension qui vient contribuer à faciliter l'orientation des décideurs en santé publique pour comprendre ce qui peut intervenir, ce qui peut conditionner, réguler, les comportements alimentaires de nos concitoyens.

Je crois que l'on va voir aujourd'hui à travers l'exposé de Gérard Hastings une démonstration de l'intérêt du « Marketing social » ; le mot « Marketing » a souvent une connotation négative auprès du monde scientifique. Le « Marketing social » c'est

bien sûr une dimension beaucoup plus positive qui aide à l'action de santé publique et donc, j'ai le grand plaisir et le grand honneur d'annoncer la conférence de Gérard Hastings.
Tout ceux qui font de la santé publique, que ce soit dans le champ du tabac, de l'alcool, des médicaments ou de l'alimentation connaissent bien Gérard Hastings. On connaît les « Rapports Hastings » ; d'ailleurs, en France, on connaît surtout « Rapport Hastings », ce qui fait que pendant très longtemps un certain nombre de personnes pensait que Gérard Hastings, son prénom, c'était « Rapport » parce que l'on utilise en permanence ses extraordinaires rapports qui ont été faits sur les déterminants d'un certain nombre de phénomènes qui induisent les comportements de nos concitoyens. Nous sommes actuellement en France au niveau du Ministère de la Santé dans une situation de débats très complexes avec le monde des opérateurs économiques pour la régulation, voire l'interdiction de la publicité télévisuelle destinée aux enfants et l'on a beaucoup travaillé en s'appuyant sur le remarquable travail, un rapport qu'a fait Gérard Hastings pour la FSA en 2003.

Donc, j'ai beaucoup de joie de présenter Gérard Hastings qui est Professeur de « Marketing social », il nous a dit qu'il était écossais et qu'il reconnaissait dans le temps parisien certains éléments du contexte qu'il connaît bien outre-manche. Gérard Hastings est surtout Professeur de « Marketing social » à l'Université de Stirling, il a de nombreuses fonctions, il a travaillé pour la Chambre des Communes et pour énormément de structures nationales britanniques, mais également internationales au niveau de l'Organisation Mondiale de la Santé et d'autres instances internationales, les travaux qu'il a conduits, qu'il a coordonnés, les synthèses des travaux qu'il a réalisées sont donc de merveilleux outils pour l'ensemble des chercheurs en santé publique et de nutrition de santé publique et je suis tout à fait ravi qu'il ait choisi pour cet exposé introductif de montrer le « Marketing social » sous un angle qui ne soit pas d'ailleurs directement celui de l'alimentation, même si le lien avec l'alimentation sera rapide, puisqu'il a décidé de prendre l'exemple du tabac : quelles leçons peut-on tirer de la promotion du tabac ? On a toujours intérêt à aller regarder ailleurs ce qui fonctionne et l'on sait que dans ce domaine, l'industrie du tabac a développé des méthodes extrêmement efficaces et il y a eu d'ailleurs d'autres méthodes efficaces qui sont aujourd'hui développées.

Je vais immédiatement passer la parole à Gérard Hastings en le remerciant pour cette introduction et d'être parmi nous pendant ces trois jours. Je vous demande comme le veut la tradition demandée par Saïda de l'applaudir bien fort. Je vous remercie.

Riding Pillion with the Marlboro Cowboy

Gerard HASTINGS
Institute for Social Marketing Stirling and the Open University Stirling, Los Angeles, USA

Bonjour Mesdames et Messieurs.
J'ai beaucoup de plaisir à être ici à Paris et de m'adresser à cette conférence très importante. D'abord, il faut remercier les organisateurs pour avoir donné ce temps typique d'Ecosse. C'est la même pluie, mais un peu plus chaude, peut-être. Cet après-midi, je vais dire quelque chose sur le marketing ; de temps en temps, on pense que le « Marketing » est un problème, mais aussi peut-être qu'il peut nous aider. J'en ai terminé avec le français. Maintenant, je vais parler en anglais.

The organizers asked me to look at tobacco and the lessons we can learn from tobacco, both in terms of how tobacco, itself, has been promoted, but how public health can use similar techniques to benefit people's lives and well being. And no better role model to take in the promotion of tobacco than the Marlboro cowboy. So I suggest that we saddle up and enjoy the ride.

A couple of introductory thoughts. I hardly need to say this, but obesity is clearly a major threat to public health. A threat to which we have to respond. We have to reach out to people to gain their trust, to help them to change their behavior. The question then follows, *who has succeeded in doing this*? *Who can we learn from, who can we turn to who has made progress in gaining people's confidence*? I think we know the sorts of people who have succeeded. Food companies, the alcohol companies, the tobacco companies, all the companies that sell the brands that have such a powerful hold on people's lives. A hold, indeed, that becomes particularly great if your life is otherwise lacking in excitement or hope, particularly if you live in poor and disadvantaged communities.

These are the people who have influenced key health behaviors, their smoking, their drinking, and their diet. And we know they have done this because we have done the research, we, in public health, have shown that their activities do influence people's health behaviors. And it's crucial to recognize that these are all voluntary behaviors. Nobody is compelled to smoke, nobody is compelled to drink, and nobody is compelled to eat energy-dense food. They are encouraged, but not forced. And their decisions and the lifestyles they then lead have a massive impact on their quality of life. So there is a great deal, potentially, we can learn from this.

I don't know whether people have seen the film, "Thank You for Smoking." But there is a scene in that where the hero of the film, anti-hero perhaps, who is here on

the right, who is a spokesman for the tobacco industry, is having lunch with 2 colleagues, one from the alcohol industry and one from the armaments industry. And they are showing off about who has the most lethal product. And the armaments manufacturer goes first and says he kills 100,000 people a week. And the alcohol company goes second and says, nothing compared to us, we can do 200,000 a week. But the tobacco man laughs at them both and says that they kill billions. Beat that. So yeah, the tobacco industry is the best at this. So it's them we should turn to for advice.

The question then becomes, *how should they do it*? And that was my brief, I was asked to look at how the tobacco industry does this. And I thought hard about preparing the presentation, and it occurred to me that I'm not really the best person to give this. What we need is somebody who works in tobacco to talk to us, because they know what they are doing. We, in public health [had] [to assess] a lot of documents that have been uncovered, so we do have some good ideas. But best of all with the people would be the people who actually do it.

Now I'm delighted to say that I've been able to persuade the chief executive of a tobacco company, New Way Tobacco, Gareth Broughton, to address this Conference. At first he was a little reluctant because he thought at a public health gathering, you might not be very sympathetic to him. But then I pointed out that it was a fruit and vegetable summit, and tobacco is, after all, a vegetable /// [*chuckles]* /// and at that point he succumbed and he agreed to come along. So ladies and gentlemen, I'd like you to give a polite welcome to Mr. Gareth Broughton, the Chief Executive Officer of New Way Tobacco.

Gareth BROUGHTON
Chief Executive Officer of New Way Tobacco

Good afternoon ladies and gentlemen, it's a pleasure to be here in Paris, it's a pleasure to be addressing this Conference. Three things I want to talk to you about. I want to talk about our successes, I want to talk to you about our methods, how we achieved this phenomenal success, and I want to talk about your weaknesses, your failures.

First of all, our successes: these are our company results for just last year. Cigarette volumes up 7%, net revenue up 4%, to just over three thousand million pounds, profits from operations up 9%, earnings per share up 12%. If you want a good pension fund, invest in our company. Dividends per share, up 12%. And if you don't believe our figures, consult any financial advisor you like. Every one will emphasize what a fantastic investment tobacco is. And it's a fantastic investment because we are so damned good at our job. Just one quote here: "In the long run, in our opinion, the economics of tobacco remain extremely attractive." Not my words, but those of the […] group investment specialists.

So we are succeeding. *And how are we getting this success*? It's about marketing. And marketing, in turn, is about your consumer, understanding them, seeing the world as they see it. For us, there are 2 key groups in the U.K. Low income groups because poor people tend to smoke more than rich people, and young people. I'm going to concentrate just on one of these, on young people.

Why are young people so important to us? They are vital to our future success. 80% of smokers start before the age of 18. On average, they will do a pack a day for 25 years. That's worth just less than 50,000 pounds to us, 60,000 Euros, if you prefer. And we succeed in getting in touch with these people and doing business with these people because we recognize the importance of consumer-orientation of empathizing with their needs. And to do that, we have to do market research. We have to do it well, we have to do it using many methodologies, and we have to do it all the time.

Crucially, what we are trying to uncover is their needs. Particularly, *what do they want from smoking, what concerns, anxieties, hopes, do they have*? *And how can tobacco contribute to the fulfillment of those*? And if you talk to people about their smoking, particularly young people, it's very clear that this is about a rite of passage. To smoke Marlboro Lights represents having passed a rite of passage; it's not something done by immature smokers. It's about reassurance. Young adult smokers are looking for reassurance that they are doing the right thing. The cigarette is no exception. Young adult smokers are also searching for an identity. Cigarettes have a key role to play as an ever present statement of identity. So we have a complex of needs here which are about psychosocial and emotional needs. It's about coping with life. Something I submit to you, ladies and gentlemen, that you in public health understand very poorly, indeed. I will come back to that.

And we cater to these needs using not just advertising, as people tend to think, but a selection of tools. Yes, promotion is important. But also distribution, pricing, and product development, itself, of course.

So advertising, then. This is a quote about one of our campaigns for a brand of ours called Lamberton and Butler, L&B in this slide. This will be the result of the current image-building campaign. This brand needs an infusion of style, coolness, and aspiration. So what you see, ladies and gentlemen, when we talk about communications, very often what we mean is association, imagery, the linking of feelings with particular products. Advertising, of course, takes in various forms of communication, in this case, sponsorship. I stress, this is not an advertisement, and this is a piece of editorial in a youth magazine from the U.K.

Place, distribution, terribly important. Being at the point of sale, being obvious at the

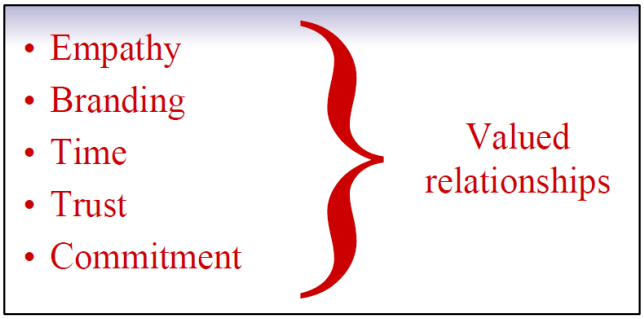
point of sale, especially for the independent retailer, sometimes called colloquially in English, "the corner shop." It's important to us because 80% of fewer than 16s buy the cigarettes from here.

Price is also important. Smoking cigarettes for young people is all about image and brand. They want premium brands. But premium brands are expensive. So one way they can square that circle is to buy smaller packs. Ten-packs. As this quote from one of our market research agencies shows, "As the lay-down price of cigarettes have increased, the youngest adult smokers may have traded down to a ten-pack of a premium brand, or chosen to buy a premium ten-pack when they entered the market.

Product, itself, product design, is terribly important. In this case, we were thinking about a cigarette aimed at young men. The opportunity exists there for a male targeted brand, perhaps co-branded with Loaded, a young man's magazine in the U.K., or with scantily clad women on the cigarette paper. The potential to target just the product, itself.

So these 4 strands, the promotion, the place, the price, the product, pull together into building evocative brands. The brand of cigarettes does not convey much in the way of image values, the way of well-being, and so many little reasons for the young adult smoker to persist with or adopt the brand. And building such brands takes time. You can see from the state of this man's portable telephone that it's an old, old advert. But the brand is perfectly recognizable. 50 years on, everyone in this room will recognize that brand.

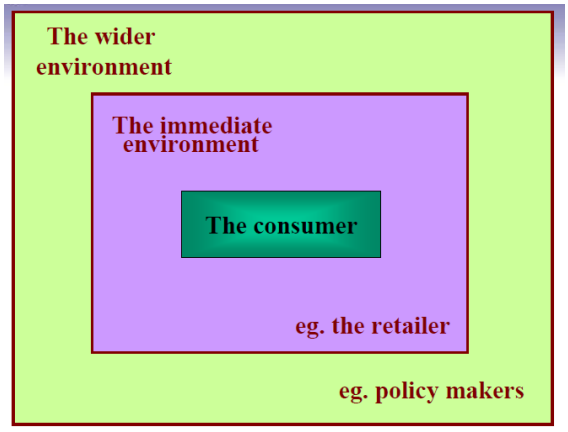
And that speaks to a fundamental change that came about in marketing several decades ago now: the move from transactions, towards building relationships. The emphasis in marketing has moved from doing transactions and doing things to people, to building relationships with and doing things with people. Commitment and trust is central to successful relationship marketing. This is about being in it for the long game, being on your customer's side, and doing for them the things that will make their lives better. It's about empathy, it's about brandings, it's about time, it's about trust, it's about commitment, and it's about building valued relationships. Furthermore, I focused for the moment on young people, but we need to think way beyond that, as well. All sorts of groups in society that we, as a tobacco company, need to build relationships with.



So the retail sector, we already touched on, very important, not that we are just in those shops, but that we build good, solid relationships with the retailers, themselves. So again, some of our market research, [Carition], our market research company, has conducted research among

independent retailers in order to inform the development of communications with independent retailers. The global objective of this research is to aid the optimization of these communications as a step towards maximizing sales through the independent sector. So we need to curry favor with potential allies, shopkeepers, the hospitality trade, and the advertising industry. All of these industries have some interest in common with ours, and because we have interests in common, there is a potential for us to build relationships with them.

We also look beyond that immediate environment to the wider environment, the social milieu, society as a whole. People like policymakers. We know our reputation matters; we know we have been the subject of much, much vilification and criticism in recent years. So we have put enormous effort and resources into corporate social responsibility, getting ourselves in projects that no one could possibly criticize. And this is important because we want to maintain and build our reputation. We want opinion leaders to like us, we want policymakers to like us, we want the media to like us, and we want politicians to like us. We'll even go higher than that in our aim to build relationships with the rich and the powerful.



Let me finish by turning to your weaknesses, which are many and various. Two, I will focus on: marketing remains a complete mystery to you. Secondly, you have no plan.

Marketing, first of all. As I have said, it's about empathy; it's about feeling for people. With the consumer, for example, what do you do? You hector and you patronize. You've no sense of perspective. You've forgotten what pleasure is. That life is difficult, dysfunctional, and dysfunctional coping strategies have their place, that people have lives, not just inconvenient behaviors.
The stakeholder you've forgotten, too, that they have other priorities. For them life, too, can be difficult. That deals and compromises are needed, that there isn't one true path.
The business sector, you forget that it is them who create the wealth. Without the business sector, there is no wealth, there are no taxes! And for most of the people who work in the public sector, or the third sector in this room, they pay our wages. Your wages.

Ladies and gentlemen, you are zealots. What is more, you have no plan. No vision. What link is there between your present, your identity now, and 10 years ago? Where are your brands? I don't think you have a clue about where you want to be in 5, let alone 25 years time. You have all the coherence of strategic vision of American

foreign policy.

Finally, ladies and gentlemen, we are successful. Marketing drives our success. This remains a complete mystery to you. Thank you for listening.

Gerard HASTINGS

I'll return to my former self, which is a relief. A couple of points. First of all, clearly food is not tobacco. In an ideal world, tobacco will be a thing of the past. Clearly, that is not true of food. Nor would I say we are the fools Gareth Broughton says that we are. Nonetheless, I think what he said in this presentation; there are some key lessons for us.

First of all, that one about consumer orientation, we do need to understand the world from the point of view of the people we want to influence, we want to do business with, and we want to link up with. We need to understand their needs, and we need to understand that sometimes their needs are not just literal ones for better health or for long life, but emotional, complex psychological needs. That sometimes doing unhealthy things satisfies needs that public health is, perhaps, a little remiss in not recognizing.

We need to think well beyond communication. We, too, have a marketing mix. We need to think about products, we need to think about distribution, we need to think about pricing. We need to think about our brands. We need to think about linking up with people and building relationships. What is absolutely for sure, whatever the solution to the obesity crisis is, it is a long term solution. There are no quick fixes here, no transactions that are going to solve this. The only way we are going to do it is by building relationships, both with customers and stakeholders, and getting in there for the long haul.

And stakeholders are vital. The context in which people make their decisions have a crucial influence on the success or failure of those decisions. If people want to eat fruits and vegetables and they can't get it in the local shop, they are not likely to succeed. If they can't afford what's in the local shop, they are not likely to succeed. If they go in the local shop and the fruits and vegetables are tucked away in the back and all the chocolates in the front, they are less likely to succeed. And so on and so forth. So the context is vital.

We do need to engage in competitive analysis. Tobacco is not food, Nestlé is not Phillip Morris, but nonetheless, we need to look at what the food industry is doing, and we need to comment on it, we need to critique it, and if necessary, we need to regulate it. Above all, we need to think about strategic planning. We need goals, we need objectives, we need to be able to measure and track our progress towards a successful fulfillment of those objectives and a successful achievement of our goals. That is all about thinking through what we intend to do over the next few years, and

setting clear markers and milestones so we can map our progress towards it.

Finally, then, ladies and gentlemen, marketing has made New Way Tobacco very rich. It can help us to keep thin. Once again, thank you for listening.

Conclusion

Saida BARNAT
Founder of EGEA, Scientific director of APRIFEL, France

Ces interventions introductives nous ont permis de **saisir l'enjeu et les objectifs des travaux de nos 3 jours à venir**. J'ai déjà le sentiment que la réflexion sera riche et que nous allons proposer des idées nouvelles d'action pour le futur.

Mais avant de nous quitter permettez-moi de remercier tous les membres du comité scientifique qui ont travaillé efficacement à la relecture des résumés de posters que nous leur avions soumis.

Merci à toutes les personnes qui ont soumis un poster et qui sont parmi nous ce soir. Je salue également ceux dont le travail a été approuvé mais qui n'ont pas pu se joindre à nous et leur présente toutes mes excuses pour ne pas avoir pu les aider à trouver les fonds nécessaires à leur présence.

Merci à tous nos partenaires qui nous ont fait confiance et accordé leur soutien à ce Sommet International des Fruits et Légumes, qui je l'espère, sera à la hauteur de vos attentes.

Encore un mot pour demain matin, notre première session plénière commence à 8h45. Je vous remercie d'avance pour votre ponctualité et votre prévoyance : qq minutes d'avance seront nécessaires pour le passage de la sécurité à l'entrée. Et surtout n'oubliez pas que votre badge permettra pendant les 3 jours l'accès à l'Unesco et demain à la mairie.

Merci encore à vous tous d'être là ce soir!

Je vous invite à présent à prendre l'ascenseur, ou mieux encore les escaliers car l'activité physique est une autre recommandation nutritionnelle à suivre. Nous sommes attendus au 7ème étage où vous pourrez apprécier un cocktail de bienvenue…

SESSION 2

F&V CONSUMPTION TO REDUCE OBESITY: GLOBAL PROSPECTIVE

Chairs: **Ph. James** and **B. Rolls**

- Introduction. **Ph. James**
- The impact of F&V on public health. **C. van Rossum**
- Diet quality/lifestyle and low energy density. **H. Schroder**

Strategies to enhance satiety with F&V: implications for weight management. **B. Rolls**

Introduction

Philip JAMES
LSHTM & IOTF/IASO, London, UK

This first session is all about fruit and vegetable consumption to reduce obesity. I thought that perhaps I would talk about things that do not normally interest people in Europe but are now an enormous significance.

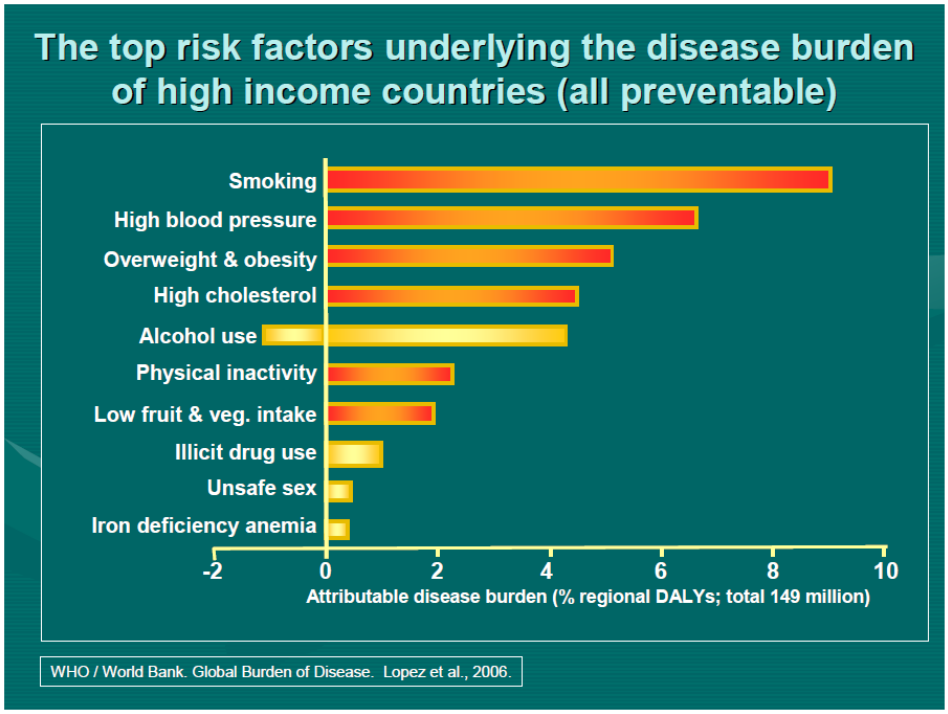
The ten leading causes of death in Low and Middle / High income countries

	Low- and Middle-income countries			High-income countries		
	Cause	Deaths (millions)	% total deaths	Cause	Deaths (millions)	% total deaths
1.	Ischemic heart disease	5.70	11.8	Ischemic heart disease	1.36	17.3
2.	Cerebrovascular disease	4.61	9.5	Cerebrovascular disease	0.76	9.9
3.	Lower respiratory infections	3.41	7.0	Trachea, bronchus & lung cancers	0.46	5.8
4.	HIV/AIDS	2.55	5.3	Lower respiratory infections	0.34	4.4
5.	Perinatal conditions	2.49	5.1	Chronic obstructive pulmonary disease	0.30	3.8
6.	Chronic obstructive pulmonary disease	2.38	4.9	Colon and rectal cancers	0.26	3.3
7.	Diarrhoeal diseases	1.78	3.7	Alzheimer's & other dementias	0.21	2.6
8.	Tuberculosis	1.59	3.3	Diabetes mellitus	0.20	2.6
9.	Malaria	1.21	2.5	Breast cancer	0.16	2.0
10	Road traffic accidents	1.07	2.2	Stomach cancer	0.15	1.9

Amplified by excess weight

WHO / World Bank. Global Burden of Disease. Lopez et al., 2006

If you look at the causes of death in the world, on the right at the top, you have the affluent world i.e. Europe and North America where the primary causes of death are heart disease and stroke. On the left are the causes of death in the poorest countries of the world and it is heart disease and stroke again at the top. If you look in detail at that first column you will see that 4-5 times as many people die of cardiovascular diseases in the poorer countries as in the affluent west and if you go down we have a series of problems on the right relating to cancers and diabetes. Those in orange are amplified by the risk of obesity which is the subject of this morning's session.



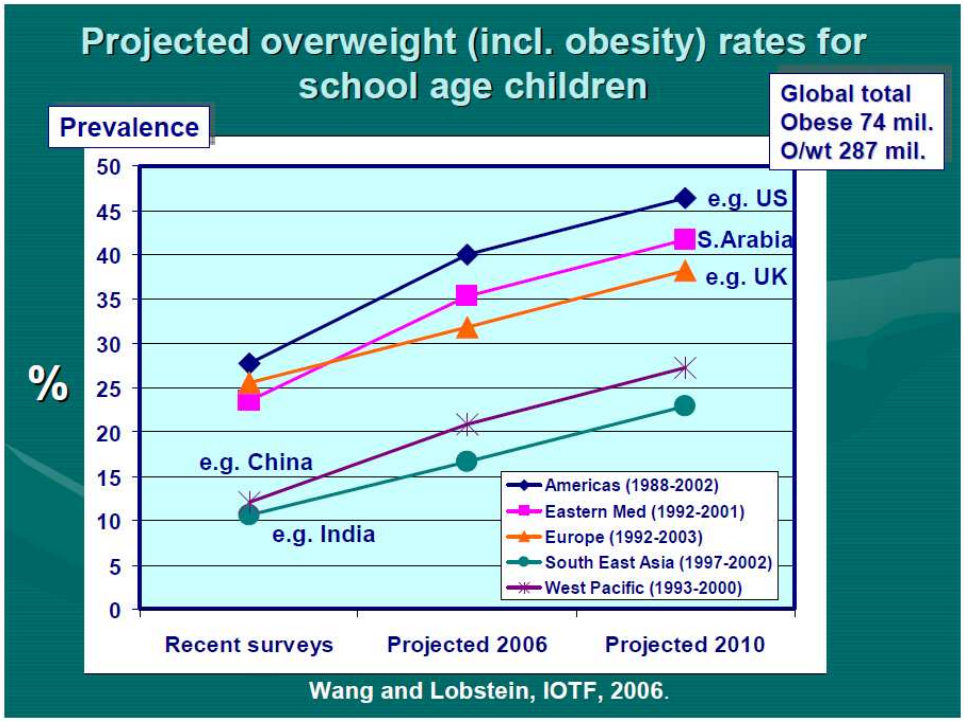
If you take the latest data from the World Bank overweight as a cause of all the diseases of the affluent world is now number 3 in the order of risk factors. Five years ago it was number 6 so the whole issue is escalating.

Here is an overview of the latest, one month old, adult overweight and obesity data in different global regions, with the age related rates going up into old age. You will see in red the obesity rates go up remarkably in early adult life wherever you are. We talk about children's obesity which is also important but then consider the age of onset of heart diseases and strokes in the fifty and sixty year olds. In practice the development of those diseases is well on the way throughout adult life as weight goes up so we are dealing with a massive public health problem. Everybody knows that North America is the worst region in the world for many things, actually for women in the Middle East obesity is a bigger problem and Latin America is catching up. Please note that the total overweight and obese involve over 60% and up to 80% of the population. In other words, the majority of the middle age population of the world is too heavy, whether we are talking about the data from women or men. It is quite extraordinary that we do not have a true perspective on what is happening in the world.

The data on adults are clear but Tim Lobstein and Rachel Leach also put together about five years ago data on children using the International classification where in effect 10% of the world's children were then classified as overweight or obese.
Now, however there are astonishing increases, the highest on, for example, is Bahrain in the Middle East. In fact Spain, Portugal and Latin American countries as well as the Caribbean, are really trying to beat the United States children's obesity rates. The latest data now show that children in most regions have rates above the average 10% global value of 5 years ago. Only Africa is just below 10% whereas

Africa previously was almost not on the map at all. So we are dealing with a speed of obesity development which is truly astonishing.

You will hear later about the higher obesity rates in the poorest people, but this is also true for children at least in affluent societies. When we then consider the time of onset of the obesity epidemic the only data we have across a century are from Australia with over 100 years of analyses revealing that the obesity rate goes up in the 1980's. So something astonishing has been going on in front of our eyes and we have not actually got a grip on it. And in fact, throughout the World - in America, in the Middle East, China, India or Europe, you see the same phenomenon.



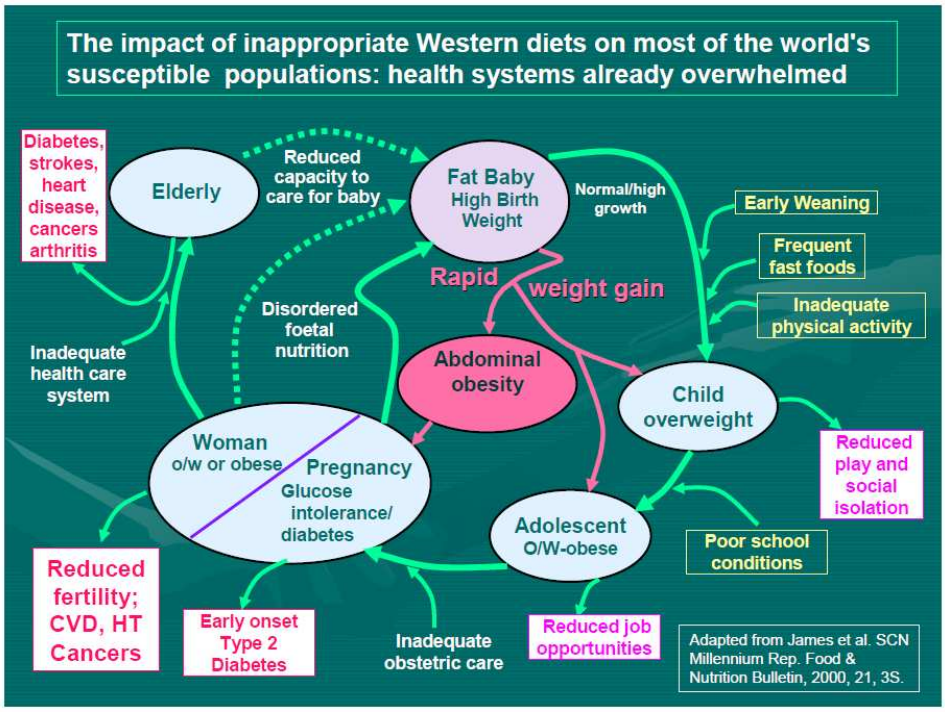
Now, the problem is that obesity is classified in the usual way as a BMI of 30+ and in terms of risks with weight gain these go up extremely early so a BMI of 30+ is an extreme value. We are all happy to be less than 25, when actually the optimum average value for the whole population is about 21 and the risk of diabetes, heart diseases, colon cancer and high blood pressure go right up well within the so-called normal weight range. Indeed, the Asian are in even bigger trouble.

Abdominal obesity in particular is a better predictor of heart disease than BMI and we are now beginning to recognize that we misunderstood this problem in most of the world; the world is in a worst state than we are in Europe. The slide shows that Asian immigrants in Europe have a 2 to 5 times increased risk of diabetes and everybody assumes this is a genetic difference. We now know it is not genetic but there are marked differences between the ethnic groups. This photograph is of two famous endocrinologists John Yudkin from London and Ranjan Yaznik from Pune in India. They have the same BMI but totally different body fats: Asian children are born with more fat and they maintain more fat at the same body weight throughout

life. We are now beginning to realize increasingly that is difference is acquired during the process of development in the uterus.

If you are talking about the value of fruit and vegetables, everybody knows that the place to go for a vegetarian society is India. In practice this is wrong because the health profile in India is a complete disaster and India is the centre of type 2 diabetes in the world. We can now look at the problem of weight gain in a new way. Most of the World, for thousand of years has been in a state where small babies are born and they develop into short children, stunted adolescents and thin short adults who are all part of a cycle of chronic malnutrition and only recently have we realized that there is a cycle of metabolic programming and organisation of the body when it develops so we are traditionally born expecting future semi starvation. If we are confronted with a different world then we have different problems. In India a mother's intake of green leafy vegetables is critical in affecting the size of babies at birth and indeed they affect the size and organisation of the body's organs: the higher the frequency of fruit and vegetables the bigger the baby. We have known for many years since a simple study 38 years ago in black South African women that they have lots of small babies below 2.5 kilos If you give them iron you do nothing for the baby's size but if you give them folic acid or folic acid and vitamin B12 you eliminate that low birth weight to a remarkable extent. So fruit and vegetables are important and now the latest evidence shows that vitamin B12, is critical for the organisation of the body during pregnancy and affects the baby's body fat, insulin resistance and the later propensity to diabetes. India has actually a very poor intake of fresh fruit and vegetables but in addition there is pandemic vitamin B12 deficiency because they are vegetarians and this with their poor protein intake seems to explain their sensitivity to a greater body fat and propensity to diabetes now they are exposed to Western diets with more fat and sugar.

We have a different perspective now: the world is bringing up children badly and also young adults inappropriately. In association with this we have a galaxy of medical problems which are now totally unsustainable on a societal basis.



Thus in Kerala, a poor state in India just published is the finding that between 40 and 50% of adults in middle age already have diabetes. This is a complete catastrophe and it is going to get very much worst. Our confirmation, published just a few weeks ago, from analyses of hundreds of thousands of adults confirms that Asian men and women are indeed at a very high risk of diabetes.

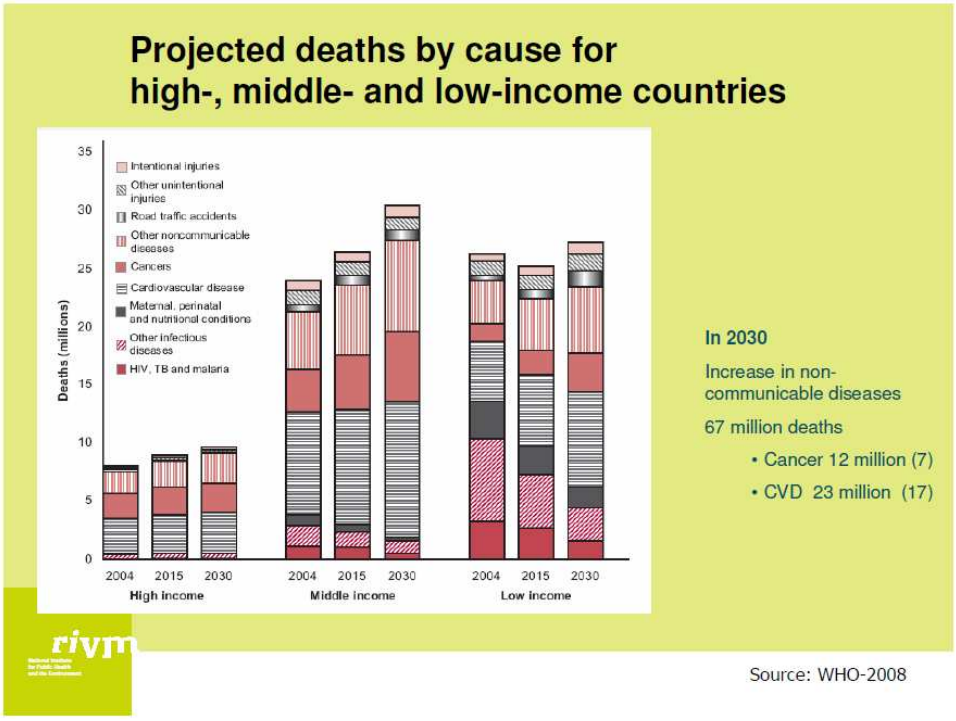
In conclusion, we have not yet estimated the magnitude of the problem we are confronting. The global transition in diet and physical activity over the last 25 years is catastrophic. Some of the top financial advisers as well as Prime Ministers and financial ministers throughout the world are now saying that the predicted economic burden is completely unsustainable. And if you are going to do something about this we have to first recognize the magnitude of the problem, second, make appropriate plans for dietary and activity changes and thirdly, really embark on these radical solutions.

The impact of F&V on public health

Caroline VAN ROSSUM
National Institute for Public Health and the Environment, Bilthoven, The Netherlands

My presentation is about the impact of fruit and vegetables on public health, not only on obesity but more in general on chronic diseases. I divided my presentation in two parts, first I want to say something about the relation about fruit and vegetables and chronic diseases. Secondly, I want to show you methods how we estimated long term effects on public health. These methods are used for nutritional policy in the Netherlands.

If you go many years ago, to the prehistoric times we know that fruit and vegetables were already an important part of the diet. But did they know the importance of fruit and vegetables for their health?
Since then many things have changed, our genes have changed, the diet has changed and even the human genome has maybe changed due to the diet. Fruit and vegetables consumption is very low; it is not anymore the main part of the diet.
At the moment, chronic diseases are the main cause of death, if you look at the projections for 2030, the communicable diseases increase more and more; more than 50% is due to these causes of death. From these diseases, cancer is the most important one with about 67 millions death and cardiovascular diseases would be responsible for 33 millions of death.

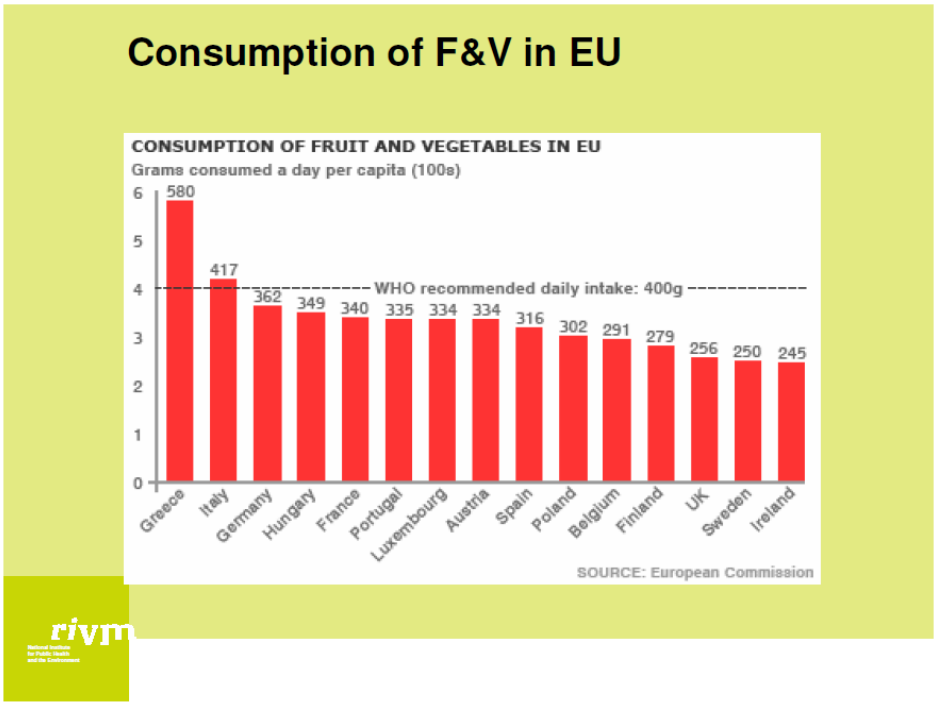


But what are the causes then of those diseases? In fact I have summarise here the diet related risk factors, factors like high salt are important, fatty acid composition of the diet are important, the blood pressure cholesterol, obesity, but also the low fruit and

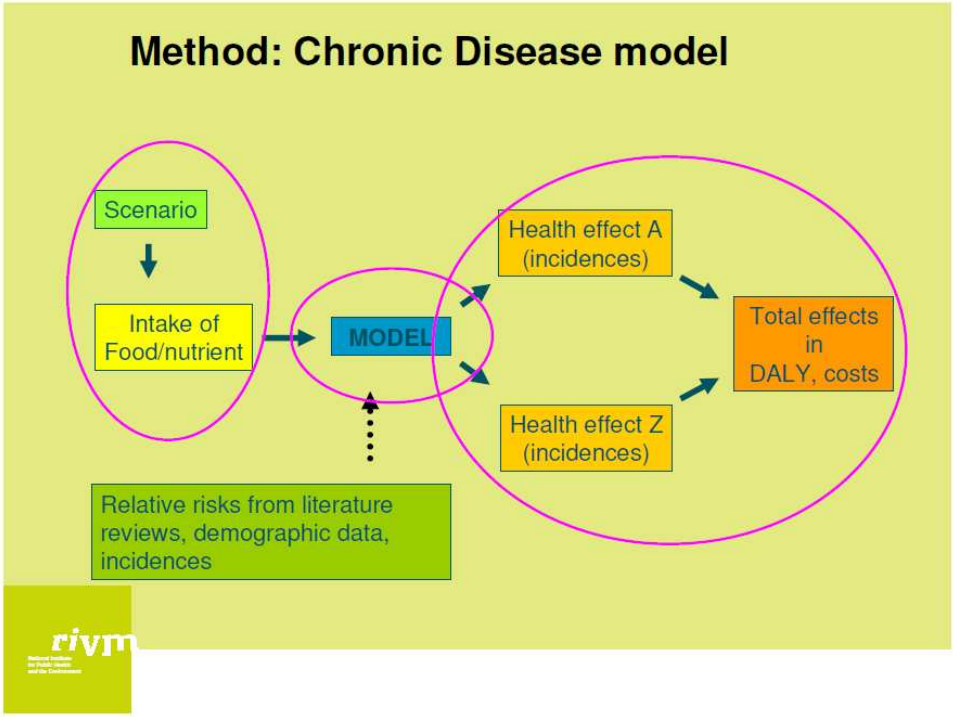
vegetables consumption. But what is the beneficial effect then of fruit and vegetables? Is it the fibre? Is it the antioxidants, the vitamins, other components of fruit and vegetables which come for the protective effect on the chronic diseases? Or is it that these products are low in energy density or low in fatty acids or low in sodium? In fact most evidence is for the total effect of fruit and vegetables, while for some components like antioxidants, the evidence are sometimes a little bit conflicting. So it is better to look at vegetable or fruit instead of certain components of it.

I want to show some examples of the associations between fruit and vegetables with chronic diseases, for example, for cardiovascular diseases and cancer and also obesity. You can see the association of fruit and vegetables consumption and risk on coronary heart diseases. In fact with the increase of the vegetable and fruit consumption, the risk on coronary heart disease decrease with 4%. The authors conclude that there is protective effect of the consumption of fruit and vegetables on coronary heart diseases.
For the association between fruit and vegetables and cancer, I want to refer to the excellent work of the Word Cancer Research Fund, they made an overview of the evidence for the association between fruit and vegetables and cancer, and the summed up all the literature for each association. They did a meta-analysis and if possible dose-response functions were estimated, and they came up with a summary that in fact there is not a convincing effect for the association between fruit and vegetables and the risks on cancer. But they showed that long fruit and vegetables, and non-starchy vegetables have probably an association with several kinds of cancer. In other words, due to the most recent studies the evidence for the association between fruit and vegetables and cancer has become less impressive.
Then an example for fruit and vegetables and obesity: you can see an example bases on a Spanish Study with a follow-up of 10 years. In the table the relative risks for obesity and by quartiles of intake of fruit and vegetables are shown. There was a trend observed between fruit and vegetables and weight gain.

We all know that WHO said that we have to eat more fruit and vegetables and the minimum we have to eat is about 400 grams of fruit and vegetables or 5 portions a day and most countries adapt those recommendations in their own food based intake guidelines. Sometimes it is mentioned in portion sizes, sometimes it is mentioned in grams but it is adapted by most countries now. However, the consumption, for example in Europe, is far below this recommendation although it differs per country.



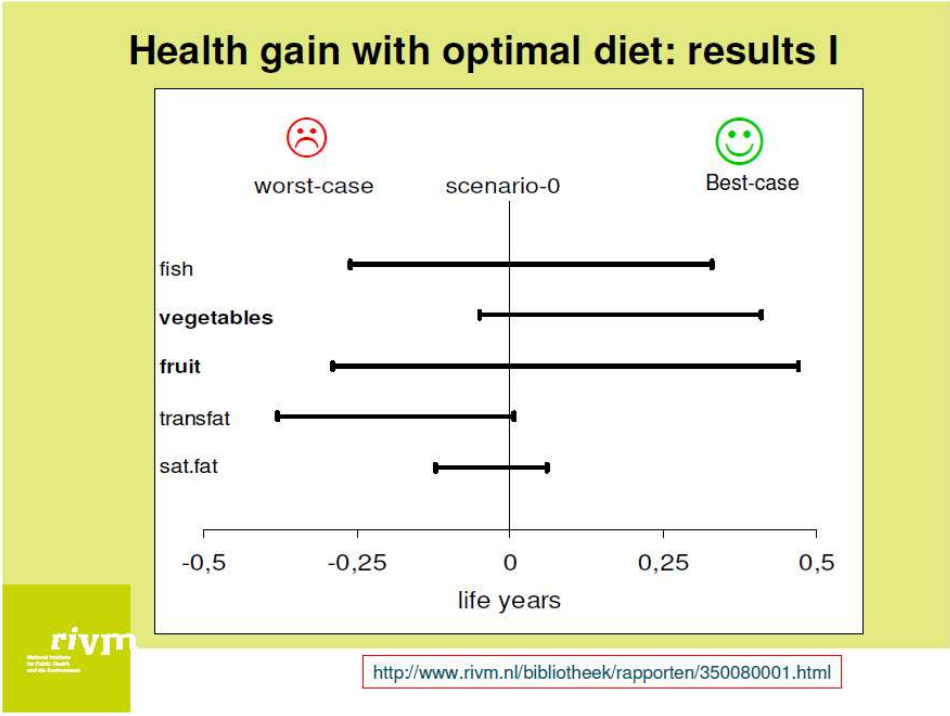
The second part of my presentation is about the methods to estimating long term health effects of fruit and vegetables. In the Netherlands also the fruit and vegetables consumption is very low. From a recent study among young adults we know that almost everybody do not eat enough fruit and vegetables. Therefore the Dutch policy makers asked us: how much health loss is due to this low of fruit and vegetables? What are the economical consequences of that? And the second question they asked us is how much health gain would be achieve if everybody is following the recommendation of optimal consumption of fruit and vegetables? But in which way can these questions be answered? We are thinking: should we do a prospective study in a controlled group and an intervention group. Then, you have to wait for the incident cases, that takes very long while the policy makers want to know the answer now. So, what we did is a model simulation.



We used the so-called chronic diseases model in which we estimated long term effects of dietary interventions. How is it working?
You start with the intake distribution in the country, in our case in the Dutch population and you put that information into the model. The model is based on the evidence for the association between the intake and the chronic diseases and is based on the demographic data, on incidence data and all that kind of information. And then, like a in a black box it calculates the health effect for several diseases. Finally you can combine these different effects into measuring the Dalys or in health care costs.

And how is the model built? The model is based on the available literature on the association between risk factors and diseases. At the moment we have 28 diseases in the model for which cancer and coronary diseases is the most important chronic diseases. At the moment we have 12 risk factors from which 6 are related to the diet, from which consumption of fruit and vegetables are the most important. The model is also based on the incidences, the demographic data in the Netherlands.
And how does it work? The model is a multistate transition model (for the experts they are now thinking AH). In fact it calculates each year the number of diseases based on the risk factors. And then you have to define what is the consumption of fruit and vegetable in the scenario you want to calculate, and you have to define a reference scenario, for example, the current situation, but also taking trends into account. And then you have to define the intervention scenario, for example for each risk factor you have to define the distribution, the frequency distribution in the country. Let's say that the current frequency distribution for vegetable consumption is in each of the 5 classes 20% of the population. Then you assume a scenario that everybody needs for recommendations, in fact the best case scenario that 100% is in the highest category with more than 200 grams of vegetables. Or you have a scenario where everybody is in the lowest category and nobody eats vegetables; the worst

cases scenario. These are just theoretical situations. And then you can compare the results of these scenarios by comparing the best case with the reference. Finally you attribute the differences in these findings to the intervention.
The model gives many kinds of results. One example is the incidences. Here you can see the reduction in incidences due to the different risk factors associated with diet. In the maximum (best-cases) scenario about 15 000 incidences would be protected due to a sufficient vegetable and fruit consumption. The nice thing is that you can compare the situation for the different risk factors like fruit, vegetables, fatty acids or fish intake or with each other. You can put all the risk factors on a balance.
Another kind of result is the life expectancy, what is the gain in life expectancy or the loss in life expectancy due to a specific intervention? You can see the life expectancy for fish or for vegetables or for fruit or for trans-fatty-acid or for saturated trans-fatty-acid; what will happen if everybody meets the recommendations?



The life expectancy will increase with about 0.4 years if everyone consumes enough vegetables, and for fruit it is even more. Based on this kind of results, we advised the policy makers to focus more on fruit and vegetables instead of the fat consumption, the health gain are already achieved.

Furthermore, also some cost effects are shown. In fact, the estimate decrease in costs of health care for the current 20 years to fruit and vegetables is 1.9 and 0.5 milliard € respectively. Maybe these amounts are about 1 to 2% of the health care costs in the Netherlands, so these are enormous amounts of money.

I presented till now two more theoretical situations but we can use those methods also for specific interventions. We did it for an example on an intervention with fruit and vegetables; the intervention is called ***"SchoolGruiten"***. Fruit and vegetables are supplied at school twice a week. We had results from a pilot and we saw that the increase in fruit consumption was about 50 gram a day. Then the question was how much health gain would be achieved if the intervention would be nationally implemented? So we had to define the intake distribution for the scenario based on

the pilot research and then compare that with a reference scenario. We came up with the results that the life expectancy will increase for children with about 0.4 years. Of course, an intervention like this costs money but it saves health care costs, the net costs were 95 € per child. Per life year it costs about 256€. These kinds of estimations can help policy makers in their decision where they should put their money on? Of course those results are mainly depending on the made assumptions. For example how far are we looking in the future? If we look to the total costs in the coming 100 years, you can see that in the first decades health care costs are saved by this intervention, but later on the costs would be even higher. There are some discussion points with these methods; such as the dependence on the quality of the necessary data. We are estimating very long term effects, but what will happen in the future? Are the costs similar in the future? Or are the treatment changed? And the calculations are depending on that assumption. The main thing is that one should aware that these kinds of calculations are always a simplification that gives indications and not facts.

I want to conclude that there is sufficient evidence for associations between fruit and vegetables and chronic diseases and we have a method to estimate the long term effects of the health impact of fruit and vegetables which can be used to underpin the nutritional policy. It is now our task to translate this into daily practices.

Q&A

PUBLIC (Lorelei DISOGRA from the United States): You have wonderful results. How are you using these wonderful results with your governments for policy purposes to expand the fruit and vegetables snack program to get additional funding and how to expand it to more children?

C VAN ROSSUM: In fact we are helping policy makers, what will happen if you do this, what would happen if you do that. It is not our task to say you have to go that way or that way this is the task of policy makers themselves. But, based on our reports they are more focusing on fruit and vegetables and the next is that they are going on an organisation in the Netherlands, maybe we have too many organisations in the Netherlands but they have got a task. Fruit and vegetables, you have to do something about, the goal must be to increase. It is their task to know what to do. For example for the schools of the organisation of the farmers are involved in that. I am not sure about the day I am getting money; I am looking to someone who is here in that organisation, but it is our job to get funding. I think it takes time, it is rare and you save money if you are promoted.

PUBLIC (Mariano WINOGRAD from Argentina): The question is for Mr James. We have been in Ottawa for the IFAVA Congress; Steven KASH from Alberta University told us that one of the reasons for the nutrition transition was the policies viewed to promote cereals and fats productions all over the agricultural policies during the last 50 years. Now when cereals and fats are increasing their goals because of the

international situation do you think it would be important (…)? What will be the future when cereals and fats are becoming more expensive in relation with oil and to what is happening all over the world?

P JAMES: I think that the food crisis is going to amplify the problems of fruit and vegetables status. We have been telling prime ministers and governments for 30 years that the strategy was based on pre-war experiments which identify fat, meat, sugar and butter and milk as particularly good for stunted children and that is dominating agricultural policy throughout the world. The current food crisis is so severe that there is a meeting shortly in Roma in FAO in a week or two. Also, in Latin America, I should be going to Rio in ten days time for a meeting of Ministers of Agriculture and Health conjointly, this is a huge issue and the strategies on fruit and vegetable globally have never been worked out except the United States. They did, when I made a life difficult twenty years ago, they will show that if they followed the recommendation of 400 gram then all of the agricultural pattern of the United States would alter with a big question arising over the water supply in the Mid West.

PUBLIC: I wonder if people really understand this how many business or how many Euros it cost to get an extra quality of life. I mean, you had a number, I think it is 356.

P JAMES: Let me just say that in medical treatment it seems that you actually have relatively good medical treatment if it costs 30 000€ per quality of life. She is talking about 350. You get up to about 60 or 70 000€ and the British government starts wondering whether it is worth paying but you have got a fantastic medical treatment and it only cost 3 000€ per quality. Now what she is coming through with is a ridiculous number, it is so small. I just said something outrageous…

Elisabeth PIVONKA: No, it is not outrageous, I just wondered if you had your model published in a scientific literature anywhere?

C VAN ROSSUM: There are some publications about the chronic disease model in general. The most recent results on fruit and vegetables are published in a Dutch paper and not yet in a journal. Maybe I can go back to my presentation: this slide with the number of incident cases of diseases is published in a report 'Our food, our health'; a report in which an overview of for the dietary habits and its consequences in the Netherlands is given. The EFSA was also involved in the publication of this report.

P JAMES: And just stop at that because that comparison is really quite extraordinary, look at the example of fruit versus vegetable, I was quite intrigued by that. I guess that the fish come in terms of second death in cardiovascular diseases and the fats though, is it actually related to cardiovascular diseases as well?

C VAN ROSSUM: I think so yeah.

P JAMES: Probably?

C VAN ROSSUM: In fact, those are results from already a couple of years ago so the most recent literature is not taken into account. The input of the model should therefore be updated.

P JAMES: The big question is whether your model matches, what you see in the changes epidemiologically in the diseases pattern (…) you can do all this modelling and then you have a completely different way of checking on reality, when you says as example "in Finland there has been an incredible reduction in heart diseases and stroke" and it is actually 85 to 95% to what it was and the question is would you model fit that development? Have you done any other external checks to see how it matches up?

C VAN ROSSUM: More and more work is done on that topic.

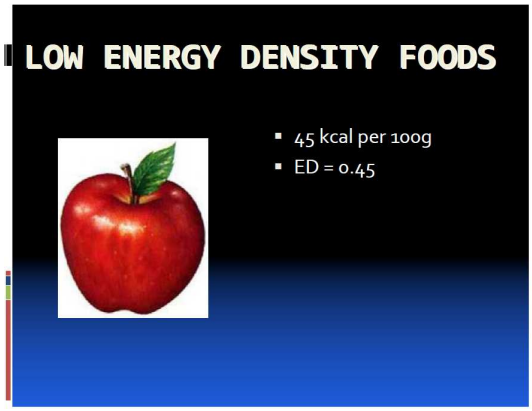
P JAMES: Ok. I mean this is a very novel this that has been done in many different parts of the world. It is actually the way the response is coming from governments they always want to say, how much it is going to cost and so on. Thank you very much indeed for a very valuable input.

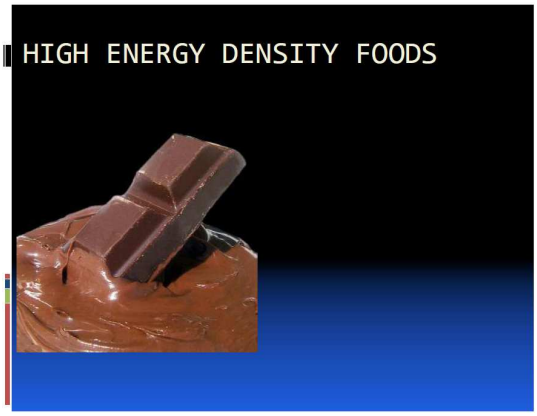
Diet quality/lifestyle and low energy density

Helmut SCHRÖDER
Institut Municipal d'Investigació Mèdica, Madrid, Spain

Reduction in dietary energy improve food intake pattern and lead to weight loss during six month in pre-appetencies in adults. Low energy density diets were associated with a lower BMI in women. In contrast, an energy dense, low fibre, high fat diet was associated with higher fatness in children aged from 5 to 9 years old. And, dietary energy density was directly associated with body mass index and fasting insulin in US adults.

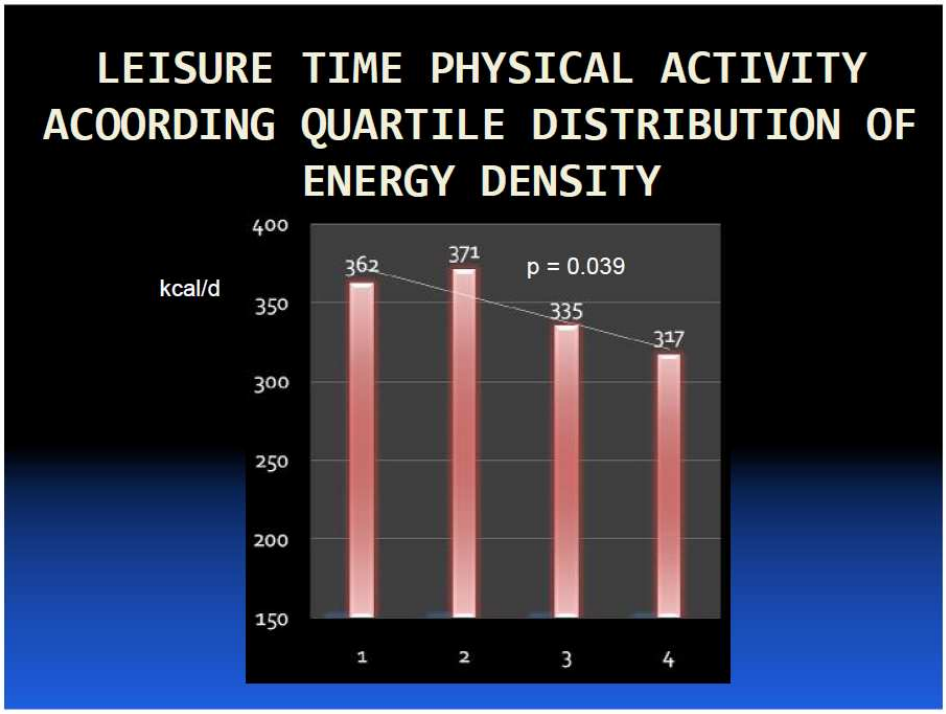
What food comprises a low energy density diet? There are many different kinds of foods that can be consumed to achieve low energy density diet and the choice of food in low energy density diet is depending on cultural food norms and personal preferences.





The average dietary energy density can be very different among populations; this fact represents different food choices and different underlined dietary patterns among populations. In this slide you can see that the average dietary energy density of the United States is remarkably higher than the one found in France and in Spain.
I will present you now, data from the *REGICOR* study which is population-based that means a representative study of men and women between 25 and 74. The *REGICOR* cohort is located in the North East of Spain. These findings are published in the European Journal of Clinical Nutrition and the Journal of Nutrition. We were interested in the association of energy density with lifestyle, variables and with socioeconomic levels in this population. We recorded smoking, alcohol consumption, and leisure time physical activity with a validated questionnaire adapted to Spanish population and educational level. What we find was that age was strongly and mostly associated with energy density, men and women following high energy density diet are younger than those following a low energy density diet, for these reasons we adjusted further analysis for age. The prevalence of smoking increase with higher energy density diets in our population, this trend was significant also, alcohol consumption increase in this population across quartile distribution of

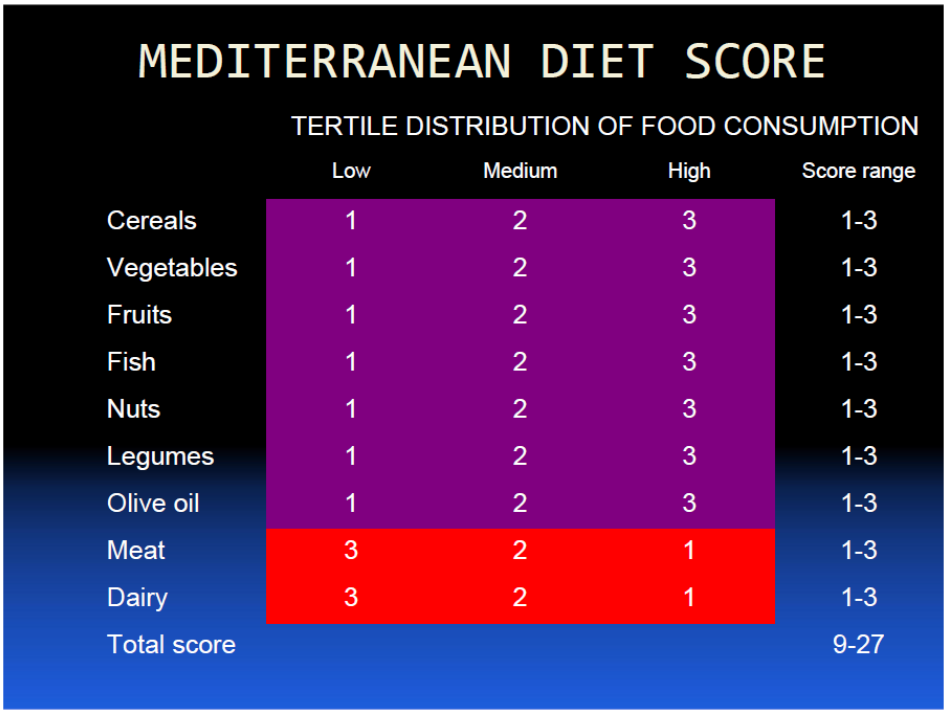
energy density and leisure time physical activity decrease across quartiles of energy density distribution. In contrast the prevalence of secondary lifestyle defined as less 30 minutes of leisure time physical activity during a day increase with energy density.



Educational level seems to be directly associated with energy density in our population defined as university degree but it is an age problem when adjusted for age then the linear trend is not significant. Low energy density diets of the Spanish population were associated with a healthier lifestyle. They were also interested in the analyses of the association between energy density and diet quality. There are different ways to measure diet quality; you can measure diet quality through the distribution of food group, single foods and of nutrients across different decrease of energy density. Calculation of proportion of the population meeting recommended intakes for nutrients and of foods according to different decrease of dietary energy density and creation of different dietary indices in which separated different elements are combined into a single score.

As expected, energy intake increase with energy density in our population and the water intake from food decrease with energy density in our population. The proportion of the population meeting dietary recommendations according to the Spanish society of community nutrition for vegetables and fruits, you see that people following low energy density diets have higher prevalence of meeting these recommendations than people following high energy density diets and the difference is remarkable. The same was seen for carbohydrates, total fat and saturated fat, interestingly about 40% of people following low energy density diet meet recommendation for total fat but 60% meet it for saturated fat and we found the same for fibre, folate and calcium.

In conclusion, a greater proportion of the population following low energy density diets met recommended dietary intakes for essential foods and micronutrients compare to the peers with higher energy density diets. These results are in line with published papers from the United States and from several European countries.
We were also interested in the analysis of energy density diet in the elderly as the age of the world population increases. It has been estimated that by 2050 the medium age in Spain would be higher than 51 years old and 44% of Spanish will be over 60. Sustaining good health about the elderly is a major challenge to Public Health; nutrition plays a major role in protecting health and slowing the diseases progression. Ageing is accompanied by physiological changes such as the lost of appetite and taste sensitivity that can influence nutritional status therefore it is not surprising to say that old adults are generally at greater risks for nutrition deficiencies than younger adults. We analysed the association between lifestyle variables and energy density and the segment of the population can be found quite similar association as for the old population, direct association with prevalence of current smoking, direct association with alcohol consumption and direct association with leisure time physical activity but in this segment of the population a direct association of educational level with energy density. Low energy density diets of the present elderly Spanish population were associated with healthier lifestyle. And we were also interested in the association of diet quality with energy density.
We computed two indices the Mediterranean diet score and the nutrient adequacy score to calculate overall diet quality. The general characteristics of the Mediterranean diet are high consumption of fruit and vegetable, nuts, cereals and olive oil, frequent consumption of fish, low consumption of meat and sausages, low consumption of dairy products and moderate consumption of wine, in particular red wine. The concept of the Mediterranean diet was developed by Keys in the 50's to describe food habits observed in the Mediterranean area. The Mediterranean diet does not stand for homogenous and exclusive model among the Mediterranean population but rather represents a set of healthy dietary habits. How can we make this holistic approach of the Mediterranean pattern operatives for statistic analysis? We computed the Mediterranean diets according to the quartile distribution of food consumption.



The lowest quartile was coded as 1, medium as 2, highest as 3 for t… vegetable, fruits, fish, nuts, legume, olive oil and inversely the lowest quartile was coded for 3, medium 2 and highest for 1 for meat and diary products. The resulting score range from 10 to 30 that mean that 30 is the highest adhering to this dietary pattern and 10 as the lowest. The nutrient adequacy score (NAS) that we found is the average daily intake of nutrients divided by age and sex specifically recommended intake of that nutrient. 19 nutrients were included in the NAS. The nutrient adequacy ratio of each nutrient included in the NAS was expressed 0.01 the final score range from 0 to 19. And in the results, we can see a direct association of dietary energy density with the nutrient adequacy score and with the Mediterranean diet score; this model was adjusted for sex, age, leisure time physical activity, educational level, and alcohol consumption, and smoking. In other words as lower is the energy density of a diet as higher is the overall quality of the diet. Low energy density diet were associated with a higher overall diet adequacy as compared with high energy density diets, specifically a greater proportion of the elderly population following low energy density diet met dietary recommended intakes for essential macronutrients compare to the peers with a high energy density diet.

Some words about the monetary costs of foods and energy density. We were also interested to see and analyse the association between monetary costs of food and energy density. It is interesting that the contribution of total food cost of vegetable and fruits are remarkably high in percentage in our population. When we analysed these data in a multivariate analysis we found that the Mediterranean diet was directly associated with monetary costs, in other words, this dietary score is more expensive. And, the energy density was inversely associated with monetary cost of the diet. Again this model stands for the entire population and for the elderly. We calculated that the subjects who highly adhered to the Mediterranean diet score have to pay 1.2€ more per day than people with a low adherence to this dietary pattern.

This cost difference is of considerable magnitude for the families' annual household budget.

Q&A

B ROLLS: It is quite difficult to assess energy density; there are no universal rules about what to do with beverages for example. I am not sure what you did with beverages and I suspect when you were comparing the energy density across the different countries that data had different inclusion or exclusion of beverages. The point is if you include beverages in your calculation they have a very disproportion on energy density because they have such high water content. So one of the thing we need to do if we thing energy density as important is we need to really get uniform assessments of energy density and into our national data set.

H SCHRÖDER: The data presented were data on energy density related by food only and the slide I presented was also the average energy density by food only. We did this analysis including energy contained in beverages and we did not find any significant differences between both analyses. Maybe because in our population the consumption of energy containing beverages like soft drinks, and fruit juices is not as high as the United States.

PUBLIC (Anne GAULTIER from the French Ministry of Agriculture): Je voudrais savoir si vous avez eu des contacts avec le gouvernement espagnol et si votre travail a été utilisé pour la mise en place de politiques nutritionnelles ou de recommandations parce qu'il est vrai que le concept de densité énergétique n'est pas aussi médiatisé que les 5 fruits et légumes par jour en France par exemple.

H SCHRÖDER: We have no support by the government and this analysis or the study of this cohort was not created with the primary objective to give recommendations to the Spanish government.

PUBLIC (Adam DREWNOWSKI): If you look at the food pattern, here you got a beautiful analysis of the energy density but I remember 20, 30 years ago seeing the most incredible graphs of food intakes changing in Spain with an amazing North South gradients. When the South ate loads of fruits and vegetables and they had a much higher fat intake as you went further North with much more meats and fats pattern it was getting horribly like the British diet, I suddenly realise you are doing studies in the North East. Does this gradient still apply? Or has the North of Spain now become like Northern Europe?

H SCHRÖDER: I am not sure because there is no evidence. I assume that those differences seen a lot of time ago are not so big nowadays because during these times, the differences in food consumption represent also a difference in income between South and North. Fruit and vegetables during this time were not expensive but high energy density foods like meat were expensive.

B ROLLS: It is interesting your comment that eating a low energy density diet is more expensive and I am sure Adam DREWNOWSKI is going to have some comment to make about that. If you're factoring nutrient density along with energy density then the economic picture shift a bit because fruit and vegetables, low energy density diets in term of nutrients are good bargains, if you looking at energy not such a good bargain.

H SCHRÖDER: Yes it is true.

PUBLIC (Adam DREWNOWSKI): Can I come back then on Spain? You are presumably talking about people always buying their fruits and vegetables. I mean how much is home grown? Again, in the old days, there were a lot of people that had their own garden, and particularly in Spain I understand there was a lot of local, certainly it is true of Portugal and I think of Spain, it seemed that fruit and vegetables almost cost nothing. It is part of the problem now that people are always relying on the shops or is that irrelevant?

H SCHRÖDER: Yes I think it is part of the reasons because we still have this local distribution of food once a week where you can get fruit relatively cheap in comparison to supermarkets. But, it is difficult for a great part of the population to access these local markets because they are working.

PUBLIC (Mariano WINOGRAD from Argentina): About this difference of 2000 and something Euros per year per family between the low density and the high density, I think it is photography of the actual situation. But really during the last 5, 6 years after the bio energy crops and now the high inflation, maybe this situation will not be in the future because sugar and fats are increasing their costs and I think it is something interesting maybe to take this study again and to continue because these differences may be a picture of the past but maybe not probably the film of the future.

P JAMES: He is bringing up a difficult question because he lives in the bio fuel world and this is one of the most intensely controversial aspects and the proposition is that if the costs of cereals, sugars and so on goes up people will have to buy more fruit and vegetables, is that true?

H SCHRÖDER: I really do not know (…) but I can make a comment. The increase of costs of fruit and vegetables and the increase of many of the basic stuff in the Spanish society coincidences with the change of Pesetas to Euro.

PUBLIC (Ellen MUEHLHOFF from FAO): I just liked to respond to the issue posed by Philip JAMES in regard to changing consumption patterns at the global level. Within the context of soaring food prices we have some evidence to indicate that people are actually reducing the dietary quality as a result of rising cereals prices and

rise of fat and sugar and that mean that people are purchasing less fruit and vegetables, that seems to be the anecdote of evidence that we have. And I was wondering also to what extent that actually applies within the European context because we are experiencing a similar rise in food prices? And what are some of the implications? And are indeed people going back to growing their own food, own gardening etc? In, Italy for example we see that quite a lot people are keeping their own little garden primarily in the rural areas to grow fruit and vegetables.

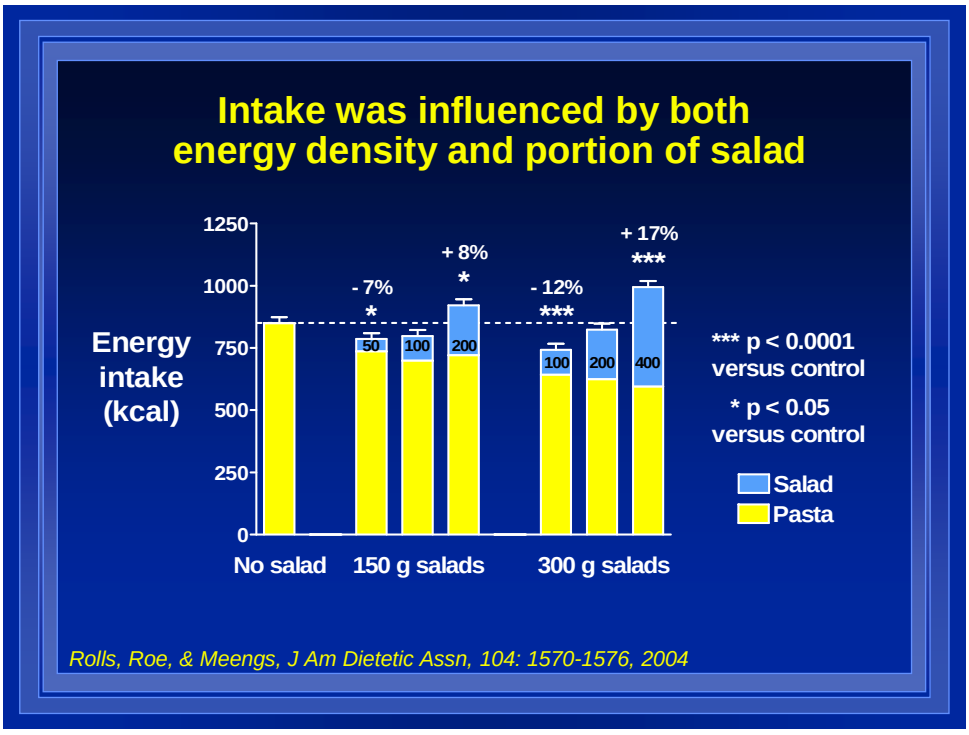
P JAMES: She is talking about price elasticity. It is quite surprising that the human brain always wants calories and does not distinguish folic acids and all these other funny nutrients. So, in fact if the price of food goes up you still have to go for the cheapest option and therefore your fruit and vegetables are still relatively expensive. The question is you do not know whether they are going for gardening, home gardens, in Geneva last week at the World Health Assembly even the British government now noted that the popularity of gardening had suddenly gone up and it was probably associated with the increase in costs and traditionally it is quite often the lower socioeconomic groups that have their local gardens and therefore this is maybe a response in exactly the same way you are suggesting.

Strategies to enhance satiety with fruits and vegetables: implications for weight management

Barbara ROLLS
Department of Nutritional Sciences, The Pennsylvania State University, USA

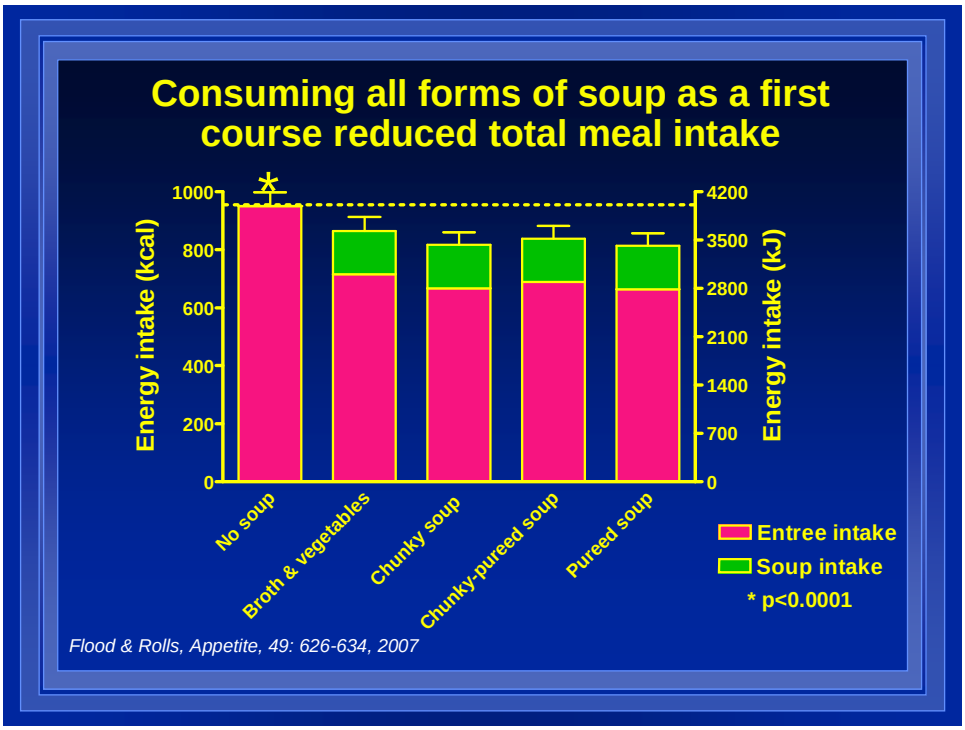
Much of our research is based on the idea that eating more fruit and vegetables is the most effective way to lower the energy density of the diet. Incorporating them into the diet helps to ensure that the diet is low in energy density since most fruit and vegetables are naturally low in fat, high in fibre, and importantly very high in water content. The water content of most fruit and vegetables is 80 to 95% so adding fruit and vegetables to the diet gives you a lot more food for a given calorie level (Rolls et al, 2004; Ledikwe et al, 2007a).

The research that we have been doing with fruit and vegetables is aimed at finding practical strategies to affect energy intake and ultimately body weight. In some of our studies we are looking at whether giving people a first course of fruit or vegetables affects total energy intake in a meal. In this first study, we gave two different portions of salads, some small salads and some bigger salads, and we varied the energy content and the overall energy density. The lower energy density salads had more vegetables and a low fat dressing and less cheese. People had to eat the salads at the start of their meal and then a few minutes after they finished eating the salad they were given a big bowl of pasta to eat. People were tested in every condition as well as in the condition where they had no first course at all; this was our baseline condition. If you have a low calorie salad, particularly a low calorie big salad at the start of the meal it fills you up and you finally end up consuming fewer calories at the meal. Advising people to eat a large, low-calorie salad at the beginning of the meal gives them an extra course, gives them more food, and helps them to eat less energy (Rolls et al, 2004).



We have done a

number of studies on soup and satiety. Eating soup is a good way to fill up because it is very low in energy density. There is some data that indicated that chunky vegetable soups were more effective in filling people up than smooth soups. To further investigate this suggestion we tested the effects of vegetable soup in four different forms. We served cooked vegetables and broth separately, we mixed the broth and vegetables together to make a chunky soup, or we blended half the mixture or all of the mixture to make smooth soups. The form of the soup did not affect the response. When eating vegetable soup in any form, people ended up eating 20% fewer calories at the meal; yet they were getting an extra course, more food, and more vegetables (Flood and Rolls, 2007).

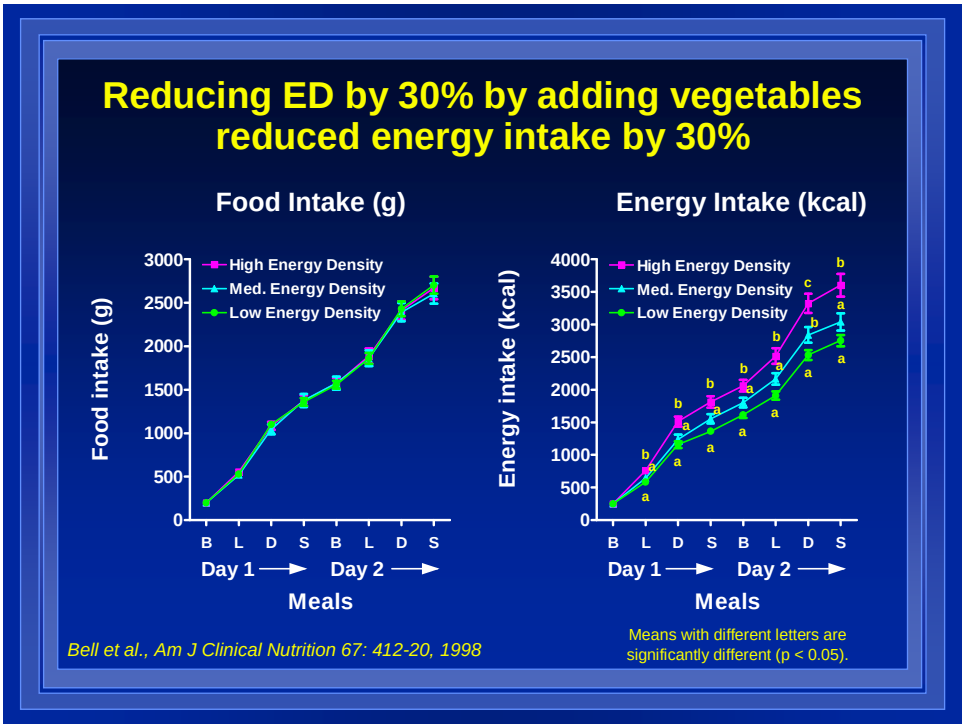


What about fruit? There is data suggesting that fruit in its whole form is more satiating than liquid fruit juice, but these studies have not controlled for differences in energy density and fibre content of the different forms. In this study, we served slices of peeled apple at the start of the meal, apple sauce, or two forms of juice (one with fibre to match the fibre content of the fruit or one which is a typical commercial apple juice with little or no fibre). You can see that having the apple at the start of the meal very effectively reduced total energy intake at the meal by 15%, almost 200 calories. Apple sauce also reduced intake, but not as effectively as the whole fruit. The whole fruit and applesauce reduced meal calorie intake more than the juices. Surprisingly, adding fibre to the juice did not affect satiety.

You can use this strategy of having a low energy density first course of vegetables (salads or soups) or of whole fruits to help people to eat less and also to increase their consumption of fruit and vegetables. It is a strategy we need to convey to the public more often. We are now doing some studies looking at the strategy in preschool children; such tests have never been done.

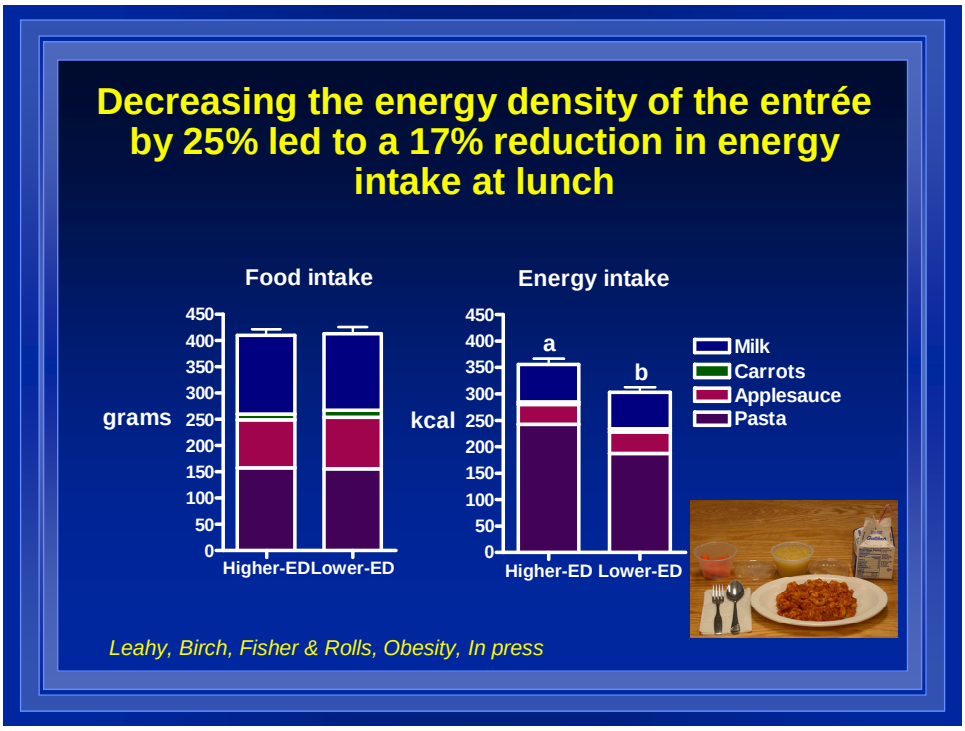
Another strategy that is promoted to increase vegetable intake is to simply increase the amount served on the plate. This strategy has not been tested previously, and we do not know if adding more vegetables to the plate affects vegetable consumption. In a recent study, we changed the proportion of vegetables on the plate from 25% up to 50%. We substituted the vegetables for the other meal components (meat and rice) and we had two different energy densities of broccoli. We found that increasing the proportion of vegetables increased vegetable intake. When the vegetables were low in energy density, energy intake during the meal was decreased. Serving an increased proportion of low energy density vegetables on the plate helps people to increase vegetable consumption and reduce energy intake in the meal.

We have shown in several studies that adding extra vegetables to mixed dishes such as pasta or rice lowers the energy density, increases intake of vegetables, and lowers energy intake during a meal. What people do when offered a dish that has more vegetables is they tend to eat a consistent weight of food. Thus, when the extra vegetables lower the energy density of the dish, energy intake is reduced. If you are given the food and you do not know what the energy content is, you will tend to eat an amount of food that you have learned is appropriate. If the energy density was lowered by adding vegetables, you will eat fewer calories. Here when we lowered the energy density by 30%, the people ate 30% fewer calories over these meals for two days with no signs that they were getting hungrier (Bell et al, 1998).



We recently started to do similar studies in preschool children; we have been studying children 3 to 5 years of age. We go into their preschool and we alter their typical meals. In this study, we lowered the energy density of a pasta dish by adding extra blended cooked broccoli and cauliflower to the tomato sauce. What we found was that the children tended to eat a consistent weight of food—similar to our

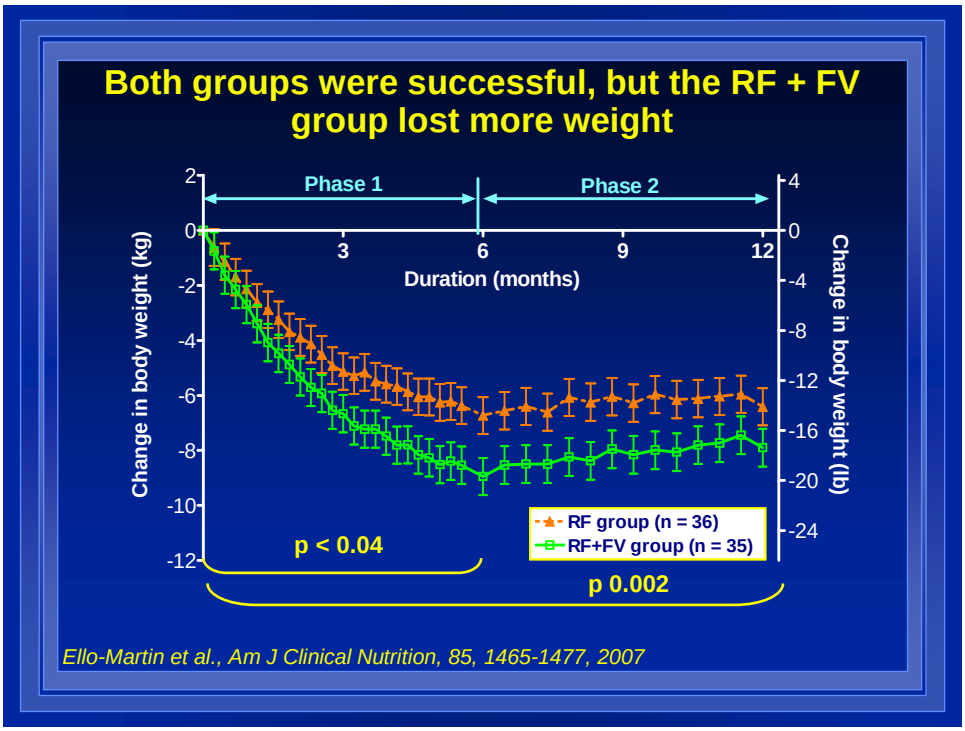
findings in adults. Since we had lowered the energy density of this pasta dish by 25%, we observed a 25% reduction in energy intake from the pasta. An exciting finding was that when we added the vegetables to the pasta, the children ate significantly more vegetables—and they liked the dish as well as the dish with fewer vegetables (Leahy et al, 2008).



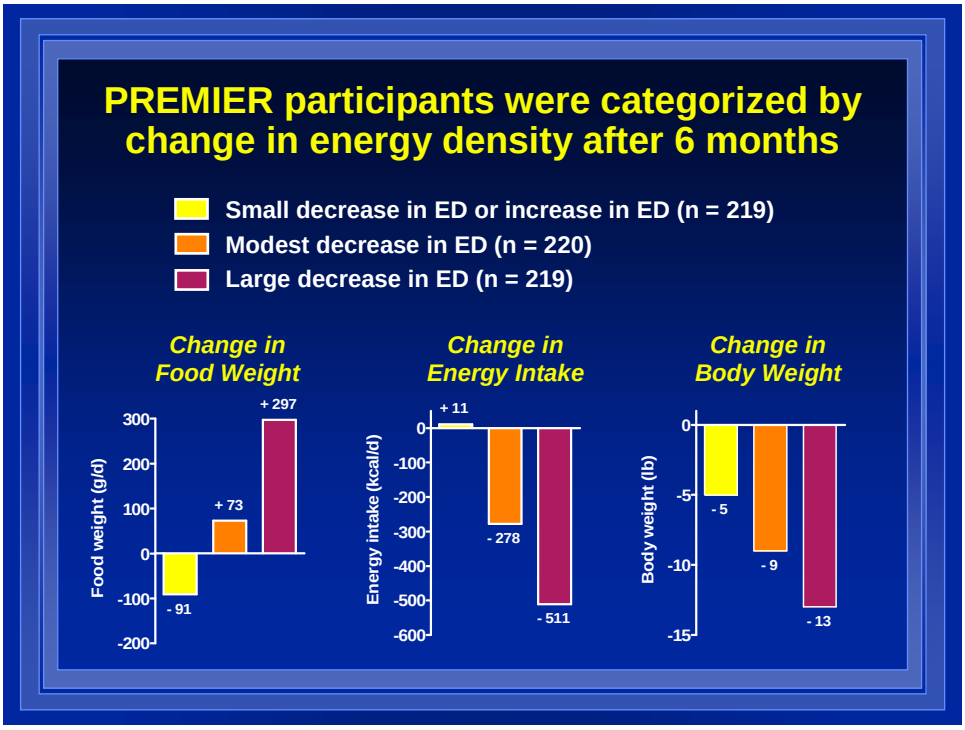
Thus, lowering the energy density by increasing the proportion of vegetables in mixed dishes or on the plate increases vegetable intake and helps to decrease energy intake at a meal.

What about using these strategies for weight management? Would the effect of lowering the energy density persist over a longer term? You can reduce the energy density of the diet by decreasing the fat content which has been the standard way to approach weight management for years. Thus, we compared a reduced-fat weight management diet with one where we gave people the same advice for fat reduction but also urged them to eat lower energy density fruit, vegetables, and broth-based soups. This was positive messaging where we were emphasising what people can eat rather than what they should not eat. We did not give them calorie goals, or fat gram goals. This was a year long clinical trial with 97 women over a year. We found that both groups significantly reduced the energy density of their diets, but eating more fruit and vegetables caused a greater decrease. Both groups lost a significant amount of weight. The reduced-fat group lost about 15 pounds over the first 6 months. During this same period the group that was urged to eat more fruit and vegetables lost significantly more weight. They lost about 20 pounds and this difference between the groups persisted through the next six months. This was an intensive program where participants met regularly with dietitians. We need to develop programs that are less intensive and that people can do more on their own or through physician's offices. This study showed that the people who lost more weight

reported eating more fruit and vegetables and eating a greater weight of food, and they reported less hunger over the year of the trial (Ello-Martin et al, 2007).



While data examining the relationship between dietary energy density and body weight are still limited, analysis of data from the multi-center trial PREMIER indicates that over the first 6 months the change in body weight was related to the change in dietary energy density. This trial included over 600 participants divided into 3 treatment groups that received different amounts and types of dietary advice. Because changes in energy density were reported by participants in each treatment group, analyses were conducted by stratifying them by change in energy density (ED) tertile over the 6 months of treatment. Participants in the highest tertile (ie, largest ED reduction) lost more weight (5.9 kg) than those in the middle (4.0 kg) or lowest (2.4 kg) tertile. Participants in the highest and middle tertiles increased the weight of food consumed (300 and 80 g/day respectively) but decreased their energy intake (500 and 250 kcal/day). The highest and middle tertiles had favorable changes in fruit, vegetable, vitamin, and mineral intakes.



These data suggest that lowering the energy density of the diet facilitates weight loss and improves diet quality (Ledikwe et al, 2007b).

In conclusion, we find that in both short term studies and longer terms studies that eating more fruit and vegetables can reduce the energy density of a variety of dietary patterns. A benefit of using energy density reduction is that there are many different patterns that people can adopt to fit with their own preferences and that will improve diet quality and facilitate weight loss (Ledikwe et al, 2006 a and b). We have shown that some relatively simple strategies can help people to eat more fruits and vegetables, while decreasing their energy intake. These strategies can give people additional reasons to consume more fruit and vegetables at the start of the meal, add them to recipes, and increase the proportion on the plate.

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Q&A

P JAMES: Lots of the questions to the earlier speakers were specifically asking how your work influenced government policy. You come from the most sophisticated country in the world, how have your studies affected the government?

B ROLLS: Actually it is interesting to see what happens in terms of recommendations about dietary energy density and fruits and vegetables in relation to weight management with the next US Dietary Guidelines. They are putting the Committee together now; in the US the Guidelines are redone every five years. For the last Dietary Guidelines it was not thought that there was enough evidence for a strong recommendation that either reducing energy density or increasing fruit and vegetable intake would help body weight management. Clearly, we need to keep doing studies that clarify the role that fruit and vegetables play in weight management.

PUBLIC (John MILNER): I know this is all about energy density but do you find any differences depending on the fruits or the vegetables that you introduce? Are they some variations or not?

B ROLLS: That is a good question, but we do not know the answer now. We need more research on how different types of fruits and vegetables as well as the preparation method affect energy intake.

PUBLIC (John MILNER): So the principle of change that you are introducing, I think of peas and broccoli and a few things like that is that correct?

B ROLLS: When we are incorporating vegetables into mixed dishes we are usually going for ones that are low in energy density so it would be broccoli, cauliflower…

PUBLIC (John MILNER): So you have no indication about cruciferous vegetables compared to other types? I think that there are some unique compounds that are in some of these foods that could modify ingestive behaviour. There are changes in the epigenetic processes that may be shown to be signals for eating behaviour down the road.

B ROLLS: Following up on that, I think we need a lot more people working in this area because there are so many good questions that have not been asked and essentially nothing mechanistic. We usually do not assess biological markers in these kinds of studies at this early stage of knowledge. None of those studies has been done in young children, for example, apart from the few I have shown you.
PUBLIC (John MILNER): Do you have any information about changes that occur in inflammatory processes in individuals? Certainly this is one of the mechanisms that I would think about with fruit and vegetables that might be modifying our health?

B ROLLS: We are hoping to get some data like that.

PUBLIC (from Liverpool): I wanted to ask you a question about policy questions again. The evidence you are giving about fruit and vegetables reducing energy density is brilliant but what about the cost implications, particularly for people with low income because we heard from the previous speakers that fruit and vegetables can be more expensive? And also is the population in America equipped to make these changes? Do they have the cooking skills to prepare their fruit and vegetables and cook meals from scratch because if they are eating processed food then these sorts of recommendations might not make any sense to them?

B ROLLS: She is asking about how we make people do this in terms of costs and about the fact that people do not cook anymore. I think there are a lot of ways to do this relatively inexpensively, soups are very inexpensive for example, and canned and frozen vegetables can be inexpensive. We need to leverage approaches so they are not just for the privileged who can afford to do them. In terms of cooking I think we need to have more foods available that make it much easier for us to eat more fruit and vegetables. For example, we need to have more mixed dishes with a greater proportion of fruits and vegetables. Unless it is made easier many of us will not make the effort to do it.

PUBLIC (Christina POLLARD from Australia): The message seems relatively simple, eating a salad before you start a meal, having a soup with a meal. How did the participants take to their dietary patterns? Was it a big change for people?

B ROLLS: It would depend. Obviously when we do studies we would ask participants if they typically consume the food we are going to feed. We would not want people that are going to find that what we are doing is completely novel. But I think the most interesting question is whether people will persist with such recommendations. Such data need to be collected.

PUBLIC (Philippe COMOLET-TIRMAN from Interfel-Aprifel): Barbara Rolls a montré que l'une des façons d'augmenter la consommation des fruits et légumes frais c'est d'augmenter la proportion des fruits et légumes dans l'assiette. Je voulais simplement souligner que nous, en France, dans le cadre des campagnes de communication de la Filière Fruits et Légumes pour augmenter la consommation des fruits et légumes, nous nous appuyons depuis 2 ans sur cette approche, à la fois psychologique et physiologique, à savoir que notre message de communication c'est « la moitié de ce que vous mangez, la moitié de l'assiette plus précisément c'est des fruits et des légumes frais, donc c'est un message de communication qu'on estime être beaucoup plus facile à comprendre pour le consommateur et qui rejoins les résultats que vous nous avez montré.

B ROLLS: That is really interesting but in the study I showed you we substituted vegetables for the other meal components and in American policy that is what the CDC and others will say: "When you are eating more vegetables substitute them for other components". We are doing a study now where we are adding more vegetables to the plate keeping the other components the same to see if vegetables can compete against that.

PUBLIC (Vanessa CANDEIAS from the World Health Organisation in Geneva): Thank you for your very clear and very informative presentation. I have one question. If these studies had to be duplicated in a low and middle income setting, what considerations would you think about in terms of food insecurity? Have you ever thought about how this could be addressed? In terms of policy, to have a bowl of salad before your meal, how would you translate that if food security would be a preoccupation in that setting?

P JAMES: The reason why she is asking that is that for example in India the average fruit and vegetables intake is 130 grams and in the rural parts of India, 70 to 80% of women eat no fruits at all from the beginning to the end of the month.

B ROLLS: I understand that there are economic issues; I am a basic scientist doing proof of principle research. At this point we have very little idea of whether eating more fruit and vegetables would affect overall energy consumption and body weight. That is our starting point. I am not an economist. I do not know how you do this, but obviously it has to be culturally sensitive and we have to figure out how to make it affordable, but that is not what I do. That is what policy makers have to figure out once we give them the science to show that it could have some potential to increase consumption of fruit and vegetables and to help moderate energy intake.

SESSION 10

F&V SCHOOL SCHEME

Chair: **D. Barling**

- The European School Fruit Scheme: public policy and supply challenges. **D. Barling**
- Towards an European School Fruit Scheme. **L. Hoelgaard**
- Evaluation of diet and health trends considerations on study design. **E. Riboli**

The European School Fruit Scheme: public policy and supply challenges

David BARLING
Centre for food policy, city university London, UK

This talk is aim to give some context to the European School Fruit Scheme and what I want to do is consider 4 dimensions which seems to not be closely linked but in my analysis are all very important dimensions which need to be considering. First is that we, the scheme, we have the opportunity of linking production to consumption in agriculture and food terms for public health benefits. A key element of this is going to be the public procurement as a policy instrument and some experiences that we have at a ground level particularly drawing on projects in the UK that are important to these and that come quite significant in the supply chain particularly at the school level. Thirdly I just want to introduce as well and reflect on the environmental dimensions of any projects of this kind. And in a broader vision linking public health with environment has important dimensions of any food policy. And finally I would suggest wider policy dimensions at the European level particularly over the future direction of the CAP.

In terms of the opportunity of linking production to consumption for public health benefits what is the vision for food policy in terms of linking production to consumption? I just want to lay out some very broad points and that is ambitious notions here but clearly the concern in this conference is to achieve public health goals that the food system from production to consumption should be guided with public health goals. Equally important are environmental goals as well and these already have some priority clearly in European Agriculture Policy with the recent reforms. But I am not sure there is enough just to address each of these goals as separate policy areas rather we might ask can we integrate both of these two policy strands together. So our primarily concern in this conference is public health as well as trying to think through some of the environmental dimensions as well. There are other questions I want to ask. How to recast production to meet public health and environmental goals? Because production, the way we produce our food and the way production is being supported by the states through policy has certain directions and that support has not been so clear in the public health oriented foods such as F&V. Also seek shift in consumption patterns and behaviours, moving people towards sustainable consumption that is a rising policy issue notably in the UK with particular concern in the environment to address sustainable consumption and how consumer behaviours patterns can be address in policy and what sort of initiatives are needed. This is clearly a concern for public health but in environment equally it can be a concern. About recasting production to meet public health and environmental goals one example of this which is put by agricultural economists is to take the diet guidelines from the WHO/FAO/Technical Report from 2003 and if you look at the global production change needed they admitted that areas where we

produce very highly in order to meet the dietary goals would have to come down. So globally we will have to reduce:

↓ Pig meat DOWN by 5%

↓ Butter DOWN by 13%

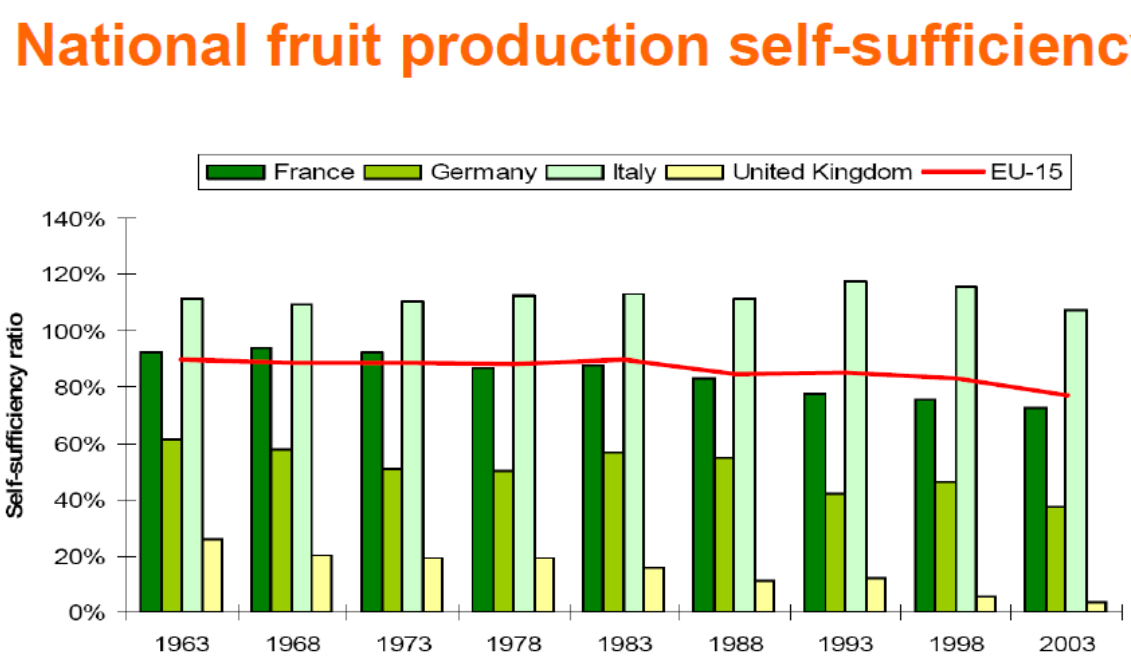
↓ Cream DOWN by 18%

↓ Animal fat DOWN by 31%

↓ Soybean oil DOWN by 14%

↓ Rapeseed oil DOWN by 30-35% (From Irz et al (2003))

The same group of economist ended a further study where they looked at OECD countries and using the basic dietary guidelines desired intake of 400g/day they said what will be needed in terms of change in production, what you will need would be a per capita consumption rise in OECD countries of 23% and this will lead to a rise of 79 million tons of F&V and this based on the 400g a day. That does not take into account the wastage in the system to get to that 400g a day consumption and Tim Lobstein who have made an evaluation of F&V that we would need to reach those levels of consumption which is far higher than this estimate because it takes into account the wastage and what is lost along the supply chain.



If you look at these figures across Europe if we go back to the 15 member states we can see that self-sufficiency of food production varies over countries so if we are addressing an European approach to this some countries would need to increase their production to meet the dietary goals quite substantially although in the common market it is not such a concern. But we can see from the columns here that some of the countries are far closer or exceed their own national self-sufficiency needs whereas countries like the UK are far way from such target.

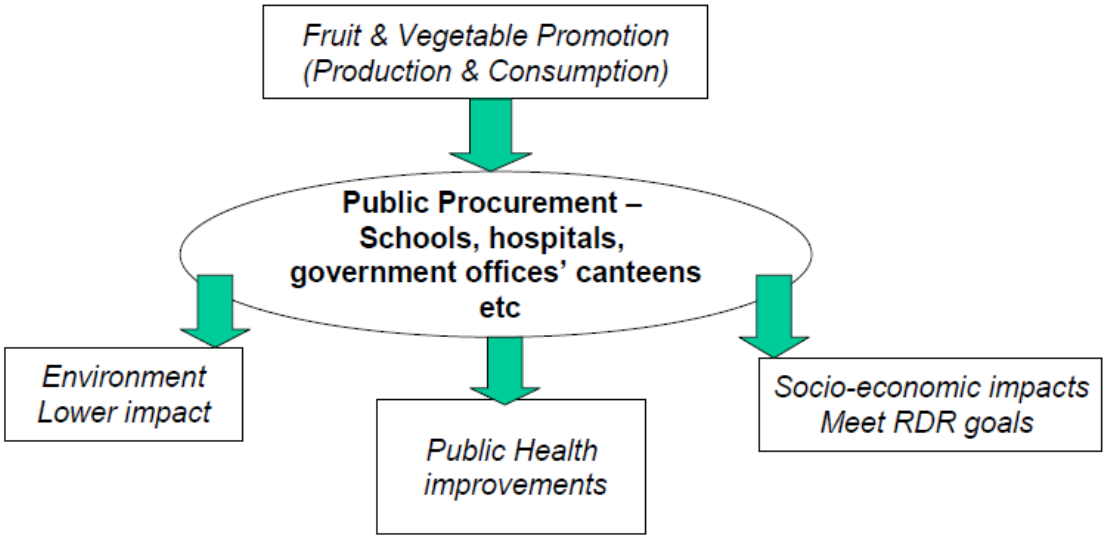
What we have now offered to us with the School Fruit Scheme is a policy window to make these kinds of links between what we produce and what we consume. The

Common Market Organisation has seen a shift from controlling the supply in terms of price controls to shift to create market opportunities or demand for producers (notably through Producer Organisations) and products and the link is now being made with health promotion. The link of the reform for the F&V regime alongside the growing concern at European policy level for the effects of obesity means that we have a policy window clearly opened here last year. This was an issue seen last year in Brussels and we are now seeing moving speedily toward actualisation policy reality. The options that the E. Commission's Inter Service Group put on the table are:

- driving initiatives from the EU level to the national - Commission would co-finance the purchase of F & V for distribution in schools;
- commission co-finance member state designed initiatives (stipulate criteria);
- networking alliance – low key.

The school program means that we will be using public procurement as a policy instrument and the supply chain challenges to achieve the goal of that program. Here it is worth looking policy procurement what we know about this in terms of providing food through public procurement. Broadly it is quite clear this is a rising potential instrument in European policy. Looking at the EU Sustainable Development Strategy for 2006 among the 6 or 7 priority areas are Sustainable Consumption and Production (SCP), Public Health and if you look at that section obesity is the main food related issue there and also conservation and management of natural resources e.g. biodiversity as the environment is a key concern. Within sustainable consumption and production not a lot is put into that document, a key role is ascribed to "green public procurement" which is a vague term but its initial response will be regulated environmentally co-ordinated public procurement, public procurement with a low environmental impact.
In terms of F&V promotion public procurement becomes a policy tool so we are looking to promote consumption but also to support production as well. And we need to link the producers to the areas of consumption and that is the schools, hospitals, government offices' canteens, care homes, etc. The aims of this are to improve public health, to lower environmental impact and also to meet socio-economic goals, RDR goals for F&V producers or producer's organisations.

Public Procurement as a policy tool



Looking to the UK Public Procurement Policy I just want to talk about the context in the UK and then also to give some great brand level examples which I have been involved in. In terms of UK Public Procurement Policy the spend is estimated at £2 billion a year, 50% of this spend is in schools and, per weekday across the public sectors it is estimated that around 3.5 million meals. But within our own procurement policy there is a policy tension between one hand the government desire to use public procurement as a method of getting best value (economic value is the key indicator here) to bring down government costs, to control the departmental budgets, to make them more effective and efficient but at the same time we also have clear initiatives for using procurement as a tool for sustainability goals and sustainable food is one of those elements. So there is a tension between best value and sustainability goals currently within our own policy. I am not sure it is in many European countries. Within our government our Department for the Environment Food and Rural Affairs (Defra) are an advocate and they advocated sustainable procurement for food, sustainable strategy for farming and foods which maps a more integrated strategy for our farming industries but also for a food industry as a whole linking it up to consumption. A major step in this was a setting the Public Sector Food Procurement Initiative (PSFPI) in 2003 and in broader terms the government has produced a Sustainable Procurement Action Plan in 2007. So there is a strong driver of governments towards using public procurement as way of delivering sustainable food from the producer to the consumer.

More specifically around UK School meals, this has become an area of policy contention and has led to response and this is taken 3 major documents which reflect some of the *devolved* nation as also the *devolved* nature of the UK at the moment in terms of governmental administration there have also been a more general policy put forward for Northern Ireland. Scotland were the initiators in addressing school meals with their document 'Hungry for success' (2002) and this has been followed in Wales by 'Appetite for life' and in England in 2005 the School Meals Review Panel Report

produced the report 'Turning the tables' and from that they set up a School Food Trust to take forward the recommendations of that report and one the key areas that has been developed, our nutrition standards for schools introduced in 2006 out of highly contested process from different participants as to what the standards should be and this have been ruled at first at primary schools which is children up to the age of 11 and then the secondary, 12 to 18 year olds due to be ruled out next year. What is missing from these current settings of school food initiatives is the link to the more sustainable procurement initiative in terms of environmental criteria, these are absent.

If we look at a ground level it is generally agreed by those who follow and are involved in public procurement where food is concern in the UK is that the situation is one of "Islands of good practice" which means of course the other side that is usually in the sea, mediocrity. But the "Islands of good practice" are there and I have some insight from this sharing project on behalf of sustain which is our Food & Farming NGO alliance in the UK who runs two projects. One is better hospital food project that has been followed up by the good food public plate project. Both of these have had some funding from both government and *childhood* trusts and the projects, particularly the one God Food on a Public Plate have been about good practice dissemination trying to really act as a sort of dating agency between producers who want supply and public institutions who want to improve their menus and increase their local food supply particularly fresh and seasonal food and this involves hospitals, schools and care homes for the elderly. What we see is that it is a very fragmented procurement process the reality is that procurement is highly fragmented by and within and across its different institutions. Even within education it is highly fragmented. The real theme is trying to find creative ways of helping procurement to be involved in create procurement in order to obtain and utilise more effectively sustainable food. What I mean by this, some examples such as at the school level having training for schools chefs which includes how to draw up seasonal menus which are in accordance and harmonised with more local food supply also in terms of cooking meals that meet nutritional standards and how to use the facilities that they have at the schools because clearly one of the problems is the structure. Many schools have moved their kitchens over the last couple of decades and so there is a need to find to overcome that or to reintroduce the structural factors simply like cookers. Also there is a need to work out how to draw up specification within the legal frameworks provided from EU level. And also, to frame them in such a way that you can meet your local suppliers and attract them. And then there are distribution problems within the project of Sustain share the stakeholders meetings and here we have both catering manages from hospital and schools, we have farmers, we have farmer organisations, we also have distributors people actually involved in logistics and distribution and can reduce costs by integrating the distribution from different farms on the same way across different schools. So there is a whole range of logistical supply matters which need addressing as well as skills and infrastructure supports. At the moment these alliances are still practice so if you are going to rule out european wide scheme to get food through these levels and be

consumed by children then you need to think through some of these challenges levels.

Finally I will talk briefly about environmental dimensions. Obviously, the projects we have been talking about are being concerned about environment as well as nutritional standards. And there is a question about how we can address the supply of the right types of food in environmentally benign ways. How do we seek to deliver fish stocks for example where stocks are depleted? What types of fish do we go for? How do we bare up F&V productivity with other environmental concerns such as pesticide controls, water depletion, water shortages. And how do protect and enhance biodiversity throughout choices of supply? Some of these issues are being covered elsewhere in the conference.

I just want to drive your attention to two current pieces of work which have been done on a interdisciplinary nature in the UK, the Rural Economy Land Use program (RELU). These are designed to be interdisciplinary projects which are trying to address land use challenges. Within this range of projects there are a couple which are focused more particularly on food production for consumption and also have elements of F&V production within this. One example which looks at Public Health and environmental benefits of F&V have focused on soft fruit production how it may be nutritionally directed in a way that there are greater nutritional benefits deriving from the fruit grown, how it is grown and how it is processed. Here they are trying to add another set of priorities. Traditionally standards around F&V and variety choice have been driven by facts such as optimising yield, the appearance to the fruit, shelf-life not necessarily health properties in a *sense more cultivated* may be healthier or have greater benefits than others nutritionally. They have been studying soft fruit strawberries, raspberries, blueberries for example identifying cultivar type, ripeness and harvesting, timing and techniques as e.g. the use of UV regime and UV-transparent polyphene all in attempt to enhance the beneficial properties of polyphenols derives from these soft fruits. This work is still in progress but there is an initial revue of the work available.

There is a report on another project which has been trying to match up the public health/environmental benefits of locally produced F & V compared to air freighted produce. This is in concern about food miles and the potential introduction of air miles or carbon miles as a label which has been put forward by one or two of our large retailers in the UK. Here they are focusing on freshness as a key for health benefits but comparing the two they suggest that practices such as type of processing where/when the ***b…*** takes place is going to be frozen F&V, the time of delivery to the point of consumer purchase may all play a key role in whether the air-freighted fruit is more environmentally friendly or the local produced, particularly in case of vegetables. For example air freighted vegetables, when they are out of season in the UK they are brought in from sub-Saharan Africa with short delivery span of 24 to 36 hours which retains there freshness enough to make them more environmentally efficient that frozen stored produce out of season being used at the same time in the UK. So these lifecycle analyses are now being developed.

Finally just move on a wider policy debates, the future directions of CAP reform. What we have at the moment is a situation where the environment actually is a part that has being recognised in the CAP support and its reform rewarding public goods provides by multi-functional agriculture. Public health gain is not really explicitly included amongst these public health goods currently. Food safety is there but in terms of nutrition advance that is not there. The supports are de-coupled from production and then moved to rural development and Rural Development funding is a more potentially lever for the promotion of F&V. But, there is current suggestion de-coupled from production support for public goods which environmental landscapes features are at the forefront. We also see a debate happening at the moment thanks actually to the UK presidency of the EU which ask to this to be tabled. At the same time we see this taking place against rising food prices globally where concerns about food surplus which of course are the one overshadowed production regimes of the CAP gave them bad names now being match with the current situation where food scarcity is gloaming at a global level or is this becoming more visible? Of course me always have millions malnutritioned people in the world, it is not a new problem but, the *ef…* upon scarcity is now becoming the forefront policy debate. Another current de-coupled aid is that land has to be kept in good environmental agricultural condition. So there is an argument being put at the moment about rebuild European national food production but keeping it supported by high standards as food safety and animal welfare. And both the France and German Agriculture Ministries have advocated this in the recent months. On the other hand our UK Treasury is saying that de-coupling is a way forward wants to see complete aiding of supports by 2013. So there is a healthy exchange of views going on from this opportunity for debating re-direction. And of course this would accelerate now as we move towards 2013 in the future of agricultural supports would have to be discussed and decided.

In conclusion, what we have at the moment as illustrate through the European school fruit program as policy window of opportunity which is opened up and this is very well and it is important that it is being taken. But in the longer term we need to think more broadly and deeper about how we link consumption of food to production via public health benefit and lower environmental impact. We also need to think about and this is the RELU project in the UK first attempt to how we link R&D around production of food to consumption needs that we need more about health consumption environmentally present consumption in how we develop and research production of food. The third point is that throughout the supply chain the governance of supply chains and operation has important consideration that need to be integrated into our thinking. And finally, in relationship to that we need to look at policy implementation on the ground and seek promote best practice where we can.

Towards an European School Fruit Scheme

Lars HOELGAARD
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A year ago, I participated in this annual conference on obesity and F&V and I have to say that this was an eye opener for me. Up to that moment I thought, ok, we know about obesity and we know it is a problem, but is it really that bad? And as I was presented with the figures, it came clear to me this is a rather serious problem in our modern societies, it is something which is growing and it is something in fact which might result in huge health expenditure and in that sense it is a serious issue. It is an issue which will be creeping up on the politicians' agenda. If we do not manage to invest in our public health in our ways of living, our diets, we are going to exacerbate the problem into the future. We are going to have a snowball effect. It is now time to address this issue and to stop the snowball from rolling and becoming greater. We need to start doing something serious about it. It is not an easy task. I have been participating in some of the sessions that we have in the Commission regarding the Task Force on obesity. It is a complex issue which involves many different elements. It is not just about consumption of F&V as we know, not just about the question of having physical exercise, not just doing more about it in the curriculum of the schools, not just about the way we live or related to the increase in single parent families, not just about the attitude, it is also about attractiveness, availability, presentation and so many factors involved that all have to be taken into account, and my message is that a possible EU School Fruit Scheme is just one element, which can contribute in the fight against obesity. It is just one element, but an important element, in this complex matrix of different elements playing into the issue of obesity. And, hopefully, an element that could grow, an element that could contribute and provoke a change in our approach, ways of living, in terms of our diets that could have effects that go beyond the simple narrow issue of an European School Fruit Scheme.

The ball started rolling basically last April, when we were right in the middle of the process of reforms of the market organization for F&V. I saw this as an opportunity to use an element here that we had not really thought about. We could already have put a School Fruit Scheme into the proposal and perhaps had it adopted and I would not be doing this presentation. But, better late than never, and this is why we are here after one year of intense discussions which we hope will lead up to a proposal from the Commission that will result in an EU School Fruit Scheme. I am convinced we will have a Scheme, but today I am not sure about the content, about the form, the dimension, but we will have an EU School Fruit Scheme one way or the other.

We went through a process of consultation, the declaration that was put into the Council conclusions on F&V reform said that we would study the issue of a School Fruit Scheme in terms of its practicability, efficiency, justification and see the different options and evaluate these and on that basis present a proposal. We also have the European Parliament which has been active in this discussion. The European Parliament is now waiting impatiently for such a proposal coming forward

and in that way there is already now a sense of urgency which is being built up at certain levels.
Mr Barnier as well has the idea, as we see it in the communication he has delivered just recently, to come forward with a School Fruit Scheme in France which will distribute F&V in schools across France in about a thousand schools based on some of the models that are already in place in some member states. In fact, the communication is a little bit ahead of eventual events because it is referring to an upcoming EU School Fruit Scheme which means that we have to deliver on that, come up with a proposal.
We have done an impact assessment that I was working on with my colleagues just yesterday. We have gone through a process of internal consultations in the Commission, and Felix Mittermayer and his colleagues have been involved in this. Working quite intensely on it and having a number of inter service groups, discussions with stakeholders and internet consultations, we had reactions from 122 stakeholders, and in fact it has been a quite positive experience. We have had quite clear support, not just for a EU scheme which I think by now is a done deal, but also to have an EU scheme with muscles in it with a contribution from the EU budget which will assist in health in promoting and sustaining or introducing and encouraging the introduction of School Fruit Schemes across the EU.
The objectives that we have with the School Fruit Scheme are basically three general objectives which are mutually supportive. First objective is clearly related to the CAP in relation to efficiency, productivity, ensuring the security of supply at a reasonable price to the consumers and ensuring a reasonable income also to the farmers. Second objective: to contribute in the fight against obesity by increasing consumption of fruit and vegetables by influencing children when their eating habits are being formed. Third objective to provide an EU value added and demonstrate the EU cares about the concerns of its citizens.

IV. Conditions for successful implementation of a School Fruit Scheme

- The SFS should be flexible, recognising differences in culture, school food environments and administrative arrangements.
- It should ensure a variety of safe, ready to eat, high quality, culturally acceptable fruit and vegetables and avoid simplistic notions as to what product is "best".
- To ensure equality of access to the scheme, no charge should be made for fruit & vegetables in schools.
- The minimum target of 400g/day should include 150g of fruit and 250g of vegetables; fresh, frozen, chilled, canned and dried produce; no more than 100 ml of pure fruit juice based on clear guidelines regarding eligible products .

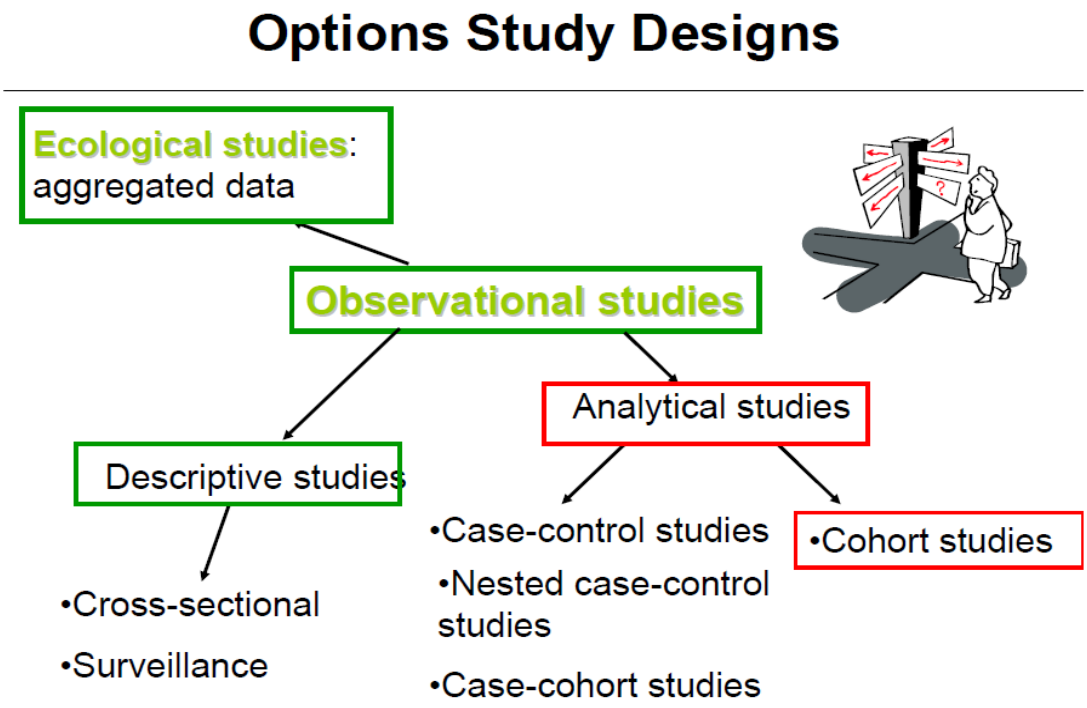
- Convenience/processed foods should be eaten in moderation (as they may also contain high fat, sugar, salt).
- The SFS should encourage a broad partnership between education, health and agriculture and involve private, public and civil sectors.
- This partnership would, in particular, be important for the choice of produce, which should be based on nutritional value and pedagogical considerations. The taking into account of environmental and social concerns – based on objective, non-discriminatory criteria - would be a plus.
- Schools participating would present a nutritional strategy explaining how the fruit & vegetable scheme would be integrated into the school's curriculum.
- Fruits and vegetables have to be made available in the schools one way or another.

- Rules and eligibility should be kept simple to encourage participation by Member States, the EU fruit and vegetable sector, government agencies, schools and other relevant stakeholders
- Accompanying measures that reinforce the efficiency of the scheme and its sustainability should be compulsory (e.g. educational material, promotion kits). Produce alone is not sufficient.
- Projects should be set up on a long-term basis, as their benefits will become visible in the long-term.
- The removal of competing foods, in particular in vending machines, in the school environment i.e. savoury and sugary snacks and sweetened drinks is recommended. In turn a replacement with vending machines with fruit and vegetables could be recommended

Evaluation of diet and health trends considerations on study design

Elio RIBOLI
Division of Epidemiology, Public Health and Primary Care, Imperial College London, UK

Officially Agriculture does not talk about Health and we are very pleased that in practice Health is coming into the agenda. I started 20 years ago a project called EPIC and those days of the prospect investigation on cancer was founded by the European Cancer Program but was created in 1988. In 1988 when the newspaper came out by saying Europe is financially giving putting together 20 million echoes for fighting cancer. Then few days later there were articles saying this is a scandal because the European Commission is giving 1.1 billion to support growth of tobacco and then somebody was saying, tobacco after all is a vegetable! So that was 20 years ago with 1.1 billion support from Agriculture for tobacco and now there is a support for F&V. I think we came a long way and for European enthusiastic this is very important.
I will try to draw you attention and the attention of all those involved in promoting F&V consumption on the importance when this is done in a structural way of building an evaluation. From a point of view of the epidemiologists on working on nutrition and chronic diseases there are many ways in which we can investigate changes in diet, how is diet changing, the impact on diet changes in health.



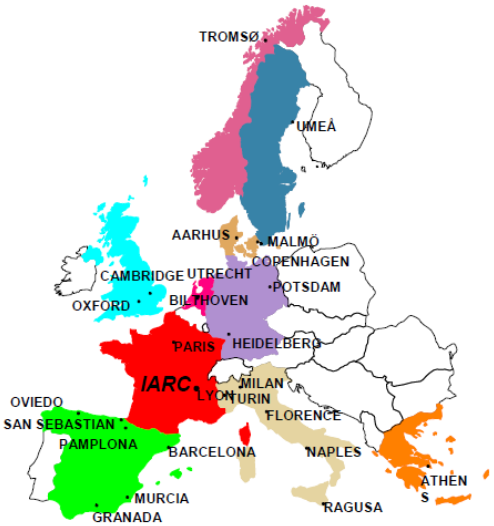
The traditional way is that we do what we call observational studies, do not pay to much attention to the forest that is there, there are many ways of how to get things. One can look from aggregate data in the population; can look more at the individual data and so on. Now what is the opposite way of what is called the hard science is the experiment to give a treatment, to give placebo or have a control group and then

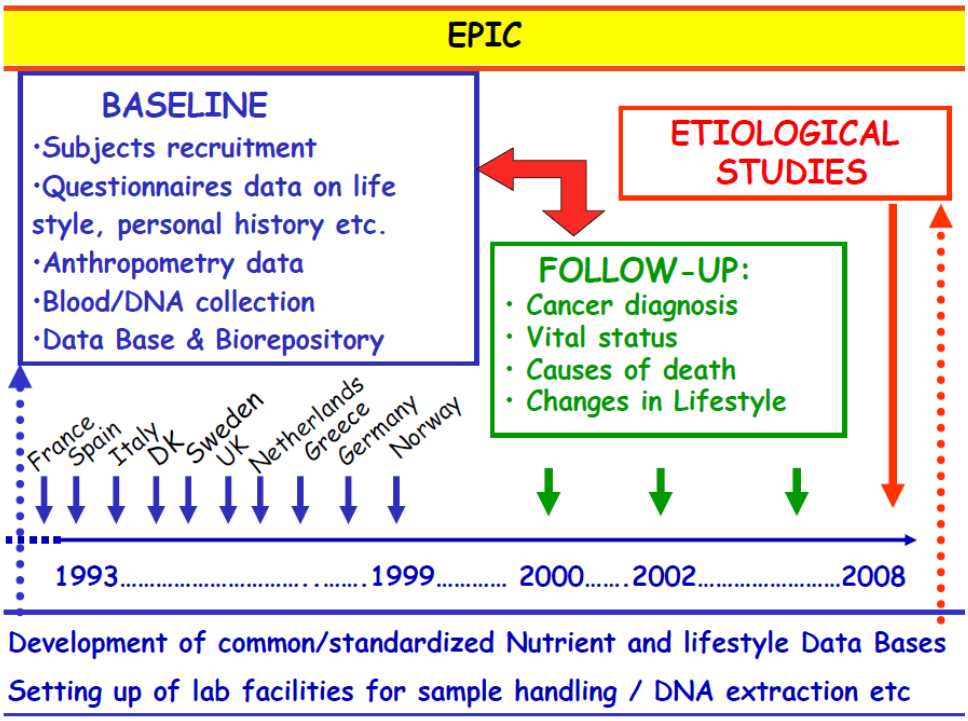
if it is a disease then you may compare those that are cured to the not cured and see what the treatment was. So one hand we have the observation where you not intervene on whether people take a drug or eat on apple and then on the other hand you have the extreme that is the randomized clinical trials. Now clearly when we talk about nutrition in populations we are very far from the randomized clinical trials and we tend to be much closer to the observational studies. So, the usual way of seeing the evaluation of what happens from a nutrition point of view is to observe. One way of observing the study I just mentioned is building up prospective studies in the population at large and this is the European Prospective Investigation on Cancer and chronic diseases that was originally founded from the early 1990's by the DG Public Health that is now called the DG SANCO. Thanks to the European support, thanks the nations support we collected very detailed data on diet, obesity, physical activity, lifestyles and smoking, drinking and that entire half and middle subjects from over 400'000 of this subject also collected blood samples that are stored have been used very actively for studies on bio-markers of diet. The reason I am setting this study is because it is probably the largest example existing in the world over studies focused on nutrition with the in depth data resentments and with collection of blood samples for bio markers. We can learn a lot from this experience from all these countries to see how to evaluate what happens when F&V are proposed to children in schools.

EPIC

Collaborating Centres and Participating Subjects

	Participating Subjects	
	Questionnaire	Q+Blood
France	74 524	28 053
Italy	47 749	47 725
Spain	41 440	39 579
U.K.	87 942	43 141
Netherlands	40 072	36 318
Greece	28 555	28 483
Germany	53 091	50 678
Sweden	53 826	53 781
Denmark	57 054	56 131
Norway	37 215	31 000
Total	521 468	414 889

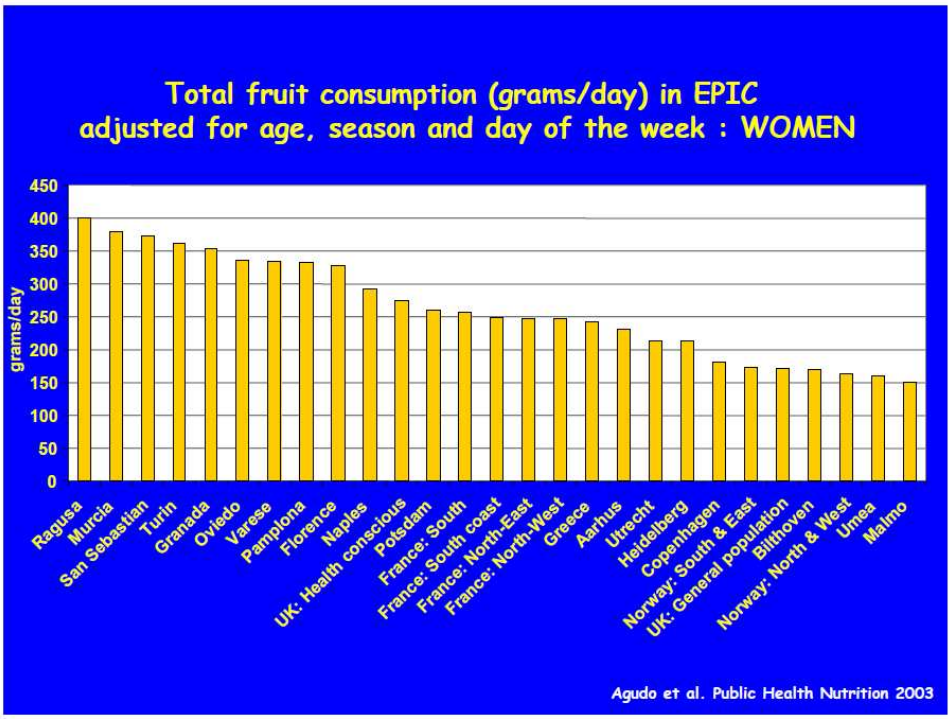




In two words a prospective study means to collect a lot of data at baseline and that will come back to the concept of baseline for us was diet, physical activity, lifestyles and these are all the countries where this was done at the size of about 50 000 subjects per country. Then you build up a follow-up you want to see how diet changes, how people evolve, people who are going to give smoking, drinking, changes in weight by the way the European Commission has just found the project beginning to look and determine weight changes that is called Panasia and then eventually you can try to link all these health events with the baseline and this is what is happening because 40 to 50 papers per weeks now are linking diet and different health outcomes.

The big problem about diet is this is difficult as it has been said at this conference. It is one of the fundamental difficulties we have whenever we want to investigate nutrition and health. In EPIC, there has been a major experience in standardized ways of collecting data in 10 different languages, 10 different countries and now this has been expand also to collaborations with additional non original EPIC centers and on key element was to develop computerized interview that exist in 10 languages and that are standardizing methods. But, the flexibility of adapting to the local diet that is called Epic Soft. We got 38 thousand subjects answering to these methods in addition to the traditional questionnaires. It is a very well structured highly guided way of collecting data on what people eat studying from the morning to when they go to bed. It can be done on children; it can be done with middle age people and so on. Similar methods are now being developed in the US and in other countries and can be translated into a web based method as it has been done to make it cheap and friendly. This is one way in which you ask what they took for breakfast, ask details in a structured way with windows that open automatically and so on. The interviewer is driven or the subject is driven in a standardized way to provide information that becomes then comparable between subjects and between countries. Comparability is a key method if we want to understand what happens so for example if there are standard units. There are standard recipes, whenever a subject want to eat this

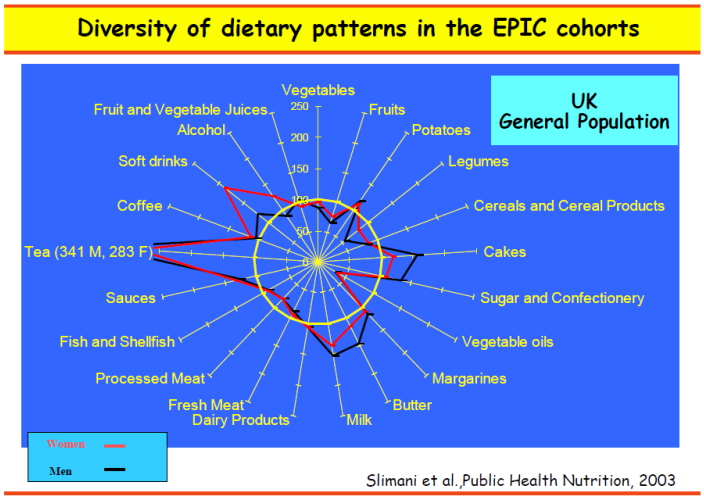
particular food, there is particular recipe that comes up and can be modified or adapted. There are standard portions; photos that refer to none perceive weight of what is in the plate for foods that are linked electronically to the questionnaire. As an anecdote, when we started with this tomato slice portion, the smallest portion was introduced before extending the study in Sweden and then we had to introduce smaller portions of the smallest portion because the smallest portion of everywhere was too large for Sweden. So, what is small and what is large is not standard. And, the questionnaires just for the nutritionists give at the end a check up of whether what has been collected reasonable in terms of proteins, carbohydrates, lipids, alcohol, whether there is something strange so that the interviewer can go back.
This is not a test to be done this was but just to say that there are 24 centers around Europe that have been working with these instruments in a standardized way of the past 15 years.

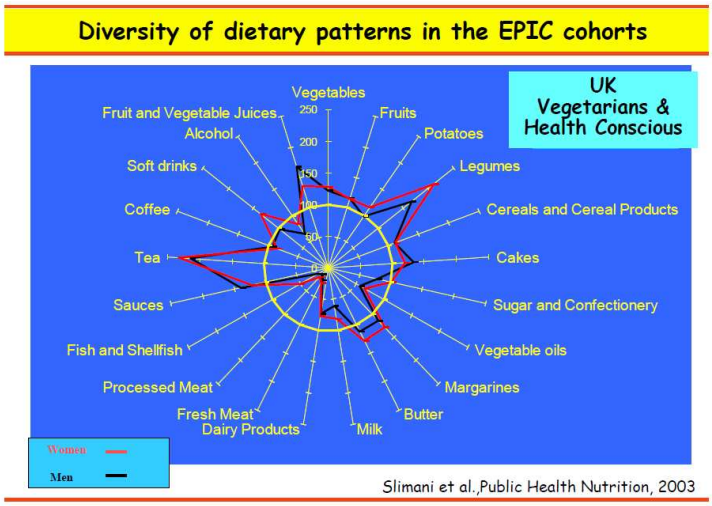


Now what you get out of this is some interesting data for example you see that one of the high priority region identified in the program for fruit at school is Sicily and the first on the left is Ragusa has a great name for a city in Sicily. Then the highest consumption of fruit in our 24 regions are in Mursia, San Sebastian and so one and down you have Malmo in Sweden and the Uma in north Sweden. It goes from 250grams/day to 400grams/day. These are adults older than 35 so it might be than in Sicily you need to push children now to eat fruits. But the baseline is not the same. It is the obvious consideration. If you want to evaluate, keep in mind that the starting point varies from simple to the double. For vegetables it is about the same, going from 100grams/day to 250grams/day. Now these figures are obviously different and this is what you find in FAO statistics. Because people eat is not what people buy which makes a huge difference. We know that a lot goes to garbage, a lot goes to the dog and the cat so this is really what comes into the plate and from the plate goes to the mouth that has been obviously measured. Now do we eat all the same in Europe? Obviously we do not eat all the same in Europe.

Now I am going to show you graphs that show the messages whenever there is a European program we really need to take into account the European diversity which is beyond imagination in diet.

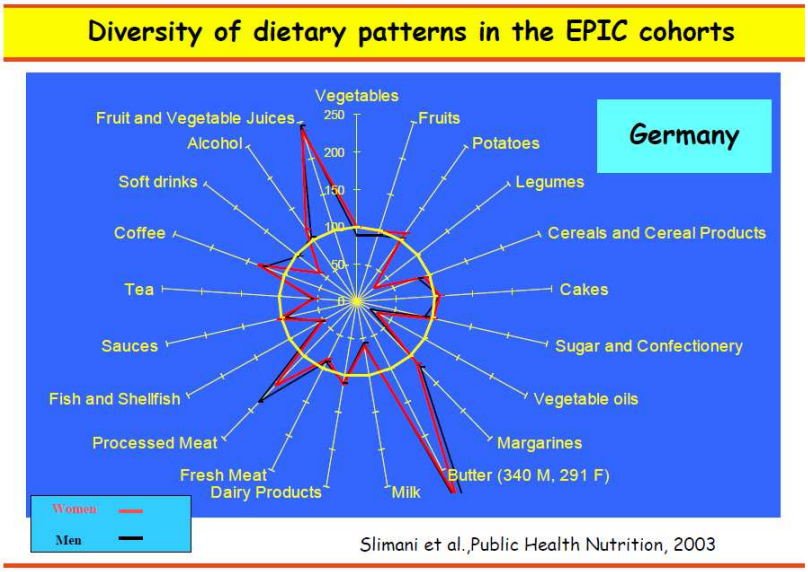
The yellow circle is the European consumption average for that particular food within EPIC. The spikes red and black are the matching percent of that particular population diverted from the European average. So, you can that thanks to European commission and thanks to this study we discovered British people drink tea and drink tea so much that it goes out of the scale. But more seriously you can see





that consumption of fruit is quite low and is actually 20 or 30% below average consumption. Soft drinks are exceptionally high and consumption of vegetables is just about where it should be. And consumption of vegetable oils is desperately low. Now we have 35 000 vegetarians from UK in our study and we can see western style consumption of vegetarians tend to avoid meat but unfortunately to consume soft drinks, to consume sugar, cakes and to have a quite modest consumption of F&V.

You go to Germany and again you make the big discovery that butter is a huge weight and that fruit juices have a huge weight in Germany. I particularly found it difficult to find any healthy arguments in favor of fruit juices. There are no studies that have ever found that fruit juices are associated with a reduced risk of cardiovascular diseases, there is no protection cancer, there is no protection on colorectal cancer, not on stomach cancer, and there is a clear association of fruit juices with obesity. The consumption of juices increased by 2 to 3% that the past 15 years. I think this is something we have to monitor very carefully and I am glad it has been put in the European program.

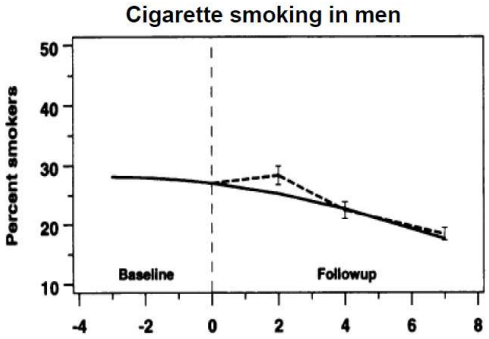


Now it is a completely different pattern when you go to Italy and Spain. You see that fruit is 100% higher than the average and that correspond also to the very high production. You see that meat for example, that sugar, soft drinks is trivial and so on, these at least in adult peoples.
In Spain you find the very well known specificity of very high consumption of red meat, very high consumption of fresh fish, high consumption vegetable oils, high consumption of F&V and so on.

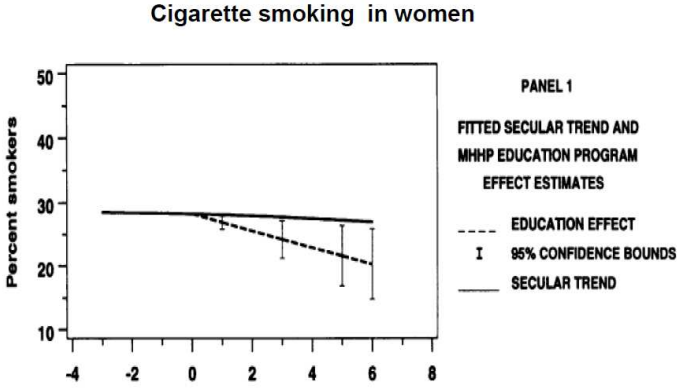
So you can see how different we are and that one size does not fit all and that we need to be very careful.
When we go to intervention I will just drive quickly on this. We have, my message is we should not postpone evaluation after intervention. We should have a baseline before dietary intervention otherwise we will be in the usual mess of not knowing how it was before, of looking of what it was because obviously there are different evaluations that is the evaluation form the efficiency point of view of whether the program works. Is the food brought into the school? Is it properly cooked? Is it eaten by the children? Yes, but we want to do whether there is changes in dietary habits. So back to our plan of quasi experiment design ideally, the closest I can propose based on experience, not mine but those of epidemiologists is the community controlled trials. The closest we go to the concert of a community controlled trial in implementing this program, the better it is.
What is community controlled trials? It is called different ways but is whenever you go to the whole population and you try to change something, you may do it in this way. When you want to try to see , to do, to set up in a way that you compare communities whether this is done or not done or done in a method A versus a method B but you want to plan it from the beginning. This particularly apply to mass education when you want to change people's knowledge and attitudes and when you want to finally have an evaluation of the efficacy of what you have done. It is a very simple concept. You go to the schools with the F&V, schools with a program, schools without a program, a baseline and then after intervention diet and see what has happened. To do it obviously it is much more sophisticated than that but I am jut saying that conceptually it is simple. Now you can also modulate this in two ways. You can think at the unit of observation, important concept in epidemiology and sociology. The unit of observation can be the individual child or can be the school. You can simply say on average where intervention has been done in one school is in

that school the children 5 years later are consuming more F&V. Or you can say John Smith is 4 years older consuming more F&V? It is a very important complex issue that cannot be solved in two minutes because we are talking about children. They grow in weight, in height, in calories consumption. So, you will probably have to integrate individuals with institutions because you want to compare what happened to children of 6 years old but with other children will be 6 years old four years later and you want to see what a child of 6 years old age will be consuming when he will be ten actually been exposed to the problem. Complex story can not be solved in ten minutes but has to be thought before it is happening.

To conclude I just give you an example. It was a very fantastically planned health intervention program done in Minnesota. Among many things they wanted to change cigarette smoking, decrease it. This is what you see in men at the baseline and after. The solid line is the secular trend and the dotted line is what the people in the intervention did. If you only had the dotted line you would say that is fantastic that these men reduce cigarette smoking. But, the solid line tells you that they did exactly the same that the non intervention group because of the secular trend.



In women you would say fantastic there was a reduction of tobacco use and you would be right because the secular trend was that women would not decrease tobacco consumption in that period in Minnesota. Without the comparison of the non intervention group there is no way to learn anything about what happens.



This is feasible in the population is somewhat similar to a core study much more similar to a randomized clinical trial. It can be done in real work conditions, it can assess the factors that affect the implementation obviously care should be taken in picking up communities or schools that are representative. And, we have facilitated not giving drug, we do not really any inform consent for giving apples and the point of view on a safe ground.

Q&A

PUBLIC (Mariano VINOGRAD from Argentina): As I am a foreigner probably I could not understand some details because the discussion was very Europe oriented. Anyway we are discussing about the school schemes in European community and the question is for Mister Hoelgaard. You congratulated the Farm Bill and its schools implications. I agree. But here I might decide it is Mister … from Norway. I can not understand exactly and maybe you can help me why the situation is so different in school systems in Norway where there have a lot of money and operational aspects and why it is so difficult to go on in Europe? Excuse my ignorance but in South America is consider Norway and Europe as something very similar and I see in this way that the differences are really very big.

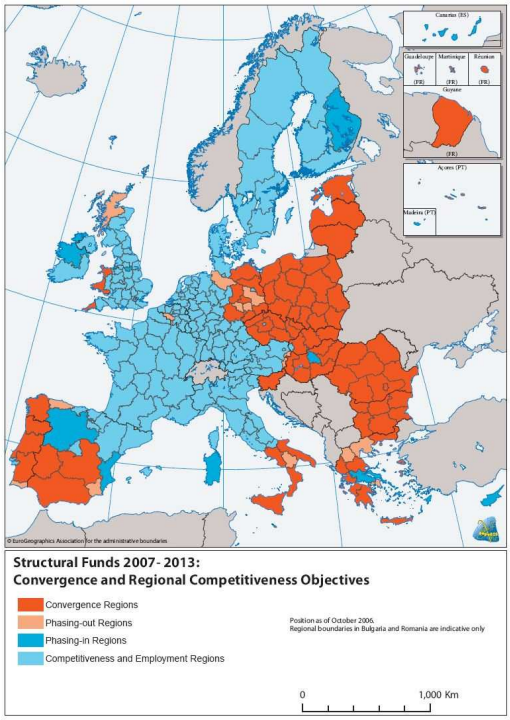
PUBLIC (Corinna HAWKES): Thanks Mister Hoelgaard for your vision that you presented that was quite amazing really to hear highlighted visions that you have for the scheme. I was curious to know whether you vision is shared by the key stakeholders in the farmers, the producers of the F&V, the educators and administrators in the schools and the distributors of the F&V given that implementing such a scheme does face a lot of hurdles and great deal of complexity. So, I was curious to know whether you have support from those sectors and stakeholders.

PUBLIC (Philip JAMES from the Task Force): I was extremely heartened by the development in agricultural policy where clearly DG agriculture is trying to cope with the health requirements while maintaining the economic strategies which have been set out. I just wonder if in fact you can develop this further because I know having been in charge of an agricultural institute for 17 years, negotiating with ministers when they were so concerned about eastern and central Europe because of its huge capacity for F&V consumption. Has the Commission done analysis which take account of the new WHO strategies because in terms of the World Bank calculations there is a huge opportunity for some countries which I guess will include eastern Europe within the EU for actually getting enormous financially economic benefits from promoting agriculture in a way in which the EU promoted milk, beef and sugar production 20 to 30 years ago which such brilliant effect in changing wholly economic structure of the food system?

PUBLIC (Michael MALONI from Irish football, Food Dude program in Ireland): Quickly I should point out and I know mister Hoelgaard spoke about the intensive interventions in the schools with the Food Dude program. It does not stop after the interventions period of 16 days. The focus then switches to the home and the parental provision of F&V thereafter and that indeed is one of the key success factors for the sustainability of that program. Just as a point of clarification, in relation to a question, you mentioned the co financing from member states of being 50%. I am just wondering, in relation to that is there going to be a requirement for industry to provide some of that co-financing because I has certainly been other experiences that

polled on the one hand one could justifiably expect that industry would co finance or provide some of the financing because at the end of the day who makes money out of all this increase consumption? But, in our experience in Ireland it has been incredibly difficult to get industry to co-finance and it will be my concern that if this was to become part of the scheme, to become a priority for the scheme then it may not get off the ground a lot of member states.

L HOELGAARD: First of all to the representative from Argentina, as you said Norway is a rich country, and that explains probably why they can go ahead and have gone ahead as being one of the first ones to initiate the School Fruit Schemes. They are also at the forefront of the science with the follow up and the monitoring that they have done, demonstrating the lasting effect of such schemes. This is included in our impact assessments in terms of evaluating whether we should have such schemes on a European wide basis. Not that it has really anything to do with it, but Norway is not part of the EU, but that is not so relevant. What is relevant is what I showed on the map, the huge divergence, the huge difference in terms of wealth, in terms of economic potential of the different members of the EU. And I did show on the map the regions in red, which are well below the average in terms of budgetary means and resources. This compared to the country I know best or in France or in Germany and other countries where we have School Fruit schemes. In particular the new member states have a per capita income situation in terms of tax payer potential which is far below that of other member states. So, there is a need for a high EU budget contribution of 75% to address exactly that shortcoming.



The question about the position of stakeholders: in fact, it came out extremely positive. We had as I said 122 reactions and overwhelmingly the clear preference was for the option number 4, which is the muscular one of what we call the driving initiative that is to have an EU project contribution. I would say 90% or more basically were in favour of this option and that includes the industry. The stakeholders, representatives of the industry are keen in going down this road, they are keenly interested in terms of safeguarding their markets, in terms of providing a market in the future, in terms of eventually increasing that market, in terms of product innovation and the distribution and participation, and that is also an answer to Mister Maloney. I think there are means and ways where we can allow for the industry to participate, not as an obligation. It is envisaged that 50% would come from the EU, 50% from the national exchequer, 75% from those member states which

are in the convergence regions and 25% from the national exchequers. It is an important principle that there is this co financing because it assures that the local authorities, when they are implementing the provisions, are using the money (including their own) in the most rational and efficient way accountable to the tax payer and the budget authority.
If industry has the money, fine, it is not an obligation. If the national exchequer has the money to go beyond the core target group of 6-10 years old including the 4 to 6 years or to include the 10 to 12, that would be something that we would be completely happy about. But the core target group remains the 6 to 10. That is where the minimum effort has to be put in and that is why we are targeting this group.

SESSION 14

F&V AT WORKSITE

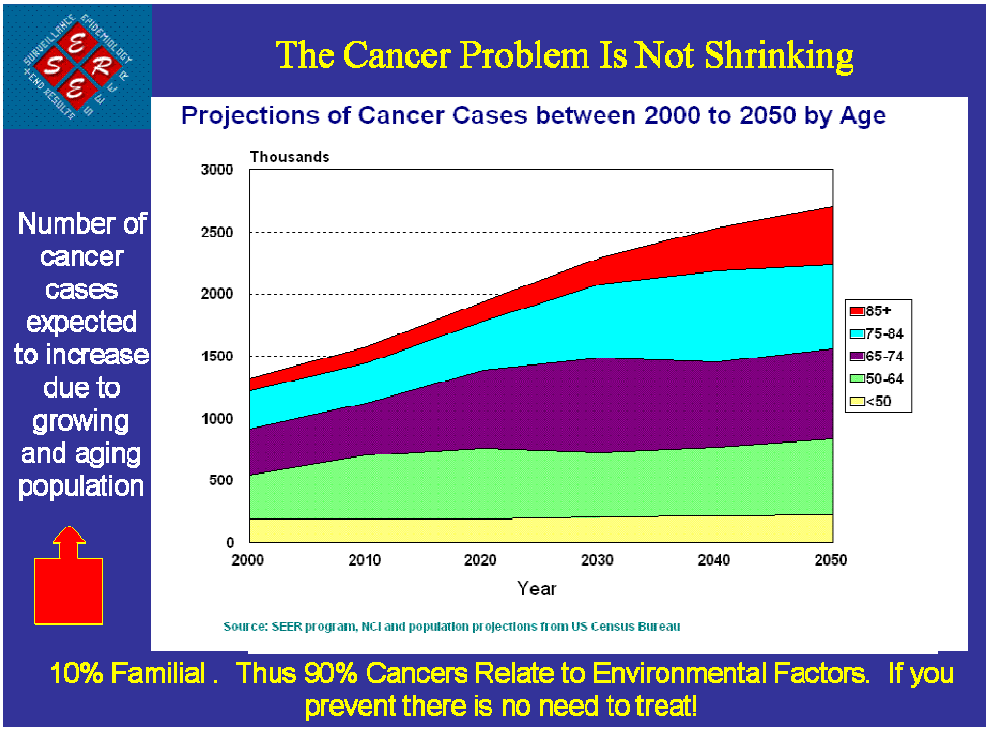
Chairs: **J. Milner** et **B. Sahler**

- Introduction. **J. Milner**
- Preventing chronic diseases at the workplace through diet and physical activity. **V. Candeias**
- Worksite-based research and initiatives to increase F&V consumption. **G. Sorensen**
- Successful strategies for sustaining increased F&V consumption in worksite canteens. **B.E. Mikkelsen**
- Improving health at the workplace: where can F&V fit into the equation? **B. Sahler**

Introduction

John MILNER
Division of Cancer Prevention, National Cancer Institute, National Institutes of Health
Health and Human Services, Rockville, USA

There are really unprecedented opportunities for using food and food components for a whole host of things related to human health and well-being. I am going to talk about the workplace in the session but I think we need to step back and understand that what we are really trying to do is to achieve our genetic potential that includes overall performance, capabilities, cognitive and physical performance and well as a reduction in disease risk. We have some pretty good evidences from around the world that changing dietary habits can have a profound impact on everyone. I chose some information from WHO report in 2005 and it says something that we all should be thinking about that is can we actually reduce the risk of a number of disease states by dietary interventions. Most of us will appreciate that globally, at least five of the ten leading causes of death related to dietary habits. Clearly heart disease and cancer are foremost among those. Some data reveal a major impact in terms of life saved and dollar saved through dietary change.



This figure reveals where I think we are headed and that there is a problem in the US with cancer risk in the coming years. This is what is projected between now and 2050 and if you look at those lines you notice that there are not many things that are going down. In fact the risk is projected to double. Part of this increase risk is because of a larger society, at least in weight, and an older society. That is not unique for the US, but is also likely to occur globally. The only way to stop this trend is to prevent then we do not have to treat.

Preventing NCD in the workplace through diet and physical activity

Vanessa CANDEIAS
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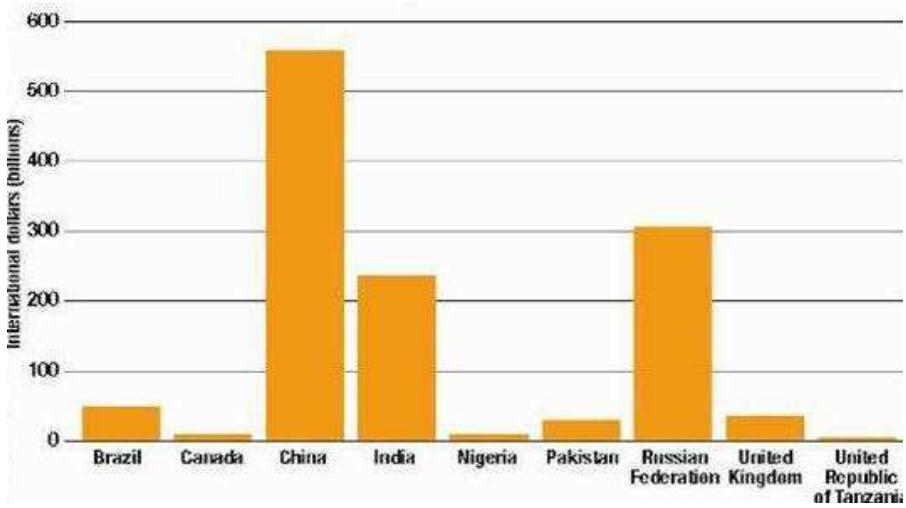
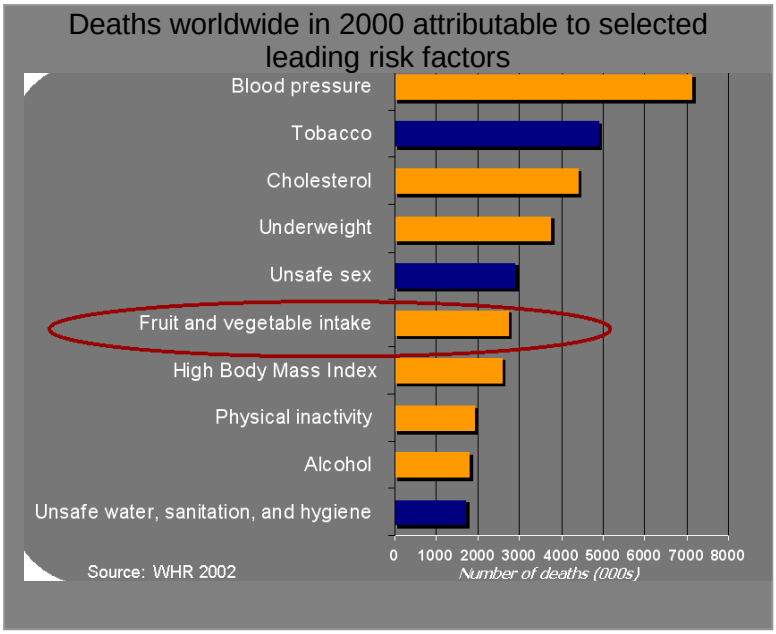
Surveillance and Population-based Prevention Unit, Geneva, Switzerland

It is a global problem for chronic diseases in general and I will start my presentation touching exactly upon that. Then, I will go into more details to describe an event that was jointly organised between WHO and WEF (World Economic Forum) and then according to the main output of that event, I will try to describe why workplace is suitable setting for intervention on prevention of chronic disease through diet and physical activity, some of the key elements of successful programs, a multi-stakeholder approach, monitoring and evaluation, some of the gaps that were identified in current knowledge and then a very brief update on what has happened.

NCD (non communicable diseases) count for 60% of all deaths globally which means that in 2005 nearly 35 million of people died of chronic diseases. Contrary to a common believe it is not just a problem of Europe, not just a problem of the US or Canada but it is a problem that affects more low and middle income countries. In terms of money spent, these countries will also be the most affected. On the graph you can see that in China more than 500 billion dollars can be lost due to chronic diseases which are a huge part of the budget for national health.

Projected foregone national income due to HD, stroke and diabetes (2005-2015)





We know that the common underlined and modifiable factors are well known: unhealthy diet, physical inactivity, tobacco use. These would lead the cause of death. In 2000 when WHO looked at the selected leading risk factors we see that 7 out of ten of these risk factors where related one way directly or indirectly to unhealthy diet and physical inactivity and F&V intake is highlighted as one of the key risk factors.

In response to that growing global burden the WHO in the World Health Assembly of 2004, the member states endorsed the Global Strategy on Diet Physical Activity and Health (DPAS) which is a tool with several policies option that allows member state to conduct work around diet and physical activity. Within this global strategy Workplace is clearly identified as an important setting for action (§62):

"*People need to be given the opportunity to make healthy choices in the workplace in order to reduce their exposure to risk. Further, the cost of morbidity to employers attributed to noncommunicable diseases is increasing rapidly. Workplaces should make possible healthy food choices and support and encourage physical activity.*"

This global strategy also the mandates for WHO work in this area which was the basis for the collaboration of WHO and WEF.
Basically we met and we decided to organise a joint event that would bring together several stakeholders, Ministries of Health, NGOs, academics, private sector and all came together in Dalian, China in September 2007. We had the main objectives of: reviewing the current state of knowledge on NCD prevention at the workplace, highlighting why the workplace is a suitable setting for NCD prevention, analyze the benefits and cost-effectiveness of the interventions at the workplace, discuss monitoring and evaluation and then identify roles for the different stakeholders and mechanisms for their interaction. All the work, all the discussions in China was focused on diet and physical activity. It was assumed at the beginning of the meeting that we would not look at tobacco because it has been fairly discussed, there has been and there is already a lot of information related to it. So, all the mentions that were discussed were specifically focusing on diet and physical activity. This meeting brought together more or less 50 participants form all stakeholders and the main

output was the report that you can download on the website (http://www.who.int/dietphysicalactivity/workplace/en/index.html).
In a much summarized way I will take you through the main points that are gathered in this report. What we came to the conclusion is that one of the strongest factors that we can point is the large proportion of the population that has the potential to be covered by these interventions. If we consider that 65% of the population is part of the workforce this can give us a proportion of nearly 3.1 billion people to intervene with. Looking at the evidence that is available, we concluded that the workplace programs that targeted diet and physical activity were effective in changing lifestyle behaviors, improving several various health-related outcomes and facilitating organizational-level changes.
When we look at lifestyle behaviors most of the studies that were conducted registered and increase in physical activity levels, an increase in intake of F&V -and I wont go too much in detail in the study because the next speaker will touch on it- and reduction in intake of unhealthy dietary fats which are the main priorities in many of the policies that are implemented. When looking at the health-related outcome, reduce BMI, reduce body fat percentage, reducing blood pressure, risk factors for diabetes, musculoskeletal disorders, several of these health-related outcomes were improved by interventions at the workplace.
In terms of organizational level changes, there was a reduction in absenteeism, there was enhanced employee productivity, improved corporate image and moderate medical care costs. One of the studies was very interesting to see that some of these organizational-level changes for example in terms of medical care costs or absenteeism that the percentages were between 25% and 35% which is very significant.
If we look at the several studies that were gathered the main elements of success were highlighted. We see that when the program objectives are linked to the business objectives, this will favor success of the program. It is essential to have top management support, without it the program probably would fail. It was also useful in some of the studies establishing employee advisory boards that were also as a communication between the employees themselves and top management. Effective communication is obviously a key for success but on top of that it is important to create supportive environments. What we have seen in many of the presentations is that providing information is not enough. If you provide the information and if you provide an environment where the healthy choice is the easiest choice that would facilitate the adoption of the behavior that we are trying to promote. For example in Malaysia one of the studies that we looked that with blue collar workers, microwaves and scale waves and water coolers were displaced in the areas that were frequented by the employees and this among different health-related outcomes had a significant decrease in their blood cholesterol. So it is essential to look at creating supportive environments, also the use of incentives for people to participate in the program. Sometimes some of the employees would think they have already done their work and do not want to go or participate in the sessions or go to the fitness class. So, it is important to provide incentives for the persons that are implemented in the program and for the persons that are benefiting from the program. Obviously the point that is

common to any health promotion intervention is goal setting they have to build on self efficacy. They have to try to format the social environment, the social norms, create social support and the program has to be tailored to the audience that you are addressing. Two other elements of success that I will look a bit more into detail is one the multi stakeholder approach when several stakeholders from different sectors are involved this provides a more solid basis for the implementation of the program and the other one is monitoring and evaluation.

A model for stakeholder interaction was suggested and what I think is important to highlight is that either being interaction between trade unions and top management, either being interactions between government and private sector, it is important to follow basic principles of cooperation because otherwise it would be very difficult to sustain the relationship. There has to be sharing of responsibility, sharing of power, it can not be all the time the government taking the lead. If the relationship is strong and there is trust as well then the power can be shared. It is important that stakeholders trust each others so there is transparency in there communication and everyone knows that they are working towards the same objectives. Because so often things become difficult, it is important not to blame and not to say this is the government fault or this is the private sector's fault.

When looking at monitoring and evaluation and we heard it a lot during the sessions, it is fundamental to include monitoring and evaluation in all programs. We have outlined five steps to help when looking at developing and monitoring systems. The first step is to ensure that M&E are included in any WHP policy or program with a budget line allocated for this purpose so that when it come to the end of the project or program the program manager would not say he/she has no budget left and want a devaluation. It is important to put it in the budget right from the beginning when the program is being developed. If there are existing activities, then why not link into those so that it easier to perform. And, identify suitable indicators, different phases of implementation; different phase of development will require specific indicators in order to see how the progress is actually going. So, it is important to identify them and have a certain flexibility to see that if the program is going a little bit different than what was initially planned then indicators have to be adjusted. If the budget allows it, if the program allows it, it is also important to consist to carry out the evaluation in a consistent manner and if possible several times and periodically.

Steps	Action
1	Ensure that M&E are included in any WHP policy or programme developed and that a budget line is allocated for this purpose.
2	Identify existing M&E activities and ensure that the existing data, if relevant, can be used to enhance the WHP policy or programme being developed
3	Identify suitable indicators
4	Carry out the evaluation in a consistently repeated manner to possibly revise or better adjust the implementation activities
5	If feasible, repeat the evaluation periodically

There are different types of data that can be collected according to the different stages to the program. There are the formative evaluation, process evaluation which is particularly important in workplace programs so that whenever we look at the results whoever is looking at the results of the programs from the outside can understand what was the process that led to success of failure of a certain intervention so that they can look at it and ask themselves if they should replicate it, if they can replicate it in their own company in their own country. There is also the intermediate evaluation health impact that is important because we are talking about workplace, to look at the economic and work factor impact. Automatically that can determinate the way you convince a top manager to put a program in place or not. What is also fundamental is when program is being implemented and evaluation is being carried out at all these stages it is important to ensure the correct use and dissemination of data. It is important to ensure confidentiality of the information shared otherwise the employees would not trust the person conducting the study and they would not report back on the results.
In terms of gaps in knowledge it was highlighted that a set of best practices would be most helpful, best practices that could reflect global diversity and also that would be flexible enough that someone in China could look at those best practices and adapt it to its own reality instead of having to look at it as for example a model from Europe. It was also said that standardized designs for studies examining the economic outcomes and impact of these programs are lacking. It is important that the economic benefits or the cost effectiveness talk to the heart of managers so if we go and say this will reduce 25% of your medical care costs then that is a very strong argument. It is also important to have validated tools for the information collected around diet and physical activity and this very strongly emphasize the lack of case studies from low and middle income countries. They are the countries that potentially will have most work so it is important to know how to deal, how to implement such programs in these countries.

In conclusion the workplace is an appropriate setting to address dietary and physical activity habits. The key elements for successful programs have been identified. Monitoring and evaluation is key to any program that needs to be developed and implemented. Also multi-stakeholder approach will be fundamental to success. And

more information is needed on cost effectiveness, on the cost benefits and for low and middle income countries.
What happen to our latest report that was just published this year (http://www.who.int/dietphysicalactivity/implementation/toolbox/en/index.html) is that we are translating it into the six official WHO languages and this one of the tools that we used whenever a member state wants to develop a policy or a program, we have several tools that we can share with them.

Q&A

PUBLIC (Mariano WINOGRAD from Argentina): I take part of a report of the international label organization called Food at Work. In this report we find that in some cases the companies do not have canteens then it is not possible to have the lunch into the factory or the enterprise. What is the role you can suggest us as the ticket as health promoters during work time when in the company there are no canteens or places to have lunch in the enterprise?

V CANDEIAS: If there are no canteens, if there are no specific places to have lunch that would mean that the employees would either bring their own lunches from home or they would go to the nearby restaurants to eat. As the health part of the program, I think it is important that all employees are well informed. In that case communication on health promotion and good distribution of the information is crucial so whenever they are planning their meals they can remember the information that would constitute a healthy meal to bring to work. Also, if there are no places to eat, they can still have a place to seat and have their meals so, if they know what to bring it might be easier to work on that. For example in Malaysia they still have no kitchens, they had no specific places for their employees but still they found room to have microwaves. Of course it involved that they have electricity. Microwave is an easy tool for the employees to access.

PUBLIC (Mariano WINOGRAD from Argentina): My question was oriented to the tickets and the companies who apply tickets. There are companies who apply tickets to the workers and with these tickets they can go to have lunch outside the firm. Can the ticket companies can be invalid for this health challenge?

V CANDEIAS: I do not know if the companies will have any restrictions in the restaurants around them. But, if they could be communication between the companies and the restaurants, I do not know if the employees can go to any restaurants or only to a certain number of restaurants.

PUBLIC (Mariano WINOGRAD from Argentina): Only to those who accept those kinds of tickets.

V CANDEIAS: Then communication between the employer and the restaurant to improve the menus is key to success.

J MILNER: I also have a question on the WHO report that we can download. Does that actually have the information on success stories that you can actually go back to those done by countries?

V CANDEIAS: Each of the key elements of success that I have highlighted has a case report after it. We have a textbox explaining the theory behind these key elements and then examples that were carried out by wherever the example could be found related to it.

J MILNER: That is probably going to be the most important information for us to go to so we do not reinvent a weal.

PUBLIC: Could you explain the difference between the formative evaluation and the process evaluation?

V CANDEIAS: Formative evaluation will be the done that you do at the start when you are planning for the intervention. You have to analyze your target population. Then process evaluation relates to the implementation process itself, not so much the type of study that you did in its assessment, what you studied before designing your evaluation on the implementation of the evaluation itself.

J MILNER: A question about what I was saying at the beginning with the data that were presented. That actually gave some informational life saved and dollars saved. And I wonder if we can get more of that kind of information across countries because it seems to me that is going to be a selling point to most managers to the question why they are going to invest in a microwave e.g., what does that going to mean to them?

V CANDEIAS: That is crucial but that information is not as easily available as we would like to. WHO has a report from 2005 on prevention of chronic diseases that you can also access through our website and that will have a bit more of information.

Worksite-Based Research and Initiatives to Increase F&V Consumption

Glorian SORENSEN
Center for Community-Based Research Dana-Farber Cancer Institute, Boston, USA

I would like to acknowledge my collaborator on this presentation, Lisa Quintiliani. Lisa and I made some contribution to the WHO report that was developed last year so you may have a few common themes with some of the things that Vanessa Candeias had discussed and some of the information that I will provide in my presentation.

We have already seen a pretty good overview of why worksites are an important place to present programs that intervene around increasing F&V consumption. Obviously it extends the potential reach across a wide variety of potential audiences. We have seen in the literature that there is a concrete evidence base for effectiveness in a number of areas. In addition, because worksites are a place where many of us spend a large chunk of every day, worksites are a place where we can provide influence at a number of different levels: at the individual level through educational programs, and also at the level of broader work environment in terms of making changes in canteens or cafeterias, and in broader policies that may affect our dietary patterns. In addition, by making some of these changes we can provide long term support to help sustain behavior change over time. This is particularly important because we all know that long term maintenance is particularly challenging.

There is a broad base of support for delivering these types of efforts through worksites. I have listed a number of international declarations or charters or recommendations that really underscore the importance of workplaces in contributing to dietary changes and in providing long term support for healthy diets such as F&V. There is a broad base of international being done in this arena:

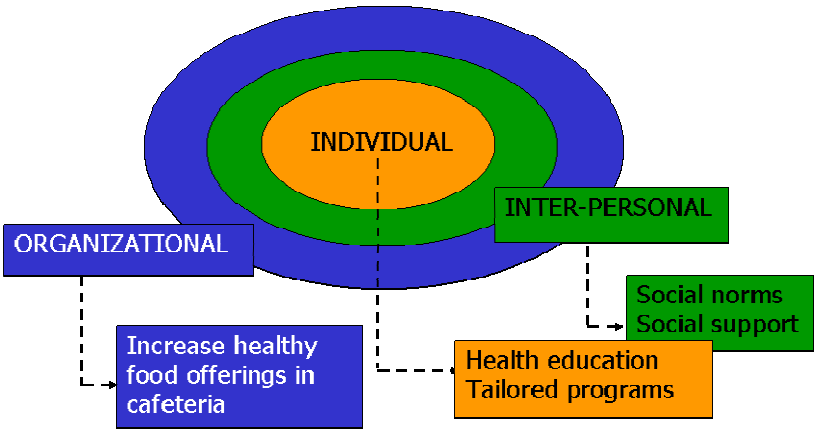
- 1996 Ottawa Charter for Health Promotion
- 1997 Jakarta Declaration on Leading Health Promotion into the 21st Century
- 2005 Bangkok Charter for Health Promotion in a Globalized World
- European Network for Workplace Health Promotion
- WHO Global Strategy on Diet, Physical Activity and Health

We have already seen some of the points of evidence for effectiveness around worksite interventions. I have listed couples of articles to illustrate the broader ray of research we have in this area.

- Improvements in workplace supports for health behavior change (eg, Matson-Koffman DM et al, Am J Prev Med 2005)
- Increased consumption of fruits and vegetables (eg, Glanz K et al, Am J Health Promot 1996)
- Improvements in other health behaviors (eg, Pelletier KR, J Occup Env Med 2005)
- Weight reduction (eg, Hennrikus DJ and Jeffery RW, Am J Health Promot 1996)
- Economic returns (eg, Proper KI et al, Scan J Work Env Health 2004)

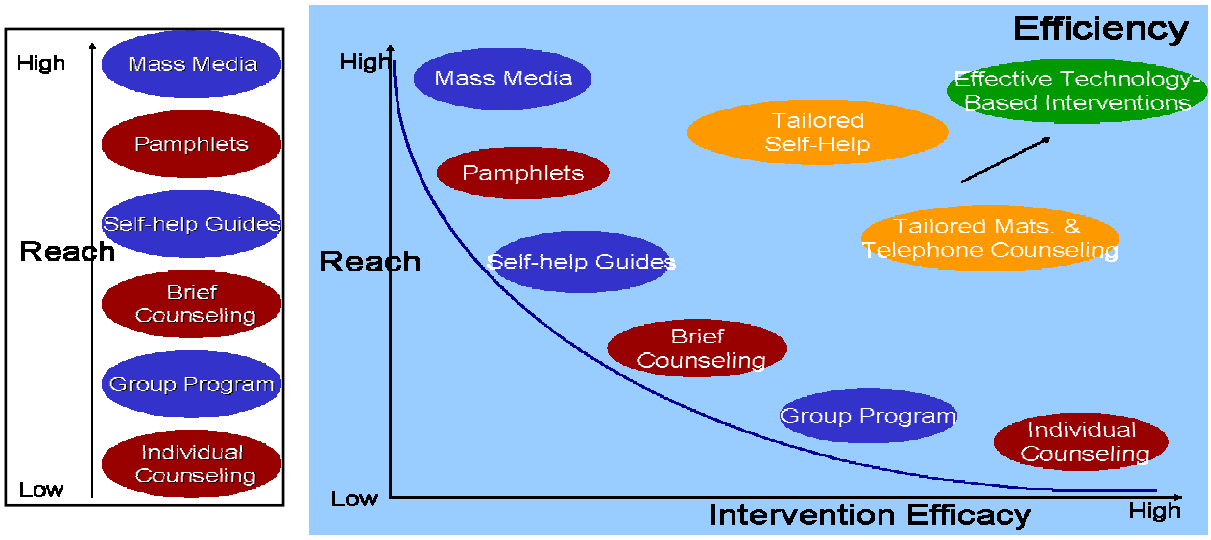
We see clearly that workplace interventions have been demonstrated to improve workplace support for help behavior change broadly and very specifically for diet. We also see strong evidence that these types of interventions can lead to increase consumption of F&V as well as improvement in other types of healthy behaviors. Most of the time these programs are not offered solely targeting F&V alone but might be done in conjunction with other behaviors. Some literature also shows weight reduction impacts and we also heard a little bit about some of the economic returns, of particular importance to employers.
In this presentation I would like to focus on four particularly important components of effective programs and link them to some of the issues that are raised in the WHO report. I will talk about the application of social ecological framework thinking about change at multiple level of influence, look at participatory strategies, the role at the social context in strengthening some of the approaches that we might use and also how we might embed F&V consumption in our messages about multiple risk related behaviors.

Let's start with the application of a Social Ecological Framework. We might think that some programs specifically target individuals, such as through health education or tailored intervention programs to individuals. Often these are embedded in programs that are built on social support and other types of inter-personal related supports for social change. Finally, within a worksite setting, these approaches are also embedded at the organizational level where we may see for example increased offerings in the cafeteria, where F&V might be made more available and potentially affordable.



We might start by examining programs at the individual and inter-personal levels of influence. Increasing emphasis in the literature is placed on tailored programs particularly designed for individual workers, and aimed making the program particularly relevant to individual worker.

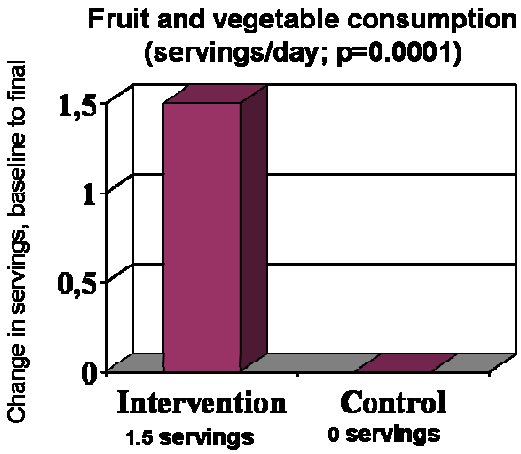
We might think of this along an axis of intervention efficacy that goes along a continuum where most efficacious programs might be individual counselling or group programs whether there is more 1 on 1 potential of a dialogue.



On another axis, we might look at reach, where we might have less efficacy in changing individual behaviour but reach more people, for example through mass

media kinds of appeals. So the question becomes how we actually maximize both efficacy and reach?
One example is through tailored programs that bring the individual focus, for example through counselling, but also brings in some of the mass media approaches through technology driven approaches. We tried this in a couple of settings adding on to that we want to make these kinds of programs relevant to specific groups of workers.

In one program we particularly targeted construction labourers in collaboration with their union, the Labourers InterNational Union of North America. These workers are unskilled to trade persons who work in a variety of different construction capacities usually in a support level. Many of the union's programs focus on health promotion. So, we worked very closely with the unions in developing a program which was tailored to individual workers and delivered by telephone. It included in addition to the telephone counseling, some written materials that were specifically aimed at the risk that individual workers had. We did formative research to inform the intervention design. We used a randomized design to test the effectiveness of this intervention linking messages around F&V consumption with other areas of particular importance to these workers such as tobacco use (the rate of tobacco use of this population is quite high) and also occupational hazards, given that many of these workers have exposures to hazards on the job. We saw a striking increase in consumption of F&V of 1.5 servings/day in the intervention group compared to the control group. Many different disease management companies within the US are beginning to adopt telephone delivered interventions that tailor around some types of programs such as it might be done here.



Sorensen et al. *Cancer Causes Control* 2007

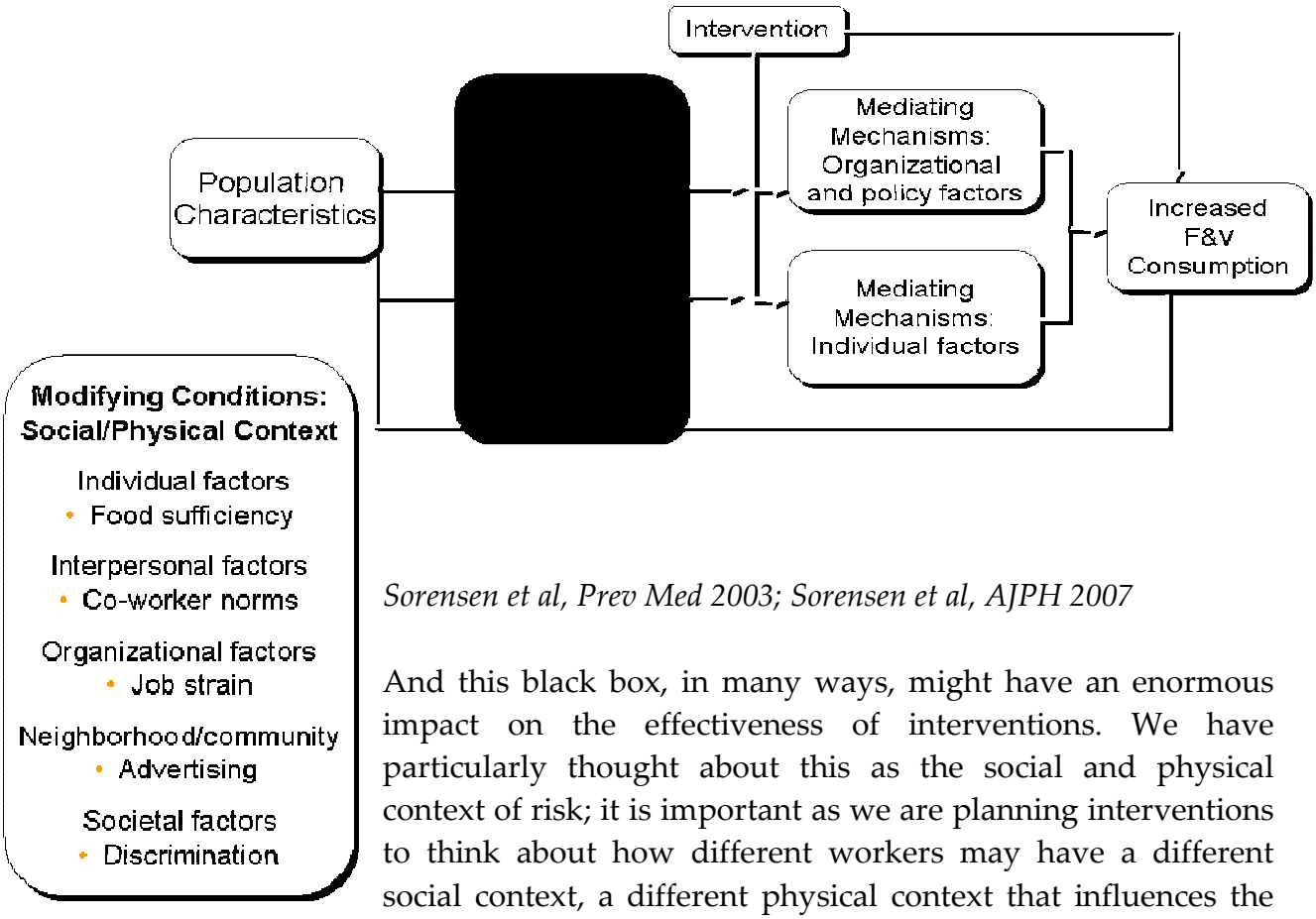
Moving back to the application of a Social Ecological Framework we also see that there is a wider array of studies that are focused on organizational levels - trying to look at how the worksite as a whole can make changes that would be supportive of workers increasing their intake of F&V. There have been some particularly excellent examples of such efforts in some parts of Europe like in Denmark and the Netherlands.

To pull all this together many programs are trying to look across these multiple levels of influence to do a range of activities - including health education programs in combination with increasing information in a broader environment of the work place, along with making changes in cafeterias in this kind of multidimensional capacity. One example of this type of approach was used by the Seattle 5-A-Day Program which actually found a significant increase in consumption of F&V using a

cluster randomized trial that they did a few years back. They also used an employee advisory board that is one strategy for increasing participation of workers in planning and delivering programs. The aim here is to assure that worker's concerns and interests are responded to within the program. Worksite programs often use employee advisory boards, in which different employees across different levels in the workplace might be brought together to plan and help deliver programs. Another approach that is sometimes used, for example in the Arizona 5-A-Day Study, is the use of peer educators - programs delivered by peer workers who can help make sure that those programs are really relevant to the specific needs of the workers in a given setting.

To summarize – we have reviewed the ways that interventions might be delivered both at the policy level or organizational level in the worksite and through individual factors such as through delivering a tailored intervention, and how these programs might increase F&V consumption. We often try to understand the role of a range of different population characteristics: what are the occupations that people are working in? Are they male of female? These population characteristics have clear implications for workers' success in changing their health behaviors. We want to understand the pathways through which these population characteristics operate. We might think about this pathway as a black box through which these populations' characteristics might function, as illustrated in this figure.

The Health Behavior Change Process



Sorensen et al, Prev Med 2003; Sorensen et al, AJPH 2007

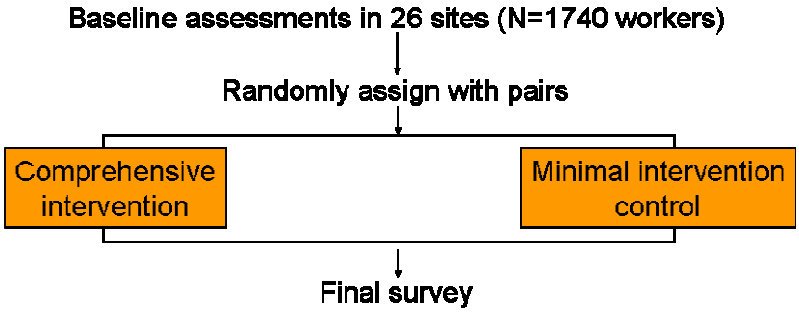
And this black box, in many ways, might have an enormous impact on the effectiveness of interventions. We have particularly thought about this as the social and physical context of risk; it is important as we are planning interventions to think about how different workers may have a different social context, a different physical context that influences the

choices that they might make - whether it be F&V consumption or other health behaviours. Potentially the effectiveness of our interventions can be increased when we add into the design some of these issues. I would like to illustrate this with one study that we have conducted in small manufacturing businesses. I hope to give you a sense of how our reviews of the social context contributed to an understanding of the social and physical context, in order to inform interventions design. In addition, we might actually influence some elements of the social context through the interventions.

This was a study done in small businesses and we addressed both the social context as well as multiple heath behaviours as I described as being one important element in the beginning. Actually our primarily outcomes in addition to F&V consumption were increased physical activity, decreased intake of red meat consumption and increased intake of multivitamins. We also looked at reducing the potential exposures to hazards job, understanding that workers in these particular settings were often particularly exposed to hazards on the job. Many of these were multi-ethnic worksites located in the greater Boston area.

This was a randomised trial in which we recruited 26 sites to participate in the study and they were randomly assigned either to receive this comprehensive intervention addressed at multiple levels of influence, or to a minimal intervention control. In assessing change we were looking at all workers regardless whether they were participating in other health education kinds of activities; all received some type of program through the policy level efforts. We addressed the social context both by their work conditions and experiences.

Research Design

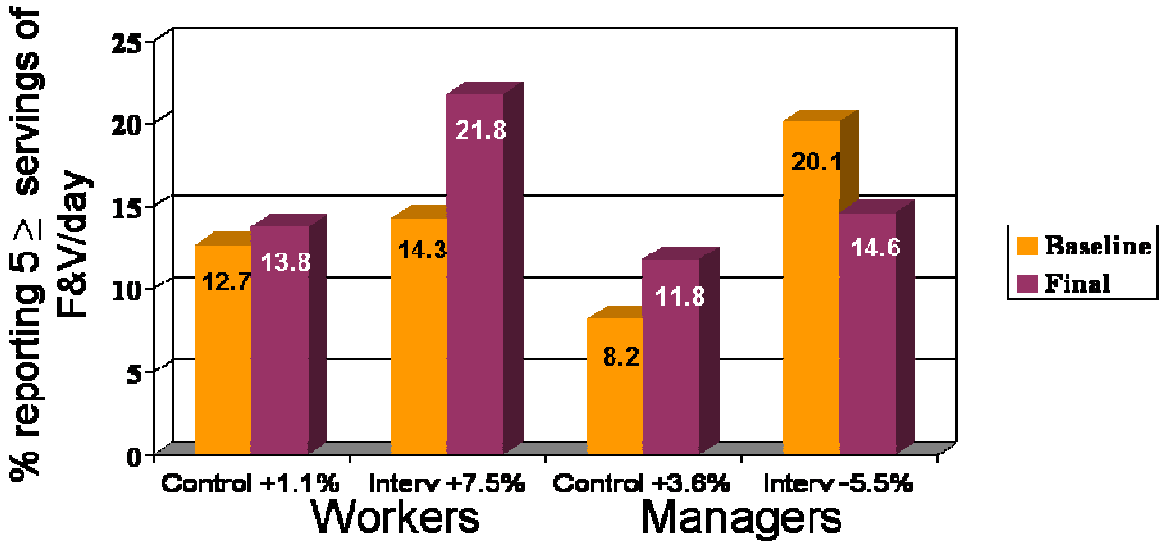


We also aimed to bring in the influence of the co-workers, understanding the influence of social support in making health behaviour changes. We particularly adapted the intervention to cultural issues, because many of the workers in these businesses were immigrants. (We delivered the intervention program in 4 languages, English and 3 others that were particularly relevant to the workers in these businesses). We also wanted within our program to address barriers that might be related to the fact that these were low income workers who did not have necessarily large amounts of money so we wanted to be sure that they understood how they

might be able to make some of these changes with the resources that they had available.
We found overall that there was greater health behavior change in the intervention versus the control. These changes were particularly significant for F&V consumption and multivitamins intake. We saw as we had hoped that the effects were equivalent or stronger for line workers compared to managers. And there were significantly greater improvements in fruit and vegetable when we looked at minority workers compared to the White workers or non-Hispanics.

This figure illustrates how this worked for workers versus managers. We are looking at change in F&V consumption from baseline in yellow to final in red for workers in the control versus the intervention and for managers the same. You can see that we had a significant increase in F&V consumption in the intervention group for workers and this was a significant improvement over the control group. The differences among managers are not statistically significant.

Change in Fruit and Vegetable Use by Occupational Status



Sorensen et al, *Am J Public Health* 2005

In this study we also wanted to look at the social contextual factors included in the model. We examine related increase of F&V consumption with some of those social contextual variables. We found greater increase in F&V consumption were associated with: having sufficient food in the home, having lower levels of crowding in the home, having supportive social norms, stronger social ties, being female, being born outside the US and being a single head of household. Those last two, actually interacted with the intervention such as the intervention was more effective for those born outside the US and for those with single head of household. It was actually part of our hope that this intervention would be particularly effective in addressing some of the disparities that we often time see by SES. We did not see a relationship in terms of the increase of consumption of F&V by any of our socio-demographic variables and we were actually hoping that in many ways this would be a program that could be effective across different groups within the population.

In conclusion I would like to just point out a couple of key points that I think are important overall but also provides some sense of where we might head off from here. First of all, I think from this we see that across a range of evidence both conducted in the US, in Europe and elsewhere that there is a firm evidence base for intervention effectiveness in changing F&V consumption. Our research in the future may want to look at some of the mechanisms and processes of change and how best to target some of those changes to improve the effectiveness of future interventions We might want to identify linkages across environmental change and educational interventions in order to maximize the level of change that we actually see. We also clearly need ongoing work to address disparities in F&V consumption as well as some other health behaviors - across economic positions and other important indicators of social disparities. The social context for change may provide one means for us to particularly address some of these disparities. Finally, the work I have presented provides a preliminary understanding of some of the best practices that we might be able to apply around worksite interventions to improve diet and in particular F&V consumption. It may soon be time that to turn some of our attention at least to identify some of the facilitators and barriers to dissemination of some of these best practices in order to be sure that they can be applied across many other types of worksite settings.

Q&A

PUBLIC: Did you observed other changes in patterns of behaviors such as increased exercise activity or reduced tobacco use as a result of a greater awareness on F&V consumption?

G SORENSEN: In the study that we did with construction laborers we also saw an increase in quitting smoking. In the other studies that I presented that were done in small businesses, we were not targeting smoking cessation but we did see a significant improvement in multivitamin intake. Along the issue of physical activity what was interesting with this group of workers was that they already have high, very high levels of physical activity to begin with. We are not really sure why but we actually validated those self reported findings through accelerometers used to monitor their physical activity. So, although there was an increase it was not statistically significant.

PUBLIC (Carolina MAYER from the American Cancer Society): I wanted to mention that we had a pilot running out of our national Core center in Texas with John Furet similar to the intervention you have with the construction workers. We finish the 12 months data collections in August but at this point we observed an increase 1.6 of servings of F&V and also some significant weight loss and maintenance. So I am hoping soon we will be able to add it to literature on this issue. We also have some worksite pilots in India.

J MILNER: I noticed that you had 1.6 or 1.3 increase servings but actually where does it started?

G SORENSEN: There is a large range we see but to clarify, as seen in the Seattle 5-a-day study, whenever a worksite study is done our workers are included in the results so whether they got an intensive level of interventions of whether they really just were there and did not experience anything more than maybe the cafeteria changes, there are all included and their changes are aggregated into that final result. So, we see a worksite wide level of maybe around in average of half a serving in those types of studies. The 1.5 difference serving was among workers that were all participating in the telephone delivered intervention so they were all receiving a much more intensive program. We need to think about the intensity.

J MILNER: One of the other issues I have is to a large extent you really talked about the behavior and what does it means for biological outcomes? Has it been some real attempts to look at infection rate, to look at days off even with those kinds of changes in frequency of intake?

G SORENSEN: I think that is an important question and I am not sure. To some extent I think that is a different group of studies that are looking at some of that. Maybe some of our epidemiological studies might be able to have associated F&V consumption in dietary patterns in relation to some of the economic indicators such as absenteeism. But, I do think there are issues that we need to begin to pull in some of our research and we actually have a data set right now when looking at what happens.

Succesful strategies for sustaining increased F&V consumption in worksite canteens

Bent Egberg MIKKELSEN
Danish Tech University, Denmark

If we want to seriously influence health and eating habits at worksite, we need to take the settings into account and having the previous sessions on School Fruit Schemes, I believe that we can get useful insights from lessons learnt from other settings such as kindergarden and schools. There are many organisational similarities and insights from one area that should be transferred to other areas. The common thing about settings is that in all cases we have to deal with intermediaries. For instance we want Canteen Managers, Human Ressources Managers, worksite health officials and other relevant people in organisations to take action and convey the healthy message or – in scientific terms – to help deliver the intervention components. In my opinion the insights we get from public health nutrition and from health behavioural theories are not enough since they are not strong on the organisational sociology aspects. That's why we in addition need an organisation theoretical framework if we want to promote health at the worksite. We have good experiences in trying to apply theoretical insights from the Science & Technology Studies (STS) as well as Actor Network Theory (ANT) which are trying to understand and explain how new "technologies" such as "healthy eating at worksite technologies" become shaped not only by health promoters and researchers but also by the users of such technologies, namely the employees at worksite.

With these words in mind I am going to present this paper on Successful strategies for sustaining increased of F&V consumption in worksite canteens. The notion of sustainability of intervention is a key concept here because it is about how we can make sure that the worksite can sustain the intervention after the researchers have left the intervention settings.

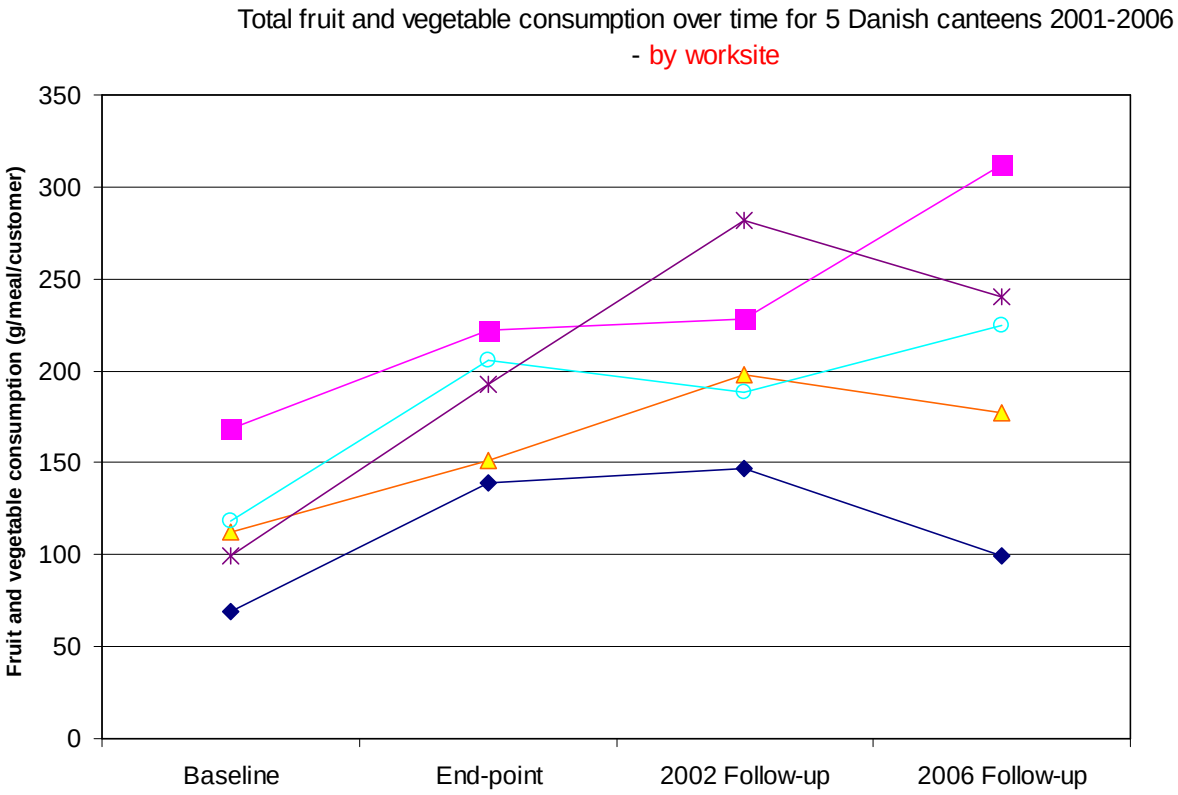
The content of my talk is the focus of the study, the concept of sustainability of the intervention, the research design, the intervention in 2000, where five 6 a day worksite canteens were studied during one year and finally including a baseline and a one year follow-up and finally the 5 year follow-up study, which has become the theme for colleague and co-author Anne Vibeke Thorsens thesis. As you noticed I stand in for Anne Vibeke today and promised to send apologies for not being able to make it.

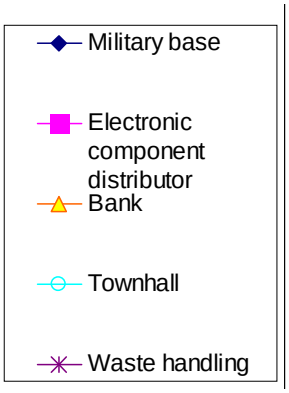
The strategies for embedding F&V in meals in the study where food service strategies for four different areas: hot dishes, cold dishes, salads and snacks. My talk will focus on two selected cases which represent successful as well as less successful cases. Finally I will present some general strategies for embedding F&V in worksite meals.

Two key concepts form the point of departure. Firstly the "healthy eating in settings" interventions, what are the advantages? A large number of individuals can be reached including many unlikely to engage in a preventive health behaviors. Secondly in using the notion of sustainability of intervention we draw on the experiences of O'Loughlin which defines the concept at the extent to which a new program or an intervention becomes embedded or integrated into normal operations of the organization. An example might be how we make sure that the F&V strategies becomes embedded into the standard operational procedures of the canteen facility or how new procurement routines becomes adopted.

The 6 a day worksite canteen model study at the beginning of the intervention was 5 motivated canteens. In other words, motivation was an inclusion criteria in order to became a participant of this multiple case study. Then the canteen managers had to be motivated further in order for the intervention to work. One important finding here was that it was discovered at that time, the point of worksite entry was the canteens and the canteen staff therefore, what we found today, is that the worksite agenda has changed so that the entry point now is both the kitchen level and the top level.

The outcome measure used in evaluating the intervention were F&V measured by weight in terms of grams per individual per day of intake at worksite and these figures are presented in the slides. We note "worksitefruit" box schemes are not included, so what we present is data on FV from the canteen only. Since "worksitefruit" is increasing, real intake might be even higher and that is good news.





As the figure shows measures were at baseline, intervention one year follow-up and a 5 year follow-up. Significant increase from Baseline to Endpoint can be seen.

This represents the diversity of the material; the pink represents an electronic component manufacturer which is a very successful case. Today they have increased further up to 300 grams per participants per day. Also the municipal town hall has improved after the intervention and after they were left on their own. But, in three cases we saw some decreases in the efforts made by the worksites and in these cases the intervention were not completely sustained.

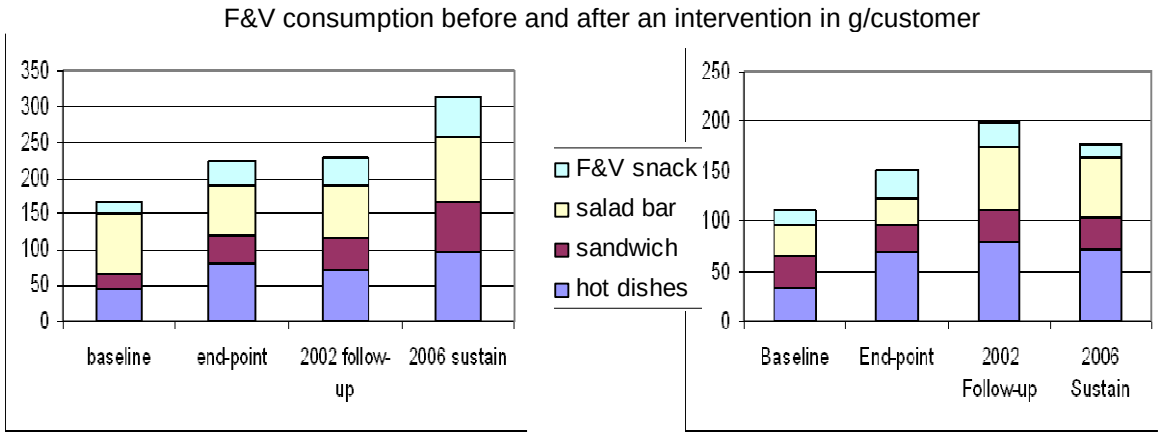
What was the intervention then about? The intervention was developed for the canteen managers to first of all get an overview of what types and amounts of FV they were using – a sort of inventory. In many cases you will find that canteens do not know the amount they are using. Then they were asked a number of questions about their specific goals in other words details about how they were planning to increase FV availability through intervention in hot dishes, cold dishes, the snacks or the salads or a combination. The questions were designed with the concept of PDCA cycle (Plan Do Check Act) in mind. The PDCA cycle illustrates a series of steps consisting of setting goals (Plan), to make an action plan and carry out (Do), to check whether they reach these goals and to correct if not.

In the case of hot dishes meat is being replaced because meat is expensive, and we can profit by using the juice and flavor for dishes, increase the serving sizes of FV, serving vegetarian meals once or twice a week, get inspiration from other ethnic cuisines such as Indian and cuisines that are rich in vegetables.

Regarding the sandwiches, strategies included to use at least 2 different kinds of fruits and vegetables, place fruit and vegetable garnish at the beginning of buffet and free of charge, use the denser garnish, offer plates with a fixed amount of fruit and vegetables.

Regarding the salad bar, it would be of great importance to use different recipes to ensure variation, use more coarse and fibre rich vegetables such as cabbage and root vegetables, serve a more appetizing and substantial mixed salad on the buffet, try to move the salads to different positions on the buffet which is often the way to serve in most canteens. Doing that it is possible to reach some of the traditional non-salad eaters. Regarding F&V snacks, one can sell whole fresh fruit at favorable prices, use the price instrument as a tool in general, sell sliced fruit, give away whole peeled vegetables, make a vegetable snack bar, sell snacks in bags and serve more fruit-based desserts.

5 year sustainability of a worksite canteen intervention



Case (1): electronic component distributor **Case (2): bank**

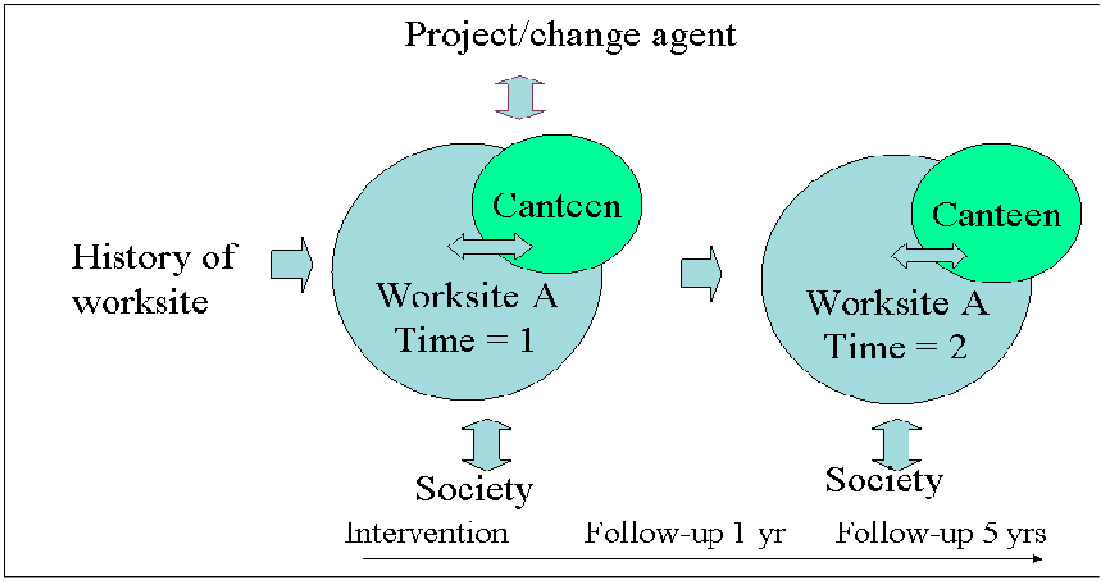
In both cases it is seen that the hot dishes and the salad bar account for most of the increase. In case 1 it was the same personnel and staff at 5 year follow up which is probably the reason why the results were sustained. In case 2 it is seen that salad and hot dishes account for most of the increase in intake.

What we found was that although a high sustainability was found all workplaces changes over time. So far we have been speaking about "in-house" configurations where the canteen is operated by the company itself and where the company controls the food service. In case 2 an outsourcing took place which was a serious challenge because the contractor not necessarily has the same goals as the worksites themselves. Thus nutrition issue risk to loose against financial issues. Our finding suggests that when companies want to change the supply chain there is always a contract to be negociated. So, there is maybe something to be worked on: what are the challenges when in the case you outsource your catering and outsourced catering is increasing.

For the three of the cases there were also changes in the way that the canteen operated so that is the reason why they were not able to, sustain at the same degree their results 5 years after.

What we did it put these results into a type of model which can explain some of the things that happens.

Sustainability of intervention:
Model for planning of intervention and analysis of sustainability



The figure illustrates that we have a worksite at time 1 which then through the intervention changes to time 2. The figure illustrates that there is a flux - a relationship - between the canteen and the worksites, but what is important to underline here is that any worksite has a unique history. This is a story of what has been going on earlier in that particular company with the facility. In relation to promotion of health it is important to know if there is a tradition of cooperation between employers and management previously. The figure also illustrates the impact of the influences coming from society that increasingly expecting the worksite to engage in promotion of healthy eating at worksite. Finally the figure illustrates that impact of a project/change agent that interferes and motivates the worksite to change in a healthier direction. Such agents could be health promoting NGOs, researchers, as ourselves and authorities.

It is also important to involve the top management because it increasingly becomes of strategic concern to relate and care about health and healthy eating at worksites.

In conclusion, I have some recommendations for future interventions. We think a participatory approach is important. We need to involve worksite employees, management, canteens and their management, so it is a multi-stakeholder approach. The awareness of the worksite history is important; we need to know about the culture, norms and values that were in the worksites and history of conflicts of collaborations between employees and management. A dialogue with suppliers is extremely important to be able to set up cooperation with the supply chain. And last but not least, networking among worksites and canteen professionals are an important key factor to be considered because, they feel alone and they need to be involved in the network programmes. The networks can work as an important player in the canteen.

Q&A

J MILNER: I am wondering if these people that make made the large evaluation in the canteens, did they follow the methods used in the intervention to change their diet at home. Do you have any information about that?

BE MIKKELSEN: No because our key informants are the canteen managers and what they have been doing is that they picked up a FV data collection method to measure what was offered. We do not have the insights into their individual dietary history. We have not performed any dietary assessment with regards to what the employees at the individual level ate. We do not have any interviews and we do not know what happen at their homes, but I agree that it would have been good information for us.

J MILNER: I think that kind of information is going to be important at a long term. One of the other issues that come to my mind is the cost difference (meat versus F&V). Is that really part of the reasons these occurred with more F&V?

BE MIKKELSEN: We have not any figures to support that theory but in the minds of catering managers that is one way to cut costs and to substitute. I guess that is what we found also in organic procurement interventions which show that is what they do in order to save money by decreasing the meat budget.

PUBLIC: Often at times, I have heard concern rose before a program might actually be delivered or offered about the potential lack of demand. Canteens managers may feel that the workers simply would not buy into this. What it something you had to encounter at all? How did you address that?

BE MIKKELSEN: Yes as one of the slides show at the electronic component distributor worksite a number of employees were not satisfied as they could have been in the way that they would have preferred the traditional dishes with a lot of meat instead and they were not happy with the interventions. We did not address that specifically but left to the canteens managers to take action. The proper way to describe their role is as ambassadors. I mean as inclusion criteria the canteens managers should be committed therefore, we are depending on them more or less to be ambassadors for these changes.

PUBLIC (Woman working in a fruit company called Dole, headquarter for Europe, from France): We have put in place a scheme together with our working group called INTERFEL. We have decided to have fruit delivered in our offices every Monday and that has been going on for two years. In the beginning it did not attract much attention from the people although, there were literally boxes of bananas, pineapples and peers depending on the seasonality. I can guarantee that on Monday`s when the

fruits arrives, the personals are interested in consuming them. If they were not interested at first, by Thursday everything is gone. Furthermore, the personals also give positive feedbacks and information's if they lack some of the fruits. Therefore, we are creating models for them, we are an incentive for them and they can disseminate this information. This is an example for our company where, we are 60 employees; I can guarantee that every individual eats fruits in our company.

BE MIKKELSEN: I believe that is a really good example of what we found in many cases at worksite, namely that fruit box schemes canteen food supply seems to work separately. In the case of Danish schools, we see 3 different trucks coming to the school, one with the food, the other with the fruits and the last truck with the milk. That is a challenge. I believe that these supply chains could be coordinated much better also at worksite and so perhaps making the supply chain work more smoothly would be a challenge to address.

J MILNER: In the Cancer Institute, our canteens are overcharged with F&V like mad. They're left there and nobody buys them. I can understand these are real issues. Cost is really important in driving this and freshness of these F&V.

PUBLIC (J ATKINS from Australia): Often when one discusses about making changes in canteens whether, it is in the worksites or school canteens, profitability becomes a big issue. Did you find any issues with what you did in the 5 companies? Whether they observed the fact that creating a healthier menu was going to fit into the profits?

BE MIKKELSEN: We did not measure or ask questions about the sales. What they did was they had some active price and policies in order to support healthier items, but I am sure if decrease sales had been a problem, they would have changed.

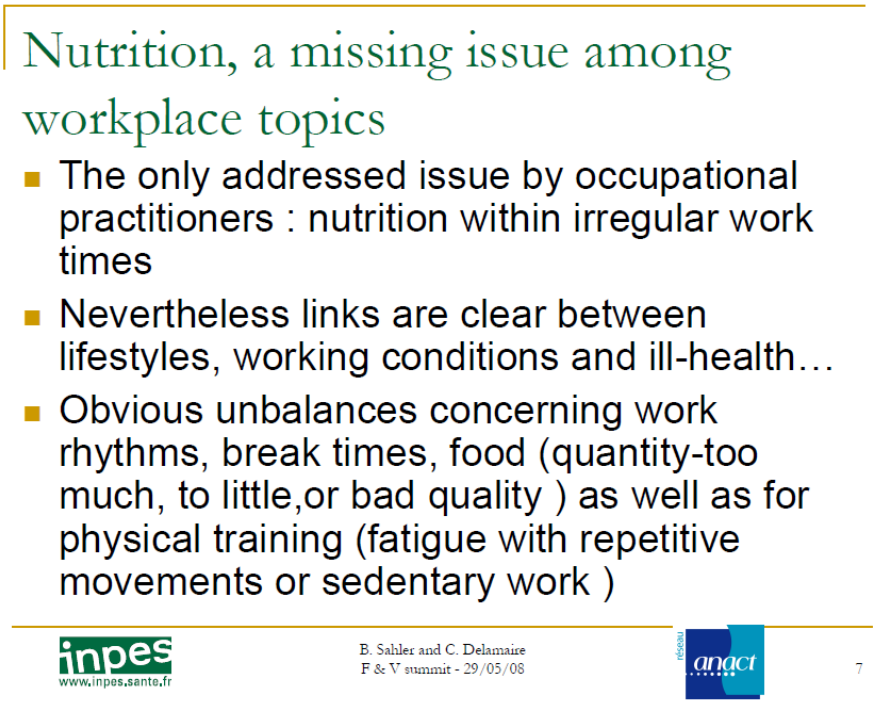
Improving Health at the workplace: where can F&V fit into the equation?

Benjamin SAHLER
ARACT Limousin, Limoges, France

I am afraid I am not a specialist about F&V, I am not a specialist about nutrition either, I am just working for ANACT that means French National Agency for Improving the Working Conditions and I prepared this presentation with Corinne Delamaire from INPES (French National Institute for Prevention and Education for Health).
Just to say one word about ANACT, we are very special kind of public consultant sharing participatory approach. Our tri part boards consist in the labour ministry and also the trade unions and employers organisations. So, every kind of interventions we lead on the different job area issues research that balance between both interests.

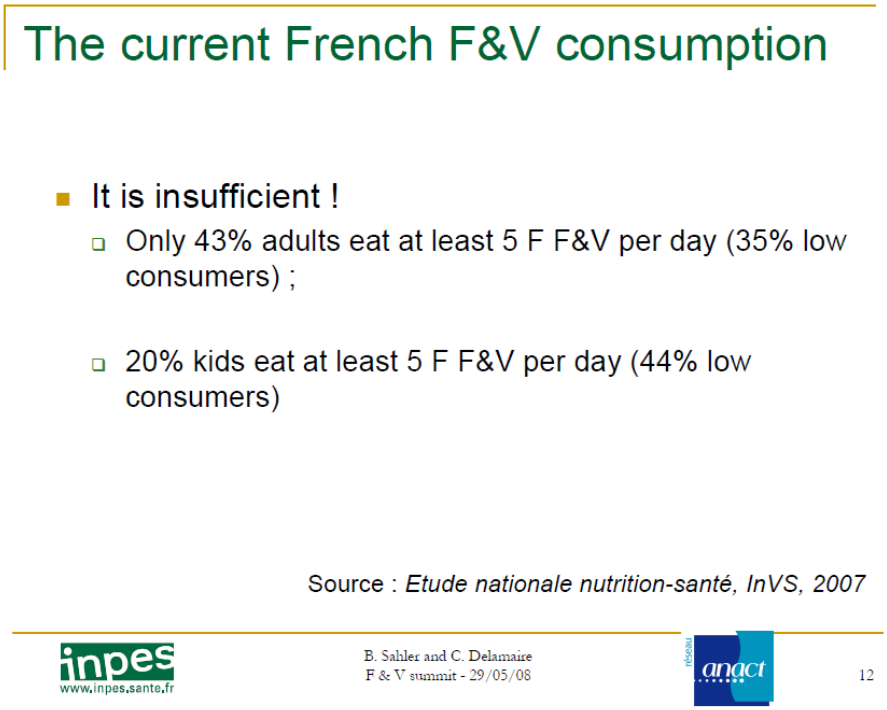
I am a bit afraid as I heard the former speakers that we, the French people, are a bit late on those issues on the work place and I shall explain why. The Health program on the worksites lies under the responsibility of employers; the employer responsibility is the leading principle of labour regulation law. This is a fruit of a very long social history and it is considered as a very essential social benefit for the social partners. That leads to a quite absolute priority to the OSH (Occupational and Safety Health) approach to the work-related risk assessment and prevention. That is why the idea itself of health promotion is a bit late and neglected. The social partners used to consider that they fear if they push on the health promotion idea that the employer will withdraw his own responsibility.
It is also very difficult in France to address the individual freedom. People want to eat what they want; they do not want to be addressed on that kind of topic. Even my colleagues are sometimes very reluctant for me to talk about this issue at this conference! There is also a lack of interest for the collective support on those issues. And at last, the two topics are lead by two different ministries, on one side for us the Labour Ministry and for the health promotion the Health Ministry and maybe you know that sometimes it is a bit difficult to work together very efficiently.
When we look around, as I do in participating in European projects and sometimes going overseas, I fear that we have unfavourable international comparisons. For instance, I participate to the ENWHP (European Network for Workplace in Health Promotion) that is leading right now a project called Move Europe where there are 4 issues with auto questionnaires to companies on tobacco, physical training, stress prevention and nutrition. The bad news for us is that France is lagging behind. It is very difficult for us to join those kinds of projects. Nutrition is very often a missing issue among workplace topics. The only addressed issue by occupational practitioners is the nutrition issue when you have irregular work times, as people working by night for example. The medicine will be aware on how they get the food, what kind of food they get and so on.

Nevertheless we all are convinced that the links between lifestyles, including nutrition habits, working conditions and ill-health are clear. We consider in our daily practice how important are the unbalances concerning work rythms, break times that are available or not, the food itself (how much food they take, what quality of food, too much or too little), as well as physical training, as some people do too much with repetitive movements and some do too less staying always at the same place and never moving.

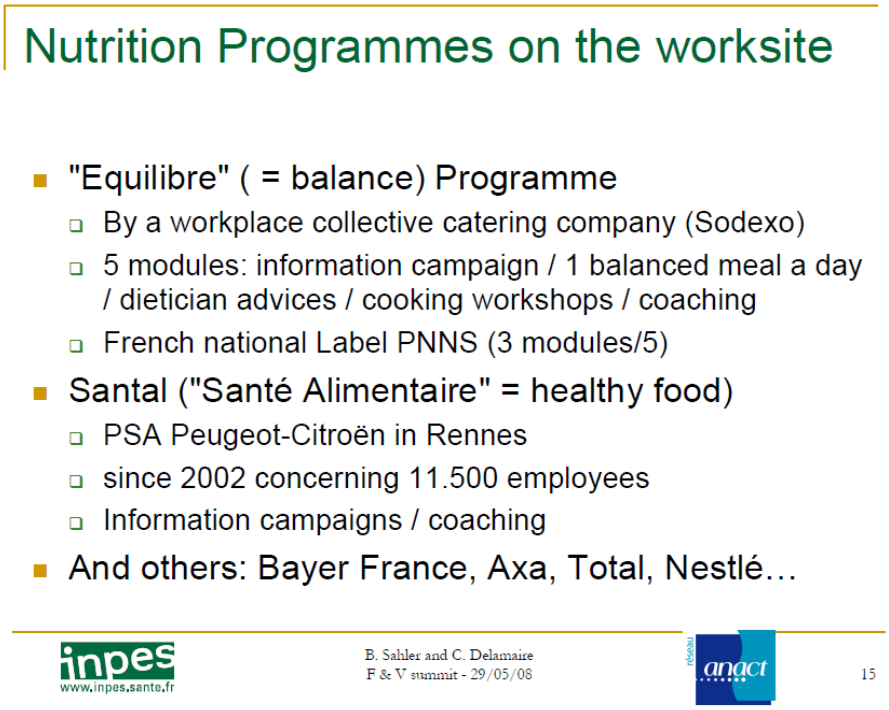


The good news is that the times are changing: the silo-box thinking is just opening. We work a lot about psycho-social risks prevention and the issue of work-life balance is coming up and up. And I repeat it was not so common in France in the last few years. Individuals also are more and more concerned with their own health so they come to address the work place. As someone said earlier here, the workplace is one place where we spend a lot of time each day. We tend to see workplace health in a broader way and the promotion idea is improving. Managers and the occupational practitioners become aware that people need to manage their own health. We have many public surveys and media campaigns putting up the message. Now we also have examples of other new healthy behaviours about tobacco with the recent law in France, with also the road traffic risks and also the question of obesity. We come more and more aware of those topics so the promotion idea is coming up. From the employer point of view, the ideas of Corporate Social Responsibility or Sustainable Development are new concepts that are more and more common. You see that the idea itself of health promotion is getting more and more present.

I will finish with a few first examples concerning F&V at the workplace. Those examples come from Corinne Delamaire. You know about the current French F&V consumption which is insufficient and I think they are lower than the medium figures you get in different countries.



You also know the breaks we described about consumption, the price, the taste, and the home habits that are not developed either, the practical side on the work place and the perishable side and how to find them when you are in the workplace. But, how can we encourage F&V consumption, even on the workplace? We have a very interesting example of services offered to companies directly delivered by producers to the companies. As an example 'Verger de Gally' which delivers fruit baskets for use by workers on their jobsite concerns now about 2000 companies. Also, now the vending machines are not only delivering chocolate bars but also compotes, fresh fruit as for example 'la Machine Verte'. And also, nutrition information and education programs led by companies as for example in a hospital in Brittany, Brest Hospital, concerning physical training where they are more than 6'000 employees having this program since 2004. Another program, named "Equilibre", which is lead by a workplace collective catering company (Sodexo) where they developed canteens they had in the different big companies.



They had 5 modules with information campaign, one balanced meal a day, dietician advices, cooking workshops, coaching and they get the label PNNS. So, it comes to be a common idea. And the last example is "Santal" ("Santé Alimentaire" that means healthy food) for the big companies. You will understand that we are lacking of examples concerning this subject in the SMEs.

Q&A

PUBLIC (Mariano WINOGRAD from Argentina): You put the accent on food at worksites but I would ask about the food in work times. Some people are working in a big company but don't have the meals in the companies but are going for lunch outside the company. In Argentina they do, major lunch tickets companies are French, one is Sodexo and the other is Accor. Who would be a role for them as alliance in this matter? Which can be the role of the tickets which the workers use to pay lunch outside the enterprise to promote more F&V?
I imagine that if there would be a health menu in the restaurants with some promotions to be paid with tickets, then these big tickets companies can be our allied. In Venezuela, for example, all the workers receive part of their salary in tickets to have lunch in the day. In Argentina we have now certain problems on that matter but I would like your opinion about it. I imagine if we will be creative we can find something important there, all these people which are working in a city, working in big companies but having lunch outside the worksite.

B SAHLER: As you understood we are really at the back in the classroom but I think the first step is to begin with the employers' responsibility on the worksite in their canteens but your question of course is very important. Many people have their

lunch outside, how to promote with the ticket system also more balanced menus including F&V, we must be creative? Have you got an idea?

PUBLIC (Mariano WINOGRAD from Argentina): I heard about A Gustino project that was developed by Accor.

B SAHLER: We have been contacted by Accor, they are beginning, they try to begin a European project on that topic founded by the European commission. They presented a project but we do not know yet whether it would be accepted or not.

PUBLIC (Ambroise MARTIN, Accor): Effectively there is something that is currently being done in France for the moment, also in Spain, in Belgium, in Hungary and it is expected that this could concern also extra European countries. But, you must be aware that it is a difficult task because restaurants are frequently very small enterprise, very fragmented market and it is difficult to motivate these people to have additional work. For the moment in France for example about 100'000 restaurants have been motivated to participate. One of the reasons also is that it is not only something for the labelling of the restaurant but something which is effective for improving the quality of the food offer.

B SAHLER: So perhaps in Argentina next year…

PUBLIC (Albert HIRSCH, Ligue National Contre le Cancer): Je voudrais porter à l'attention de l'auditoire que la récente législation française concernant l'interdiction de fumer dans les lieux publics et notamment dans les cafés, hôtels, restaurants que vous avez pu constater être appliquée a été obtenue pour des motifs exclusivement juridiques. A savoir qu'un arrêté de juin 2005 de la cour de cassation oblige l'employeur à une obligation de résultats et non plus une obligation de moyens. Pensez vous que ce contexte juridique qui ne va pouvoir que ce développer va être tôt ou tard, et si c'est tôt il vaut mieux prendre les devants, si c'est tard on verra, applicable au domaine d'une alimentation saine dans le milieu du travail qui comme vous l'avez rappelé dépend du Ministère du Travail et du Ministère de la Santé.

B SAHLER: I do not know. I know that the constraint by law is very efficient. But, I think for that issue especially we are also under cultural habits that have to change. I took the example; I agree with you that for smoking habits and also for the driving habits the law change really the things. But I am not really sure that our country is ready to have a law about F&V. Do you think so?

PUBLIC (Albert HIRSCH, Ligue National Contre le Cancer): We are going to do what we have to do that means lobbying, information, education, actions in the social society and I think that the example of tobacco can be used in order to reduce the time between knowledge and the action taken in the public place.

B SAHLER: I totally agree. I am personally convinced of the interest of F&V consumption.

J MILNER: Just a quick comment, we stated out this meeting talking about risk of cancer at least as one of the variable and this is the doll and pito information that suggested that tobacco was associated with about 35% of cancers and dietary habits. It sounds to me that we have good ammunition today as we do with tobacco.

DEBATE

PUBLIC (Elisabeth PIVONKA, Produce for Better Health Foundation in the US): Just a question for anybody on the panel. I actually did hear Vanessa that you were encouraging folks to reduce the meat and increase the vegetables or somebody said that to keep the costs down which from our research and our work with restaurant chains we are finding that it is the case that they can reduce meat, increase F&V and its good for costs. But what about the idea of since you do hear some workers complaining that they miss their French fries or some of the other food that they typically like, what about raising the costs on the food that are not so good for you and basically that would subsidies the costs of the healthier food. I have heard that it had worked in some worksites. Have you done any work on that?

BE MIKKELSEN: I am not aware of any work done in that field. I think that is very interesting. I do not find it unethically but I simply do not know about studies that had demonstrated the effect of that. I think that it could be wonderful to study if it has an effect but I am not aware of any studies.

J MILNER: I think you have to realise that most of us go to a place to eat because we like the food and because of the price. So if I do not have the food I like and high prices, then you decide to not go there. So those are the issues and we are all pretty much the same regardless of what country we are living.

PUBLIC (Elisabeth PIVONKA, US): Actually a comment to that, if you think that at least in the US, consumers who are not good drivers and have lot of accidents recognised that they have to pay high car insurance. So if they recognise that these are foods that they should not be eating so much of then maybe if they have more healthy behaviour they should not pay more health care costs.

J MILNER: I think it is actually a lot cheaper to buy some of these items than the F&V because they are so expensive, at least in the US.

PUBLIC (Adam DREWNOWSKI, University of Washington): John is right, if the food is more expensive and you do not like eat you are not going to eat it country regardless. I have a question about the implication of working in worksite that is: what are the policies of working with worksites who have Unions and those who do

not? And in the US between those who have health care and those who do not? Do you have equal success in both or do you encourage worksites unionized? What do you do?

B SAHLER: As I see in France, the unions do not consider this as an interesting issue.

G SORENSEN: In the US, I think we may make a mistake to think that all unions are the same. Within our research we have done work with quite a few unions that are very supportive of trying to encourage their workers to adopt healthy behaviours and to look at those behaviors from a broader health perspective, to underline that the work environment overall needs to be considered. We need to be looking at how health behaviours and occupational health and safety might not be on opposite sides but might be brought together under a union framework or other sort of framework to understand that the aim here is to promote workers' health in a broad array of approaches. I think that in the US there are some clear differences compared to Europe. My experience has clearly been that there are a wide range of opinions within unions, we have presented some data from our collaboration with labours international unions in America. We are right now involved in another study. There are other unions that might not be as opened to some of these concerns.

PUBLIC (Michel CHAUVET): Vous avez mentionné la liberté individuelle et cela me parait quelque chose d'essentiel puisque j'ai toujours souffert du système des cantines personnellement parce que c'est un système captif. Bien souvent, quand on est dans une entreprise ou un campus on n'a guère de possibilité d'aller ailleurs. Maintenant par ailleurs, de plus en plus les entreprises doivent passer par des appels d'offres qui privilégient de façon tout à fait excessive les grandes sociétés nationales voire internationales au dépend de petites sociétés locales. Par ailleurs, il y a un système dont j'estime qu'il pousse toujours à la baisse qui est le système du prix unique à savoir que quelque soit les aliments que l'on prend, de toute façon on paiera le même prix ce qui pousse le prestataire de service évidemment à rogner sur tout ce qu'il peut, alors que dans certaines cantines, si on a le choix de pouvoir payer un petit peu plus des aliments que l'on préfère, cela redonne de la place à la liberté individuelle et éventuellement si on le souhaite d'avoir une alimentation plus équilibrée comme on le veut. Cela je pense est le résultat de toute une période où en fait le système des cantines était un peu cogéré entre patronat et dans le cadre commission cantine où on a surtout des représentants des syndicats et le monde syndicale français jusqu'à maintenant a été surtout sensible à imposer au patron d'avoir les prix les moins chers possibles pour la cantine (et un certains nombre de choses) mais probablement pas d'une part les aspects nutritionnels et d'autre part un aspect auquel je tiens beaucoup qui est le goût et la diversité de la nourriture. L'orateur précédent avait parlé à mon avis à très juste titre de l'intérêt de plats venants des cuisines ethniques. Il est vrai que si on mange une soupe vietnamienne ou chinoise, c'est tout à fait équilibré, on a la satiété et on se fait plaisir, de même pour les cuisines italiennes ou autres parce que c'est vrai qu'il y a une certaine façon

de cuisiner les légumes à la française qui ne passe pas très bien dans le système des cantines.

B SAHLER: I also like the individual freedom, and have bad souvenir as well from school canteens but it does not mean that if you go in the city to have meal that you will find the diversity and the quality you like. It is very difficult and sometimes the canteens, especially in the big companies have very diverse food quality so you may not generalise canteens are bad and you find the diversity outside.

SESSION 18

REPORT FROM THE PARALLEL SESSIONS OF THE DAY

Chair: **E Brunner**

- Introduction**. E Brunner**
- Report from Session 11. **C Rowley**
- Report from Session 12. **P Gurviez**
- Report from Session 13. **M Dunier Thoman**
- Report from Session 15. **A Drewnowski**
- Report from Session 16. **K Glanz**

Introduction

Eric BRUNNER
UCL Department of Epidemiology & Public Health, UK

We are going to have 6 reports back from the Thursday May the 9th and the first presentation is by the group that was shared by Carmen Perez Rodrigo effective interventions studies targeting children and this report will be given by Chris Rowley from Australia.

Report from Session 11

Chris ROWLEY
Horticulture Australia, Australia

From the interventions targeted there is one slide from each of the speaker and key points in their summary. Carmen Perez Rodrigo's main points about interventions studies targeting children are evidence of Socio Economic Factors such as age and gender that affect consumption. Family and school environment are important to children particularly for access and availability and this is also positive influence awareness, attitude and preferences help self efficacy.
Karen Lock made effectiveness of School F&V schemes making the point that they are increasing intake from 0.3 to 0.9 servings. School F&V availability is important. She made the key point that multiple components are more effective when you bring together two program elements and also the levels of education are important.
Paula Dudley and the school programs, by 2009 the aims is 102,000 pieces of F&V per day, something like 3.5 millions pieces a year. What is done is NZ is increased awareness, changed behaviour, awareness targeted schools with a very high awareness of their 5-a-day message for 95% which we can all envy. This is all positive public/private partnerships between government industries so it has got that spin off benefit from what they do in schools. Some of the other effects that they gain from the program are improved dental health, improved concentration, more fruits coming at lunch boxes from children that were involved in the Campaign. And the last one is my favourite, greater use of toilet paper so more fibre.
Saskia te Velde talked about the Pro children study. Again research across nine EU countries school by interventions to increase F&V, implement and evaluate in three countries goal to increase consumption by 20%. Approach to implementation affected outcomes so, how they manage to do it in different countries. And free fruit increased consumption in the short term in all studies.
Elling Bere did the Norwegian Intervention and its key points are free school fruit is more effective than the existing subscription program. Obviously the free school fruit shows long-term effects, decrease consumption of unhealthy snacks which is quite important and also tend to reduce social inequalities. Main interesting point of that is the cost benefit analysis that they did where he said that free fruit in all Norwegian schools is cost effective in terms of life long F&V intake and looking at an increase of 2.5g as a goal and I think they actually achieved higher than that.
As an overall summary, school interventions work. They change behavior, increase awareness and knowledge and build positive public / private partnerships. We all talked about the network partnerships, the school program surely does that. To be effective they need to be comprehensive, strategic, incorporate numerous different strategies and components together so no one is thinking it in private.

Report from Session 12

Orateur

It is my privilege to report back on Session 12 which is local initiatives, promote F&V consumption at school. This was a session dominated by French politics, chaired by Jacques Rémiller, secretary of the Foreigners Affairs Commission and also president of the F&V studies group. For those of you who are not aware of this politics in France, there are very large working groups both in the two chambers of the French national assembly and understandably because of the importance of small scale agriculture in France, F&V consumption obviously in the rural areas is a major political issue. The workshop recognises that F&V and of course the related activities of wine producing is really crucial for the 'terroir', for the identity, for the economy as well as the health of France and its components and its totality. There were a lot of discussions about how to promote F&V consumption at school and the complexity of the French system is such that the primary schools are at the lowest level of the local government system, the secondary school up to age 15 are dealt by the 'département' and high schools by the regions. So, clearly there is much work to be done but what I was told yesterday evening was that there was a very positive issue experience and the future in terms of establishing the provision of F&V in school sis likely to be successful if the momentum continues.

Report from Session 13

Muriel DUNIER-THOMAN
European Food Safety Authority, Italy

We had four speakers. The first ones B. Declercq and A. Périquet presented both of them the evaluation of consumer exposure to pesticides on the French case. B. Declercq is an expert in France of AFSA, the French authority in charge of pesticides; he also an expert for FAO and GMPR, WHO and Professor A. Périquet is also famous in the field of pesticides in France in the University Paul Sabatier in Toulouse. Both of them had a really clear message when they showed us some data and some surveys. Especially professor A. Périquet was in charge of this professional survey where they studied for years many active substances, 122 of them and the survey showed that the increase of consumption of F&V which is recommended to prevent human pathologies such as cancer, obesity, diabetes, CVD or osteoporosis does an increase risk for consumer regarding the pesticide intake. So both of them wanted to give this strong message that despite of what is sometimes written in the news, in the press that eat more F&V is good for your health but that on t he other hand it could increase a toxic effect due to pesticide proved us with figures that is not true. The possible exceedance of the regulation that we call MRL (Maximum Residue Level) was really exceeding on 6% cases and in very extreme case of people eating 800 grams of F&V per day which a very high amount. So the figures, when you do a very strict survey on the population consumer shows that there are no toxic risks due to pesticide when you have a high consumption of F&V. The third orator was L. Martin-Plaza working for Commission called E3 and is in charge of regulation of pesticides so he details quite exhaustively all the legislations in place. You may know that the main legislation for pesticides is the directive D/01414 which is now under revision and under discussion on the European Council and Parliament. We expect a co decision by the end of the year so there will be strong improvement in the regulation of pesticide and there is also a systematic strategic on sustainable use of use with the aim of protect the environment and health. There are legislative tools, legal tools in place very strict, very strong to protect consumer and locally and that is what F. Gérault from le GREF where there is an exceedance there is control and the fraud ministry could even destroy the crops. So there are very strict controls on agriculture at the farm level to check if the levels given by the legislation are not exceeded. A very strong legislation exists at European level; control exists in each member states in Europe, especially in France but also in other European countries so the consumers should not be afraid of consuming F&V because of all these controls because of very serious network of control and protection for consumer.

Report from Session 15

Adam DREWNOWSKI
School of Public Health and Community Medicine, USA

The session dealt with the issue of nutrient profiling, for those who the concept is new, let me rephrase the definition that nutrient profiling is described as the science of ranking or classifying individual food based under nutrient composition. Nutrient profiling has two separate uses. In the EU research on nutrient profiling is driven by the legislation on nutrition and health claims. Only food with favourable nutrient profiles would be allowed such claims, food with unfavourable profiles would be disqualified. IN the US Health and Nutrition Claims has been allowed for some time. So, in the US nutrient profiling is being used to identify nutrient rich foods for the consumer so we view it a way of implementing dietary guidelines. The food guide pyramid tries to instruct or inform the consumer on which are the most nutrient rich food. During the session, M. Rayner from the British Heart Foundation and the architect of the British FSA on nutrient profiling scheme presented an outline of technique and strategies used for nutrient profiling. J.-L. Volatier presented ways of validating nutrient profiles linked from the European Food Safety Authority outlined the European position on nutrient profiling. And I talked about the American scheme in nutrient rich fruit scheme which share some of the components of the British and French systems. The consumer response was summarised by C. Pernin and the issue here is the role played between the regulatory agencies, the consumer needs and the need of the regulatory agencies. The major concept to insist on is that nutrient profiling is one of the tools in a tool box and nutrient profiling will only be useful to the consumer if it is firmly anchored within a broader system of food preferences, food habits and the food that consumers select in not only the nutritious but also have to be enjoyable and affordable. Within a broader concept of food choice, nutrient profiling can be a valuable tool. I should also say that V&F, particularly fresh come out extremely well no matter which nutrient profiling scheme you use whether the scheme is American or French or British, V&F are right at the top.

Report from Session 16

Karen GLANZ
Rollins School of Public Health, USA

We had four speakers that were Karen Glanz (USA), Guttorm Rebnes (Norway), Robert Pederson (Denmark) and Gitte Laub Hansen (Denmark). Our session focused on dissemination of programs, try to get actively programs out and how the process function and it is not always on a straight line. I gave on overview when talking about Research Lifecycle and how some of the fundamental research fit into the intervention research. The example that we saw denies … in a straight line. There was an encouragement to design programs for dissemination or take interventions that had been research based and put them into tool kit so they can be disseminated encouraging our academics to give their work away and distribute the fruit of their labors. We had 3 programs example that showed ways to make easy programs, communicate them and evaluate them. The first was MORE MATTERS from Norway that Guttorm Rebnes from the Norwegian Fruit and Vegetable Marketing Board talked about it a large-scale awareness campaign that targets children and teenagers. Its main objective is to increase the availability of appetizing, ready-to-eat fruit and vegetables at sporting events and sports facilities. They focused on how they get the F&V out in appetizing, appealing and hygienic manner and increase kid's intake. The program really focuses on spreading out to sport clubs so that they take over the program and also make a profit out of it and it is branded as MER. The reach of the program is remarkable considering Norway is a very small country. Moving to Denmark Robert Pederson talked about the Successful national expansion of the Danish Worksite Fruit Program. This is a program that empathizes free and easy access at work during the day and throughout the workday. The results showed an increase of 0.7 servings of fruits and among men a decrease in the high fat high sugar goodies.

SESSION 19

F &V CONSUMTPION IN DISADVANTAGED POPULATION

Chair: **E Brunner**

- Obesity and social class in developed nations. **A Drewnowski**
- Social determinants of health inequalities. **E Brunner**
- How to lower inequalities? **Ph James**

Obesity and social class in developed nations

Adam DREWNOWSKI
School of Public Health and Community Medicine, University of Washington, Seattle, USA

My presentation has to do with obesity and social class. I will start by asking the most difficult and the most provocative question: whether or not obesity is a class issue? Can we reduce obesity without tackling the underlying issue of poverty and limited resources at the household and population level?

I want to set up this dichotomy between the situation in the European Union and the United States because the interpretation of epidemiologic or scientific data is sometimes subject to ideology. The current consensus is that:

Research consensus	US	EU
Obesity rates vary by SES	**no**	**yes**
Obesity trends vary by SES	**no**	**yes**
SES determines diet quality	**yes**	**yes**
Healthier diets cost more	**no**	**yes**
Healthier foods cost more	**no**	**yes**

In the EU, it is generally accepted that obesity rates do vary by socioeconomic status (SES); a European Commission report on this topic will shortly come out. In the EU, we do agree in the EU that obesity trends vary by SES, we know that SES determines diet quality, we accept that healthier diets can cost more and do cost more, and that healthier foods with higher nutrient content generally cost more than do empty calories.

In the US, there is no agreement on any of those things. Survey data from the Centers for Disease Control (CDC) are often used to demonstrate that there are no differences in obesity rates by social class. As a result we generally focus on race and ethnicity. It is hotly denied that healthier diet costs more; hence the emphasis on individual choice and personal responsibility. And as a result, the interventions to stem the obesity epidemic are very different. In the EU, the intervention focus is on potential government actions and policy based interventions. By contrast, in the US, the focus is still on individual education, individual motivation, personal responsibility and individual choice. So we have this distinction between individual and society, and personal responsibility versus government actions. How do we try to reduce disparities in obesity rates and at the same time address the underlying question of social inequities?

Let us take a look on some of the data that are being quoted in support of and against those particular view points. In the US most of the data on SES and obesity come from the Behavioural Risk Factor Surveys Study (BFRSS) which is a telephone survey

administered every year by CDC (Centre for Disease Control) to 2000 households in each of the 50 states. Those famous maps of US showing obesity rates rising by states are based on BRFSS data, a yearly telephone survey. But the CDC interpretation of those data has been that there are no major differences among states. One statement was that many states were almost identical in their obesity rates so that ranking them was essentially worthless from a statistical perspective. In fact, in nutritional sciences, we are discouraged in many ways from looking too deeply into the underlying social disparities or into poverty rates.

The BRFSS data at the individual level, analyzed by education and incomes, showed that obesity rates declined as a function of income and as a function of education. This relation was much stronger for women than for men. So again, the interpretation of those data in the US was that yes, there may be a gradient for women, but there is really no SES gradient for men. I submit to you the gradient really quite strong and it follows both education and income quite reliably.

Another question is whether there are differences in time trends by SES? Are only the poor getting obese or is obesity increasing in all strata of society? Again, BRFSS data are said to show that there are no social disparities in obesity trends. Analyses of BRFSS data from many years were conducted by Roland Sturm at the Rand Corporation at Santa Monica. The top panel shows obesity rates by education, the bottom panel shows obesity rates stratified by incomes. Notice that the curves were in fact exactly parallel, indicating that obesity rates were increasing equally in all strata of US society. In fact, the data were interpreted to show that the increase was greater among the more affluent because they started from a lower baseline so proportionally the increase was higher among the higher socio-economic groups. As a result, not having found any differences by education or income, researchers generally come to explanations based on culture, ethnicity and race. And yes, there were also substantial differences in obesity rates by ethnicity and race. What you see here are data showing that the rates of obesity in the US do follow this gradation by race. Of course, I suspect there is confound by SES.

A recent paper in JAMA showed a levelling-off in obesity rates among children in the US. Over the previous two decades, we had seen a very sharp increase in obesity rates among children and adolescents. However, more recent data for 2003 to 2006 showed no further increase between 2003 and 2004/2006 so the last two bars are in fact of the exact same height, there was no further increase beyond year 2003. This was interpreted as a very positive sign showing that the obesity epidemic in the US is in fact reaching a plateau. Of course when you go back to the JAMA paper, the data were only stratified by race/ethnicity, the researchers never mentioned SES. It is therefore still unclear whether or not obesity rates are still increasing among children and adolescents who are poor.

A look at another set of data, from studies conducted by the University of Michigan among adolescents in grade 10 shows that there was an increase in obesity rates with

time by race/ethnicity. But what you can see here is a very sharp SES gradient in obesity rates, with highest rates observed among lower income children and the sharpest increase with time observed again among the lower income groups. There are data fro boys and separate data for girls. Notice that African American girls and Hispanic girls were the most overweight group and that the SES gradient was both fairly steep and became more pronounced with time. For example the high SES girls did not become obese, the obesity rates were lowest and the increase was less sharp. The trends were more pronounced for the middle SES and low SES groups.

So there is very likely an interaction by race ethnicity and SES, we can discount the possibility that the obesity rates are still increasing selectively and preferentially among the poor. In order to be able to pick up some of these SES differences you have to go to other means of analysis, including spatial epidemiology and spatial informatics.

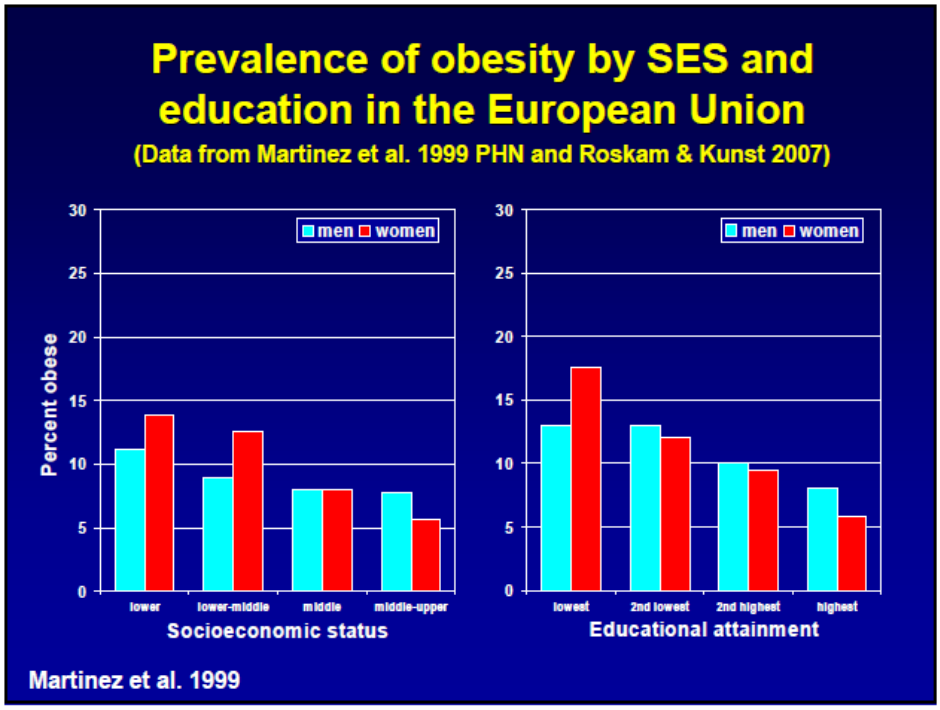
Spatial analyses of neighbourhoods of residence can be very revealing of SES. If you know where someone lives in Paris - if they live in the 20th or on avenue Montaigne, you do not even need to ask about SES, the address tells you everything. "c'est déjà tout dire". At the University of Washington, we have been doing similar geographic analyses at different levels of geographic scale. In spatial analyses, scale is everything.

When you look at the US data on obesity rates at state-by-state level, there is a connection between obesity, poverty and incomes but the connection is weak. In places like New-York State you have the rich, you have the poor. Average obesity rates at state level mix up the rich and the poor and you get a fairly meaningless overall obesity rate for the entire New York State. So, the connection between obesity and incomes or obesity and poverty is fairly weak at state level. The differences become much more apparent at finer levels of resolution and across smaller geographic areas. For example, there are maps of poverty for political districts in California, drawn according to legislative boundaries. You can see that the highest poverty levels are in the Central Valley, with the high proportion of migrant agricultural workers, and in Central Los Angeles, again with high levels of migrant populations. What is interesting is that the maps of poverty areas and the maps of high obesity and diabetes prevalence are almost exactly the same. Those are the same areas. The poorest areas suffer disproportionately from obesity and diabetes and the geographic distribution of disease parallels area SES in both cases. Childhood obesity rates, and interestingly enough the rates of childhood and dental carries follow exactly the same map.

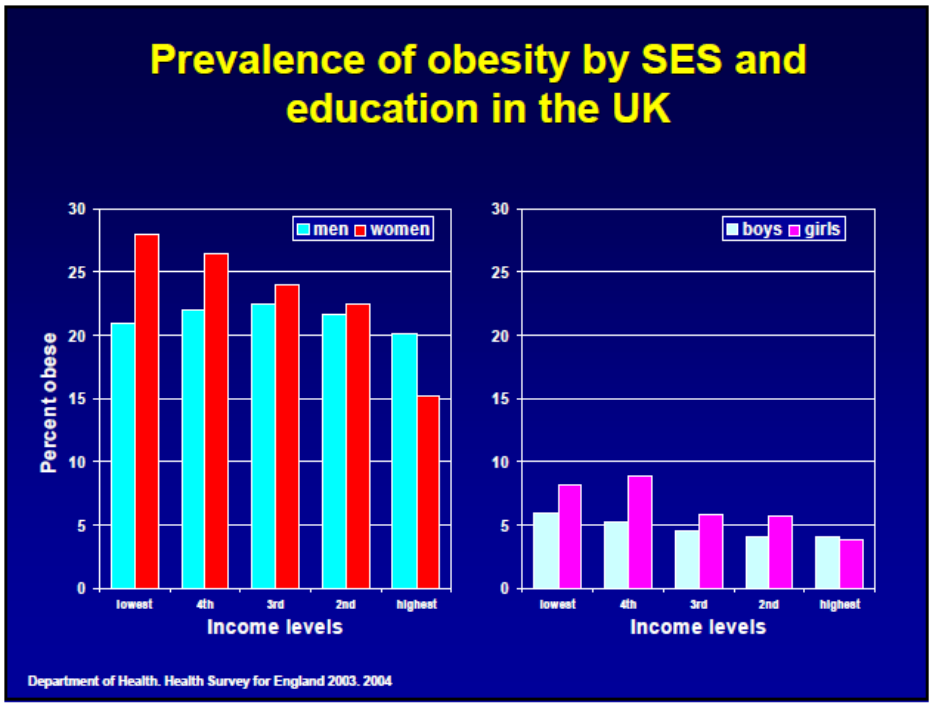
So when you start looking at poverty and adult obesity across small geographic areas, and not by state, suddenly you see a very sharp SES gradient. This is because there is more contrast between rich and poor neighbourhoods than there is between states, such that the SES scale is stretched out and expanded. For example when you look at poverty and obesity at state level, percent of households below poverty varies

from 5-20%. But when you look at percent of the population subsisting below poverty in different California countries, you see that the range is much wider, going up to 25% poverty or above. These techniques allow you to reveal some of the associations between poverty and obesity which you may have overlooked using conventional survey epidemiology.

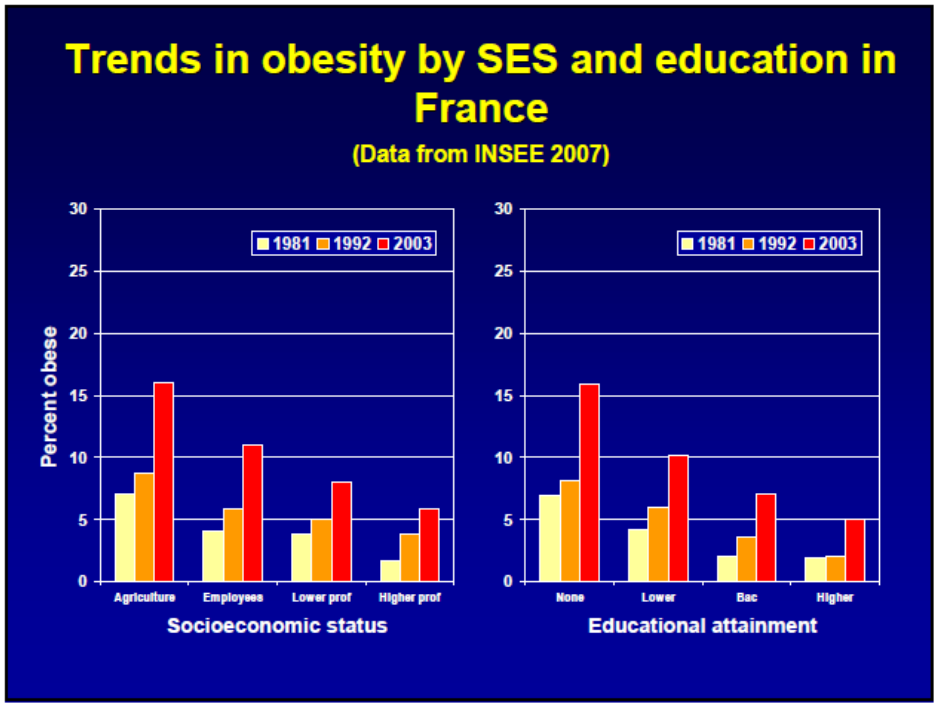
Data from the European Union show similar trends in obesity rates, with higher rates observed for the more disadvantaged groups. Notice that obesity rates are about 20 to 25% for the lowest income and least educated groups.



Mean obesity rates for EU member states reveal the same inverse association with education and incomes, though of course the rates are still lower in comparison to the US, 10 to 12% and not 25%. You may say it is a matter of time before the obesity rates go up and the EU is right up there at 25% obesity prevalence. What we are also seeing is similar social trends: the relation between obesity and SES is stronger for women than for men and the temporal trends by social strata seem to be similar. It is fair to say that the same mechanisms mediate the link between SES variables and body weight in the EU and the US.



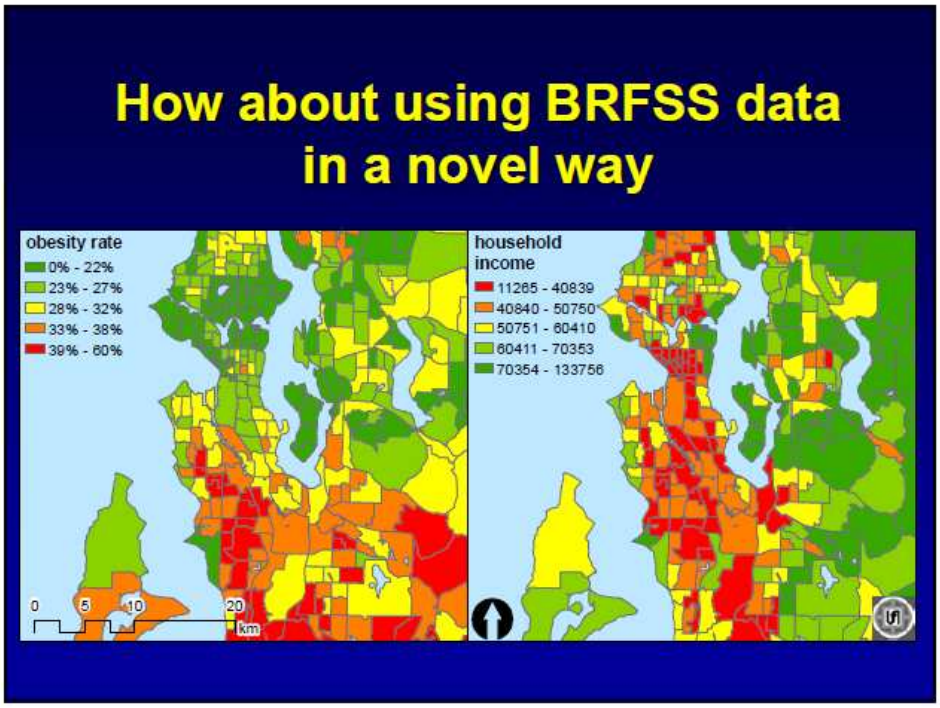
Data from the UK show that obesity rates vary inversely with income levels for adult men and women and with parental income and obesity in boys and girls. Again, the association between weight and incomes was stronger for women than for men, similar to findings in the US. However, time trend analysis in Europe show something that the US data have so far failed to show: that it is the poor who are continuing to become obese and the gradient is growing with time.



Data from France also show temporal trends in obesity rates by SES and education. Again, if you look at agricultural workers and employees the differences in the time trends were much more pronounced than they were at the upper end, the category

professional and the higher socio-economic groups. The lowest educational and the lowest income segments have experienced higher gains in obesity over time. The SES gradient is well shown on a graph, produced by Nicole Darmon, who calculated obesity rates by monthly income (Euros/month) data from 1997 and from 2006 using OBEPI data. The increase in obesity rates was highest for the lower income groups. That was a nice consistent demonstration that not all social classes in France were getting equally obese. Obesity is, to some extent, a problem of poverty and most likely to increase among the lower income less educated groups.

In conclusion, let me offer a few thoughts about the potential reasons. What factors mediate this relation between SES, limited access to resources and services, and higher obesity rates. Socioeconomic status carries with it a number of associated – yet often unobserved variables – notably ease of access to healthy foods. The access need not only be physical (distance, time), it can be economic as well (affordability). Because where you live actually does make a difference in terms of being able to shop, being able to buy healthy food and also having access to resources and services. Some of the studies that we have been conducting in Seattle include analysis of obesity rates by Zip code. We are using area of residence as a proxy for individual or area based SES. We actually used housing values and property values as a proxy indicator of accumulated wealth. In survey studies with education and income that never ask about accumulated wealth.



We now have detailed maps of obesity rates in Seattle. On the left, you see a map of obesity rates and on the right a map of household income, both aggregated at zip code level. The University of Washington is the green area on the top left. Microsoft is located on the top right. There is very little obesity in the more affluent areas; most of the obesity is concentrated among low income areas in south Seattle that are

shown in red. Again the map of obesity by Zip code and the map of incomes by zip code was essentially the same map.

It is very difficult to obtain sufficient health data at a fine scale of geographic resolutions: you need to have very large numbers of people. The BRFSS survey with 2000 households per state does not come close. Even though we did aggregate BRFSS data collected over several years, we still had no more than 8,000 persons spread over all of Seattle. Other studies, notably in New-York City and in Los-Angeles, also operate with approximately 10,000 people in the sample. For a health study based on census tracts, we would probably need 60,000 – 100,000 persons. Only those kind of numbers would allow us to make a connection to public health surveillance and mortality data using geocoding and new techniques of spatial analysis.

Maps of diabetes-related deaths also correspond to maps of poverty. In all cases, when it comes to health, social and economic disparities, including poverty, lack of resources, or living in deprived neighbourhoods are the common determining factors. The range of disparities was surprisingly large – within Seattle we found 5-fold disparities in diabetes related deaths, depending on where people lived. The same data calculated by race/ethnicity maybe showed a 50% increase for African Americans or Hispanic Americans over Whites and those have already been talked about showing major disparities about race/ethnicity. A difference of 500% by geographic area which is unprecedented and very difficult to explain. On the right you see a significant relation between diabetes death and property values in each area. Again property values are being used here as a proxy measure of SES.

Access to healthy foods in different areas of Seattle may be one contributing factor. We have been looking at the density of grocery stores in Seattle-King County, WA, plotting the locations of grocery stores, convenience stores and looking at density of fast-food outlets. Within Seattle we also compared the density of fast food outlets and the density of Starbucks. Starbucks is more of a middle class venue as opposed to a fast-food outlet, so notice that the map of Starbucks and the map of fast foods pretty much track obesity rates. This has to so with again geographic distribution of obesity rates by small geographic area.

In conclusion, much of epidemiologic research on diets and obesity rates may have been confounded by unobserved indices of SES. On one hand, healthier diets cost more and are consumed by more affluent people who have better access to resources and are thin. On the other hand, the cheaper and more energy-dense diets are consumed by less affluent people who live in deprived neighbourhoods; have more limited access to healthy food and are obese. So there is no one single factor that is responsible for rising obesity rates: it is the consequence of low incomes and living in the US or the EU of today. Prevention measures need to be multi-sector and multilevel – from local interventions to price supports for healthy foods. This is really case for government interventions and for a combined agricultural and health policy which can take all those factors into account.

Social determinants of health inequalities

Eric BRUNNER
UCL Department of Epidemiology & Public Health, London, UK

What I am going to talk about is the macro level of social determinants. (…) What I want to do is in a sense to be your cultural media (…) but what I want to talk about is something very different and that is poverty disadvantage and inequality which are rather different concepts. I want to talk about inequalities across Europe and the relation to the major health outcomes related to low SES, to talk briefly about inequalities within countries and then to talk about what I think and what in our department in London are doing to translate on perspectives into policy.

First of all we need to be clear about poverty and disadvantaged in rich countries. We know perfectly well that there is an extremely strong link between poverty and poor health across the planet. You can see that in Africa, life expectancy at birth is in the order of 40 years whereas in rich North it is in the order of 70 or 80 years. In the rich countries multiple disadvantages across the life nevertheless produces great differences in health. And these multiple disadvantages relate to a number of phenomenons: wealth, income housing, area of residence, education, health, culture, employment, social networks and social relations. And this is related to the concept of social status, social positions and the importance of the social in understanding the way that health is distributed across society. This means crucially that health disadvantage is not limited to the poor although of course those who are poorest are the ones who have the greatest health disadvantage.
The observation that was initially made by economists such as Preston and Richard Wilkinson about 15 years ago is that in richest countries, important but only small proportions of the population live in absolute poverty. For example in America most people have fridges, TVs, air conditioning and so on but that does not mean that they share the fruits of their society success. In the richest countries there is little or not relation between GDP per capita and health and that showed in the left hand panel where this tendencial curves illustrates that increasing incommoded economic growth is associated with improved health in the developing countries but once we go into the very richest there is no relation between GDP per capita and health. Nevertheless in the right hand panel you see an example of the way in social inequalities and health within countries continues to be large. So this is looking at the relationship between income and health at the individual level in this case in the US of America.
What I want to do is to look at the main diet related causes of ill health at the population level to look at the relationship between education on one hand, standards of living on the other in relation to healthy life expectancy, CVD and Cancer mortality. A definition comes from the WHO for healthy life expectancy it is the average number of years that a person can expect to live in full health taking into account years lived in less than full health due to disease and/or injury. This counting

method that contracts the number of years which are spend with disabilities and that index is put together with these two indexes which are the components of the United Nation Human Development Index. I have not been able to use the human development index because that itself contains a health measure which is life expectancy. So, I have drawn out the two components, the GDP index which is an index based very simply on the GDP per capita and then the education index which is a combination of a measure of adult literacy and the combined participation rate in primary, secondary and tertiary education.
These are the two measures that I am going to be using to measure social development.
Here we can see the differences between GDP per capita, so this is the average income in a country plotted against healthy life expectancy on *y* axis. As you can see there is an astoundingly strong relationship between economic development in a country and its healthy life expectancy. The correlation is about 0.9, we can then focus on the group of richest countries which are of course the ones in Western Europe including France. As you can see them listed on the right hand side of the slide, Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Spain, Sweden, Switzerland and the UK. When we look within these 16 rich countries, there is no relationship between healthy life expectancy and GDP per capita. In education and healthy life expectancy we can see that there is a moderate list along association across the European regions. We can see countries like Albania of Romania down there with a healthy life expectancy of about 60 years, the richest countries up above 70 years. And again if we look at the rich 16 countries, there is no relationship with education as measured by this index. So what we see is that the healthy life expectancy is less than 60 years in Russia, more than 70 years in rich Western Europe and is intermediate in central and eastern European countries. We can see very clearly a strong link between average income and healthy life expectancy and a moderate link between education and healthy life expectancy across the boards. But within the rich 16, no relationships either between GDP per capita and healthy life expectancy or with education and healthy life expectancy.
Now we look at more specific causes of mortality. On the left hand side we are looking at cardiovascular mortality which is a combination of heart disease and stroke predominately and on the right hand side with cancer mortality. And we can see a very clear pattern across the whole of Europe as a strong relationship between GDP per capita and cardiovascular mortality. In the rich 16 the relationship disappears. But for cancer, there is really no relationship at all, there is not a socio-economic relationship. With the education index, the pattern is essentially the same. You can see that countries with a higher level of education and participation have lower rates of CVD mortality but these relationships disappear in richer countries and by the same token for cancer across Europe, there is no relationship with education level. So for CVD mortality high average income leads to low CVD rates, there is a strong link. For high education levels there is a moderate link and there are no associations in the richest countries such as France. For cancer mortality it is not clear that there is a link between high income and low income rates. There is no

association between average education level and cancer rates and no associations in the rich 16. And for healthy life expectancy the large differences across Europe are driven by large differences in the CVD rates. Average national income i. e. economic growth is not important in the rich countries of Europe.
If we look within countries we get a different picture. This is for the regions of Italy, this is a recent paper produced by Robert Devoli and what it shows is the higher the income inequality within an Italian region, the lower the healthy life expectancy. For Sicily for example, there is greater income inequality and there is lower healthy life expectancy. This can be repeated across the European regions, within countries income inequality is a crucial health determinant.
Another way of looking at this is at the individual level and this is the study which I work on based in London. This is a group of 10'000 civil servants, looking purely at the men and the important point we recognise here is that all of these men are insecure employment if they have not yet retired or left the civil service. There is no absolute poverty. They work in very vertical organisation. And what we see in the graph is that there is very clear trend in a lower employment grade if you have less income, less power in your job, then you have a higher rate of heart disease. When we look at the contribution of behavioural factors, we found that if we look at the statistical panel or smoking, diet, physical activity and alcohol consumption then we can explain almost half of the gradient. So there is no doubt that health behaviour is important and by the same taken it is very strongly related to your social position and your economic occupation position. What we found is that income inequality is a measure of the social high rake. We found that the health of individuals is exquisitely sensitive to the social cultural economic environment. This means that in terms of policy to address long standing and very stubborn structural issues around social inequalities and health, we have to tackle issues such as unemployment, poverty and low pay. But we also have to think about factors such as income and taxation, the difference between the rich and the poor because that has an impact on many different levels as well as the behavioural issues such as the quality of parenting, nutrition, exercises and substances abuses.
We translated it into a booklet which is downloadable from the WHO original web site in French, German and Russian called 'the Solid Facts' and it summarises the ideas which emerge from the work on relatives inequality addressing food that is only one among these ten different messages.
On the food front, we can see that we are arguing for a number of structural changes in the food system. This means that local national and international government agencies all need to be involved in this process. We need to integrate public health perspectives into the food system, we need democratic transparency decision making in food regulation matters and we need a participation of stakeholders including consumers to ensure that this democratic countable process goes forward. As part of that, we want to promote sustainable agriculture and food production, stronger food culture for health especially through schools, education forcing people to know their food and nutrition and cooking skills which are lacking particularly in the UK. In addition to that we want health promotion and health education of the more tradition variety. This is clear that these are the prerequisite for tackling what we see

in the top right hand panel which is the relationship between mortality from coronary heart disease in relation to F&V supply using FAO data and selected European countries. What we can see is the strong relationship where countries such as Ukraine and Bielorusse have standardised mortality rates of 800 per 100'000 in comparison to Italy and France where they are down 100. These are massive gradients but we can not see F&V consumption purely in isolation, we have to relate it to the socio-economic context within each country.

In conclusion substantial inequalities in health persists in the richer countries, the concept of relative depravation and poverty capture the situation. Greater social justice rather then economic growth is needed to reduce health inequalities. Structural issues such as unemployment, low pay, social exclusions, and cycle of deprivation are primary. Behaviour change such as improved nutrition will follow.

Q&A

PUBLIC: Just one comment. The European parliament recently came out with a proposal in of its report to lower across Europe the VAT on F&V. I do not know how realistic that is but certainly something that the Committee adopted and is probably through discussions at the European level.

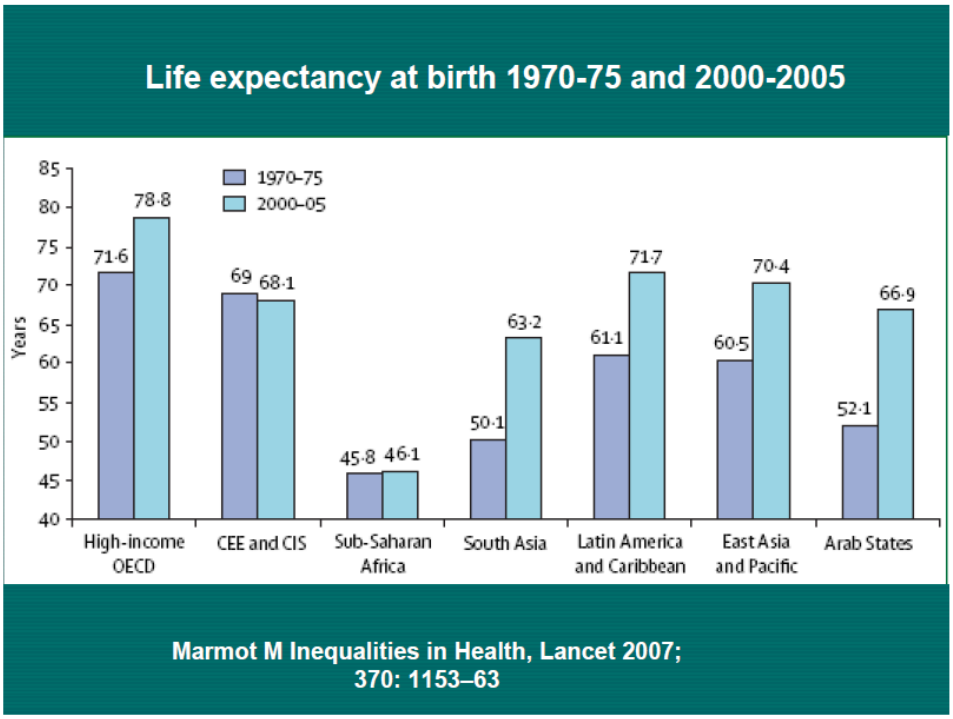
E BRUNNER: That is terrific news and thank you for bringing it to the conference. This proposal to reduce VAT on F&V, do you know what the state of this proposal is? Can you give us any more details? This is a perfect example.

PUBLIC: There are two things, the European Parliament for those who are not so familiar with it, the responsible committee has always had the chance to come up with what is called an own initiatives report. So it is not the legislative proposal that comes from the commission but that is something that they came with themselves and this is a report on how to fight obesity and the responsible committed on environment and public health adopted it on Tuesday May 27th and it will now go to plenary and normally if it goes to a committee as such it has a very good chance of being adopted in plenary next month in Strasbourg. Then it is in the discussion.
It is a whole package of initiatives they propose and the lower to fight obesity among children so they would then analyse which or the proposed measures from the parliament are realistic and work further discussions.

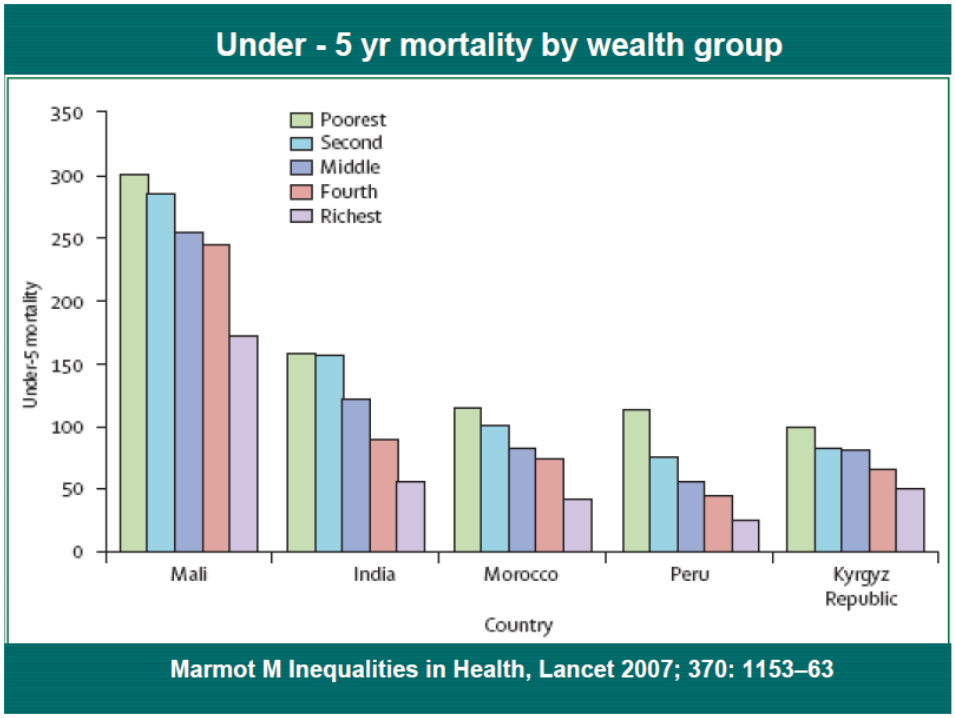
How to lower inequalities?

Philip JAMES
LSHTM & IOTF/IASO, London, UK

As a result of this meeting I presume you all know now what to do? You are not politicians and are not involved in as industrial business so your approach can be perfectly straight forward. We need to make sure that social structures are improved to help the disadvantaged. Inequity is at the top of the political agenda for the WHO and I thought during a recent conference in Geneva they were going to produce the answers. However, they did not although a report in the Lancet a year ago essentially highlighted the Europe dilemma of inequalities. If, however, you look across the world, you see astonishing greater differences e.g. in life expectancy.

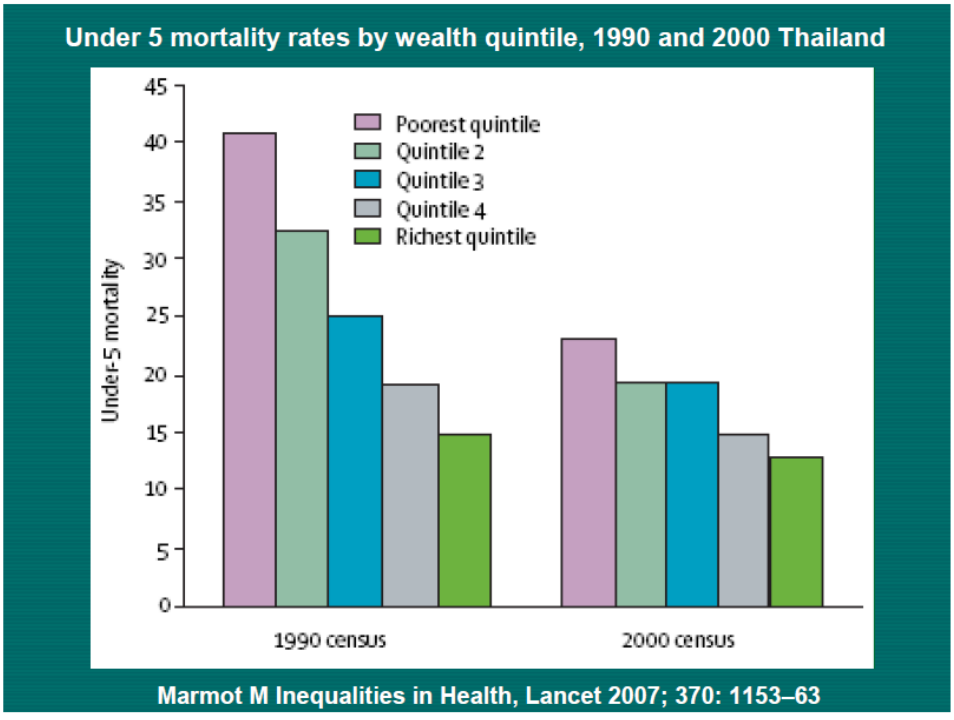


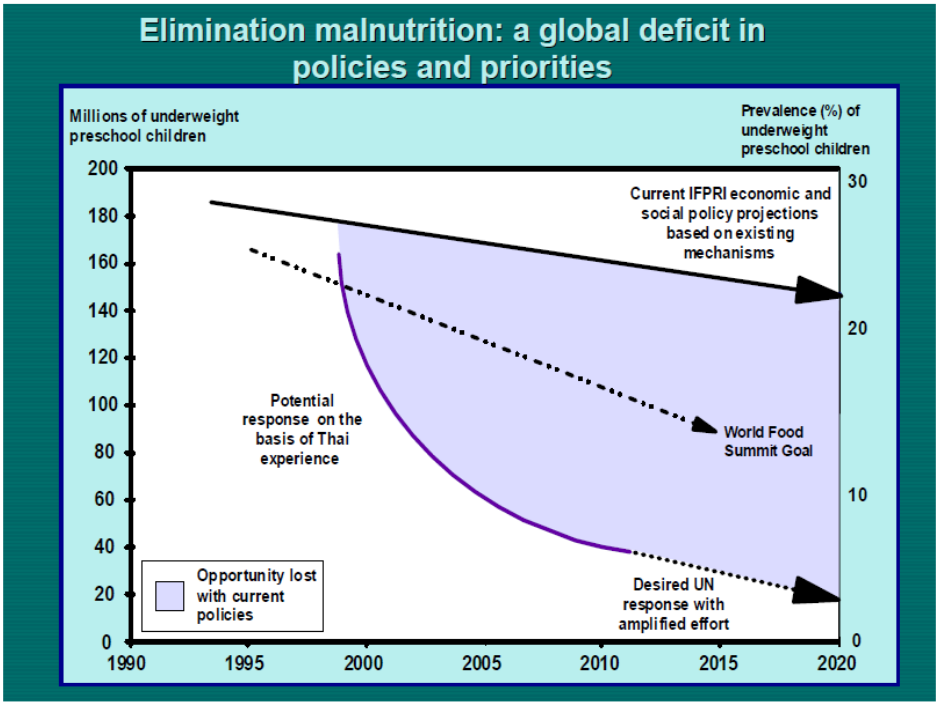
The figure shows that over a period of 15 years some countries have improved life expectancy but for example in Sub Saharan Africa there is no change. You can take the life expectancy or go to issues at the top of the G8 political agenda i.e. the Millennium Development Goala and ask about under 5 year mortality rates across the globe.



The second figure shows astonishing differences between countries. But also within a country you have pretty amazing gradients too. All these figures are in the Lancet paper. It seems practically impossible to do anything about these differences until you look at the problem in detail.

Here in the third figure are data from Thailand that we looked at when I was Chair of the millennium analysis of nutrition across the world. Notice how in 1990 there is an enormous gradient relating to income but there is not nearly such a gradient 10 years later.



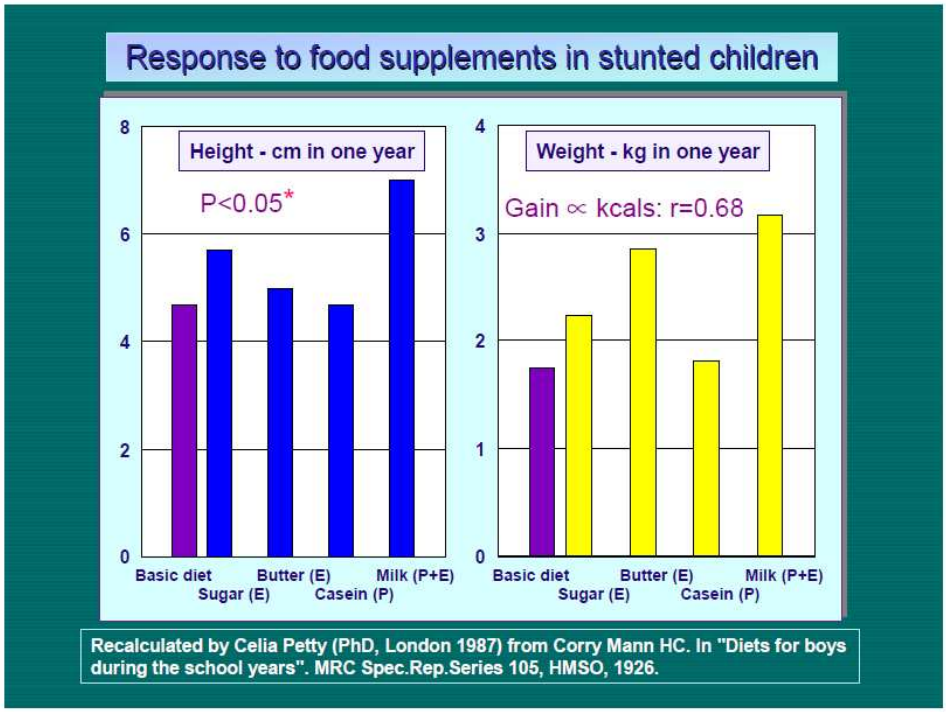


In fact if you look at the malnutrition rates in Thailand there has been an astonishing fall over 13 years in the malnutrition rate. The question is how did that happen? Is it simply that Thailand got richer? The answer is no. In the fourth figure you see on the left that malnutrition in 1990 affected 182 million children globally. The Millennium Development Goals wanted there to be half this number by 2015 (the dotted line). If in fact you rely on the classis western concepts of people getting richer in the country as a whole so that poverty is eliminated by the "trickle down" effect then when you look at all the modelling of what that means in terms of eliminating poverty and malnutrition, the top straight line shows what the International Food Policy Research Institute in Washington calculated would happen. In other words, the idea of relying on our current financial processing and systems is totally irrelevant if we try to tackle the health issue. Down at the bottom is the sweeping line of what would happen if the world took on what Thailand did. What did Thailand do? It fundamentally involved society; it changed the social structure of wellbeing for children in every village; local people were recruited by the villagers and they were linked to every branch of government with the royal family and everybody involved. The dominant thing was how the villages actually made sure that they gained total access to every component of the welfare, financing and another systems made in theory available by government but in practice not used because of the bureaucratic and other incompetences in the whole system. So in fact you can do an enormous amount it is not based on the free market concepts of relying on individual effort that dominates current international thinking.

We spend our lives as individuals being made responsible for everything and if you take the educational approach of telling people what to do then you amplify the differences between the socio-economic classes and educational groups. It is a major social disadvantage for society if you simply emphasize nutrition education on its own. You have to do other things and this is all to do with changing the environment and circumstances of the disadvantaged.

Because we are in F&V meeting I thought it might be helpful if I quickly told you my experience of going from being a respectable doctor to running an agricultural institute and spending my time with economists, Ministers of Agriculture and policy negotiators in Brussels.

If you look across Europe only 100 years ago we were nutritionally dependent on the area in which we lived and were dependent fundamentally on the crops that could be produced locally. You would not believe it but that photograph is what I spend my time doing in my holidays in the mountains of North Wales. What happened? Policies changed because my predecessor as Director of the Rowett Research Institute was Boyd Orr who with colleagues undertook studies on short poor children in the UK.



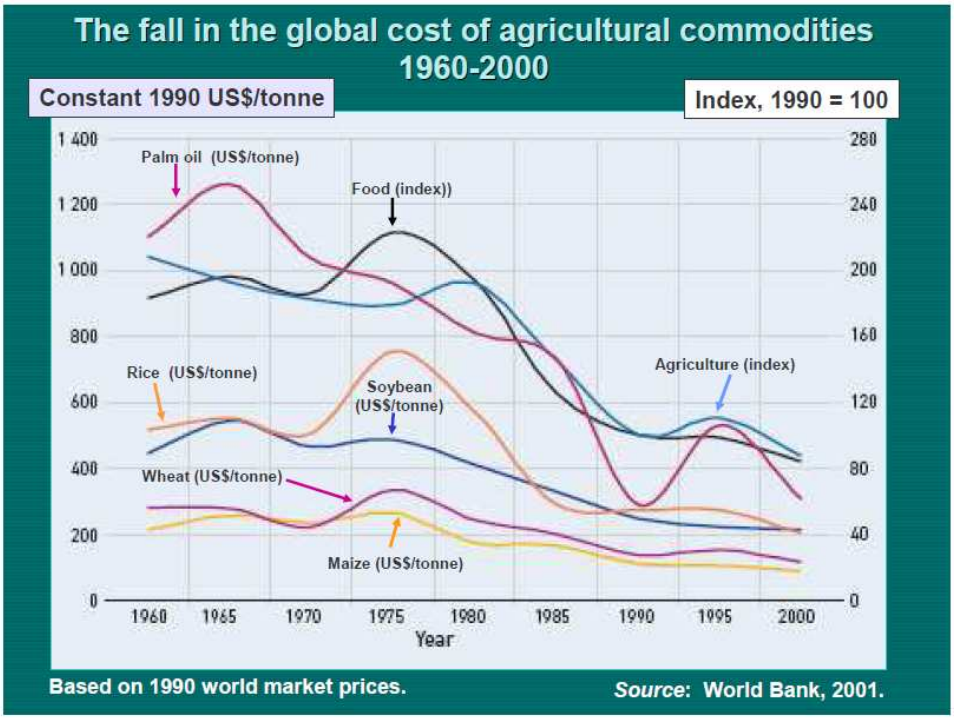
Everybody thought that the short children in the UK were genetically small and with the poorest class being so fertile compared with the tall aristocracy we were in danger of becoming a poor dwarfed nation! However they then experimented and divided the stunted children into groups and fed each group a selected amount of extra food. The basic diet in purple on the left of the figure shows the resulting increase in height and on the right the weight increases. Notice that what actually led to extraordinary increases in height was milk. You get minor increases in height but wonderful increases in weight with butter and sugar. So this was fantastic news because the children were not genetically stunted and then after all - it was something to do with food and poverty. The same applied throughout the world. Even now most of the EU feeding systems for malnourished children abroad do not deal with the problem of stunting because they provide vegetable food, not animal protein. However during WWII in Britain we were all fed with free milk, free orange juice and free cod liver oil and every child at school had routinely free meals of a

carefully specified quality. You may think this was the result of brilliant government thinking but in practice it almost did not happen. After the war, the UK ministers of Agriculture and Health got an Award from *America for their work* but I was privileged to know that the data from my institute had to be taken to London to prove to a reluctant government the fundamental poverty issue and the need for high quality food. Unless this was made freely available and everybody had exactly the same allowance of milk, meat and butter then the country's population would suffer. In fact British health, even taking into account war casualties as well, improved during the Second World War and did not deteriorate.

Therefore Boyd Orr had used his food, health and income survey of poverty throughout Britain and proposed a radically different approach which led to a complete transformation of food and agriculture policy. When I went to see thousand of cows the farmers were happy because they could still sell their milk at a guarantee price and 50% of any capital investment in the farm was automatically paid by government. They had free R&D, free advice with people coming into their farm at all times, they had a guaranteed market and they were important because they were helping the world produce food - they were the valuable members of society working on the farm.

This approach was copied everywhere and we have now an agriculture policy throughout the world dominated by doing everything possible for fat, butter, milk, sugar and meat production. Farms subsidies still run at enormous rates. What I am saying is that for 60 years, governments throughout the world have systematically put trillions of Euros to nourish selective parts of the food system. F&V have been the lowest ranking group.

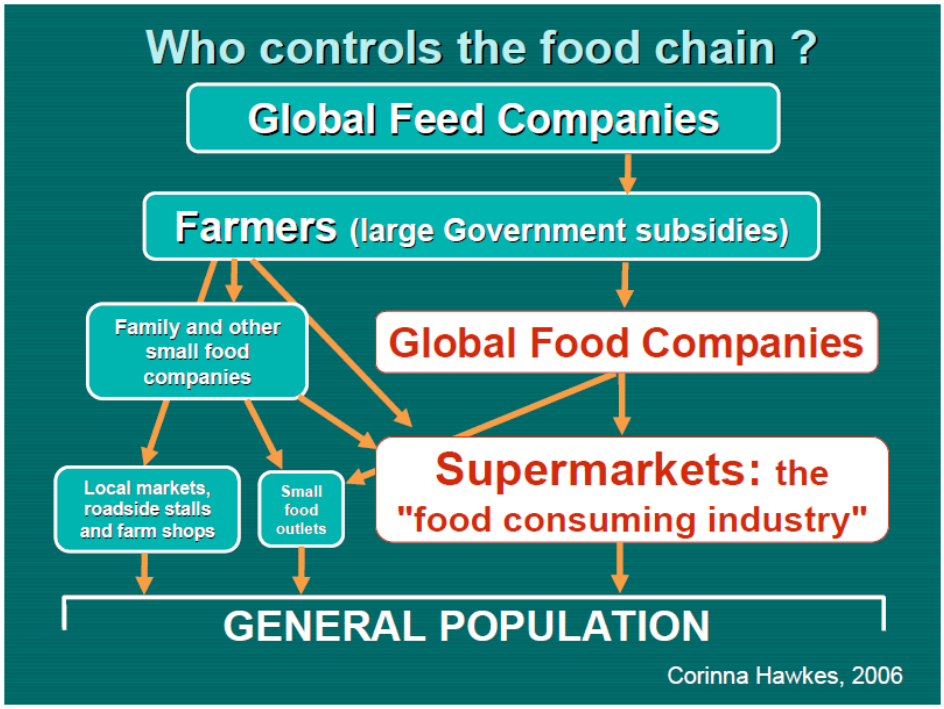
When I took over I think there were 44 agriculture research institutes in Britain with a huge number devoted to animal production. The horticultural groups and institutes that I related to were few and far between and had far less money than the powerful animal based institutes like my own.



What effect did this selective agricultural support policy have? Although there is a huge debate about the current effects of the Common Agricultural Policy (CAP) in Europe there have been enormous effects on the price of specific foods. Notice the drop in both oils and food prices in general - including cereals in the next figure. This is a major effect of all the enormous efforts made by governments, the research community and industry over the years. An analysis in the US shows that the food and agriculture policies have completely distorted the relative price of different foods and shown that there has been a relative increase in the price of F&V and a drop in the price of meat, oils, fat and sugars. So we actually have induced our population's nutritional problems but we now also have the evidence from agricultural and food policies about the mechanisms needed to overcome these policy errors.

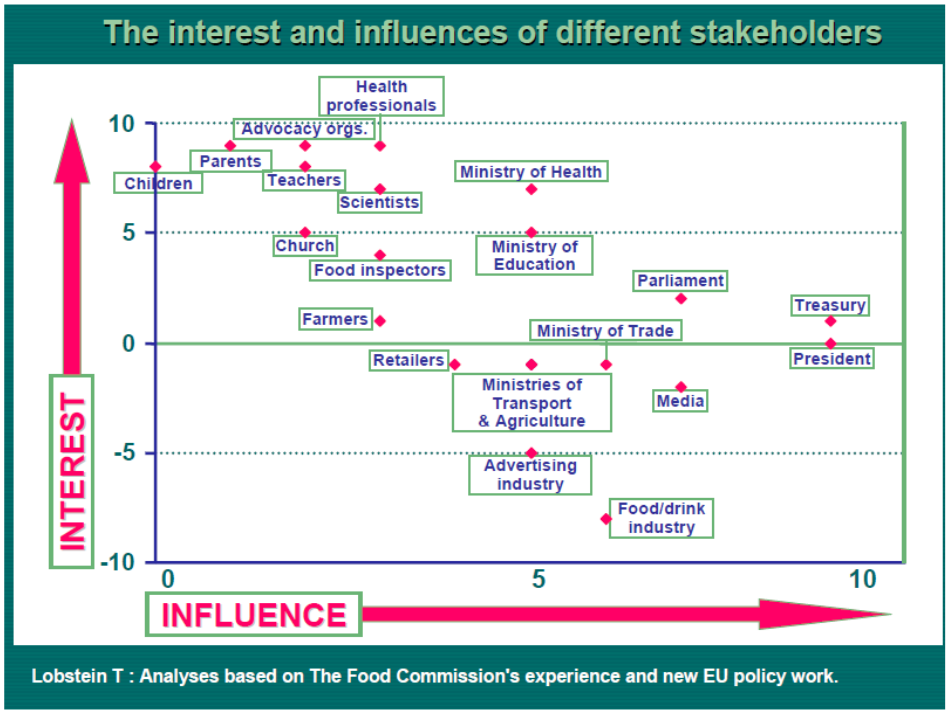
It is well known in the food industry that you can actually change a population's food purchasing and food related behaviour by manipulating the price of foods, making them available everywhere and by marketing them intensely. So now with all the decades long support by governments of the food sector we now have incredibly powerful food industrial groups with enormous influence - the fast foods industries can now obtain ready access to any president or prime minister within 3 to 4 days. By comparison how long does it take one of you to have an interview with your Prime Minister or President?

We always worry about the industrial marketing to children but we fail to realise that the marketing to adults is phenomenal with new special neuromarketing techniques to circumvent normal decision making. Thus the alcohol industry in Britain has converted young women from being almost non alcohol drinkers to be incessant heavy drinkers within the matter of 15 years with huge social and medical consequences. Big industrial groups can manipulate the whole of a society if they are really organised and know what to do.



The question then asked by Corinna Hawkes, is who controls the food chain? On the whole everybody starts talking about the bottom of the chain i.e. the general population. However the figure shows that it is the big organisations such as supermarkets, food companies and fast food chains that tend to dominate and farmers do not have ready direct access to the so-called "free market". The farmers in some countries do have large Government subsidies so how we are going to change the system to benefit society once more?

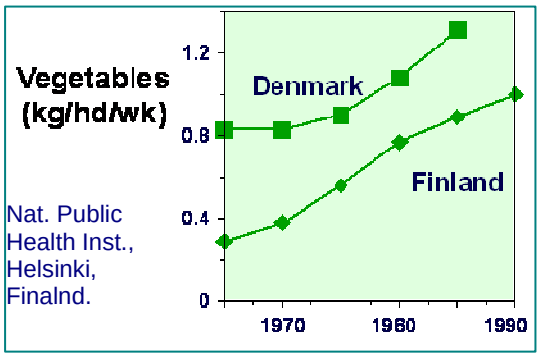
One issue comes from Tim Lobstein's analysis where on his graph, on the left hand side, people have no influence. But as shown at the top, if you are in the health business, you find advocacy groups of health professionals who have enormous interest but no influence. Across to the right you have the President and the treasury that are essentially influenced by political and economic issues. So the question is how do we induce change given this political reality? If you believe that simply presenting government with the facts work, then you do not know anything about politics! Politicians make decisions not on a basis of facts but on the basis of political advantage and on what seems to be appropriate at the time. So in fact you need to start moving society as a whole if you are going to make progress through the political system.



We heard that the educational approach is actually the usual approach in the US. In fact, everything in the US is based on the individual efforts of informed people. So the British Parliamentary Health Committee went to the US to investigate because we know that the US was much more dynamic than Britain in responding to challenges. We rapidly discovered we were wasting our time because everything is done at the grass roots, general population level in the US which is the most costly and politically slow and ineffective way of changing society. In the US and in many

other countries at the federal or national government level and quite often at the state government the decisions are completely controlled by huge industrial interests. The State Department of the US in its interactions with for example WHO essentially reflects not the interests of the US people but policies favoured by the fast food industry. So we have to understand the politics before we begin to move. How do you change things? Let's look at evidence of how things can work.

Here are the data from Finland on how they transformed the health of the population. The figure shows a trebling in vegetables consumption over a 15 years period. How did they do it? They made F&V an intrinsic part of every main meal whether they are served by government or business or any canteen or restaurant in Finland. The cost of F &V was automatically included in the costs so the poorer people did not selectively have to pay extra for F&V. There were 19 government initiatives but that was a critical part. New data from Denmark suggest that if you monitor the way in which different classes change their behaviour when you adjust food prices and you actually monitor thousands of families on a weekly basis for 4 years, as done by the Food Economic Institute, then by having very moderate changes in the taxes or subsidies on different foods you can induce marked improvements in food purchases based on the social class gradient: the poor benefit more than the rich. It is well known that whatever the average income in the population you have relative inequalities in income and it is the relative price of different foods that actually affects the purchases of the poorer classes because they are in an environment where they also spend their money on non food issues. So the way they can maintain the range of desirable purchases is by going for cheaper foods. If you change the relative costs of foods the poorest part of the population can gain most. However, you need to understand that as with tobacco and with alcohol, if you put up the price of sugar, fat or meat then it is a regressive thing. In other words, the poorest are tending to have to pay more. Therefore you need additional financial systems to be used to help the poor as well.



People also need to be helped by the use of nutrition profiling to generate a traffic light food labelling system which highlights the good and bad foods. This system is understandable by all classes in society and affects food purchasing patterns. So there is evidence that you can do things to help people to choose more widely but you need to have agreement on this system so the people do not have to work out many different labelling systems.

If you look at the agricultural future of the world, everybody predicts that meat production is going to go up but that is a self perpetuating process because the meat and other industries overwhelm decision making by governments and people at the moment. If you actually want to change things, you have to begin to change the whole structure of the environment. One can also list 5 simple measures. We need a major drive to increase/sustain breastfeeding, we need strict marketing restrictions,

and we need to control food, fruit and vegetable availability. We also need to transform the physical facilities for children and adults so that they become spontaneously more active as well as using leisure time for activity. Governments have huge opportunities to do things. In a school environment but it is quite clear that you need parent contracts because the biggest problem quite often nowadays is that the parents themselves do not know what to do and as in Finland it was the children who educated the parents, not the other way around. Finland also produced clear evidence that this approach was necessary.
We have to really think about potential mechanisms based on real political mechanisms. Here in France in the Parisian government and in the French Senate you have political groups that are extremely anxious to do something for F&V. You need to, if possible, combine industrial and health interests because that is how it worked before. So, there are mechanisms for doing it but if we do not work together to develop systems and simply rely on education then we will fail - we have to develop appropriate economic and social systems. We have to recognise and accept that we are going down the wrong route at the moment and the consequent future health costs are totally unsustainable. If we do not do something fast we are going to be in an unsustainable, financial mess because the McKenzie group already reckons that obesity alone in the world costs currently 700 billion dollars a year.

In conclusion, of course we cannot solve all the problems linked to poverty but we now need to use the social, economic and political mechanisms available to us to involve communities. We need to realign the systems of food provision and look at agricultural development in a new way. Then we can begin to transform the well being of the whole of society.

Q&A

E BRUNNER: What we heard in this conference is that there is a major public health issue in the world and particularly in Europe where affluent is generating massive health inequalities which are food related. You heard many ideas about what need to be done, what should we do?

PUBLIC (Mariano WINOGRAD, Argentina): In session 17 we discovered that even if all you have said is true, we are in the middle of a paradigm change. M James showed us figures where pricing were going down until year 2000. In the last 2 or 3 years, after bio fuel alternatives for sugars and fats and agro inflation, this tendency is changing. M Drewnowski showed us the relation between obesity and poverty but his fat in the situation where fats and sugar were cheap. This is not true anymore. I agree absolutely with Mister James proposal but I think we need to take care of this situation because his figures are taking care of this situation. In the last 2 years and in the last 12 months, the situation has changed absolutely. Maybe this pushes us faster to this need to promote F&V because it is not just a problem of obesity but maybe problem of supply element.

E BRUNNER: You make a very valuable point around the issue of food prices which has an impact on the poor or the relatively poor for the most. Therefore this is a fantastic opportunity for those who are working to promote the consumption of F&V.

A DREWNOWSKI: I have been looking at the new nutrition transition and its potential consequences for obesity. We have the idea that the global obesity epidemic has been riding on a wave of cheap sugar and cheap fat. The prices of these commodities have in fact tripled over the past year or 2. I have a pessimistic economic theory which suggests that the rising global prices of sugar and fat will be accompanied by a paradoxical rise in obesity and diabetes through a phenomenon known as Giffen behaviour. The theory suggests that a rise in price of an inferior good, consumed by the poor, goes up and if that good accounts for a large part of the food budget, then the consumption of that good also goes up, contrary to the law of demand, because the alternative foods have become prohibitively expensive. So as a result, the rising price of sugar and fat may lead to increased consumption of sugar and fat and even higher obesity rates. It is a very pessimistic theory but this is where we are.

P JAMES: if you look at the global systems we have got a major problem in terms of use of lands. One of the biggest problems comes from the emphasis on meat production which is therefore triggers an extraordinary change in the agriculture systems. Major government such as China have been making all the wrong decisions promoting enormous meat production inappropriately when in my institute we showed you can do it in completely different ways. Current governments,

international policies, are all geared the wrong way and you could do something to begin to overcome the problems you highlight.

A DREWNOWSKI: Just to add that some researchers have modelled what would happen if you increase the price of unhealthy foods (high in fat, salt and sugar) and it showed that it might lead to a decline in F&V consumption. So I think this is important that in this situation of increasing prices, to do what the European parts suggested to look very closely at price of F&V and make possible to reduce them through tax changes.

PUBLIC (Moddie MATSWAMA from the UK): A question for Eric Brunner, why was a social gradient in GDP per capita for cardiovascular disease but not cancer? And could that be partly related because of the fact that diet play such a significant role CVD in comparison to cancer? Then for Philip James, what would you summarize as the sort of three main priorities for reform of the European agricultural policy?

E BRUNNER: To answer to you first question, you are quite correct. It would appeared that dietary determinants of cancer are perhaps less evident and we have seen during the course of the conference that from the last couple of years that there has been something over retrenchment in relation to this question although it would make change again in the future with the evidence accumulated. What is also clear is that the impact of economic growth and inequality is very strongly related to obesity and to the dietary determinants of obesity which is very intimately linked with the risk of diabetes and cardiovascular disease. So, this seems to be the focus from a public health perspective that we need to focus on.

P JAMES: I would like to take the question in a slightly broader way. For example, first thing I do is that I would stop the export subsidies at the EU and then try to get the US got help us and also agree. The fact is US and EU together put 1.1 million farmers in a third world out to work on sugar alone. The second thing I would do is to reorganise the priorities in terms of what you are trying to promote or inhibit and we should not producing any sugar in Europe. The whole issue about F&V needs to be put in a completely different strategic model looking at the use of lands. If you look at Europe as a whole, there is fantastic opportunity and actually the whole of the CAP system despite why we are here has been manipulated to downgrade F&V availability and so on and it was complicated. The third think I would do is the R&D of agriculture needs to be developed. Shivasu is giving a brilliant working group at this meeting and the issues of agriculture in terms of lands use and vegetables and fruit R&D and how you actually get that moving both on a European and global basis is a fundamental responsibility in the EU.

SESSION 23

ROUND TABLE: INCREASING F&V CONSUMPTION IN DISADVANTAGED POPULATIONS: WHAT SHOULD DECISION MAKERS DO?

REPORT FROM PARALLEL SESSIONS

Chairs: **A Drewnowski & S Hercberg**

Serge HERCBERG
INSERM/INRA/CNAM, France

Nous allons débuter cette nouvelle session avec quelques modifications dans le programme puisque nous avons la chance d'avoir avec nous le directeur général de la santé et le directeur général de l'alimentation, nous avons préféré, pour des raisons d'emploi du temps de ces personnalités modifier l'ordre des passages. C'est-à-dire que le compte-rendu des sessions de ce matin qui devait intervenir en début d'après-midi est donc reporté en fin d'après midi. On va passer directement à la table ronde qui pose une question importante qu'on attend tous et pour laquelle on attend des éléments de réponses. Excusez-nous de ces modifications de programme qui sont liées aux problèmes d'emploi du temps des responsables politiques qui sont avec nous.

Juste peut-être pour introduire cette table ronde et faire le constat que nous arrivons au terme de ce sommet, c'est notre dernière session en plénière. Je crois que ce sommet nous a permis d'échanger, de discuter, de croiser nos regards, nos cultures, nos approches, nos disciplines. On a eu des sessions parallèles dans le champ de la nutrition de santé publique, dans le marketing et dans l'économie mais on s'est bien rendu compte que ces sessions parallèles, en fait,–se rencontraient très souvent et avaient quand même quelques éléments de convergence ce qui a permis d'articuler un petit peu ces différentes approches.

Je crois que toutes ces discussions nous ont amenés à vraiment légitimer les recommandations qui sont faites sur les fruits et légumes, mais nous avons rapidement butté avec le point essentiel, qui a été l'objet de très nombreuses discussions, c'est comment traduire nos recommandations de santé publique – notamment dans le champ des fruits et légumes mais c'est vrai pour d'autres recommandations - en application pratique. Quand on regarde ce qui a été présenté, la fréquence de la consommation des fruits et légumes dans les populations à l'échelle planétaire mais également dans les pays industrialisés, on se rend compte des difficultés auxquelles nous sommes confrontées. Je donnerai juste un chiffre, qui est un chiffre français, quand on regarde le nombre de personnes qui, en France, selon l'enquête nationale de nutrition santé, satisfont les recommandations d'au moins 5 fruits et légumes par jour, nous sommes à un peu plus de 48%. C'est un grand progrès puisqu'il y a quelques années nous avions un pourcentage de consommateurs beaucoup plus faible, on a donc un certain motif de satisfaction si ce n'est tout de même que ce chiffre, même s'il va dans le bon sens, cache des disparités sociales extrêmement importantes. Et quand on compare ce chiffre en population générale à la fréquence des consommateurs ayant accès à 5 fruits et légumes dans les populations les plus défavorisées, on a des chiffres qui sont extrêmement différents.

Les résultats d'une étude française sur les bénéficiaires de l'aide alimentaire ne retrouvaient que 1,2% des participants, soit des personnes se rendant dans ces structures de faible niveau socio-économique qui arrivaient à satisfaire ces 5 fruits et

légumes par jours. On est donc vraiment confronté de plus en plus à ce problème avec des marqueurs nutritionnels qui sont des véritables marqueurs sociaux, c'est vrai pour les fruits et légumes, c'est vrai, comme nous l'a rappelé Adam Drewnowski ces jours-ci, pour l'obésité qui constitue là aussi un remarquable marqueur social aujourd'hui. Et on a l'impression quand on regarde l'évolution dans le temps qu'on a à la fois une fracture alimentaire qui se creuse avec une efficacité des problèmes de santé publique plus grande au niveau de la population générale mais insuffisante pour les populations de faible niveau de revenus. Et cette fracture alimentaire s'accompagne d'une véritable fracture nutritionnelle quand on regarde l'évolution de l'état nutritionnel des populations en fonction donc de leurs caractéristiques socio-économiques.

Donc, ce sommet a essayé, en s'appuyant sur ces bases, d'identifier des freins à la consommation des fruits et légumes ; il a essayé surtout d'identifier des leviers, des pistes. On a vu beaucoup d'actions, certaines à l'initiative d'opérateurs privés, certaines à partir d'organisations non gouvernementales, de milieux professionnels, de chercheurs, d'hommes de santé publique. On a vu beaucoup d'interventions de grande qualité, on a vu l'évaluation qui a pu être faite de ces interventions. On a vu un peu ce qu'on pouvait faire, nous qui sommes dans la salle, c'est-à-dire des techniciens, des professionnels, des membres des filières, des membres des associations non gouvernementales ou des collectivités. Ce que l'on a vu également au travers de nos débats c'est que très souvent on appuyait sur le fait qu'il fallait qu'il y ait une réelle volonté politique et on a eu envie bien sûr de se retourner vers nos politiques, représentant des ministères ou élus mais également d'autres acteurs de la société (notamment les associations) pour avoir un véritable débat en disant aujourd'hui : que peuvent faire, que doivent faire ou qu'est-ce qui a été déjà fait par les politiques ?

On a la chance d'avoir à notre table le directeur générale de la santé Monsieur Didier Houssin, Monsieur Bournigal, directeur général de l'alimentation au ministère de l'agriculture, nous attendons un représentant du Haut-commissariat aux solidarités actives contre la pauvreté, nous aurons également un représentant du monde associatif au travers du président de la Ligue contre le cancer, Monsieur Hirsch. Nous allons donc avoir un débat mais avant de commencer ce débat avec ces personnalités il était prévu qu'il y ait 2 exposés introductifs qui posent le cadre de référence et pour introduire ces deux exposés introductifs je vais passer la parole à Adam Drewnowski.

Adam DREWNOWSKI
School of Public Health and Community Medicine, University of Washington, US

I will distress two themes. The theme of this meeting has been the convergence or alliance between agriculture, public health and public policy and this is not a new idea. The idea of an alliance between agriculture and public health has been stressed by John Boyd in his book on food health and income as early as 1937. So one question to pose is: What has taken so long? Why has it taken 60 years to achieve this alliance? And why are we still talking about it? So this is though the major challenge.

The second challenge is the challenge of health inequalities and health inequities. Socioeconomic factors determine health and one of the major factors is the quality of the diet. Unfortunately, healthy diet are becoming expensive, unfortunately, healthy diets are getting to be out of reach of many people. What kind of agricultural policy can we have that will assure equal access to healthy food for all? So these are the two themes of our presenters, Francesco Branca will talk about international policies on a more general level and then Eric Brunner will talk more about disfavored or deprived populations and what can be done to assure the access to healthy food for them.

Francesco BRANCA
WHO – Regional Office for Europe, Denmark

Good afternoon, thank you very much for this invitation.

I will briefly walk you through some data that have been collected in the regional office and that is about the situation of policies in the European Region about the promotion of fruit and vegetables (F&V).
First of all, I need to remind you that this is European region we are talking about, the former Soviet Union as well and as you can see there is a major discrepancy between the East and the West in terms of availability of F&V.

What you see in green are the countries that meet the recommendations of the 600 grams availability of F&V per person per day. And as you see, the majority of the countries in our region do not meet that recommendation. So we only have 19 countries in Europe that meet that recommendation. There has been a lot of improvement and you have been following this but still, there is again a major discrepancy between Western Europe achievements and Eastern Europe and the newly independent states that are also relying a lot on agriculture and are very much behind the rest of Europe in terms of availability of F&V.
These are data that indicates the availability at the household level, so these are data collected from household budget studies. And as you can see, there are only 4 or 5 countries which really have enough F&V available at the household level. And finally this is the EPIC data to indicate the real data about consumption and again you see that only a few countries of that group achieve the 400 grams a day recommended intake.
So, there is still a major issue about the availability on one side and the consumption on the other side. So there must be a role for public policies and I would like to start with this framework indicating that the drivers of food consumption are both on the demand side and on the supply side. Perhaps in the past we have been concentrating on the demand side, we have been concentrating on taste, the knowledge, the information, the relationship with health, issues like the prices but we have to be more and more concerned about the supply side, about the characteristics of the food supply chain, about the production capacities in the system and about what is marketed and advertised and what is available in shops.

So the governments have a very important role in modulating the balance between the demand and the supply. So it is not only a matter of ministries of health but definitively a matter of ministries of agriculture and ministries of economy and trade.

The global initiatives that have highlighted this issue of being repeating in time and we are here thanks to this global alliance which has been established International Fruits and Vegetable Alliance. A lot is happening in Europe, at a regional level it is very timely that there is a discussion on the reform of the Common Agricultural policy which seems to be more linking the support to agriculture to the actual

presence… and the rural development and not any longer to the commodities. And the white paper that the commission developed on nutrition, overweight and obesity related health issues followed by a constant declaration are certainly going in that direction with the promotion of F&V. And of course thanks to the EGEA conference we are here to discuss all this.

The regional office for European WHO has had a tradition of developing food and nutrition action plans; we are now at the second edition of the food and nutrition action plan. There has been a major advocacy initiative which is the WHO European Ministerial Conference on counteracting obesity. Major opportunities for ministries of health but also some ministries of agriculture to convene and discuss: how we should shape the food system in order to prevent obesity? The second action plan has an important commitment which is to ensure safe health in sustainable food supply and as you can see the improvement of the availability of F&V is number one in the list.

Now I would like to tell you briefly about this policy survey that we have performed. We wanted to show and analyze the current strategies to promote F&V consumption in the WHO European region. We started collecting data in 2003, there was a European survey specifically done in 2007 complemented by literature and web sites search. The first result was finding out the data guidelines are actually quite well established, we have results for about 2 thirds of the countries so you see that we are out of the 54 countries we have results for about 33. And out of the countries who have replied the majority have guidelines and they do specify the promotion of F&V. However, only few, I would say half of them, a bit more than half of them, are specific about this promotion and they recommend five portions or at least 400 grams per day of combined F&V intake. Out of this 19, 11 are even more specific and go down to the level of specifying the portions; 3-5 portions of vegetables for example in Czech Republic and in Estonia, 2-4 portions of fruit in Estonia and the Netherlands has 300 grams of vegetables and 2 pieces of fruits. So, in general there is a good attitude toward the promotion but not always there is a specific quantitative promotion.

Promotions initiatives are common, 21 countries have specific programs; again slightly different perspectives: Hungary has a 3-a-Day program, most countries have a 5-a-Day program, and Denmark has a 6-a-Day program whereas other countries promote F&V in the framework of the national nutrition plan.
This is a table indicating the setting in which these promotion initiatives are performed. You see the governmental -supported and the non-governmental-supported initiatives marked. I would say that in general the schools programmes are the ones that are mainly promoted; in some cases you have workplace canteens or public institutions. But actually, the public sector mainly intervenes in schools. There are workplace programs for example delivered by the private sector, by employers or f… responsibility for their employees. The actors of promotional initiatives are mainly still the ministry of health but you can see that the ministry of

agriculture in some countries is associated so we have, I think, good examples of collaboration and in views of… so the cited society is very important in all promotion efforts. This is also an assessment we did recently to try and see to what extent the countries, the member states, would buy the proposal to provide a better food environment. And, actually, we have disappointing results because in the whole area of the food supply we have only about half the countries who are really engaged. So while nutritional education, nutritional promotions seem to be something that most countries tend to do, still, the prevision of healthy food supply is not a priority and you see that, for example, the left caller incentive of F&V production is not something which is very common in the European panorama.

The survey also looks at barriers to consumption and at possible policy instruments to overcome those barriers. Now in terms of agriculture production member states interviewed said that they would see that incentive for farmers to redistribution of subsidies would meet some of the barriers to the agricultural production. But farmers need support in marketing and in promotion of their produce.
At the level of food processing it seems to be a need for more promotion, for better organisation of markets, for more local street markets for example, for improved public transport system, for retailer sailing loose or single packed F&V to allow more flexible consumption pattern, to increase conveniences, convenience of items like washed and pre-cut F&V and better labelling and time posting.
At the level of promotion availability of F&V in local settings, the policy instruments suggested are the F&V content of meals provided my canteens, the issue of price of vegetables, including fruit at dessert in menu, and changing the offer of vending machines and more F&V school items.
And at the level of the individual, still, the mass media campaigns are seen as an important tool.

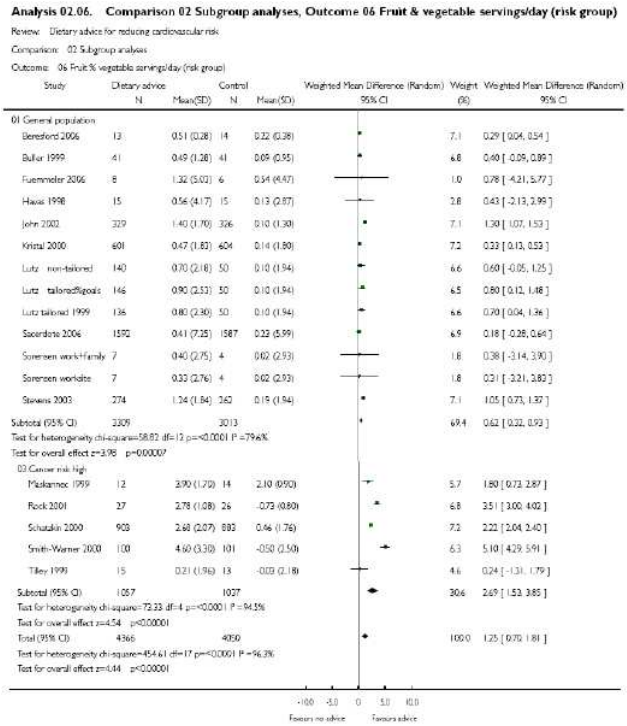
So, in conclusion of what I would like to point out, the panorama of Europe is improving a lot in terms of awareness. I think there is good awareness and policy commitment; certainly there is an awareness of the importance of F&V intake, this is visible throughout European regions at member states level, at the level of regional agreements; and there is an awareness of the importance of inter-sector work. So, this is, I think, a new thing, of the countries managed listen to b… those recommendations but what is missing is actually action on the supply side. There are campaigns started in the availability of F&V in local settings such as school or worksites widely available, promotional initiatives targeting individuals perform BUT a few promotional initiatives in the context of food processing retailing and limited effort to increase F&V promotion.
I hope this is a message for policy makers both in France and at regional level.

Thank you very much

A DREWNOWSKI : There is barrier on the supply side but there are also barriers on the side of demand. And here to talk about diet quality, poverty, inequality, and food policy is Eric Brunner.

Eric BRUNNER
Department of Epidemiology and Public Health, UK

The subject of my talk is both simple and complex; it is the health inequalities policy in the United Kingdom. In my talk this morning I referred to the fact that there are substantial social inequalities in health persisting in all the richest countries. That includes the United Kingdom and France. Greater social justice rather than, or perhaps as well as, economic growth is needed to reduce health inequalities. This means structural issues need to be addressed as well as behavior change. The two go hand in hand and, without change at the structural level we would not see the improvement in health inequalities that we wish for.



First of all, I won't go into these data but, this is a systematic review which demonstrates that it is possible to get the general population to increase its F&V consumption by individual-level interventions such as dietary advice in healthcare settings. However, the change is of course not as great as those people who perceived themselves to be at raised disease risk, for example cancer risk or heart disease risk, those people change their behavior very easily. For the general population we need long term structural policy changes in order to change the food culture.

Turning to the policy in the UK the Acheson report was published in 1998 with the title "Independent inquiry into inequalities in health". Ten years later, in March of this year, a ten year status report was published, which the head of my department Michael Marmot was very instrumental in leading.

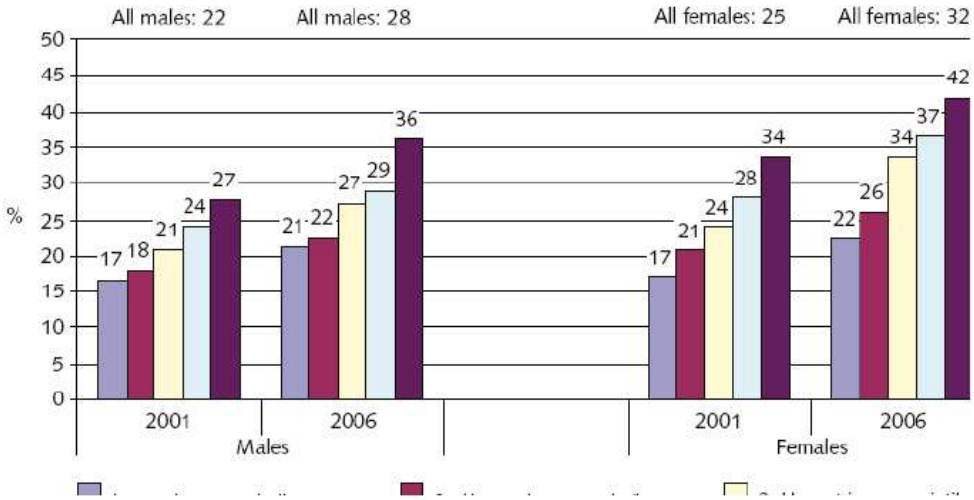
First of all we look at the health inequalities targets. This is a crucial point and we need to have health inequalities targets nation by nation. In the UK, the targets are modest. The target, introduced in 2003, is to reduce inequalities in health outcome by 10% by 2010 as measured by infant mortality and life expectancy at birth. The evidence now is that we are making small progress with infant mortality: the gap for the routine/manual group versus the whole population is slightly narrowed, but inequality in life expectancy, measured as the gap between the poorest 20% of areas (the Spearhead areas) and the whole population, is widening. So despite comprehensive policies within the UK we find progress is difficult and slow. However we are not deterred.

Within the government, across the ministries, there are 12 headline targets: the first target refers to cancer and cardiovascular disease mortality which are good health indicators, the others are teenage pregnancy, road accident casualties, primary care, flu vaccination particularly in low-income populations, reduction of smoking of course, improvement in educational attainment again focusing on low-income groups and the single food related objective is F&V consumption; further objectives: housing, physical activity, reduction of the proportions of children and families below the poverty line and reduction in the number of homeless families.
Progress on the headline targets has been partial, particularly with respect to inequalities; there have been improvements in cancer and CVD rates since the policy was introduced with narrowing health inequalities in absolute terms for both cancer and cardiovascular disease. However, there is no significant change in relative terms for cancer but there has been a widening in inequalities in relative terms for cardiovascular disease. This is because there is a general decline in cardiovascular disease but the difference between the poor and the rich has remained the same.

With respect to F&V consumption, between 2001 and 2006, consumption of 5 or more portions of F&V per day has increased - and this includes households with the lowest incomes.
No significant change in differences in consumption between the households across income groups has been observed. As I show you in this graph, between 2001 and 2006 there has been a similar increase in fruit and vegetable consumption across the income distribution as a result of measures within the UK. However, inequality has not been very effectively tackled. In 2006, about 20% of lowest income households consumed 5 or more per day compared to 40% of the highest income households.

Rising average – same inequality

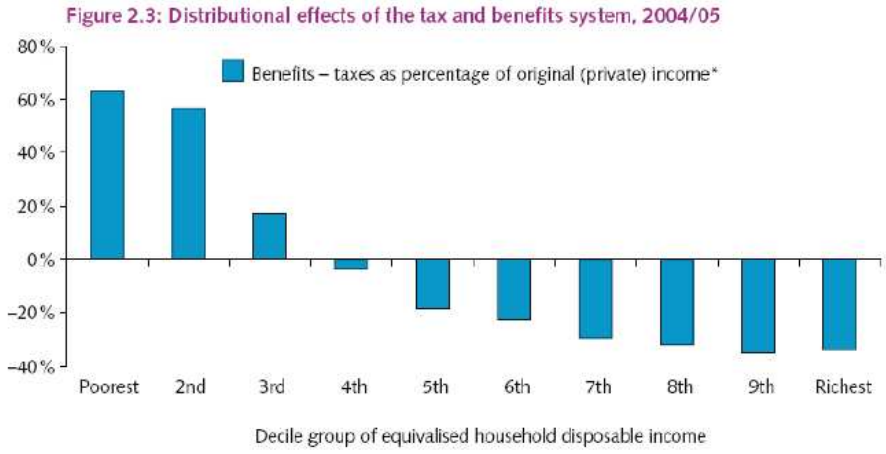
Figure 3.23: Percentage of adults (aged 16 and over) consuming five or more portions of fruit and vegetables per day, England, by household income quintile



Just to look at some of the other aspects of UK fiscal policy for a global campaign on health inequalities, we see here the redistributive policies involving the payment of cash benefits and tax rebates and the bars which are going from left to right represent

the ten groups ranked in order of disposable income, and we can see that the data show that money is being redistributed progressively through the fiscal policy from the rich to the poor in percentage terms. However, France and Britain are subject to global problems which result in a market-driven widening in the income distribution which any government will have a problem in tackling.

Progressive effects of UK fiscal policy



Tackling Health Inequalities: status report 2008

The key aspect to health inequalities policy which includes that relative to F&V is targeting. In the UK, we have chosen an area approach, this encapsulated by the drive to reduce health inequalities in spearhead areas which are the local government areas with the worst health and worst socioeconomic depravation indicators, relating to 28% of the UK population. A strategy to reduce health inequalities requires inter-departmental working. It is essential to work across government and other organizational boundaries with a time-frame to galvanize action. It is also necessary, in the UK perspective, to (1) divert resources to disadvantaged areas and groups, (2) develop the evidence to support implementation of targets and (3) focus action at different stages across the life course from before birth to death.

In terms of government process, the status report evaluates 82 timed departmental commitments and we can see here the examples for the national food and health action plan and two specific targets: the 5-a-Day program and the national school-fruit scheme which are the two major planks of the British health inequalities diet related policy. These timed commitments have been achieved or are in the process of being achieved.

So to summarize, behavioral change such as improve F&V consumption in disadvantaged populations requires a coherent strategy. Important factors include

public health values, political will, and financial resources. In the UK government commitments have been made. In practice, this means national action and coordination, targeting deprived populations and deprived areas, and monitoring progress.

Thank you very much for listening.

A DREWNOWSKI: Judging from the two days of the conference, the research on nutrition has been done. The research on the epidemiological F&V consumption has been done, the research on demographics has been done, policy analysis, behaviour change, all done. So now we need to know how to translate research results into political actions and what needs to be done next. Often, there is a two-way street between research and policy, on one hand research can inform policy but on the other hand policy makers need specific research results to direct their actions. So here today we have the extreme privilege to have representatives of the French government, who can actually trigger certain actions at the national level. And I am extremely interested in knowing what you have to say about the translation of research results into concrete policy given political will.

Didier HOUSSIN
General Director of Health, France

Il y a un très grand nombre d'éléments scientifiques qui ont montré l'importance du développement de la consommation de fruits et légumes pour la promotion de la santé de la population et la prévention des pathologies. Et donc, un des principaux repères du programme national nutrition santé en France a été la notion de consommation d'au moins 5 fruits et légumes par jour, ce qui contribue à protéger la santé. Alors, je voudrais dans cet exposé dire un mot du point de situation sur la consommation des fruits et légumes. L'aspect populations défavorisées sera abordé par mon collègue Jean-Marc Bournigal qui est le Directeur général de l'alimentation et avec qui nous travaillons, si j'ose dire de « conserve », sur ce sujet.

Je voudrais en introduction vous donner un petit aperçu de ce qu'est le programme national nutrition santé évoqué dans les exposés précédents. C'est par essence un programme tourné vers des questions de santé publique mais qui est interministériel, M. Hercberg préside d'ailleurs le comité qui chaque mois se réunit et qui rassemble les représentants du ministère de la santé mais aussi de l'agriculture, des finances, de la recherche, de l'éducation nationale. Donc cette dimension interministérielle qui parait évidemment essentielle sur un sujet comme celui-là est sans doute l'originalité principale de ce programme.
La France s'est dotée en 2001 d'une politique nutritionnelle de santé publique qui est ce programme national nutrition santé qu'on résume sous le sigle PNNS. Un des 9 objectifs prioritaires mentionne qu'il faudrait augmenter la consommation de fruits et légumes afin de réduire de 25% le nombre des petits consommateurs de F&V et d'ailleurs cet objectif était précisé dans la loi relative à la politique de santé publique d'août 2004.

Quelles ont été les actions qui ont été menées depuis 2004 ? La première catégorie d'actions, a été de mener des campagnes dans les médias et en particulier grâce à un organisme qui s'appelle l'Institut National de prévention et d'éducation pour la santé. Il a été possible de transmettre des messages selon lesquels, frais, en conserve ou surgelés, les fruits et légumes protègent la santé, et mettre en avant le repère de 5 F&V par jour, en valorisant toutes les formes de fruits et légumes afin d'élargir la possibilité de choix, et donc la possible comparaison des prix.

Un deuxième aspect qui a été promu, est la notion de message sanitaire. Depuis mars 2007, toute action de promotion pour des aliments manufacturés, boissons avec ajouts de sucres ou de sel doit mentionner un message sanitaire qui est par exemple, parmi les 4 messages qui on été retenus : « pour votre santé, mangez au moins 5 fruits et légumes par jour ». Cela ne veut pas dire que tout soit parfait et qu'il y ait toujours une claire compréhension du message lorsqu'il est juxtaposé à un autre produit, mais on a le sentiment que, peu à peu, la connaissance de ce repère s'est installée. Alors qu'elle était de 2,5% en 2002, en 2007, 43% des personnes interrogées

repéraient le message sanitaire « pour votre santé mangez au moins 5 fruits et légumes par jour ».

En plus des actions dans les médias, parce que chacun sait qu'un investissement dans la publicité n'a de sens que s'il est accompagné au niveau de la force de vente et de la promotion sur les lieux de vente, des actions de proximité ont été conduites dans les écoles et au niveau des collectivités locales principalement (…).
Au niveau de l'école, l'objectif a été de favoriser la consommation et l'appréciation dès le plus jeune âge, comme gage d'une consommation qui perdurera à l'âge adulte. L'idée est de s'adresser en priorité aux enfants avec l'idée que, une fois que c'est installé, c'est installé. D'autre part, l'école a l'avantage d'être un lieu rassemblant tout les enfants et de permettre de cibler parfois certaines zones géographiques, comme le dira, je pense, Jean-Marc Bournigal. De ce point de vue, l'imagination des professeurs a été très grande, il y a eu des évènements de toute nature qui ont été créés permettant d'impliquer les familles, de permettre de découvrir l'art culinaire, de favoriser la créativité dans le domaine artistique notamment ou l'ouverture au monde de la production et de la transformation.
L'école est aussi le domaine de la restauration scolaire, et là aussi des initiatives ont été prises pour que la place des fruits et légumes soit mise en exergue notamment à travers la règlementation. L'école est le lieu aussi où circulent des documents pédagogiques et, là aussi, toute une série d'initiatives ont été prises mais toujours, dans un cadre qui permettait d'éviter les dérives à travers l'attribution du logo PNNS fabriqués à l'attention des écoliers.
Il a été bien sûr souligné que, tous ces efforts n'ont d'intérêt que si les produits qui sont consommés à l'école sont réellement bons et flattent le goût. C'est la raison pour laquelle on a beaucoup compté sur la profession pour des choix judicieux, par des cahiers des charges adaptés. J'ajouterais que, depuis 2005, les distributeurs d'aliments et de boissons payantes sont interdits dans les établissements scolaires, mais nous allons expérimenter la possibilité de proposer exclusivement des fruits et légumes dans certains distributeurs, c'est une discussion qui n'est pas simple et qui évidemment n'est pas encore conclue.

Il y a également des actions au niveau des collectivités locales, car les collectivités qui sont proches des citoyens ont un rôle majeur à jouer. A été inventée la notion de Ville Active du PNNS et à ce jour, 140 villes et communes en France ont signé une charte permettant de les qualifier de Ville Active du PNNS avec toute une série d'actions possibles et on reviendra sans doute sur les aspects touchant les populations défavorisées. La connaissance est une chose; ensuite, il y a les questions de consommation. Pour essayer de faciliter la bonne compréhension du repère, des programmes courts ont été développés par l'INPES. D'autre part, les entreprises ont été invitées à s'engager dans un programme de charte d'engagement de progrès nutritionnel. C'est encore débutant, pour tout dire, il n'y a encore à ce jour qu'une seule entreprise qui a réellement signé la charte, mais nous ne perdons pas espoir de voir cette perspective se développer. J'ajouterais enfin l'importance de l'implication

des professionnels de santé et de leur sensibilisation à la question qui a été promue par le Ministère de la Santé.
Pour terminer, un petit mot sur la situation en 2008 : on peut dire qu'en France, les données de consommation montrent des évolutions qui sont plutôt favorables, en particulier la consommation de fruits frais ou transformés a augmenté chez les hommes; chez les femmes, pour les légumes et les soupes on est plutôt pour l'instant sur une situation de stabilisation mais on peut dire malgré tout que l'objectif fixé par le PNNS a été atteint par les adultes. Concernant la proportion de petits consommateurs de fruits et légumes, elle est tombée à 35%. Donc, on peut se féliciter que certains des objectifs fixés aient été atteints mais d'évidence, c'est un projet qui n'est pas terminé et nous sommes actuellement dans la phase de lancement du deuxième volet du PNNS. Il persiste évidemment toute une série de questions et en particulier celles qui sont abordées aujourd'hui, qui concernent les populations défavorisées que mon collègue Jean-Marc Bournigal va développer.

Voilà, je m'en tiendrai là simplement et je vous remercie de votre attention.

Q&A

PUBLIC (Mariano WINOGRAD - Président de 5/jour en Argentine) : Je vois que la politique a été décidée en 2004 selon ce que j'ai compris. La question c'est : quelle est la nouveauté après la croissance des prix des graisses et des céréales pendant les 2 années ? Je voudrais quelques opinions sur la situation actuelle parce que je comprends que toutes les décisions n'étaient prises quand le prix n'était pas assez haut comme c'est maintenant. Merci monsieur.

D HOUSSIN : Vous mettez le point là sur un évènement qui nous préoccupe, parce qu'il touche en particulier les populations défavorisées : le prix des fruits et légumes. A ce stade, on est surtout attentif à ce que les initiatives que nous pourrions prendre à partir de maintenant ne soient pas contreproductives. En particulier, on est axé aujourd'hui sur les messages publicitaires à la télévision, en particulier à l'attention des enfants et sur l'éventuelle taxation de produits alimentaires qu'on pourrait considérer comme à éviter ou à, disons, ne pas recommander. On est aussi attentifs car, il ne faudrait pas que des initiatives prisent, se révèlent finalement défavorables par leur impact négatif sur la consommation des fruits et légumes. Jean-Marc Bournigal va pouvoir dire un mot sur ce sujet parce que cela relève plus de son domaine de compétence.

Jean-Marc BOURNIGAL
General director of foods, france

Oui, alors, il est évident qu'en France et plus globalement déjà, dans l'Union Européenne, on est particulièrement attentif à l'évolution des prix des denrées alimentaires. Je ne rappelle à personne que le défi qui est devant nous est pratiquement de doubler la capacité de production alimentaire de la planète d'ici, disons, les années 2050 et qu'à ce titre là, il convient peut-être de réfléchir plus globalement, je dirais, aux choix stratégiques qui ont pu être opérés pour gérer en termes de production agricole et en termes de politique agricole et probablement également de mener une réflexion au niveau mondial dans le cadre des éléments de régulation économique liés à l'organisation mondiale du commerce et à la place particulière que peut y occuper l'agriculture dans cette situation. Donc, il y a cette réflexion générale que nous devons conduire, et le Ministre de l'Agriculture français a déjà lancé le débat au niveau communautaire et je ne doute pas que beaucoup de ministères et beaucoup de ministres de l'agriculture à travers la planète vont être amenés à se poser des questions sur, justement, comment doit-on concevoir maintenant nos politiques agricoles face à ce défi qui est de pouvoir nourrir la population et éviter les famines, (…) en tout cas les manifestations de la faim dans une quarantaine de pays à travers le monde ne peuvent que nous interpeller.
Bien évidemment, cela a également des conséquences sur nos pays et sur le coût de l'alimentation dans nos pays. Donc là aussi, il y a des réflexions qui sont déjà en cours, plus globalement au niveau de (…) la façon dont on appréhende les choses de façon économique, c'est-à-dire qu'il y a une réflexion en France sur une amélioration de la concurrence sur la partie distribution pour diminuer le coût des produits. Et bien évidemment, cela pose le problème du pouvoir d'achat mais c'est lié à des politiques économiques un petit peu plus larges incluant des problématiques telles que comment peut suivre l'évolution salariale par rapport au risque d'inflation. Je ne sais pas s'il y a des réponses extrêmement simples; en contrepartie, ça pose un véritable problème pour les plus démunis, tout simplement parce que les populations les plus démunies dépendent encore aujourd'hui d'aide alimentaire relativement importante et que, bien évidemment, nous sommes plutôt dans des aides dont les montants sont plafonnés et que le surcoût de ces produits nous amène probablement à essayer de regarder budgétairement comment nous pouvons accompagner ces mouvements pour être capables, quand même, de continuer à distribuer ces denrées alimentaires. Donc là aussi il faudra également accompagner ces réflexions des conséquences sur les montants financiers qui sont consacrés à l'aide alimentaire dont une partie, bien sûr, va sur l'acquisition de fruits et légumes pour les populations les plus démunies. Donc, je n'aurai pas de réponse magique à apporter sauf que cette nouvelle situation impose probablement d'abord une réflexion sur la gouvernance mondiale et deuxièmement, interpelle pratiquement les structures ou la structuration économique de chacun de nos pays pour être capables de suivre. Ça touche effectivement beaucoup moins les populations aisées mais pour les populations les plus démunies, ça peut poser de véritables difficultés et ça ne va faire qu'accentuer la précarité. Si l'on regarde les chiffres, y compris en France, ces

populations sont plutôt, effectivement, en augmentation qu'en régression. Donc cela ne peut qu'interpeller les pouvoirs publics.

Juste quelques précisions par rapport à ces politiques gouvernementales : j'ai entendu vos experts parler de politiques cohérentes et structurées ; c'est vrai que la France a eu une démarche assez structurée en la matière dans la mesure où elle a mis en place un plan (…) national nutrition santé qui associe la totalité des partenaires. On en est déjà à la deuxième version, ce qui veut dire que nous essayons d'avoir une vision coordonnée de l'ensemble de nos actions, à travers un diagnostic partagé des difficultés rencontrées, des capacités d'action de chacun des acteurs. Donc pour le Ministère de l'Agriculture, notre implication dans ce champ-là est relativement claire. Le Ministère de l'Agriculture, enfin en tout cas en France et je pense que c'est un peu le cas dans la majorité des pays du monde, maîtrise ce que l'on appelle l'offre alimentaire au sens général et la politique de l'alimentation telle que nous la voyons du coté français c'est d'être capable de pouvoir offrir au consommateur une alimentation sûre, saine, de qualité, diversifiée et de qualité nutritionnelle, et bien sûr accessible. Donc une fois qu'on a dit ça, cela implique qu'il faut se pencher sur la totalité des leviers d'actions dont peut disposer un Ministère ; on peut travailler sur la sélection végétale pour améliorer le contenu nutritionnel des produits, pour améliorer son goût. On peut travailler sur les organisations de filières et les circuits économiques. On peut travailler aussi bien sur la formation des prix que sur l'accessibilité des fruits et des légumes en aidant la transformation, en aidant la recherche et ainsi de suite. On peut aussi, bien sûr, contribuer derrière, jusqu'au consommateur final à travers les systèmes de logistique de façon à ce qu'ils soient adaptés. C'est donc un peu la spécificité de l'articulation du Ministère de l'Agriculture dans ce programme. Nous contribuons donc, par rapport aux objectifs qui ont été fixés dans le PNNS, à des mesures de prévention qui tournent autour de l'offre alimentaire.

Le diagnostic, je pense que tout le monde a dû en parler largement pendant ces quelques jours du Sommet, nous allons faire face à une double fracture. Une fracture générationnelle où nous observons quand même que les jeunes enfants mangent nettement moins de fruits et légumes qu'avant et là, Didier Houssin a déjà largement indiqué qu'il faut passer par une éducation, et une formation des jeunes qui est extrêmement importante, pas dans l'idée de leur apprendre, combien de protéines, combien de pourcentage de différents nutriments il faut manger, mais plutôt une éducation sensorielle, une éducation au goût pour leur donner le goût des fruits et légumes, des messages relativement simples et surtout des messages qui sont en phase avec, je dirais, la vision gastronomique que peut avoir la France qui inclut, non seulement bien sûr, la notion d'équilibre nutritionnel mais l'associe, à tout ce qui va avec, c'est-à-dire le plaisir, la convivialité, puisque c'est quand même le choix qui a été opéré dans le cadre du PNNS de ne pas diaboliser un aliment par rapport à un autre. Dans toute cette dimension éducation il y a quelques chose qui est mené, tambour battant, au niveau de l'éducation nationale à travers différents programmes

qui sont menés d'ailleurs avec l'appui de chercheurs, l'INRA a beaucoup investi d'ailleurs sur ces domaines-là.

Le deuxième élément qui est effectivement plus difficile à appréhender, c'est la fracture sociale où il est évident que toutes les études ont montré très clairement que parmi ces populations les plus démunies, on a observé d'une part les cas les plus élevés de dénutrition, et d'autre part des cas d'obésité ; ce qui prouve que l'action que l'on doit mener sur ces populations doit voir l'équilibre nutritionnel être au cœur des préoccupations des pouvoirs publics en la matière. Pour toucher ces populations les plus démunies, l'évidence, outre le fait qu'elles ont des difficultés de pouvoir se fournir en alimentation en quantité et bien sûr en qualité par rapport à leur revenu, le système français passe par un système d'aide alimentaire qui repose déjà sur une aide communautaire plus une aide nationale et une mobilisation des industriels de l'agroalimentaire et des différents citoyens sous forme de dons, ce qui permet d'avoir environ 120 millions d'euros consacrés à l'aide alimentaire en France pour pouvoir alimenter 2,6 millions de personnes. Un facteur qui est un peu plus en augmentation qu'en régression.
Les politiques françaises s'appuient essentiellement sur les associations caritatives qui assurent l'accueil des bénéficiaires et la distribution des aliments ce qui signifie bien sûr un recours au bénévolat. C'est une originalité du système français et les pouvoirs publics doivent en tenir compte.
Il faut en permanence savoir s'adapter aux différentes catégories des populations bénéficiaires parce que lorsqu'on parle de plus démunis on va effectivement des personnes qui sont sans domicile fixe et qui sont en marge complète de la société jusqu'aux travailleurs pauvres qui sont encore insérés dans la société mais dont la situation devient extrêmement précaire et il faut être capable d'accompagner l'ensemble de ces populations dans des circuits qui sont relativement différents. Ça passe aussi bien par des colis, des repas servis, jusqu'à des notions d'épicerie solidaire, qui sont des modes de distribution où les gens continuent à être insérés socialement dans le choix des aliments qu'ils peuvent acheter mais avec des prix qui doivent tourner autour de 20% des prix des produits que l'on peut trouver dans le commerce; et l'ensemble de ces associations caritatives permettent également d'accompagner les bénéficiaires, au-delà de la simple distribution alimentaire, en donnant du conseil mais également, d'autres types de services qui vont jusqu'à des actions visant à impliquer *l*es bénéficiaires (cours de cuisine etc ...).

Par rapport à ce schéma, l'implication du Ministère de l'Agriculture, en lien avec la Direction Générale de l'action sociale, est plus particulièrement axée sur l'organisation de ce traitement particulier qu'est l'aide alimentaire. De nombreuses actions ont été menées.
Une première pour améliorer l'équilibre nutritionnel de ce qui est distribué, une action que le Ministère de l'Agriculture est en train de lancer, c'est la distribution de fruits et légumes, plutôt de fruits d'ailleurs parce que les légumes ça marche un peu moins bien à la récré, (surtout si c'est des poireaux ! …) en dehors des repas, non seulement pour contribuer à améliorer la compréhension ou en tout cas le jugement

que portent les jeunes sur les fruits mais également en l'accompagnant d'opérations de soutien pédagogique qui visent à mieux insérer ces fruits dans le quotidien des jeunes enfants et la première opération qui va être lancée dès la rentrée prochaine visera de façon très prioritaire les Zones d'Education Prioritaires, là où l'on rencontre les familles les plus démunies en nombre beaucoup plus importants. Ce système aura pour vocation d'être généralisé dans l'ensemble des écoles françaises, nous travaillons au niveau communautaire sur la possibilité d'avoir des financements pour aller dans ce sens.
D'autres actions visent à mieux acheminer ou en tout cas distribuer les fruits en cas de crise. Une expérience intéressante a été menée au niveau d'un marché d'intérêt national qui se trouve juste en dehors de Paris qui a permis à travers une meilleure gestion logistique mais aussi une meilleure articulation entre les associations caritatives et les différents producteurs de fruits et légumes de valoriser les invendus ou les produits qui le seraient presque. Et à travers une meilleure articulation des acteurs, chaque jour c'est plus de 1,5 tonne de fruits et légumes qui sont récupérés sous forme de dons. Et plus de 3,5 tonnes de fruits et légumes qui sont récupérés avec des coûts d'achat préférentiels. Et ces fruits et légumes sont ensuite dirigés à travers une réflexion logistique permettant d'aller soit directement vers des transformations qui iront ensuite abonder les circuits de distribution, soit directement livrés en frais dans les circuits de distribution pour les aides aux plus démunis.
Maintenant une réflexion beaucoup plus générale en France est engagée pour aller vers une optimisation de la gestion de ces marchés car la déperdition quantitative est extrêmement importante un peu partout dans le pays. Soit à travers les circulations normales des produits ou à travers les épisodes ponctuels de crises où il y a des retraits de produits, si on n'est pas très bien préparé en termes de logistique il y a encore des phénomènes de déperdition majeurs en cas de crise. C'est donc un premier axe de réflexion qui est en cours et qui a déjà commencé à donner des résultats.

Deuxièmement, nous sommes également impliqués, avec la Direction générale de l'action sociale, pour améliorer la qualité organoleptique des produits. On s'est quand même aperçu que sur beaucoup de produits transformés, c'est-à-dire des produits dédiés à ces circuits un peu particuliers, l'aspect gustatif organoleptique n'était pas tout à fait au rendez vous ce qui pouvait expliquer également un certain désintérêt, même de ces populations démunies, sur les fruits et légumes, leurs modes de présentation ou les recettes qui pouvaient leur être proposées n'étaient pas non plus à la hauteur de leurs espérances. Donc, là aussi nous allons travailler sur l'amélioration gustative de ces produits en travaillant avec des unités un peu plus dédiées qui existent dans certains établissements d'enseignement agricoles du Ministère de l'Agriculture.

Enfin, on intervient également pour améliorer la connaissance des plus démunis en termes l'équilibre alimentaire et les connaissances des terroirs parce qu'on s'aperçoit que même si on réussit à avoir l'aide économique, même si on réussit à trouver des

fruits et des légumes, souvent ces familles les prennent mais ne les consomment pas, voire ne les prennent pas du tout. Soit parce qu'ils estiment que ces produits doivent être transformés ce qui engendre un effort particulier et ils ne sont pas prêts à le faire, soit parce qu'ils jugent que c'est peut être moins valorisant socialement que des produits plus rapidement prêts à l'emploi qui sont quand même beaucoup plus mis en avant dans la présentation extérieure de l'alimentation. Ce qui nécessite là encore des réflexions sur comment faire passer des bons messages à travers les circuits existants en dehors de l'école. Là aussi nous sommes engagés dans deux projets pour augmenter la consommation de fruits et légumes chez les plus particuliers, d'abord à travers le développement de modules de formation et d'éveil sensoriel mais également l'élaboration d'outils d'animation pour que les bénévoles et les salariés des associations caritatives ou des épiceries solidaires aient les moyens de communiquer au quotidien avec les populations défavorisées et aussi la capacité d'animer des ateliers pour leur donner un petit peu de culture culinaire pour valoriser, justement, à leurs yeux les fruits et légumes. Ce sont des actions qui mobilisent l'Etat et auxquelles est associée également toute la profession puisqu'une partie de ces actions voient aussi la mobilisation d'INTERFEL, d'Unilet pour la partie transformée mais également de la fondation Bonduelle et associent les associations caritatives telles que les épiceries solidaires et également le Secours Populaire Français. Aussi ce travail pédagogique me semble extrêmement important et bien évidemment derrière il y a d'autres programmes, j'en ai parlé un tout petit peu sur les histoires de logistique, de stockage, de guide de bonnes pratiques sur l'hygiène et la sécurité sanitaire de ces produits parce que nous sommes dans des circuits où il y a beaucoup de bénévoles et il faut aussi là s'assurer que les produits qui arrivent jusqu'à ces populations démunies soient bien évidemment aussi sains et sécurisants que possible.

Donc voilà quelques éléments qui structurent notre volonté, au moins sur la partie des plus démunis. Je crois que Didier Houssin a déjà parlé des autres éléments. On peut bien sûr intervenir sur la qualité nutritionnelle dans les cantines des enfants ce qui est déjà en cours entre nos deux administrations et sur une réflexion un peu plus globale sur la valeur nutritionnelle des produits mis sur le marché à travers la notion de charte d'engagement volontaire de différents industriels soit à titre individuel soit collectif qui bénéficierait ensuite d'une reconnaissance dans le cadre du PNNS, des actions qu'il pourrait y avoir sur la qualité nutritionnelle de leurs produits. Une qualité nutritionnelle, ça veut dire soit une réduction de la valeur énergétique à travers une réduction en termes de glucides ou une augmentation de glucides complexes, à travers aussi bien les lipides mais également sur la communication, sur la présentation, sur la taille des doses. Donc ces éléments-là sont articulés comme vous l'avez compris, dans un plan un petit peu général, nous discutons tous ensemble les différentes démarches que nous allons enclencher pour donner du sens ; et puis derrière, ce qui est un petit peu plus difficile, c'est la façon dont on mesure tout ça. Ce n'est pas exactement simple. Peut être que Didier pourrait préciser un petit peu ce qu'est la façon dont on peut mesurer l'impact sur la population je dirais en termes de mesure de l'obésité d'un coté. D'un autre coté on

peut avoir des séries d'indicateurs sur chacune des actions que l'on mène de façon à mesurer son efficacité que ce soit en termes logistique, quantitatif, acceptation par les consommateurs ou sur les chartes d'engagement car nous avons mis en place un observatoire de la qualité des aliments en France qui nous permettra de suivre l'amélioration du contenu nutritionnel des aliments dans ce pays qui sera, là aussi, un indicateur où nous pourrons collectivement voir ce que la ménagère achète et la qualité nutritionnelle, en tout cas l'amélioration de celle-ci dans le panier moyen des ménagères.
Voilà quelques éléments.

Q&A

PUBLIC : M. Houssin, les champs de surveillance sur la notion de l'obésité ?

D HOUSSIN : Il y a effectivement des systèmes qui permettent de mesurer les indicateurs d'impact sur la nutrition en particulier la prévalence de l'obésité. Il y a d'ailleurs en France des résultats qui sont plutôt encourageants sur l'obésité concernant les jeunes enfants, en revanche sur les adultes on n'atteint pas encore une évolution qui puisse être considérée comme positive.

PUBLIC : Une question assez basique, quand il s'agit de l'obésité, quelle est votre estimation de la responsabilité du gouvernement ? Et celle de l'industrie agroalimentaire ?

D HOUSSIN : Ecoutez, je crois que c'est un phénomène qui évidemment est tout à fait multifactoriel et donc on ne peut certainement pas décharger de leurs responsabilités ni l'industrie ni l'Etat. Maintenant, la part respective des deux est certainement difficile à apprécier. Ce qu'on peut dire simplement c'est que la force de frappe de l'industrie est très grande, à travers la publicité, les moyens engagés dans la publicité. Comparativement, les moyens mis en œuvre par l'Etat sont certainement moins importants mais c'est vrai que l'avantage de l'Etat, en particulier en France, c'est qu'il a la possibilité d'étendre son action assez loin dans la société à travers une organisation qui est finalement assez centralisée et qui laisse peu de prise à des comportements qui seraient totalement divergents de telle ou telle région par exemple. Je ne peux pas dire que nous soyons à armes égales mais malgré tout l'Etat n'est pas totalement démuni et le programme National Nutrition Santé est sans doute une traduction de cette capacité d'engagement. Alors ensuite, le jugement se fera plus tard.

PUBLIC (M. SALLES) : M. Bournigal, vous parlez de donner du sens et quelques instants auparavant M. Houssin parlait du prix des fruits et légumes qui est un obstacle, ce qui a nourri la thèse que les fruits et légumes sont chers. J'aimerais beaucoup que l'on travaille, plutôt que de vulgariser cette idée-là et d'accréditer cette thèse-là, au traitement de ce que pourrait être la phénoménologie du prix comparée à la valeur alimentaire que nous sommes en train de mettre en exergue justement tout

au long de ce congrès et des précédents de telle manière que le sens qui est celui que nous souhaitons réellement porter soit objectif, ce qui n'est pas le cas. Car quand on dit que les fruits et légumes sont chers, à mon avis, tant qu'on n'aura pas tiré des conclusions de ce que pourrait être une valeur alimentaire comparée entre ces produits là et d'autres produits de la consommation.

D. HOUSSIN : Je trouve que votre remarque est tout à fait intéressante car il est vrai qu'on a sûrement à travailler sur cette question du sens des mots et du sens accordé à certains prix. J'avais été frappé en matière d'alcool sur le fait que là aussi il y avait des notions de perceptions selon la taille des verres entre la quantité d'alcool et la taille des verres et je crois qu'on devrait peut-être travailler plus sur... J'entends le message.

JM BOURNIGAL : On sait bien que c'est quelque chose auquel la filière est extrêmement sensible. C'est vrai qu'en termes de prix, c'est en fait la perception qu'on en a qui est importante. C'est vrai que là, on a déjà des discussions en France, pour voir ce que ça veut dire. Les fruits et légumes sont chers ça ne veut pas vraiment dire grand-chose. C'est savoir un petit peu en valeur relative, ce que ça représente entre un enfant qui trouve qu'une barre chocolatée, ce n'est pas cher, il va trouver qu'une pomme est chère même si elle est trois fois moins chère que la barre chocolatée. Après c'est en terme de fonctionnalité où la fonction de plaisir intervient… Mais c'est vrai qu'on ne peut pas non plus nier que quelque part quand on fait des analyses techniques ou scientifiques sur les freins à la consommation on entend souvent parler du prix. Donc ça veut dire que c'est quelque chose qu'il faut aussi appréhender, des réflexions sont en cours déjà en France sur le fait que les fruits et légumes sont souvent vendus au poids et pas à l'unité, ce qui fait qu'on n'a pas les mêmes perceptions de ces produits. Ces notions de prix, donc, et surtout la perception que l'on peut en avoir par rapport à une fonctionnalité nutritionnelle c'est quelque chose qui mérite encore probablement d'être creusé pour pouvoir trouver la façon de le présenter peut être différemment que de simplement dire : "c'est trop cher ". En tout les cas, c'est une véritable réflexion à mener.

PUBLIC (M. SALLES) : Permettez moi de ré-insister et de nier ce que vous venez de dire M. Bournigal, c'est trop fondamental, c'est trop fondateur pour qu'on botte en touche sur cette question-là et il est essentiel que l'on traite cet aspect des choses si on veut agir réellement. Donc si nous sommes d'accord pour dire les choses de cette manière-là en dehors de toute autre diplomatie, ce que j'ai tenté de faire au départ, nous sommes complètement d'accord.

JM BOURNIGAL : Pas de divergence, je dis simplement que c'est très réducteur de dire que c'est le prix. Ce n'est pas comme ça qu'on devrait présenter les choses et il est peut-être nécessaire justement dans la présentation de trouver, des éléments plutôt liés à la fonctionnalité ou au rôle nutritionnel.

PUBLIC (M. SALLES) : C'est quand on parle de la pauvreté, ça me dérange toujours quand on lit une des solutions à la pauvreté qui est une réalité terrible qui nous touche tous et que l'on lie le seul problème du manque de fruits et légumes, le prix des fruits et légumes à la notions de pauvreté, c'est toujours très particulièrement gênant. Il y a des gens qui l'entendent comme ça, vous avez probablement lu le Figaro hier, qui est un véhicule d'information essentiel, qui fait un écho à ce sommet aujourd'hui en titre des pages économiques qui dit : « les fruits et légumes, plus chers de 5,5% » premièrement et en pages intérieures « une désaffection du public qui s'accroit ». Je pense que nous avons à lutter contre cela, il faut donc être rigoureusement prudent.

Je crois qu'en effet c'est très réducteur que ne parler que du coût mais d'un autre côté il ne faut pas exclure cette notion que le coût est un élément tout de même important et une des barrières, et un des freins à la consommation des fruits et légumes même si ça n'est pas le seul.

E BRUNNER: It is fascinating, listening to the French debate (…) and I want to ask you a simple question which is: have you adopted in France a minimum wedge? And do you have a way of estimating minimum income for healthy living in different age groups, for example, including those who are retired?

PUBLIC (M. SALLES) : (…) Je ne suis pas sur qu'en France on est fait le travail que vous avez fait sur les inégalités de santé. C'est d'ailleurs un des projets qu'on a dans le cadre de la révision de la future loi de santé publique. C'est de se doter d'indicateurs (…) dans la ligne de ceux que vous avez adoptez concernant la manière de s'adresser à la question des inégalités de santé. Je dois dire qu'on a fixé, dans la loi de santé publique, des indicateurs de santé mais qui ne sont aujourd'hui ne mon point de vu pas assez reliés à la notion d'inégalité d'accès à atteindre ces indicateurs selon le niveau socioéconomique.

PUBLIC (journaliste) : Ma question concerne les maladies que vous n'avez pas citées notamment les maladies de dos par exemple, les maladies des os qui ne sont pas forcément liées à l'obésité mais à autre chose. Je ne sais si un médecin pourrait nous expliquer à quoi c'est dû, parce que beaucoup de gens, notamment en France, en souffre énormément.

D. HOUSSIN : Il y a énormément de pathologies liées à la nutrition, toutes ne sont pas liées. La nutrition n'est qu'un facteur parmi d'autres dans un certain nombre de maladie. Alors, lorsque vous avez dit, il y a des troubles de minéralisation osseuse sur lesquelles il y a des rôles de facteurs nutritionnels mais sur les maladies du dos d'une façon générale il y a beaucoup d'autres facteurs qui interviennent. On vous donnera si vous voulez des informations très précises sur ce que l'on sait aujourd'hui des relations alimentation-santé car il y existe dans la littérature maintenant des ouvrages qui permettent de faire une synthèse assez complète sur ces relations.

PUBLIC (Valérie GUITTET de la ligue contre le cancer en Loire Atlantique) : Cela fait 2 jours qu'on a démarré la semaine Fresh'Attitude initiée par l'organisation APRIFEL. J'interviens depuis 4 ans à la ligue mais c'est la première fois que j'interviens dans les quartiers défavorisés. Et il me semble que la demande principale, c'est celle du lien social. C'est-à-dire que la population n'est pas forcement en demande, j'allais dire d'information santé, qu'elle veut surtout de l'échange de qualité, il s'avère qu'il y a de moins en moins de lieux de ventes sur certains sites et notamment des quartiers. Ils disparaissent, il faut le dire franchement, donc là il y a déjà en effet des solutions à trouver sur les échanges puisque c'est la demande principale en fait de ces populations. Que pensez-vous de la problématique de la formation des diététiciens et diététiciennes ? Je suis actuellement des jeunes qui passent des BTS Diététiques et qui se retrouvent sans débouchés à la fin des 2 années. Apparemment il y a une problématique d'emploi derrière et pour autant couplée à une formation éducation à la santé, je trouve que ces jeunes seraient de véritables relais pour faire passer les messages nutritionnels, peut être dans un contexte d'école, peut être en parallèle avec infirmières scolaires, médecins scolaires, qu'est-ce que vous en pensez ?

Sur les diététiciens c'est sur que dans le cadre du programme nutrition santé il y a un volet qui se centre sur cette profession. La question de l'adéquation de la quantité de personnes formées aux capacités d'emploi n'est pas spécifique au domaine de la nutrition. On retrouve à peu près le même problème en matière de psychologie par exemple. C'est sûr que le monde hospitalier s'est doté de diététiciens, de diététiciennes, il est sûr que cette évolution n'a pas encore touché en particulier le secteur, je dirais, des soins de premiers recours. Or on peut imaginer que dans l'avenir dès lors qu'on serait plus attentif à la notion de prévention en particuliers pour les soins primaires et de premiers recours que le diététicien, la diététicienne, trouve sa place assez naturellement comme le kinésithérapeute ou le psychologue et l'infirmière évidemment. Je crois que cette une perspective mais qui d'évidence en France n'est pas encore assez développé.

PUBLIC (Réseau de Prévention d'Obésité Pédiatrique) : Juste pour rebondir sur ce qui a été dit au niveau des diététiciennes qui sont en effet vraiment demandeuses le problème qu'elles soulèvent, je ne suis pas diététicienne moi-même, je vais quand même me faire leur porte-parole parce qu'en France en tout les cas le souci des diététiciennes en particulier pour intervenir dans ce genre de population c'est que ce n'est pas remboursé par la sécurité sociale et je pense qu'en effet c'est vraiment le grand souci et que ces gens là serait vraiment un très bon relai. Avez-vous une vision sur un éventuel remboursement des consultations diététiques ?

D. HOUSSIN : C'est un problème de fond que vous posez qui depuis le début du PNNS est d'actualité. C'est vrai qu'on y réfléchi, des choses ont quand même évolué puisqu'il y a une reconnaissance du métier de diététiciens qui était déjà une première étape. A la fois, qui permettait d'avoir une formation mieux adaptée, qui va être en cours d'élaboration et d'autre part une reconnaissance du métier qui débouche sur

un décret d'actes qui devrait permettre, à terme, d'obtenir des remboursements. Donc, ceci est dans les tuyaux, c'est extrêmement complexe, vous imaginez, mais c'est quelque chose qui fait partie des aspects prévus au niveau de l'administration.

PUBLIC (d'Argentine) : M. Bournigal a parlé du rôle des marchés d'intérêt national pour la logistique, pour le fournissement des populations moins favorisées. Les marchés d'intérêt national dans les années 50 a eu un rôle beaucoup plus important, après ça, dans toute l'Amérique Latine, on copié presque le modèle français, au moins au Brésil et en Argentine et alors le marché central comme on l'appelle le Ceas au brésil ont eu un rôle central, après ils ont perdu. Maintenant il est nécessaire que nous discutions le besoin de presque dupliquer la consommation des fruits et légumes. Pensez vous que les grossistes auront un rôle central dans ce défi qu'on a ? Peut on imagine encore une fois un rôle qu'ils ont perdu maintenant ?

JM BOURNIGAL : C'est difficile vous répondre. Cela dépend vraiment des circuits de distribution et je crois que chaque pays a développé ses propres logiques d'approvisionnement. En France vous avez une dualité entre des hypermarchés dans des structures commerciales extrêmement grandes qui ont des circuits de distribution avec des plateformes intégrées qui sont ravitaillées en très grande quantité. Ensuite vous avez un réseau dans les villes de points de ventes de fruits et légumes qui sont effectivement plus petits. Donc coexistence en France d'un système qui est adapté à notre mode de distribution, probablement des très gros grossistes qui sont capables de ravitailler tout le monde, des petits grossistes qui sont plutôt spécialistes du système de proximité. L'intérêt des marchés d'intérêt national c'est parce que c'est une spécificité française qui a été reprise effectivement dans d'autres pays, c'est qu'on a à un certain endroit de très grandes quantités d'aliments qui permettent, sur ces point là de ravitailler assez largement des structures de petites tailles. Et dans l'aide au plus démunis, c'était simplement comment on pouvait réfléchir parce qu'il y avait une déperdition quantitative de produits qui était assez importante comment est-ce qu'on pouvait éviter cette déperdition et pouvoir utiliser cette quantité de produit au bénéfice des plus démunis. Maintenant par rapport aux besoins futurs, je pense que la natalité française n'augmente pas énormément en tout les cas pas pour faire bouger tout nos circuits de distribution. Je ne suis pas sûr que cela aurait un gros impact si on doit nourrir le reste du monde, ça sera surtout la logistique internationale qui sera touchée, la logistique internationale française a déjà quand même assez évolué, elle peut encore s'améliorer mais elle est déjà quand même assez évolué.

Jean Marie LE GUEN
Assemblée Nationale, France

J'essaie depuis un certain nombre d'années de suivre vos travaux parce que je crois qu'il est particulièrement important que les hommes et les femmes de science, de réflexion et de santé publique que vous êtes se mobilisent sur ce sujet. Longtemps nous avons cru, jusqu'à il y a quelques années, que les problèmes de nutrition étaient réglés dans nos pays développés, que finalement il n'y avait qu'à laisser faire les choses, le marché. Et puis on s'aperçoit que les choses sont plus compliquées, déjà au niveau de la planète, on l'a bien compris très récemment. Elles sont aussi plus compliquées dans nos pays développés où nous avons à nous interroger sur la qualité de notre nutrition, et sur l'absence de nutrition : les famines de l'histoire européenne du moyen âge mais aussi même encore dans certaines régions au 19ème voire au 20ème siècle dans les périodes de crises, ont été des questions dramatiques pour la santé de nos concitoyens, pour la santé des européens, pour la santé des humains. Nous savons aujourd'hui que les problèmes de qualité alimentaire, c'est-à-dire d'équilibre nutritionnel, posent aussi un certain nombre de questions de santé publique tout à fait essentielles. Nous sommes donc invités, vous les scientifiques, et nous les politiques, à nous réinvestir dans cette question qui nous semblait finalement comme aller de soi. Cela ne va pas de soi.

Alors, je crois que nous avons quand même beaucoup progressé depuis un certain nombre d'années, et je voudrais dire que, personnellement, je me retrouve tout à fait dans les grandes orientations qui ont été dessinées devant vous tout à l'heure sur l'action de la France. Il y a indiscutablement une réflexion assez complète à la fois sur les grands principes qui doivent conduire une politique de nutrition, et sur un certain nombre de propositions d'actions dans différents domaines aussi nombreux, aussi subtiles que ceux qui ont été définis avant moi par les animateurs de cette table ronde. Et en même temps on ne peut pas ne pas s'interroger sur l'impact sur les politiques publiques. C'est-à-dire qu'indiscutablement il y a un décalage certain entre la prise de conscience d'une certaine élite, excusez moi, politico-scientifique et puis la réalité. Ceci est d'autant plus anormal que, depuis que nous sommes un certain nombre de scientifiques, politiques et responsables administratifs à intervenir sur ces questions, nous avons bénéficié pour beaucoup d'un assentiment du public c'est-à-dire qu'il y a une vraie sensibilité dans la population, à ces questions. Et beaucoup de nos concitoyens sont tout à fait persuadés, finalement, que la question est d'importance, que la situation mérite des actions assez fortes, qu'il y a des problèmes de santé publique qui ont à voir avec la nutrition, même s'ils n'en tirent pas forcément toujours pour eux-mêmes des conséquences immédiates. La conscience d'un problème ne suffit évidemment pas à avoir une attitude ni individuelle ni collective positive. Mais, en tout état de cause, on ne peut pas dire qu'on n'intéresse pas le public et qu'on n'est pas soutenu par l'opinion publique. J'ai, moi, le sentiment tout à fait du contraire. Et pourtant on peut quand même trouver légitimement qu'il y a un décalage entre ce que nous pensons, ce qui est demandé et ce qui se fait. C'est-à-dire qu'au milieu de tout ça, les politiques industrielles, les administratifs, les

habitudes, sont difficilement réformables. Alors, on a des intentions qui sont souvent louables, mais arrivé sur le terrain, elles ont du mal à se mettre en place. C'est vrai par exemple de l'Education Nationale en France. On voit qu'il y a beaucoup d'intérêt, y compris chez les enseignants, mais on ne voit pas complètement une politique aussi volontariste que nécessaire et aussi volontariste que souhaitée, se mettre en place. Il y a beaucoup de discussions, on s'interroge sur la restauration scolaire, sur la place de l'apprentissage de la nutrition à l'école. Pour supprimer des distributeurs automatiques de soda dans les lycées, il a fallu batailler pendant plus de 2 ans et demi sur une mesure qui est, on va dire, quand même assez secondaire en France. Je sais qu'elle serait plus lourde encore à prendre aux Etats-Unis. Mais en France, on n'était pas encore complètement entouré par cette question et pourtant il a fallu batailler et ça été très long : 2 ans et demi de bataille pour ça, c'était quand même difficile.

Dans les politiques municipales aussi, plus globalement au plan local, (…) il y a des initiatives qui sont prises ici ou là mais qui sont très loin d'être généralisées. Dans les politiques publiques, les arbitrages en matière de publicité vis-à-vis de l'industrie agroalimentaire sont des arbitrages douloureux. Pas simplement vis-à-vis de l'industrie agroalimentaire mais aussi vis-à-vis du monde des médias où les médias à l'évidence qui vivent des substrats publicitaires continuent à opposer une résistance farouche à toutes les évolutions qui verraient une modification importante visant par exemple à supprimer des écrans publicitaires pour certains produits à certains moments en tout cas en direction des enfants. Et donc là, on attend toujours que des décisions toujours annoncées mais souvent reportées soient véritablement mises en œuvre. Et puis, il y a tout le problème de la filière économique des fruits et des légumes car, on aura beau dire tout un tas de choses, il est exact que nos concitoyens perdent l'habitude de consommer des fruits et des légumes pour de nombreuses raisons qui ont déjà été analysées ici mais qui quand même ont une cause première. C'est quelque part que les fruits et les légumes pour l'essentiel, ne sont pas dans le système (…) économique dominant de notre économie de marché. En d'autres termes, ce n'est pas une industrie très capitalisée et elle a peu de capacité de concentration, peu de capacité d'industrialisation, peu de capacité de recherche et développement, peu de capacité de publicité.

Après, on a le débat sur les prix. En plaisantant, je disais, je vais vous offrir un petit opuscule qui est maintenant assez peu cher qui s'appelle « salaire prix et profit » qui doit dater de la moitié du 19ème siècle et qui vous donnerait quelques réponses. C'est-à-dire que comme vous n'êtes pas dans le courant dominant de l'économie de marché votre prix finalement acquiert – le prix c'est une fiction, ce n'est pas toujours une valeur d'usage (…), c'est une valeur d'échange et dans cette valeur d'échange le prix de quelque chose qui n'est pas dans le courant dominant de l'économie (…) a moins de valeur que quelque chose, qui est dominant. Pourquoi acheter une montre qui va simplement me donner l'heure alors que j'ai actuellement ici l'heure sur mon téléphone et que je vais payer très cher, alors que des fruits et des légumes m'apportent non seulement la nutrition nécessaire à mon activité mais en plus m'apportent quelque chose pour la santé ce qui n'est pas du tout le cas de cette montre ? Nous sommes donc pris dans un système global qui va bien au-delà de ce

que peuvent dire les médias sur le fait que les prix sont chers ou qu'ils ne sont pas chers et qui va bien au-delà de ce que nous pouvons faire pour améliorer encore l'accessibilité des fruits et des légumes vis-à-vis du public. Je pense qu'en développant l'idée que les fruits et les légumes sont des éléments majeurs de la santé publique (…) on peut dire que nous relativiserons (…) le prix de ces produits. Aussi, Il n'est pas (in)intéressant de savoir comment ces produits sont produits, sont fabriqués, comment ils sont distribués et par qui ils sont vendus, ce n'est pas quelque chose qui est inintéressant et si on veut être conséquent, il faut effectivement que les pouvoirs publics se posent un certain nombre de questions sur ce type de sujet. C'est vrai, ces questions alimentaires se posent dans des pays qui aujourd'hui sont au bord de la famine, on pense notamment à l'Afrique, et on voit comment un certain nombre de pays doivent reconquérir des cultures vivrières pour assurer leur équilibre alimentaire et que ce n'est pas simple, que cela ne se fera pas si facilement que ça et si rapidement que ça. Mais nous voyons bien aussi comment nous-mêmes nous devons nous réapproprier, complètement, des circuits de production et de distribution. Par exemple, il est vrai qu'à Paris, qui est pourtant une ville qui ne manque pas de commerce, ni de pouvoir d'achat pour l'essentiel, en tout cas dans la plupart des quartiers (…) on voit qu'il y a beaucoup de succès sur ce qu'on appelle les circuits courts de productions de fruits et de légumes et qu'on voit, par exemple je crois, il y a 15 jours au centre de Paris, dans le 5ème arrondissement il y a avait une action qui était portée par des coopératives agricoles de gens qui venaient vendre directement des produits fruits et légumes, et ça a eu un grand succès. Il va falloir qu'on se pose des questions parce que ça a eu un grand succès, y compris pour marquer les esprits. En même temps et à contrario on se dit : est-ce que nous allons continuer, nous qui défendons les fruits et légumes, à légitimer le fait que – je n'ai pas le dernier mot en matière d'économie agricole, je pose des questions je ne prétends rien d'autre - mais est-ce qu'on est certain que ce nous faisons, c'est-à-dire d'essayer de vendre des fruits et des légumes où nous vendons par exemple des fraises au mois de décembre à Paris qui sont fabriqués par exemple dans un pays au sud de la méditerranée qui ponctionne, peut être, je ne sais pas, la nappe phréatique, les besoins en eau de ce pays d'une façon considérable qui ne résout certainement pas les problèmes alimentaires du pays en question, est-ce que nous agissons bien ? Pas simplement d'un point de vue écologique mais lorsque l'on fait de la santé publique de façon soutenable, est-ce qu'on n'est pas amené à se poser la question dans sa globalité ? Et quand je dis ça, il m'arrive de manger des fraises au mois de décembre, je ne jette la pierre à personne en disant ça, nous avons donc à nous réapproprier peut-être une nouvelle lecture, encore peut-être plus radicale, peut-être que je me trompe, peut-être qu'il faut continuer à faire ce que nous faisons mais peut-être aussi qu'il faut avancer vers une lecture encore plus radicale, une critique plus radicale des modes de production et de distribution que nous avons mis en œuvre. Et ces questions, elles sont posées, au niveau de l'Etat bien sûr et, au niveau européen ça doit être une des réflexions majeures de la politique agricole commune. Vous connaissez tous, je pense, même ceux qui ne sont pas européens, la politique agricole commune et donc les questions qui sont posées. J'espère, ce n'est pas mon secteur d'intervention premier, mais j'espère que la politique agricole commune saura se hisser à ce niveau

de questionnement et qu'on ne se limitera pas à quelques faux-semblants du genre faire du maïs pour faire du biocarburant. Cela serait quand même, surtout dans nos pays (…), dramatique qu'on escamote les problèmes agricoles sous prétexte d'ailleurs que le niveau des prix augmente au plan international, c'est un fait pas simplement des fruits et des légumes mais de tous les produits alimentaires, et que à partir de là, on pourrait être amené, les producteurs, seront peut être amenés à se poser moins de questions qu'ils ne se posaient lorsqu'ils étaient dans une situation de difficultés financières. Donc vous voyez, qu'au total, nous sommes dans des questions très politiques parce que c'est par un retour très paradoxal du politique, me semble-t-il, pour des questions de santé publique d'abord, pour des questions éventuellement d'aménagement du territoire parce que s'agissant de ces produits là, en France, nous sommes très sensibles à ces questions d'aménagement du territoire. Donc des questions de santé publique, des questions d'aménagement du territoire, des questions de pouvoir d'achat diraient les pouvoirs publics, des questions aussi de systèmes de distribution et donc par exemple d'organisation de la ville, je ne suis pas certain que nos problèmes alimentaires ne posent pas quelque part, pour partie, des problèmes d'organisation du fonctionnement de nos villes. De la même façon que la crise énergétique pose évidement des problèmes de fonctionnement de nos villes, mais est-ce que nous ne devons pas réintroduire des démarches de marché, de produits frais directement, avec des liens plus étroits, avec certains types de producteurs. Mais si oui, (…) à quel moment, de quelle façon etc. ? En même temps, en disant cela, j'ai bien conscience, et c'est tout l'exposé qui nous était fait tout à l'heure, qu'on ne va pas revenir en arrière aux produits de l'agroalimentaire du 19ème siècle ou du 20ème siècle et que l'industrie y a évidemment sa place pour transformer des produits qui soient plus facilement accessibles, plus plaisants etc. Mais là encore, il faudra bien qu'on trouve quelque part des éléments de régulation parce qu'on ne peut pas se limiter à voir arriver des innovations qui sont présentées comme telles mais qui seraient des innovations totalement déroutantes du point de vue de l'équilibre écologique ou des innovations qui seraient totalement déroutantes du point de vue de l'équilibre nutritionnel. Comment organiser aujourd'hui, même si on est pour l'acceptation d'une problématique industrielle de l'agroalimentaire, parce que nous souhaitons tous pouvoir préparer nos plats, peut-être pas tout les jours mais, le plus souvent en ¼ d'heure, 20 minutes et nous n'avons plus le temps de préparer des plats où il faudrait découper, laver et éplucher, assaisonner, cuire des plats qui se faisaient de façon très succulente pendant des années mais qui ne peuvent plus aujourd'hui fonctionner de cette façon. Donc, revenons à l'industrialisation, acceptons aussi les réponses industrielles, si nous acceptons les réponses industrielles, ça ne peut pas être n'importe quoi, parce que les réponses industrielles, on le voit par exemple, dans le domaine des boissons, ça peut être n'importe quoi, quand on voit par exemple un certain nombre de boissons que nous pouvons trouver dangereuses pour la santé publique. Donc, tout simplement pour dire qu'aujourd'hui nous sommes avec ces questions, nous ne sommes qu'au début, d'un certain point de vue, à la fois de la pensée globale et de l'action publique. Parce que nous prenons conscience d'un phénomène qui est très ancré dans la société, la montée de l'obésité et autres problèmes de nutrition santé, ces problèmes sont

finalement très insérés dans notre vie quotidienne, il ne sera pas facile de faire bouger les comportements, les intérêts économiques, mais nous avons à le faire parce que c'est une question tout à fait stratégique.

Q&A

PUBLIC : (...) J'ai été interpellé par rapport à ce que M. Le Guen a dit concernant la famine en Afrique, moi je suis d'origine africaine. Au Cameroun je vivais dans une maison où je cueillais les fruits, c'est-à-dire les fruits poussaient comme ça, naturellement. Et je voulais aussi dire nous exportons, la banane, nous exportons les mangues, nous exportons l'ananas et ce sont des fruits qui sont très riches en vitamines. C'est tout simplement ce que je voulais ajouter. Merci.

PUBLIC (M. SALLES) : (…) Le plus brièvement possible, ce que je veux dire à chacun c'est prudence quand nous avons la parole sur des sujets comme ceux-ci. C'était pour cela que je parlais de la manière dont je l'ai fait du prix. Prudence parce qu'autant je reconnais l'énorme savoir, les énormes avancées qui nous épatent sur la compréhension du métabolisme et de ce qui se passe quand on mange surtout ces 10 dernières années, depuis le premier EGEA, la manière dont vous en parlez me fait comprendre à moi qui ne suis pas de la partie que vous avez beaucoup progressé, que nous progressons à pas de géant. Prudence en matière d'économie parce que nous sommes aussi dans une chose qui est systémique dans le cas d'espèce et qu'agir ici fait bouger les choses là-bas surtout sur des produits qui sont tangibles comme les fruits et légumes et que ce n'est pas si simple et que nous sommes donc dans une espèce de complexité qui doit nous rendre prudent donc, au titre de l'universalité. Parlant de prix, c'est quelque chose qui est très proche dans l'entendement de la valeur, et le prix, pour la population, est une donnée objective. C'est-à-dire que lorsqu'il voit un prix, il pense que cela vaut le prix que cela a (…) d'ailleurs la population s'interroge beaucoup sur le prix des fruits et des légumes parce que cette valeur, probablement objective, varie à leurs yeux, ce qui leur permet de dire « je me suis fait avoir hier » peut-être. En tout cas, les gens qui ont une responsabilité et qui portent une parole forte comme ici, vous, la vôtre, doivent nous encourager à beaucoup de prudence. En tout cas moi j'insiste là-dessus et je rappelle qu'acheter des cerises à 10 euros le kilo ça peut paraître tour à tour scandaleux ou bien un signe de raffinement selon qui le fait, à quel moment il le fait et comment il le fait. Ici nous parlons de populations, je crois aujourd'hui démunies. Et si on dit en même temps que les fruits et les légumes c'est cher, ça veut peut-être dire qu'il y a quelque chose qui est tordu dans le message. Soit çà n'a pas de valeur ou çà a une valeur moindre de ce qui est affiché, donc soyons très prudent à cet égard là. Moi, je pense à la notion de prix et à la notion de ressource puisqu'on a besoin d'une ressource qui se continue et je pense à une idée d'économie durable c'est pour çà que je dis, attention en parlant du prix tant qu'on n'a pas plus travaillé dessus. (…)

PUBLIC : Moi j'ai un petit commentaire sur les prix puisque c'est bien vrai que les fruits et les légumes sont chers sur le plan calorique mais si on fait référence aux

nutriments, en effet, par rapport aux nutriments, c'est très abordable alors il faut tout à fait privilégier et valoriser les nutriments plutôt que les calories. Puisque ce sont les calories vides qui en effet sont les moins chères, les fruits et les légumes par contre, sont très abordables. Moi j'ai une question à poser à M. Le Guen : faut il insister que l'industrie alimentaire ait un bilan santé de l'offre alimentaire, pour que le bilan santé entre dans le calcul économique ? Puisque l'industrie alimentaire, aux Etats-Unis surtout, s'occupe des questions économiques, des questions santé, la santé des produits alimentaires n'entre jamais dans les calculs. Qu'est-ce qu'on peut faire sur le plan politique pour insister sur çà ?

JM LE GUEN : (…) Est-ce qu'il faut le faire ? Est-ce qu'il faut demander à interpeller l'industrie sur son bilan santé ? Oui, absolument. Quelle est la bonne méthode pour le faire ? Là, c'est peut être plus compliqué. Mais vous voyez, vous me donnez le mot et ça me donne une idée. C'est très juste ce bilan santé, on pourrait imaginer comme en France on essaie de mettre en place un bilan social je trouve très juste, qu'on pourrait demander aux entreprises d'une façon générale de faire un bilan santé. Ça m'interpelle beaucoup votre idée (…). S'agissant de l'industrie agroalimentaire je crois que là aussi, nous devons l'interpeller. Est-ce qu'on l'interpelle simplement par l'opinion publique ? Est-ce qu'on l'interpelle par la règlementation ? On interdit tel produit, on n'interdit pas tel produit, on autorise telle publicité pour tel produit, on n'utilise pas telle publicité. Est-ce que, comme nous y pousse d'un certain point de vue la tradition des économistes, nous taxons tel produit parce qu'il est plus mauvais par exemple les calories concentrées, (…) produits concentrés par rapport aux calories plus légères ? Moi je ne suis pas très favorable, à priori, au problème de taxation parce que je pense que ça a des effets pervers sur le pouvoir d'achat, sur le coût des produits, c'est soit insuffisant, soit tellement important que ça pose après des problèmes sociaux très lourds. Donc, a priori je ne suis pas très favorable au problème de taxation, encore qu'on pourrait imaginer des taxations qui dans certaines gammes chassent les mauvais produits puisque vous savez que, prenons les sodas, il y a indiscutablement -en tout cas en Europe, en tout cas en France, je sais que c'est un peu vrai aux Etats-Unis mais moins- un effort certains des industriels pour faire bouger leur gamme vers des produits qui soient des produits moins problématiques, tout ce qui est on va dire, du « light » etc., même si ce n'est pas sans poser d'autres problèmes, mais enfin, on ne peut pas ne pas considérer qu'il n'y a pas une évolution de ce côté-là. Maintenant, quand vous faites de la publicité pour un produit qui est sous-entendu « light » et que vous avez un produit caché derrière par exemple sur les colas qui sont vendus avec d'autres marques, des marques distributeurs comme on dit ou des sous-marques qui vendent avec des kilos de sucres parce que ça ne leur pose pas de problème et que quelque part le sucre est moins cher que les édulcorants, là, on pourrait imaginer des taxations qui visent à chasser le mauvais produit par rapport au bon. C'est une stratégie qu'on pourrait imaginer. On avance sur tout ça, on n'a pas de certitude donc quelle est la part de la conscientisation personnelle de l'éducation, de l'information, du jugement de l'opinion publique, bref tout ce qui est, j'allais dire de la communication. Quelle est la part de la règlementation ? Quelle est la part de l'économique ? On n'a pas tellement

de certitude, on avance, on avance sûrement sur la communication, on avance et l'éducation mais pas suffisamment, on avance sûrement sur la règlementation un petit peu et on n'avance pratiquement pas aujourd'hui sur la taxation.

PUCLIC : Est-ce la recherche qui manque pour avancer sur ce projet là ? Soit en science économique, soit en nutrition ?

JM LE GUEN : Ce qui est très important, c'est d'établir les bonnes pratiques en matière de sciences sociales je pense. Il y a trop, dans l'opinion publique, de façons de voir, surtout les problèmes de comportement, des attitudes, j'allais dire, primaires qui sont : on se contente de donner une information rationnelle et on pense que les gens la suivent ou alors on se contente de faire de la pénalisation et on pense que les gens vont réagir par rapport à cette pénalité. Dans les deux cas de figures, ces deux attitudes primaires sont encore les attitudes qui spontanément viennent à l'esprit : je dis la vérité, je sanctionne les coupables. Entre les deux, il devrait y avoir des pratiques des sciences sociales un petit peu plus subtiles et là il faudrait établir un peu plus scientifiquement me semble-t-il tous ces travaux de façon à ce qu'ils deviennent de plus en plus incontournables et ce n'est pas simplement valable pour les problèmes d'obésité et de nutrition.

PUBLIC : (...) Vous avez soulevé le problème, vous avez rappelé les combats dans lesquels l'assemblée nationale et un certain nombre d'élus se sont mobilisés notamment pour l'interdiction des machines à l'intérieur des enceintes scolaires pour les produits « snacky ». Concernant la publicité, la régulation de la publicité visuelle des enfants qui est un sujet d'actualité en France de débat complexe, qu'est-ce que peut faire le politique ? Que peuvent faire les élus dans la démarche que les scientifiques et les responsables de santé publique ont aujourd'hui ?

JM LE GUEN : Ecoutez, il se trouve en plus qu'il y a eu, je dis ça pour nos amis qui ne sont pas français, il y a eu une interpellation pour savoir si on devait ou pas interdire la publicité sur les chaines publiques, en général, pas spécialement les enfants. Il y a tout un maelstrom autour de tout çà mais c'est compliqué et on ne sait plus trop bien par quel bout prendre les choses. Moi je suis pour des idées claires, je suis pour interdire la publicité alimentaire, et pour tout dire, la publicité tout court dans les programmes pour les enfants. Je trouve complètement aberrant que nous dépensions, sans doute à juste titre, je ne sais plus le chiffre, mais quelque chose comme 30 ou 40 milliards d'euros chaque année pour l'Education Nationale, et qu'on ne soit pas capable de dépenser 300 millions d'euros pour avoir une chaîne de télévision qui soit ludique, éducative et libre de toute publicité. C'est totalement aberrant, nous qui avons un souci de l'enfant rare qui est quand même ce qui marque nos sociétés, on a peur que l'enfant voit une affiche où… à juste titre, et dans le même temps, on n'hésite pas à laisser nos enfants à partir de 2 ans plus de deux heures par jour devant des chaînes de télévisions qui sont totalement financées ou quasi-totalement financées par la publicité. C'est-à-dire que d'abord les programmes sont tournés par les publicitaires, enfin orientés par les publicitaires, et deuxièmement on

les met devant des offres commerciales à partir de 2 ans plus de deux heures par jour. Deux heures par jour c'est treize minutes de publicité par heure, donc ça fait vingt-six minutes par jour dont 80% d'agroalimentaire mais il y a d'autres choses comme les jouets. Faire de la publicité, (…) puisque vous me sollicitez je vais aller jusqu'au bout, pour des jouets qui coûtent relativement cher, problème du prix cher ami, à la veille de Noël quand vous savez que vous avez un tiers des enfants qui regarde ça dont les parents n'auront pas les moyens d'acheter ces jouets, eh bien qu'est-ce qui se passe ? Eh bien ils achètent des glaces au chocolat à ces enfants parce que c'est la glace au chocolat qui est quand même le moins cher par rapport au jouet et on va leur donner des bonbons parce qu'il n'y pas d'autres solutions. Donc le problème est comment nous considérons les enfants dans cette société et si nous considérons qu'on peut les mettre devant la télé, ce qui est déjà un problème, mais admettons que ça soit une réalité difficilement contournable, mais qu'en plus cette télévision est totalement payée par la publicité qui ne fait que susciter des frustrations et des intentions chez des petits humains dont on cherche à les protéger absolument, il y a une aberration économique et politique, qui est absolument invraisemblable. Donc je réponds très clairement, le politique, en tout cas moi, je souhaite l'interdiction de la publicité à la télévision en direction de tous les enfants.

PUBLIC : Juste un petit commentaire, (..) sur les chaînes généralistes l'enfant n'est pas que pendant les programmes jeunesses donc ça pose le problème…

JM LE GUEN : Non mais le plus étant l'ennemi du bien c'est un vieil adage. C'est-à-dire que si déjà dans les programmes avec les dessins animés que vous avez sur toutes les chaînes publiques ou privées, en France comme dans tout les pays, me semble-t-il, à partir de sept heures et demi le matin, des programmes où vous avez de la pub. Des programmes, des dessins animés, de la pub, il n'y a plus aucun contrôle, on ne demande rien aux pédagogues. On fait des programmes télé, personne ne les regarde, à part la personne qui est chargée de la production à TF1, France Télévision etc., mais aucun pédagogue, aucun psychopédagogue. Rien ! On s'écharpe en France, vous le savez, sur les programmes scolaires pour savoir à quel âge on doit compter et apprendre mais on se fiche de savoir ce qui se passe dans les programmes de télévision que regardent les enfants deux heures et demie par jour. On marche sur la tête !

JM BOURNIGAL : On va continuer à marcher en avant et sur nos pieds, (…) dernière question.

PUBLIC (Bernard PITON) : (…) C'est sur la valeur des produits, et je vous rejoins tout à fait, on le voit dans les fruits et légumes : on n'a aucun problème pour vendre des produits de quatrième gamme qui coûtent quatre fois plus cher qu'une salade normale parce qu'il y a une notion de valeur perçue qui est complètement incluse ; on voyait sur les fruits en distributeur automatique aucun problème pour les fruits prédécoupés à 1€ la portion, je dirais, par contre une pomme à 40 cents qui coûtait plus cher à mettre en distributeur automatique qu'un barre de Mars© qui coûtait 70

cents qui elle était donc une notion de valeur perçue alors que la pomme n'en avait pas. Donc je crois qu'on a un travail de fond à refaire là-dessus. Vous l'avez dit tout à l'heure, rapprocher les producteurs des centres villes (…). Moi représentant des grossistes, j'y suis parfois favorable parce que je pense que ça remet du lien avec le produit, c'est quelque chose qui est important, mais par contre il faut aller au bout du raisonnement. Il faut aussi que l'on fasse passer au consommateur qu'un produit frais ce n'est pas quelque chose qui est apporté une fois par semaine en magasin et qui n'est pas pris une fois par semaine, c'est quelque chose qu'on voit tous les jours. On voit le rayon plein tout les jours, mais ce n'est pas le même produit, il est apporté tout les jours si on veut qu'il soit au top. Et ça c'est une valeur qui est une valeur de production, une valeur de logistique, une valeur de grossiste, une valeur de détaillant et je le dis devant les politiques, soyons très prudents au discours qui tend à dire, il n'y a de valeur que la production, et on en parle volontiers avec **…** Parce que pour le consommateur, vu que toute autre valeur est une valeur – c'est la valeur de l'intermédiaire qui est une non-valeur et qui peut être gênante – et je reviens par rapport à l'intervention que faisait notre ami Argentin tout à l'heure, je crois que ces produits-là sont des produits –c'est la grande complexité (…), cela va être le défi avec le problème du coût de l'énergie- (...) à distribution fragmentée. Et il va falloir qu'on se pose la question sur le coût de la fragmentation, là je pense que l'industrie est peut être en train de se dire « Tiens, il y a peut être un challenge dans lequel on va gagner » par rapport à ceux qui sont obligés de faire une distribution fragmentée. Parce que la distribution fragmentée c'est vrai que c'est une notion de marché de gros en proximité des sites urbains mais ensuite c'est un problème d'accès à l'intérieur de la ville. Je crois que l'on est dans un débat où c'est effectivement toute une économie de filière qui doit fonctionner.

(…)

Albert HIRSCH
Ligue Nationale contre le Cancer, France

Je suis très heureux d'intervenir à ce moment, dans la droite ligne de votre intervention. L'important est d'aller au plus près des personnes.

D'où je suis, qu'est-ce que j'observe dans la consommation des fruits et légumes et particulièrement dans les populations en difficultés, soit en difficulté matérielle, soit en difficulté psychologique. La Ligue contre le cancer, est une association non gouvernementale indépendante vivant quasi exclusivement de la générosité du publique et d'autre part, vous avez pu le constater à l'occasion de l'intervention de Valérie Guitet du Comité de la Ligue de la Loire Atlantique, est représentée au niveau des départements avec ses 103 comités départementaux plus ou moins implantés au plus près de la population.

C'est un lieu d'observation intéressant. Ainsi, à l'occasion d'une mission aux Antilles, où nous allions parler de la prévention du cancer en général, en Martinique, le débat s'est réduit à l'action du chlordécone sans qu'il soit possible d'aborder les autres risques cancérogènes, contrairement à la manifestation qui s'est déroulée en Guadeloupe lors de laquelle les questions ont porté sur l'ensemble des facteurs cancérogènes. Et puis cela m'a donné l'occasion d'aller sur le marché de Pointe-à-Pitre, où le prix de la banane voisine celui de ce fruit en métropole, ce qui décourage la population de suivre son alimentation traditionnelle au profit de fruits de provenance externe et vendus à un prix plus accessible dans les supermarchés.
La Ligue est par ailleurs relativement bien placée pour intervenir au niveau des personnes défavorisées. Nous agissons ainsi en partenariat avec le réseau très actif des associations œuvrant vers ces publics, telles les régies de quartiers.

Que fait la Ligue dans ce domaine ? D'une part elle a « stické » 100 millions de fruits et légumes en 2006 avec la mention « Mangez des fruits et légumes, c'est une recommandation de la Ligue ». Elle distribue un calendrier avec des recettes simples, des conseils en accord avec les recommandations du PNNS sans oublier la dimension du plaisir, du goût et de la satisfaction.
Elle distribue différents documents, elle organise des conférences et entreprend un certain nombre d'actions, notamment sur les marchés, en tentant d'atteindre les milieux défavorisés.
Quelles orientations prendre? Quand APRIFEL m'a donné l'occasion d'assister au rendu du rapport du WCRF en novembre 2007, je me suis rendu-compte que l'état de la connaissance scientifique sur ce thème est mouvant , la protection par la consommation des fruits et légumes à l'égard du cancer passant d'une appréciation « convaincante » en 1997 à « probable » en 2007. Par contre le risque du surpoids, et de l'obésité reste convaincant. Par ailleurs, le risque est très inégalement réparti selon les caractéristiques économiques, sociales, et culturelles des populations. A coté des déterminants physiques comme l'alimentation, les fruits et légumes, l'activité

physique, joue ce que Michael Marmot appelle la cause des causes, c'est-à-dire des déterminants sociaux, psychologiques et culturels.
Quelles leçons peut-on tirer de l'expérience du contrôle des effets du tabac sur la santé, en se gardant de comparer un comportement relativement simple, la consommation d'un produit, le tabac, à un comportement aussi complexe que l'alimentation ? Il faut évidemment accroître les connaissances. Mais il faut ne pas attendre compte tenu du contexte où se télescopent deux épidémies, celle du surpoids et de l'obésité, celle de la faim dans le monde. Quand vont arriver, de manière massive, sur les grands médias, et notamment à la télévision, à coté des images d'enfants ou de jeunes adultes ou d'adultes en surpoids, celles des enfants qui meurent de faim, quand d'autre part, l'opinion est désorientée par un débat contradictoire sur les pesticides –- on doit se poser la question du discrédit dont pourraient souffrir les chercheurs et les décideurs qui seront dépassés par le flux médiatique.
Merci monsieur d'avoir insisté lourdement sur le prix des fruits et légumes, alors qu'il faut aussi s'intéresser à la valeur nutritionnelle et sanitaire de ces produits. Une piste serait peut être de rapprocher la consommation de la production, d'insister sur l'importance de la préparation dans les conditions actuelles de vie des populations et particulièrement des populations vulnérables et fragiles, de s'intéresser aux conditions du stockage, de prendre en compte la perception de ce dont nous parlons.

A titre de référence, et avec les précautions que je rappelais, je voudrais vous rappeler quelques dates concernant le dossier du tabac :
- dés les années 50 : l'enquête auprès des médecins britanniques et l'enquête de l'American Cancer Society démontrent que le tabac est un produit cancérogène ;
- 1962 : rapport du *Royal College of Physicians et*, 1964 rapport du *Surgeon General* ;
- 1976 : première loi française limitant la publicité pour le tabac ;
- 1986 : le ministre de la santé me demande le premier rapport public sur tabac et santé ;
- 1991 : le parlement français vote à une majorité des deux tiers une loi, la loi Evin, de lutte contre le tabagisme et l'alcoolisme ;,
- en 2003 : le président de la République, dans le cadre du plan cancer décrète «la guerre contre le tabac » ;
- en 2008 : il est enfin interdit de fumer dans la totalité des lieux publics.

Toutefois, le dossier du tabac est loin d'être clos. En effet malgré cet effort réglementaire, les ventes de tabac n'ont diminué que de 1,5% en 2007, soulignant bien la nécessité d'actions au plus près des populations.
Ce que je souhaite au terme de ce sommet, c'est qu'on tire les leçons d'une telle expérience.
Permettez-moi d'être relativement optimiste et de penser qu'on pourra épargner les dégâts humains, sociaux et économiques d'une stratégie inadaptée. La société et les moyens d'information ont beaucoup changé, et la sensibilité extrême de l'opinion aux questions de santé devraient permettre de tirer les orientations que dessine cette

vraie conférence de santé publique, carrefour où se sont retrouvés des scientifiques, des économistes, des juristes, des décideurs et les médias.

Q&A

PUBLIC : comment se fait-il qu'en Afrique justement là où il y a tellement de misère, il y a vraiment la famine dans certains endroits et les personnes qui ont faim sont très maigres et en Europe, les personnes qui sont démunies elles, grossissent. Comment vous pouvez m'expliquer cela ?

A HIRSCH : La réponse est compliquée, cela fait appel au processus de transition épidémiologique et on est vraisemblablement dans une phase de maturation de l'épidémie où avec d'autres facteurs, comme la malnutrition, comme les diarrhées infantiles, comme la difficulté d'accès aux produits de base, les produits essentiels ne sont pas disponibles. Il est toutefois malheureusement prévisible que l'épidémie de surcharge pondérale atteindra à leur tour les pays en voie de développement et notamment l'Afrique.

SUMMARY OF SESSION NUMBER 20

A DREWNOWSKI: I think it is time for a synthesis and thinking about the common themes of this conference and closing, what I would like to is solicit very brief, 3 to 4 minutes summaries of the earlier morning session which have to do with topics which where discussed in the political session. They were about interventions and initiatives to increase F&V consumption in developing countries, in developed countries, and then methods and means and techniques used to achieve those goals.
We will start with Serge and his summary of session number 20 on: interventions and programs to increase F&V consumption in developed nations.

S HERCBERG: (…) Notre session ce matin portait sur les études d'intervention visant à augmenter les apports de fruit et légumes des populations défavorisées, des pays les plus riches, des pays industrialisés. Nous avons eu trois interventions dans trois contextes différents : Annie Anderson d'Ecosse, Dena Herman a parlé des USA mais également du Royaume-Uni et Hélène Bihan pour la France.
Trois points essentiels dans les discussions que nous avons eues ce matin, d'une part bien évidemment tout ce qui concerne l'importance de la problématique de la difficulté de la couverture des apports en fruit et légumes dans les populations défavorisées avec des conséquences sur les apports en nutriments et sur l'état de santé avec ce paradoxe de la malnutrition globale, ce qui rejoint un peu la question soulevée, associant à la fois des faibles apports vitaminiques et minéraux et des problèmes de surcharge.
Le deuxième point très important est qu'ont été passées en revu les différentes méthodes d'intervention, qu'elles s'appuient sur l'individu, de type personnel, ou qu'elles s'appuient sur l'environnement de l'individu en termes d'accessibilité avec la conclusion du fait qu'il n'y a pas, bien sûr, de mesure ou d'action universelle, que les populations sont hétérogènes, qu'il faut prendre en considération de multiples déterminants à la fois individuels et sociétaux. Annie Anderson a beaucoup insisté sur la nécessité de disposer de recherches permettant de déboucher sur des évidences en termes de connaissances des déterminants en partant des populations permettant d'identifier les freins à la consommation, et recherches aussi tout à fait essentielles pour évaluer les actions et évaluer les programmes.
Le troisième point sur lequel je voudrais revenir, c'est que les expériences d'intervention qui ont été présentées montraient que, si au niveau personnel, les actions qui visaient l'individu, l'effet était souvent modeste, lié souvent à des difficultés méthodologiques, même si ces effets étaient modestes ceci n'empêchait pas d'utiliser ce type d'approche au niveau de politique nutritionnelle. Par contre, en ce qui concernait les études d'intervention sur l'environnement, notamment la distribution de chèques, de coupons, d'aide à l'achat et au travers d'exemples très importants qui ont été présentés dont l'étude WIC, les conclusions qui ont été apportées étaient très encourageantes, en montrant au travers de cette étude, et d'autres études, un effet favorable d'un apport sous forme de chèque visant à fournir les moyens d'accéder aux apports de fruit et légumes, un effet favorable durant l'intervention qui a duré six mois mais un effet également persistant au-delà de

l'intervention, six mois après l'arrêt de l'intervention, une excellente acceptabilité avec 88% des coupons donnés utilisés, les 12% non utilisés étant rendus. Donc un effet à la fois favorable, une faisabilité, une acceptabilité excellente au niveau individuel et une acceptabilité qui est tout-a-fait également excellente au niveau des magasins, au niveau des processus qui permettent de développer ce type d'approche avec au niveau des marchés, des supermarchés, une participation voire une stimulation à augmenter l'offre alimentaire. Donc une excellente session qui a abouti à des propositions encourageantes dont il faut réfléchir à l'extrapolabilité à des niveaux plus larges dans un certain nombre de pays.

A DREWNOWSKI: Now, a brief presentation from Ron LEMAIRE on the marketing session today.

Ron LEMAIRE
IFAVA, Canada

This was a big day for the session and we did launch the IFAVA Toolkit which is a Practical Toolkit to basically show national original bodies, how to develop and deliver the 5-a-Day intake program.

We had three core areas we focused on in the presentation. One was on brand development, which is presented by Elisabeth Pivonka from the Produce for Better Health Foundation. Elisabeth basically broke down four core steps that they went through on how you actually develop your brand to deliver your program within a national model. Very important looking at how the Toolkit is developed and at how these pieces are in the Toolkit so that, going back home you can go on the IFAVA website and see how you can take back practices that different countries have used to deliver their program and incorporate them hopefully with any either programs which are currently under development or existing programs to expend. As you see, Elisabeth also touched on how they worked through the process and they actually break developed the brand pyramid which positions the brand and shows the core attributes, the emotional benefits to eventually get to a brand positioning which ended up being their actual brand statement and message which is "fruit and veggies: more matters".
The key element here on brand development which Elisabeth highlighted was that you have to ensure, when you are moving to your process and we heard this earlier, formative research, making sure you are looking at your segment audiences and targeting who you need to target to design your message to that target group and show that you are using as many channel as you can to get your message in the market place as well as a process evaluation to see how your campaign is running and then an outcome.

We then had the opportunity to look at how this Toolkit supports developing countries. Jane Badham from the 5-a-Day for Better Health Trust out of South Africa broke down the challenges we see in South Africa. This basically looks at the under-nutrition issue, when we look at the world as an under aid development process you see how Africa is very much shrunk. When we're looking at under-nutrition and we take the same at the issues around under-nutrition, we see Africa all of a sudden balloons bigger than North America.
So, the issues for South Africa are slightly different than not only all the obesity issue, we are looking at the fact that we're just not getting enough food. And that also places, in a matter of fact, how they also developed their programs, they are also looking at healthier issue, they are looking at an income issue, poverty, unemployment. And the biggest challenge of all which I truly do find outstanding is a 49 years life-expectancy. All plain factors enter on how their program is developed.

The other key component comes back to part of the branding and messaging, ensuring that your message conveys the correct message for your market and it this

case, in South Africa, vegetables is a primary component, fruit was seen as a piece of product that was unattainable but the vegetables was a daily part of the diet that they could attain, so highlighting F&V, vegetables first was key and that messaging under their 5-a-Day program.
The other key element that had to be looked at under development was myth, urban legend and traditional food. We wrapped things up with Chris (Rowley) providing an outline from Australia on partnership development, we heard that throughout the entire conference, partnership development is key. The core areas and levers for successful outline around formalized partnership were possible, sustainable partnership, long-term organised focus or not, organisation focused not focused on individuals within any organisation; the individual leaves, the partnership disappears if they focus around organisation, the partnership maintains. And the ability to embrace collaborative competition, we saw how the US have over 250 retail stores using their logo, they are all in competition but they are all in agreement to move forward with the same message and icon. Basic common visions, mutual needs, shared decisions and shared risks and benefits are key elements of that partnership. And two statements that I find outstanding in partnerships: "There is never better time to start building and strengthen partnership than right now" and "Don't judge each day by the harvest you rip but by the seed you plant" and I think this conference is the perfect example, the seeds we are planting here are key for that moving forward.

This is the breakdown on the IFAVA Toolkit; you find this on the IFAVA website at ifava.org and click on the icon you see at the bottom right hand corner. Basically, the Toolkit is a living breathing document, it is built to adapt and change with new information and when older information should be removed. We have a set up so that you are going into each section and you will have a one or two page outline with appendage supporting that information from existing programs and other research and documentation from the global market place. I also encourage you if you are in the site again and you see something missing or you see something that could be changed or improved, please email me, it's something we want to deal with immediately and build upon so that it's a benefit for everyone.

A DREWNOWSKI: And now a brief summary of the session on developing countries from Francesco BRANCA.

Francesco BRANCA
WHO – Regional office for Europe, Denmark

Our session was entitled "Promotion for the F&V consumption targeting disadvantaged populations". We had five speakers, Godfrey Xuereb from WHO discussed the framework for school policies that WHO has recently developed. And I think the main point there was the importance to highlight the need to have at the same time, enabling national policies and promotional actions, in other words the importance of having a comprehensive approach to food promotion programs in school that include curriculum development but also include the prevision of healthy food and particularly in this case F&V in the school environment.

The next speaker was Ellen Muehlhoff from FAO and she was particularly highlighting the importance of nutrition and education and prevision for F&V in school giving some examples from developing countries and she gave the example of the India program. India has been particularly active in "the right to food" campaign and they have established a government supported "Mid-Day Meal" program and the discussion was how to fit F&V in that program. What was particularly interesting was the way they came to a solution to overcome the price, the convenience, the perish ability problems and how, for example, shorten the food chain and getting suppliers closer to the consumption points has been practical solutions.

The next speaker was Pauline Samuda from the Caribbean and she was talking about food-based dietary guidelines. As you know, food-based dietary guidelines have been somehow launched after 1992 and now more and more countries have food-based dietary guidelines like in the Caribbean. She was quoting very good examples from 9 out of the 17 countries of the Caribbean. This tool is not only a promotional tool but is seen in many countries as an agricultural policy tool like a charter and everybody has agreed upon to concentrate on the food that have to be selected and used in different context in individual diets and in institutions.

There was also another paper that was presented by Allison Hodder from FAO on behalf (…) of a group including Jacky Ganry and Rémi Kahane and that was about the ways to link different initiatives, country and regional interventions or urban and peri-urban agriculture. First of all, we learned about the need to have more data to understand policy dynamics. Unfortunately (…) information about availability and consumption is not always good enough, particularly in developing countries. But then we learned about some of the dynamics of the food system in the developing world and for example the need to have more specialised F&V supply chains and there is no professional organisation for example in developing countries. So the dynamics and the mechanics of the availability of F&V are actually different. So, more information is needed and better understanding on how to handle the distribution issues.

And finally, Yves Desjardins highlighted the need to have a better communication between agriculture and health research and the need to create forum where this discussion can actually be translated into policy recommendations.

Conclusion

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This was a very broad ranging conference. We had participants from 30 nations; we had participants from nutrition, epidemiology, anthropology, sociology, economics, behaviour sciences, demography, policy analysis and politics. There were agreements, there were some disagreements but most today was agreement about the role of F&V in promoting healthy diet. So what we have done is a kind of final statement to select those areas where there was, in fact, agreement. And I wanted to read you some of those statements to make sure that we arrive at the consensus at the end of the conference and that we agree on some of the principle points.

So these statements are: the arising rate of food insecurity and the rising rate of obesity represent a real burden for global public health. We also see high rates of chronic diseases that are largely preventable through a healthier diet. So I hope we all agree with the statement here that improving diet quality has to be seen by all as an urgent priority for global public health.

On a second part of this statement which follows directly, we say that high consumption of F&V is associated with higher overall diet quality and with healthier lifestyles. There is emerging evidence from epidemiology and from behaviour that F&V consumption may also play a role in weight control. By contrast, inadequate consumption is clearly associated with elevated risk of chronic disease. So the second part of this statement is that increasing the consumption of F&V is the key to improving the diet quality for all.

And here we come for some practical applications. The first is that making sure that all populations included disadvantaged ones have equal access to affordable F&V requires an alliance between agriculture, health and public policy and I should also mention politics because it is exactly what we were talking about in the last session, we need research but at the same time we need political will. And the key focus areas for effective population based preventions, programs and policies should include schools and worksites and community settings and the media and all those topics were discussed and mentioned in this conference.

Insuring access to healthy diets by all segments of the population should be a priority for public health. It should be a responsibility of both the food industry and governments as we brought about earlier on, in particular, we urge European Union and the national governments to move forward to funding implement the school-food scheme to provide fruit and fresh produce for schoolchildren. And then we call on the World Health Organisation, the Food and Agricultural Organisation to continue to provide strong global leadership in promoting increased consumption of F&V worldwide. All member countries are urged to fund, develop and implement

comprehensive, coordinated and sustainable policies and programs to improve access to health promoting F&V. And such measures, brought about to a convergence between Agriculture and Public Health will significantly reduce the global burden of chronic disease.

This is the final consensus statement of the conference: I hope you are in agreement with that, do I hear any opposing voices ? No ? Thank you all for coming.