

# ScienceInSight

News and Updates on Nutrition, Food Safety and Health



## Nutrition Labels and Claims

– Updates and Future Directions in ASEAN and other Regions



ILSI Annual Meeting 2014 A Report from Bermuda ASEAN Food Consumption Data and Exposure Assessment An Update Physical Activity and Exercise Across the Lifespan Implications for Obesity Gut Microbiota Findings from Recent Research Vitamin D and Health Focus on Malaysia

## From the Executive Director



This issue of Science InSight reports on the activities of ILSI Southeast Asia Region (ILSI SEA Region) from November 2013 to March 2014. It has been a busy few months for the Branch, with several meetings and activities taking place around the region. We also share a brief report from the 2014 ILSI Annual Meeting, which was held in January on the island of Bermuda.

November 2013 was particularly productive, with the 8th Seminar and Workshop on Nutrition Labeling, Claims and Communication Strategies in Indonesia, the Nutrition Labeling meeting in the Philippines, and the 2nd Workshop on ASEAN Food Consumption Data and Exposure Assessment in Malaysia.

Over the last 12 years, ILSI SEA Region has worked extensively in the area of nutrition labeling and claims, and organized a series of meetings to facilitate discussions and information exchange among industry, academia, as well as regional and international government agencies. This topic remains of high relevance and interest, as consumers are increasingly seeking to make informed choices of the foods they consume. Industry and health authorities are also responding to consumers' needs, by exploring different formats of nutrition labels and claims that communicate important information to the consumers.

Gut microbiota is an emerging area of research in the region. ILSI SEA Region Australasia organized a symposium on this topic in December 2013, which showcased interesting research findings on how diet and genes may determine human intestinal microbiota, and the potential impact on human health and disease. ILSI SEA Region will be delving further into this topic, by organizing a regional conference in Singapore on gut microbiome and health in October 2014

I hope you enjoying reading this issue of ILSI SEA Region's newsletter, and you may also find further details and information on our activities in our website. We look forward to your continued support and participation in our events for the rest of 2014!



**Boon Yee Yeong**  
Executive Director  
ILSI Southeast Asia Region

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# Nutrition Labels and Claims - Updates and Future Directions in ASEAN and other Regions

Nutrition labels, as well as nutrition and health claims, are important tools to communicate the nutritional quality and health benefits of a food product to consumers. They provide point-of-sale information to help consumers make informed choices. In Southeast Asia, there is wide disparity between label formats and permitted claims between countries, causing confusion among consumers and resulting in trade barriers for food manufacturers and distributors.



Organizers and Speakers, 8th Seminar on Nutrition Labeling, Claims and Communication Strategies, Jakarta

As part of its series of seminars on nutrition labeling and claims, the International Life Sciences Institute Southeast Asia Region (ILSI SEA Region) organized the **8th Seminar on Nutrition Labeling, Claims and Communication Strategies** from November 26 – 27, 2013 in Jakarta, Indonesia. This 1½-day seminar provided an update on international and regional developments in nutrition labeling, nutrition and health claims, and related issues in Southeast Asia and other regions. The seminar also discussed the use of Front-of-pack (FOP) signposting schemes in the region, as well as identifying opportunities and challenges related to the use of nutrition labeling and claims in communicating nutrition and health related messages. Opportunities

for harmonization of nutrition labeling and claims in Southeast Asia were also explored.

The seminar was co-organized by the National Agency of Drug and Food Control (BPOM), Indonesia, and attended by regulators from ASEAN countries, along with key nutrition academics, and food industry regulatory and nutrition personnel.

## Regulatory Updates and Future Directions

The first session of the seminar provided an update on developments in nutrition labeling, nutrition and health claims in

8 ASEAN countries - Brunei, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. Speakers and regulators from Australia/New Zealand, China and Taiwan also shared the latest updates from their countries and regions.

Ms. Noorayu Razak, Ministry of Health, **Brunei Darussalam**, shared that foods in Brunei are permitted to carry nutrition claims provided they have a nutrition information panel. However, nutrition claims on the presence of vitamins/minerals, including 'source of' and 'enriched with' are only permitted if the reference quantity of the food contains a certain percentage of the daily allowance for that vitamin/mineral. Ms. Razak noted that in future, regulations will be reviewed



in line with international standards and requirements, and that enforcement surrounding nutrition labeling regulations will be strengthened.

Mrs. Tetty Helfery Sihombing, BPOM, **Indonesia**, reported that a nutrition information panel is mandatory for fortified foods and foods carrying a nutrition/health claim in Indonesia, and voluntary for all other foods. Nutrient function claims, other function claims and reduction of disease risk claims are permitted in Indonesia for a number of nutrients/food components, as declared by BPOM, more recently including glycemic index claims. Mrs. Tetty advised that new claims may be proposed to BPOM, provided they are consistent with national nutrition policies, are truthful and non-misleading and do not encourage excessive consumption of any food. Claims are prohibited on foods intended for infants and claims should not imply that a nutrient or other food component can prevent, treat or cure a disease. BPOM has established the 'Guidelines for Inclusion of Nutrition Facts on Food Labels' in 2011, as a reference for industry and other stakeholders.

In Malaysia, labeling of the 4 core nutrients, namely energy, carbohydrate (including total sugars), protein and fat has been mandatory since 2005, reported Ms. Nurul Hidayati Mohd Nasir, Ministry of Health, **Malaysia**. Recent developments in nutrition labeling in Malaysia include a proposal for a required additional declaration of nutrition information as a percentage of the Nutrient Reference Value (NRV) per serving on the Nutrition Information Panel. Ms. Hidayati also noted that the list of approved nutrient function claims in Malaysia has been increasing, with a total of 52 permitted nutrient and other function claims currently permitted.

Dr. Sabei Htet Htet Htoo, Food and Drug Administration (FDA), **Myanmar**, provided a brief introduction to nutrition labeling regulation in Myanmar, including the establishment of the FDA in 1995 and the enactment of the 'National Food Law' in 1997. Dr. Sabei noted that directive orders related to food labeling are underway, and will be based on the Codex Alimentarius food labeling guidelines. With all sectors of Myanmar opening up recently, the main challenge for the FDA is to deal with food safety measures on imported and exported foods.

The FDA **Philippines** adopted the Codex Guidelines on the use of Health and Nutrition Claims in 2007, to be used in addition to existing national laws on labeling. Ms. Helena Alcaraz, FDA Philippines, shared that a revision of labeling guidelines is currently underway to make nutrition labeling mandatory. Front-of-pack labeling is relatively new in



**Speakers and Chair (from left to right): Dr. Tipvon Parinyasiri, Food and Drug Administration Thailand; Ms. Kelly Wohlgenant, RTI International; Ms. Eunice Pang, Health Promotion Board Singapore; Dr. Rina Agustina, SEAMEO RECFON Indonesia.**

the Philippines and is being implemented on a voluntary basis. At present, only energy value (as a percentage of RDA or RNI) is being declared on front-of-pack, however Ms. Alcaraz advised that this will soon be expanded to include sugar, sodium and fat.

Ms. Yi Ling Tan, Agri-Food and Veterinary Authority, **Singapore**, reported that in Singapore, nutrition labeling is only required when nutrition claims, vitamin and mineral claims or permitted health claims are made. In 2009, an Advisory Committee on Evaluation of Health Claims was formed, tasked with developing a framework and principles for evaluation of health claims in Singapore, based on Codex recommendations for the scientific basis for health claims. As of April, 2009, 5 health claims were approved for use in Singapore. In addition, the Health Promotion Board, Singapore has established the 'Healthier Choice Symbol' – a criteria-based front-of-pack logo scheme.

**Thailand** follows the 1998 Ministry of Public Health Notification No. 182 'Nutrition Labeling' for nutrient content claims, comparative claims and nutrient function claims, reported Dr. Tipvon Parinyasiri, Thai FDA. More recently, mandatory nutrition and GDA labeling of all snack foods, chocolate products, bakery products, instant foods and chilled and frozen ready-to-eat meals will come into force. In response to increasing application for claims related to prebiotics and probiotics from the food industry, the Thai FDA established the 'Guidelines and Criteria for Evaluation of Health Efficacy to Health, Safety and Health Claims of Probiotic/Prebiotic in Food Products' in 2008, which resulted in the 'Ministerial Notification Regarding the Use of Probiotic in Food Products' in 2011, permitting certain claims. Dr.

Tipvon noted that future developments in Thailand include the extension of nutrient function claims; updating the Thai RDI for sodium to 2000mg; adding a trans-fat declaration to nutrition labels, and adding allergen labeling such as the presence of nuts and shellfish.

Ms. Truong Thuy Ngoc, **Vietnam** Food Administration, shared that nutrition labeling is currently mandatory only for milk products for children aged 0-24 months. In addition, foods that claim the presence of added micronutrients must provide a comparison to the Recommended Nutrient Intakes for that nutrient. Ms. Truong cited many challenges faced in implementing nutrition labeling in Vietnam including the difficulty in calculating the nutrient content of each product due to limitations in laboratory conditions, difficulty in monitoring the use of nutrition labeling and low consumer understanding of nutrition labeling. Currently nutrition labeling in Vietnam is voluntary, referring to the Food Safety Law of Vietnam, the Codex guidelines on nutrition labeling, and nutrition labeling regulations from other countries. Ms. Truong noted that in future a Draft Circular, to be issued in 2014, with detailed guidance on food labeling will signal a move towards mandatory nutrition labeling for pre-packaged foods in Vietnam.

A new standard for nutrition content and health claims has been recently incorporated into the **Australia New Zealand** Food Standards Code and has become law. Ms. Jenny Hazelton, Food Standards Australia New Zealand, reported that the standard sets out the regulatory requirements for nutrition content claims, and for the first time permits general level and high level health claims where there is a demonstrated food-health relationship. Ms. Hazelton noted that these claims

are only permitted on foods that meet the 'Nutrient Profiling Scoring Criterion' (NPSC), a nutrient profiling system based on both risk-reducing (protein, dietary fibre, fruit/vegetable content) and risk-increasing (energy, salt, sugar, saturated fat) components. This is in order to prevent claims from appearing on foods that are high in saturated fat, salt or sugar.

Dr. Junhua Han, **China** National Center for Food Safety Risk Assessment, gave an update on nutrition labeling in China. After the implementation of the Food Safety Law of China in 2009, the National Food Safety Standard was developed, and as part of this work, food labeling standards were revised and drafted. The new 'General Standard for the Nutrition Labeling of Pre-packaged Foods' was issued in 2011 and came into force in January 2013, with mandatory labeling required on all pre-packaged food for energy, protein, carbohydrate, fat and sodium content. The standard also regulates nutrition claims or nutrient function claims, following Codex guidelines for nutrition labeling, and regulations from other countries. Dr. Han also shared a consumer education campaign is also currently being implemented in China. She noted that the future focus in China would be to educate and improve compliance of smaller food companies, and to evaluate the effect of nutrition labeling on consumer food purchasing behavior.

Dr. Min Su Tzeng, Fu Jen Catholic University, **Taiwan**, informed participants that voluntary nutrition labeling commenced in 1998 in Taiwan, becoming mandatory in 2002 for products making nutrition claims. In 2008, nutrition labeling became mandatory for all products except for fresh foods, mineral water, tea, salt and condiments. The Taiwanese government surveyed consumers prior to the enactment of nutrition labeling regulations, to gauge their understanding and format preferences, and they continue to monitor compliance. Dr. Tzeng shared that future developments in Taiwan, expected to be in place by 2015, include the addition of trans-fat and simple sugars to the nutrition information panel, the expression of each nutrient as a percentage of Daily Value (DV), and the development of reference serving sizes for 18 food categories.

## Recent Developments in the Use of Front-of-Pack Labels

The second session of the seminar discussed the use of front-of-pack

signposting schemes, both internationally and in Southeast Asia. Ms. Kelly Wohlgenant, RTI International, USA, presented results of a systematic literature review conducted by her organization that looked at consumer, producer and retailer response to front-of-pack and on-shelf nutrition labeling systems from countries such as the US, Australia, New Zealand and several European countries. Results of the review indicated that **consumers can more easily interpret and select healthier food products with nutrient-specific front-of-pack nutrition labels that incorporate text and symbolic colour to indicate nutrient levels, rather than nutrition labels that emphasize numeric information.** Ms. Wohlgenant noted that more research is needed to determine the effects of front-of-pack nutrition labeling on consumer purchase behaviour and dietary intakes especially in Southeast Asia where such information is lacking.

The Healthier Choice Symbol (HCS), a front-of-pack labeling scheme developed by the Health Promotion Board (HPB) Singapore, was presented by Ms. Eunice Pang, HPB Singapore. The HCS is a voluntary criteria-based logo scheme, with products that carry the HCS containing lower levels of total fat, saturated fat, sodium and sugar as compared to similar products in their category. In addition, some products carrying the HCS may have higher dietary fiber, calcium and wholegrain content compared to similar products within the same food category. Ms. Pang noted that the Health Promotion Board uses the HCS to **incentivize the food industry to develop healthier products**, with around 80% of consumers reporting using the HCS as a guide when purchasing food products. She added that around 300 food manufacturers now use the HCS on almost 2900 products sold in Singapore.

Dr. Tipvon Parinyasiri, Thai FDA, further presented the findings of a recent survey conducted in Thailand on the consumer understanding and utilization of front-of-pack GDA labeling. In collaboration with the private sector and academia, the Thai FDA have spent considerable effort in **training food manufacturers in the correct format of GDAs as well as training consumers in the use of GDAs for making appropriate dietary choices.** Dr. Tipvon shared information on national education and public awareness campaigns that were launched. Survey results showed that the percentage of consumers that could recognize GDAs was 52%, understand GDAs was 62% and utilize GDAs was 51%. The Thai FDA continues to conduct campaigns to increase public awareness of GDAs.

## Communication of Nutrition and Public Health Messages

Session 3 of the seminar identified opportunities and challenges related to the use of nutrition labeling and claims in communicating nutrition and health related messages. The session commenced with a presentation by Dr. Hernani Djarir on behalf of Dr. Ekowati Rahajeng, Ministry of Health (MOH) Indonesia, on the **use of nutrition labels and claims as educational tools.** Following the World Health Organization's recommendations for the prevention and control of non-communicable diseases, the MOH are focusing on **improving community awareness and behavior toward healthy diet as one of the public health intervention approaches for NCD control in Indonesia.** As part of this approach, the MOH recently released a regulation on food labeling which includes a 'health message' on sugar, salt, and fat intake, which is mandatory for all processed food and drink as well as fast food. The health message states 'Consumption of Sugar more than 50 grams, Sodium more than 2000 milligram, or total Fat more than 67 gram per person per day increases risk for hypertension, stroke, diabetes and heart attack'. Dr. Djarir stated that providing such information on processed and fast foods is expected to improve community behaviour towards healthy diet to prevent NCD and its risk factors as well as to enable the community to make healthier choices.

Dr. E-Siong Tee, Nutrition Society of Malaysia, presented various educational campaigns developed and implemented by the Nutrition Society of Malaysia, including through Nutrition Month Malaysia, to educate Malaysians on the use of nutrition labeling in making healthy food choices. The various activities involves multiple channels including leaflets, websites, magazine and newspaper articles, and the development of guidebooks for parents of toddlers and school children. Dr. Tee acknowledged the **challenges in finding innovative ways to ensure nutrition labeling and claims are understood and utilized by consumers, and emphasised the need to target education campaigns towards children.**

The **private sector has an important role in promoting the understanding of nutrition labeling**, noted Dr. Pichet Itkor, presenting on behalf of the Food Processing Club, Federation of Thai Industries (FTI). The FTI has supported the Thai food authorities by responding quickly to nutrition labeling requirements,

and collaborating with the Thai FDA on the training of manufacturers on the use of GDA labels, and roadshows to raise consumer awareness of GDA labeling.

## Harmonization Opportunities in ASEAN

The final session of the seminar explored opportunities for harmonization of nutrition labeling and claims in Southeast Asia. Based on findings from this series of seminars and workshops on nutrition labeling and claims organised by ILSI SEA Region, Dr. E-Siong Tee noted that there are **currently no uniform requirements for nutrition labeling and health claims in Southeast Asia**. Findings show that the main areas of differences include the core nutrients that must be declared; different ways of expressing nutrient content against a set of reference values, which may be optional or mandatory; and different expression format of nutrient content, i.e. per 100g, per serving, percentage of RDA. There are also significant variations in the nutrition and health claims permitted and the required criteria in each of the countries. **The regulatory systems in place in countries in the region differ and are at various stages of development**. Dr. Tee added that if greater economic integration is to occur with the creation of the ASEAN Economic Community (AEC) by 2015, elimination of technical barriers to trade through harmonization of national food regulations and standards is vital. He urged that greater efforts be made by countries in the region to harmonise several basic aspects of the nutrition labeling and claims regulations, based on the Codex Alimentarius established standards.

Ms. Pauline Chan, ILSI SEA Region, shared with the participants that ILSI Southeast Asia Region has organized a series of workshops and expert consultations with regulators, researchers and food industry personnel over the past 12 years. Key outcomes of these meetings include **consensus and recommendations on the "Regulatory Framework for Evaluation of Claims", as well as "Guidelines for the Scientific Substantiation of Nutrition and Health Claims for Food with Claims"**. The regulatory framework should include establishing a national expert committee on nutrition and health claims; making provisions for nutrition/health claims in existing food regulations; making preliminary preparations such as criteria for substantiation of claims;

and establishing a work procedure for reviewing applications. The Guidelines were developed based on Codex guidelines, PASSCLAIM criteria, and discussion outcomes from the expert consultations and workshops. They include recommendations on the types of studies required for substantiation of claims, biomarkers used, research design and methodology, overall evaluation of submitted data and re-evaluation.

Mr. Adhi Lukman, Indonesian Food and Beverages Association, completed the session with the **industry perspective on opportunities for harmonization of nutrition labeling in ASEAN**. Mr. Lukman cited **disparity in nutrition labeling requirements between countries as a major barrier to trade of food products**, noting four key areas including variance in mandatory versus voluntary requirements; differing minimum and maximum levels for vitamins and minerals; variance in tolerance levels for nutrients; and varied daily reference values for nutrients. Industry is optimistic, despite these variances, about the possibility to explore harmonizing nutrition labeling and claims in ASEAN.

The 8th Seminar on Nutrition Labeling, Claims and Communication Strategies concluded with a panel discussion chaired by Dr. E-Siong Tee, comprising Mrs. Tetty Helfery, Ms. Helena Alcaraz, and Dr. Pichetas Panel Members. The panel discussion featured a more in-depth response on opportunities for harmonization in ASEAN and a Q & A platform for the audience on further aspects of nutrition labelling with the panelists.

Mrs. Boon Yee Yeong, Executive Director, ILSI Southeast Asia Region, in her closing remarks thanked the country representatives and invited speakers in joining this important regional seminar to share the latest updates on nutrition labelling and claims regulations from their respective countries. She expressed that the sharing and exchange of the relevant information have contributed significantly towards better understanding of the process undertaken by the countries in establishing their nutrition labeling and claims regulations. Mrs. Yeong further extended her gratitude to the co-organizer, BPOM Indonesia, in the support and in co-hosting of the event, and finally, to all attendees in their participation in ensuring the success of this 8th edition of the seminar series.



*Ir. Tetty Helfery Sihombing, National Agency of Food and Drug Control, Indonesia*

## Nutrition Labeling in the Philippines

Following the seminar in Indonesia, ILSI SEA Region's Philippines Country Committee organized a seminar on **"Nutrition Labeling: What You Need to Know"** that was held in Manila on November 28, 2013. The seminar's objective was to discuss the recent developments in nutrition labeling both in processed products and food service in the Philippines, as well as future trends and directions (including harmonization) in the area of nutrition labeling. Developments include new regulations from the government on front-of-pack labelling, as well as the question of consumer awareness and use of nutrition labels, both back-of-pack and front-of-pack labels, on processed products. The health and nutrition community in the Philippines has also been considering front-of-pack labeling that serve broader objectives. The seminar was attended by 60 participants from government, academia and the food industry.

Dr. Mario V. Capanzana, Director of the Food and Nutrition Research Institute, discussed the various information given by food labels and the current practice of nutrition labeling in various countries including the Philippines. Dr. Capanzana went on to describe the results of the 2008 National Nutrition Survey regarding consumers' use of nutrition information on processed products. It appears that only 35% of respondents read the product label, and of these, only 46% read only the expiry date and nutrition facts. The survey showed clearly that **the practice of reading product labels follows the socio-economic level of the respondents, with the higher the economic and educational level, the higher is the practice of reading the product label**. Finally, Dr. Capanzana discussed the current initiatives on nutrition labeling



in the Philippines by the Food and Drug Administration, food industry, and the nutrition community, particularly on front-of-pack labeling.

Prof. Maria Theresa Talavera of the Institute of Human Nutrition and Food, University of Philippines Los Banos (UPLB), described the results of their study on **consumers' preferences on nutrition label formats**. Face-to-face interviews were conducted among 65 randomly selected mothers. Results showed that 35.5% of respondents chose price as the basis for buying food, 24% chose taste, 19% chose nutrient content, and 14% chose safety. Fifty-six per cent claimed they read nutrition labels "sometimes" or "quite often". The price of the product topped the list of information read (73%), followed by brand name, vitamin and mineral content, and expiration date, and to some extent, caloric and salt content, and nutrition claims. Having no time was cited as the reason for not reading nutrition labels by 31% of the respondents, 16-18% cited not being aware of nutrition labeling or considered it not important. About 68% of the respondents preferred the nutrition label to remain at the back-of-pack. Four formats were presented to the respondents from which they chose their preferences: simple traffic light (healthier choice, OK choice, less healthy choice); extended traffic light (eat plenty, eat often, eat in moderation, eat less often, and eat sparingly); multiple traffic light (fat, salt, sugar, and saturates); and a logo indicating that the food product is healthy. About 47% preferred the healthy logo, 32%, the multiple traffic light, 11%, the simple traffic light, and 10% preferred the extended traffic light. Those with the highest income preferred the healthy logo, although statistically the preference for the healthy logo was not influenced by educational attainment. Most respondents (89%) preferred mandatory nutrition labeling as against voluntary. Prof. Talavera recommended exploring the merits and system of using front-of-pack labeling as it has shown positive results in other countries.

Dr. Maria Victoria Pinion, of the Food and Drug Administration and Chair of the National Codex Organization-Technical Committee, gave an **overview of nutrition labeling in Southeast Asia and regional regulatory update**. All countries in the region except Thailand follows Codex regulations in their nutrition labeling (energy, protein, carbohydrate, fat and total sugars), and of these, only Malaysia makes nutrition labeling mandatory. Thailand follows US regulations to some extent. Nutrition labeling in the Philippines, Indonesia and Singapore is voluntary except when fortified or when nutrition claim is made. In the Philippines

FOP is voluntary (calories), while in Thailand, FOP is mandatory for 5 snack foods. Dr. Pinion next discussed the **benefits and challenges of nutrition labeling among consumers, industry, and government**. Among the challenges she cited, cost is the primary consideration, including cost for monitoring and surveillance and cost of educating the consumers. Finally, Dr. Pinion discussed **harmonization as the current concern among Southeast Asian countries**, with recognition that certain issues need to be addressed. These include the issue of whether nutrition labeling should be voluntary or mandatory, which nutrients to be included, what NRV to be used, type or form of food to be included, and the standard format to be adopted.

Asst. Prof. Clarissa B. Juanico, of the Institute of Human Nutrition and Food, UPLB, summarized their **study on nutrition labeling in canteen menus, to determine whether consumers would use the menu label to guide them in their food selection**, and if so, how they would change their orders. Interviews were conducted among 130 mostly young and middle-aged adults (average age, 31 yrs), mostly of college level of education, and employed. The baseline survey showed that 58% of the respondents were not aware of their energy requirement, and 26% do not read food labels. They were then shown different breakfast menus labeled with their caloric content. The results showed that while 92% of the respondents noticed the menu labels, only 63% used the information. There was, however, a weak correlation between those who noticed the menu labels and those who used the menu labels in their choices, implying that the menu labels did not strongly affect their food choice. Of those who used the menu labels, 78% ordered a lower calorie dish, and 10% ordered a higher calorie dish. Finally, the odds of using menu labels were higher among young adults with college level of education and who perceived themselves to be overweight/obese or hypertensive.

The last speaker was Ms. Edith A. de Leon, President of the Philippine Food Chamber, who discussed the Philippine food industry perspective on nutrition labeling. After reviewing the findings of the FNRI nutrition survey on food and nutrition labeling, she cited some of the **reasons why consumers do not read food labels**, among them: brand loyalty, lack of time, price sensitivity, uncertainty about accuracy of information, perception that the information was too technical,



confusion, and the small size of the print. On the other hand, she pointed out some reasons why consumers do read food labels: "as part of a healthy lifestyle", "to see what nutrients are in the food", "concerned about children's diet", and "I am on a weight loss/special diet". Ms. de Leon noted the double burden of malnutrition as a point to consider in nutrition labeling. She then discussed the industry commitments to WHO, among which are: product reformulation, consumer education, raising awareness on balanced diet and physical activity, and actively supporting public-private partnerships. Ms. de Leon next discussed the policies of the food industry on nutrition labeling: science-based, simple, and useful to consumers. She then described some of the GDA (Guideline of Daily Amounts) systems being used around the world together with their strong qualities. Finally, Ms. de Leon summarized some of the pending issues on nutrition labeling including reference values for nutrients associated with non-communicable diseases, and the RDA (Recommended Dietary Allowances) to be used should there be harmonization in Southeast Asia. She concluded with some options to explore, such as voluntary front-of-pack labeling based on percentage of GDAs and a multi-stakeholder approach in providing consistent nutrition labeling education programs. She also emphasized the importance of partnership, particularly in research on consumer habits and use of nutrition labels, and in nutrition education campaigns.

The Open Forum that followed centered around the need to be clear on the objective of nutrition labeling, front-of-pack labels that are based on national policy, the use of RENI (Recommended Energy and Nutrient Intake) for Filipinos which is being revised presently, the need to define Daily Value and GDA, and the terms used such as energy vs calories and sodium vs salt. The seminar ended with a summary of the next steps to be taken to result in a consumer-friendly and useful nutrition label for the Philippines.

# ILSI Annual Meeting 2014 - A Report from Bermuda

The Annual Meeting of the International Life Sciences Institute (ILSI) is a once-a-year get together for members, trustees, directors, advisors and colleagues from ILSI's branches around the world to share perspectives and foster global collaborations. The 2014 ILSI Annual Meeting was held from January 17- 20, 2014 in Southampton, Bermuda.



*Members, Advisors, Directors, and Staff of ILSI Asian Branches*

## Scientific Sessions

The Scientific Program at the Annual Meeting 2014 provided an update on the latest research on a diverse range of food safety and nutrition topics from scientific experts from leading academic research institutions, government agencies and industrial organizations, encouraging open discussion on critical issues.



*Boon Yee Yeong and Sofia Amarra, ILSI SEA Region, with Jenny Chang, ILSI Taiwan*

The scientific sessions were organized by the ILSI Research Foundation, as well as ILSI North America. The session organized by the ILSI Research Foundation focused on the topic of **"Faithful Research Reporting and Steps to Promote It"**. The traditional methods of disseminating biomedical research include presentations at scientific conferences, journal submissions and subsequent publications. However, studies have found that such methods of research communication entail weaknesses, and problems include the omission of crucial information relating to the research studies, as well as publication biases. Methods to improve the fidelity and transparency of research reporting were shared and discussed.

The scientific session on **"Free Will or Fate: What Drives our Food Choice Decisions?"** was organized by ILSI North America, and explored how consumers make food choices, outlining a framework of behavioral economics and human decision-making, and discussing the



*ILSI SEA Region team – Keng Ngee Teoh, Pauline Chan, Boon Yee Yeong, Geoffrey Smith and Sofia Amarra*

irrationality/rationality of human behavior and risk perception in relation to food choice. The session also presented research on the biology behind eating and food choice including food reward circuitry, and addressed the challenges in achieving behavior change in food choice.

The session **"Precision Nutrition: From Cell to Society"** provided an update on the field of Nutrigenomics and Personalized Nutrition, and discussed the role of fortification and dietary supplements in meeting dietary requirements. Speakers also discussed challenges in meeting dietary requirements through changing



eating patterns, and the improvement of micronutrient status by linking agriculture with human nutrition.

The session **"Food Safety Case Study: Arsenic"** took a close look at the sources of arsenic in food, and issues in assessing its risk. Dietary exposures to inorganic arsenic have raised questions about possible health risks, and comprehensive science-based risk assessment is required in order to further study this issue and evaluate ways to reduce exposure.

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## One ILSI – Global Partnership for a Healthier World

At a special discussion forum, representatives from the ILSI Branches shared and discussed ideas on how the **"One ILSI"** framework currently being developed by the global ILSI organization can be realized through global collaboration in the areas of food and water safety, toxicology and risk science, nutrition for healthy aging and sustainable agriculture and food security. The aim of this framework is to help ILSI to effectively work towards its mission of advancing scientific knowledge for public health.



*Snapshots from Southampton, Bermuda*

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## ILSI SEA Region Branch Meeting

The ILSI SEA Region Branch Meeting is held every year at the ILSI Annual Meeting, as an opportunity for the branch to share updates on its activities as well as its accomplishments over the past year with invited guests that include advisors, representatives from member companies, colleagues from other ILSI branches and entities, as well as friends and associates interested to learn more about ILSI SEA Region.

At this year's meeting, the branch presented its activities and accomplishments in 2013, which included regional and country-level conferences, symposia, workshops and seminars; publication of scientific papers and reports in scientific journals; research studies and collaborative projects. It also shared a calendar of planned and upcoming activities for 2014 and 2015. Besides this overview of its activities, the branch also provided more information on key on-going projects, such as the research projects on food consumption in Southeast Asia. The meeting concluded with a panel discussion on "Public Private Partnership in Improving Nutrition and Food Safety in SEA Region – How can ILSI Strengthen its Role" that saw active discussions and garnered much positive recommendations and support from the attendees.

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## Recognition Award for ILSI SEA Region's Executive Director

In 2013, ILSI SEA Region celebrated its milestone 20th Anniversary. It has been a fulfilling year for the branch, and the celebrations were capped with a well-deserved Recognition Award for the branch's Executive Director, Mrs. Boon Yee Yeong.

Boon Yee was honored with the **Recognition Award for Longest-Serving Executive Director** at the ILSI Assembly of Members 2014. Having led and guided ILSI SEA Region since its inception in 1993, Boon Yee has been an active leader within ILSI, and she has built strong partnerships among the ILSI branches and colleagues. Her passion and dedication to strengthening ILSI's contributions to improving public health through science is well-known, and ILSI SEA Region is proud that she has received this award. Congratulations, Boon Yee!



*Jerry Hjelle, ILSI President, presented the Recognition Award to Boon Yee Yeong, Executive Director of ILSI SEA Region*

# ASEAN Food Consumption Data and Exposure Assessment: An Update



Food consumption data is an essential component for conducting dietary exposure assessments to evaluate the safety of substances present in foods. Nevertheless, good quality food consumption data is not always readily available for this purpose in many regions in the world. Recognizing the need for food consumption data to be used for dietary exposure assessment purposes in the ASEAN region, ILSI SEA Region, in collaboration with the Food Safety and Quality Division, Ministry of Health Malaysia, and the Food and Agriculture Organization of the United Nations (FAO), organized the 2nd Workshop on ASEAN Food Consumption Data and Exposure Assessment on November 19-21, 2013.

The Workshop was conducted under the auspices of the **ASEAN Expert Group on Food Safety (AEGFS) Project on "Strengthening ASEAN Risk Assessment Capacities: Food Consumption Data"**, and is a continuation of the earlier work initiated in 2011.

A total of 44 participants who are experts in food safety risk assessment and/or food consumption data from all 10 ASEAN member states - Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam - attended the Workshop. Mr. Michael Glen from the ASEAN Secretariat also participated in the workshop to provide advice in relation to ASEAN procedural matters. Dr. Philippe Verger from the World Health Organization (WHO) and Dr. Catherine Leclercq from FAO served as the main technical consultants and facilitators for the Workshop.

The key objectives of the 3-day Workshop were to: (1) Finalize the ASEAN food

classification that will be used as the basis for the ASEAN Food Consumption Database; (2) Share experiences and challenges by ASEAN Member States in the compilation of national food consumption data into the proposed format for the ASEAN Food Consumption Database; and (3) to undertake case studies on exposure assessment of chemicals in foods using the compiled 'pilot' ASEAN Food Consumption Database compiled using data submitted by selected ASEAN Member States.

Further to the discussions held at the 3-day Workshop, the ASEAN Member States agreed on a final format that will form the basis for collation of national food consumption data from ASEAN Member States into an ASEAN Food Consumption Database. The ASEAN format has been harmonized across ASEAN Member States at Level 1 (Food Categories) and Level 2 (Food Sub-categories). Furthermore, for ease of ASEAN Member States to submit data for international risk assessment purposes in the future, the format was also harmonized with

the FAO/WHO format for collection of food consumption data. This would allow dietary patterns of ASEAN populations to be considered by international expert committees such as JECFA and JMPR, when undertaking their dietary exposure assessment activities. Malaysia, as the lead country for the Project at the AEGFS level, also agreed to continue serving as the lead for an Electronic Working Group (eWG) to complete the work on the ASEAN Food Consumption Database. These outcomes from the Workshop were subsequently reported at the 10th Meeting of the AEGFS, which was held in Brunei Darussalam from December 3-5, 2013.

In view of the significant interest by ASEAN Member States and progress made during the Workshop, ILSI SEA Region, FAO and WHO will continue to collaborate to support ASEAN in realizing its objectives of having a common ASEAN Food Consumption Database that could be used for dietary exposure assessment purposes.



# Physical Activity and Exercise across the Lifespan: Implications for Obesity

The role of physical activity and exercise in the context of obesity was explored at the symposium 'Physical Activity and Exercise Across the Lifespan: Implications for Obesity' held in Kuala Lumpur on March 16, 2014, as a pre-congress satellite meeting to the International Congress of Obesity (ICO) 2014. The symposium was organized by the Malaysian Association for the Study of Obesity, Universiti Teknologi Mara, Malaysia, and supported by ILSI SEA Region.

Attended by over 170 researchers, health practitioners and industry representatives, the meeting summarized the current knowledge relating to the role of physical activity, exercise and nutrition on obesity to key stages across the lifespan; identified areas of uncertainty where more evidence is needed and potential strategies to address knowledge gaps; as well as identified the main obstacles to translation of research findings.

The **complex interaction between physical activity and pregnancy** was explored by Dr. Yves Schutz, University of Lausanne and Fribourg, Switzerland, with the physiological status, including additional weight gain, tiredness and fatigue of pregnancy influencing the duration and intensity of physical activity. Regular physical activity at an appropriate level during pregnancy improves cardiovascular function, limiting excess fat gain, decreased musculoskeletal discomfort and reduced risk of gestational diabetes and hypertension. In contrast, the adoption or continuation of a sedentary lifestyle during pregnancy may contribute to numerous disorders such as gestational diabetes and pre-eclampsia.

There is an increasing awareness of the **importance of physical activity in early life**, and while uncertainties remain regarding the optimal duration and intensity of physical activity for preschool-aged children, there appears to be a **relationship between level of parental physical activity (particularly**



**mothers) and physical activity level of the child in this age group.** Dr. Louise Baur, Westmead Children's Hospital and University of Sydney, Australia, shared results from the Healthy Beginnings Trial, a randomized controlled trial consisting of 8 staged home visits to over 660 first-time mothers in a socially disadvantaged region of Sydney. The visits targeted a range of lifestyle issues including active play and reduced sedentary behaviours such as TV viewing time for the child. The study reported significant improvements in maternal self-reported physical activity and a reduction in prevalence of overweight and obesity at age 2 from 20% to 17%.

Professor Poh Bee Koon from Universiti Kebangsaan, Malaysia, shared interesting

data from regional and local surveys of physical activity in children and adolescents, showing that a **high proportion of Malaysian children did not meet the recommended physical activity guidelines of 60 minutes per day.** The AsiaFit study, conducted among adolescent boys and girls in seven Asian cities, indicated that boys had better flexibility, cardiorespiratory and muscular fitness than girls, and that physical activity level was associated with factors such as sex, ethnicity, physical environment and peer influence. She concluded that Malaysia's largely sedentary population of children and adolescents could benefit from interventions to increase physical activity in schools and the community, improving their physical fitness and health, and slowing the increasing prevalence of obesity.

The quantum of research papers examining “obesity and physical activity/exercise” has increased exponentially since the first International Congress on Obesity over 40 years ago. Professor Nuala Byrne, Bond University, Australia, presented a series of studies in this area that have informed health recommendations and guidelines for weight management. She examined **how physical activity and exercise impact weight status and what research gaps still exist** in dealing with the impact of physical activity and and/or exercise training on obesity in young adults.

The **influence of physical activity on human appetite and energy balance** was

discussed by Professor John Blundell, University of Leeds, UK. Prof. Blundell suggested that when people change from an active to a sedentary lifestyle, eating habits are not adjusted, therefore favouring a positive energy balance and leading to weight gain. He added that the classic view is that when physical activity energy expenditure (EE) is increased, compensation occurs through decreased non-exercise EE or increase in energy intake. Interventions in middle-aged people show some weight loss when physical activity is mandatory and supervised, however with great individual variability. Prof. Blundell contended that body weight itself was a poor indicator of the response to physical activity, and more significant is the change in body composition, with sedentary individuals having a higher a level of adipose tissue than active individuals at the same body weight.

The benefits of physical activity in the elderly include prevention of chronic disease, preserving cognitive function and maintaining metabolic health. However, many countries show a **decline in total and leisure-time physical activity with age**, primarily due to increasing functional limitation, decline in muscle mass and the development of co-morbidities. Professor Adrian Bauman, University of Sydney, Australia, noted that whilst overweight/obesity may increase mortality risk in the elderly, ‘weight loss’ should not be the goal of physical activity in this group, but to



maintain physical activity irrespective of body weight. He concluded that the challenge is to develop programs and resources that older adults can and will use, and that can reach older adults across the whole population.

Dr. Jean-Michel Oppert, University Pierre et Marie Curie, France, examined the **changes to physical activity that occur during the transition to retirement**. Previous literature has shown this period to be associated with an increase in TV viewing time, but have not reported changes in other types of sedentary behaviour. Dr. Oppert’s group assessed sedentary behaviours and physical activity over 6 years in 2,841 people approaching or at retirement age, and found that those who retired (31% of the cohort) reported the greatest increase in time spent in leisure sedentary behaviours, particularly computer use. Subjects transitioning to retirement also had the greatest increase in time spent in leisure-time physical activity. Dr. Oppert concluded by emphasising the need to reinforce public health measures aimed at decreasing sedentary behaviours in parallel with increasing regular

physical activity during the critical retirement period, with additional focus on active transport for this group.

The symposium concluded with a Panel Discussion on ‘Exercise is Medicine’, a movement in Asia and globally, that **promotes physical activity in disease prevention through an ‘exercise prescription’ issued by health professionals to their patients**. It was agreed that despite the initial focus of targeting EIM towards primary care physicians, that promoting physical activity and exercise is everyone’s responsibility.





# Gut Feelings – Findings from Recent Research on Gut Microbiota

ILSI SEAR Australasia, in association with the ARC Centre of Excellence in Plant Cell Walls, held a symposium on December 3, 2013 in Brisbane, Australia, with prominent scientists and researchers to discuss the emerging research area of the human gut microbiota.

Professor Peter Gibson, Professor and Director of Gastroenterology at Monash University and Alfred Health emphasised the importance of the microbiota as an 'organ' - being no less significant than the role of the liver in human health. Prof. Gibson noted the **influence of gut microbiota on all aspects of well-being** makes dysbiosis an important marker for clinicians. He discussed advances in methodology to classify microbes, their genes, and functions. A 'fishing expedition' to define abnormalities in microbiota across many disease states exists, in order to uncover pathogenic secrets and lead to therapeutic strategies to correct dysbiosis. Current therapeutic intervention to clinically manipulate microbiota includes biotic therapy, which is the introduction of 'foreign' substances i.e. antibiotics, probiotics, prebiotics, synbiotics and faecal microbiota transfer (faecal transplant). Prof. Gibson envisioned a clinical setting capable of biotic therapy based on metagenomics showing functional deficiencies leading to a diagnosis. Currently, this is available at significant cost to the patient. However, his professional concern was that it is still speculative science, and the interpretations and recommendations are not evidence based. In his opinion, our knowledge is still too limited to answer the questions: what is a 'normal' microbiota, what specific alterations from 'normal' mean, and how to correct for these alterations and prevent disease.

Professor Patricia Conway, Professorial Fellow at the University of New South Wales, discussed the **importance of laying down foundations of a beneficial microbiota from birth**. Microbiota describes the community of the gut as a whole, while Prof. Conway expressed the view that the genetic potential or microbiome is the real "crux" of the field. The digestive tract is sterile at birth and is populated from a range of sources, most notably the maternal



**.Organizers and Speakers (from left to right): Prof. Yuan Kun Lee, Prof. Andy Sinclair, Prof. Patricia Conway, Prof. Peter Gibson, Dr. Meera Esvaran, ILSI SEAR Australasia President Ms. Kim Tikellis, Prof. Jane Muir, Prof. Mike Gidley, A/Prof. Andy Holmes**

gut, placenta, mode of delivery and breast milk. Post-birth, the infant receives passive immunity from the mother but there is a critical window of sensitivity between 4 - 6 months of age, where the infant is exposed to environmental and dietary challenges. These trigger the immune responses and memory, plus influence components of the emerging complex microbiome. Differing distributions of Gram-negative and Gram-positive bacteria in African and European infant populations reflect differences in the two most represented phyla, Bacteroidetes and Firmicutes. The emerging pandemic of non-communicable diseases (NCD) in first world countries may reflect alteration of the gut microbiota. Well-documented probiotic strains can promote infant growth and development, and potentially assist in reversing the NCD pandemic. However, we need to apply caution as probiotics are both strain and dose specific. Prof. Conway described future research in the field as requiring a range of multidisciplinary perspectives to begin 're-programming' the microbiota.

Dr. Jane Muir, Research Dietitian at Monash University, discussed the **'best' dietary pattern for maintaining optimal gut health**. Optimal gut health is defined by good bowel habit, prevention of common inflammatory and functional gut disorders and long term protection against colorectal cancer. Maintaining gut health is dependent on a varied diet including soluble, fermentable and indigestible dietary fibre which are all important 'food stuffs' for our colonic bacteria. The main dietary fibre groups are polysaccharides and oligosaccharides, which are largely undigested in the small intestine and pass through to the large intestine for fermentation by colonic bacteria. Dr. Muir reiterated that dietary fibre is a complex mixture of different types of fibre that determines the production of beneficial fermentation end products. To date, focus is on investigating isolated dietary fibre specialist ingredients but Dr. Muir noted no single type of dietary fibre supplement performs all these physiological functions. Her research

looked at mixing wheat bran with resistant starch (RS) to assist in transport to the large intestine as a preventative measure for colorectal cancer. Results suggest that a wheat bran and RS composite could improve the gut environment and may have beneficial therapeutic applications. She recommended ~15-20 g/day of RS for physiological benefits and ~4-15 g/day of fructo-oligosaccharides (FOS), inulin, galacto-oligosaccharides (GOS) for selective growth of microbiota species. People who limit their intake of cereal and grains, or follow prescribed diets i.e. gluten-free, Paleo, low FODMAPs diets, may not be getting sufficient prebiotic fibre. Dr. Muir also stressed that the current AOAC methods for total dietary fibre analysis need to be revised, as they do not accurately capture all individual fibre types.

Professor Mike Gidley, Director of the Centre for Nutrition & Food Sciences, University of Queensland, continued on the topic of the **impact of food structure on gut fermentation**. He discussed which dietary components get to the



large intestine; what happens when they reach there; and the health implications. All food particles and secretions that are not absorbed in the stomach or small intestine make it to the large intestine. To predict these macronutrients and 'co-passenger' micronutrients reaching the large intestine relies on calibration against data from ileostomy patients. However, results are limited by the absence of large intestinal feedback mechanisms. The complexities of in vivo passage rate are enormous, for example, the amount of RS entering the large intestine depends on the extent of salivary and pancreatic amylase hydrolysis, chewing, levels of enzymes secreted and the extent of mixing in the small intestine. With the exception of non-starch polysaccharides (NSP) and lignin, all other major food components (i.e. starch, protein and lipids) have the potential to be digested and absorbed by the end of the small intestine. However, it is also clear that at least some dietary protein and starch enter the large intestine and these act as energy sources for the resident microbiota. Prof. Gidley gave examples of 'inside-out'

vs 'outside-in' fermentation concepts: smaller wheat particles are fermented more rapidly, in contrast to multi-cellular carrot particles which have a faster rate of fermentation compared to single carrot cells and fragments. Prof. Gidley explained that carrot has a more 'open' structure where the microbes can enter to attack but wheat has a denser structure, which is potentially inaccessible. Prof. Gidley predicts that self-measured faecal and other biomarkers will become important future tools for assessing the impacts of dietary choices/changes.

Associate Professor Andy Holmes, School of Molecular Bioscience & Charles Perkins Centre, University of Sydney, presented on the topic of **defining gut microbiome targets for management of obesity and metabolic disease**. Our gut microbiota has more cells than our own body, and all humans are distinct - common mechanisms can lead to different outcomes in terms of diagnostic approaches. We differ because of our own genome, lifestyle and environment plus unique differences in our 'other genome', the microbiome. Diet and lifestyle are major causal factors of gut microbiota shifts, and it is possible that gut microbiota may be associated with the increase in obesity rates. A/Prof. Holmes suggests two opportunities for improving healthcare: using the microbiome as a metric to improve diagnosis and; targeting the microbiome for therapeutic intervention. He discussed recent links between the microbiome and diet-induced metabolic disease. His research compared a Western versus a Korean diet, noting that diets of different macronutrient distribution may induce microbiome change but do not necessarily drive the same microbiota outcomes in individuals. For example, although calorie intake was vastly dissimilar, weight loss outcomes were comparable. The correlation between energy intake, adiposity and metabolic disease is not uniform, and dietary patterns drive different relationships between obesity and disease. A/Prof. Holmes also stressed that successful dietary weight loss strongly correlates with successful microbiota community change. He also spoke about rational engineering of the microbiome as part of diet intervention strategies, and a need to identify people with unique genetic or microbiome signatures to define obesity subtypes that require distinct intervention.

Dr. Meera Esvaran, microbiologist and immunology researcher, University of New South Wales, spoke about the **role of probiotics in immune function**. Immune disorders are on the rise and this high

rate can be linked to lower incidences of infectious disease, overuse of antibiotics, diet and metabolic disorders. Patients with irritable bowel syndrome have lower diversity in their gut microbial community. Dr. Esvaran acknowledges that the gastrointestinal microbiota is vital in the maintenance of homeostasis in the gut and immune function. We know the microbiota plays a pivotal role in health and immune function from experiments conducted using germ free mice where sterile guts led to underdeveloped tissue and a decrease in subsets of immune cells, important in differing disease states. Clinical trials have demonstrated that the gut microbiota constitutes an ecosystem regulating inflammation beyond the GI tract and shows potential for vaccine adjuvants.

Professor Yuan Kun Lee, Department of Microbiology, Yong Loo Lin School of Medicine, National University of Singapore addressed the **topic of whether diet or genes determine human intestinal microbiota**. He presented research investigating the gut microbiome of young Asian children. Prof. Lee described that individuals have their greatest exposure to a developing microbiota during infancy and this changes with age, and diet playing a direct role. He described a collaborative Asian Microbiome project consisting of 10 cities across 5 countries, representing both rural and metropolitan city locations. In this Phase 1 study, gut microbiota could be differentiated into two major cluster types where *Prevotellaceae* was prevalent in cities of Thailand and Indonesia, and *Bifidobacteriaceae* and *Bacteroidaceae* were dominant in China, Japan and Taiwan. Prof. Lee explained that high meat consumption in Chinese and Japanese diets is not a good indication of this microbial enterotype distribution as seasonal dietary patterns within 3-5 months could alter the resident microbiota community. A Mongolian study illustrated how changes in dietary patterns from a high meat diet during winter months to dairy products in summer changed the microbial community between seasons. Prof. Lee emphasised that staple carbohydrates and specifically, the type of rice consumed, reflects the gut bacterial distribution; Japonica or 'sticky' rice, typically consumed in Japan, China and Taiwan is high in amylopectin as compared to Indica or 'loose' rice that is consumed in Thailand and Indonesia. Clusters of geographical influence have a strong association with dietary habits, and possibly are related to genetic disposition too. Prof. Lee added that a Phase 2 study involving mothers, infants, adults and the elderly, from cities of Korea, Mongolia, Malaysia and Singapore is currently in progress.



# Vitamin D and Health: Focus on Malaysia

The major biologic function of vitamin D in humans is to maintain normal blood levels of calcium and phosphorus. However, recent research suggests that vitamin D plays a much broader disease-fighting role e.g. in muscular health, in diet-related chronic diseases, and in promoting immune health. Currently, there are also scientific debates around other aspects of vitamin D, including daily requirements, and the appropriate methodology and cut-offs for assessment of vitamin D status. Some reports of vitamin D insufficiency amongst various population groups have emerged, including amongst Malaysians.



**Speakers (from left to right): Prof. Dr. Poh Bee Koon, Universiti Kebangsaan Malaysia; Prof. Dr. Robin Daly, Deakin University, Australia; Prof. Dr. Geok Lin Khor, International Medical University, Malaysia; Ms. Megawati Suzari, Federation of Malaysian Manufacturers; Mr. Geoffrey Smith, ILSI SEA Region, Singapore**

ILSI Southeast Asia Region's Malaysia Country Committee held a seminar in Subang Jaya, Malaysia on November 12, 2013, to provide an update on the scientific understanding of vitamin D in human nutrition, including the various aspects mentioned above. The seminar provided a forum to discuss gaps in knowledge surrounding Vitamin D, especially in relation to Malaysians, and to enhance networking for future work on vitamin D. The seminar, co-organised with the Nutrition Society of Malaysia, was attended by 120 participants from various organisations including research institutions, academia, government agencies and the private sector.

## Update on Vitamin D in Human Nutrition

The seminar opened with a presentation by Professor Robin Daly, Deakin University, Australia, on **updates on the health benefits of Vitamin D**. The principal actions of vitamin D are to regulate calcium and phosphate absorption in the gut, and

maintain calcium homeostasis. Severe vitamin D deficiency can lead to rickets in children and osteomalacia in adults, with mild deficiency also associated with secondary hyperparathyroidism, increased bone turnover and bone loss, and impaired muscle function leading to an increased risk of falls and fractures. Recent evidence indicates that vitamin D treatment when combined with adequate dietary calcium can significantly reduce hip and vertebral fracture risk. However, scientific findings on the anti-fracture efficacy of vitamin D have been inconsistent. Prof Daly also pointed out that emerging evidence suggest that caution is warranted about recommending high dose vitamin D supplementation for preventing falls and fractures. In recent years, interest in the role of vitamin D has intensified due to the increasing evidence that adequate vitamin D status has been associated with a decrease in the risk of a range of non-skeletal chronic diseases, including cardiovascular disease, hypertension, type 2 diabetes, certain types of cancer, some neurological and mental health conditions etc. Scientific support for these non-skeletal benefits have been derived mostly from animal studies while evidence from human data

is lacking. Prof Daly felt that it is prudent that health professionals make appropriate recommendations with regard to dietary and supplemental vitamin D and sensible sun exposure to ensure that serum 25OHD concentrations are maintained at a level of at least 50 to 60 nmol/L year round.

After the discovery of vitamin D in the early 20th century and subsequent fortification activities, the bone deformities of rickets were drastically reduced, and this disease became uncommon in developed countries. However, recently there has been an upturn in cases of rickets and poor bone health in developed and developing countries. It has also been recognized that vitamin D status is lower than expected in many populations where sunshine is prevalent. In the second presentation, Mr. Geoffrey Smith, Essential Micronutrients Foundation, Singapore, reported on the **re-emergence of Vitamin D as a public health concern**. He traced the discovery of vitamin D and early approaches in treating deficiency of the vitamin, and summarised several aspects of vitamin D metabolism especially its role in rickets, osteoporosis and bone health. Some studies also indicate the potential non-skeletal functions of vitamin D, including cardiovascular disease and cancer. Mr. Smith pointed out a number research gaps and issues regarding Vitamin D and health that would require attention.

The next presentation was given by Ms. Fatimah Sulong, Food Safety and Quality Division, Ministry of Health, Malaysia, focusing on **regulatory aspects of Vitamin D especially with regards to Malaysia**. She provided an overview of existing regulations on voluntary micronutrient fortification, including some specific standards that require mandatory fortification for vitamin D in foods. Existing regulations on nutrition

labeling and nutrition claims in relation to vitamin D were also presented. Besides Malaysia, Ms. Fatimah also summarised the relevant regulations related to vitamin D fortification and claims in ASEAN and some developed countries. Some of these countries have similar provisions in their legislations related to the addition and claims of vitamin D.

## Vitamin D Studies in Malaysia

The next session of the seminar showcased 5 studies conducted in Malaysia on vitamin D.

The first paper was presented by Prof Poh Bee Koon, Universiti Kebangsaan Malaysia who reported on the four-country South East Asian Nutrition Surveys. Specifically, findings on the **Vitamin D Status of Malaysian Children aged 4-12 years old** were shared. A total of 856 children aged 4 to 12 years from selected kindergartens and primary schools in six regions of Malaysia were studied. The prevalence of vitamin D insufficiency and deficiency was 27.5% and 19.7%, respectively. Serum levels of vitamin D among boys was significantly higher ( $58.65 \pm 1.46$  nmol/L) compared with girls ( $48.95 \pm 1.32$  nmol/L) ( $p < 0.001$ ). This study also found that children living in urban areas had lower serum levels ( $52.83 \pm 1.23$  nmol/L) than their rural counterparts ( $58.14 \pm 1.84$  nmol/L) ( $p < 0.05$ ). On average, 64.6% of boys and 53.8% of girls spent more than 30 minutes per day doing outdoor activities under direct sunlight. Furthermore, 42.3% of girls wear scarves and long-sleeved shirts when doing outdoor activity, which reduces sun exposure. In conclusion, **a high prevalence of vitamin D insufficiency was observed in Malaysian children, which suggests a need to put in place strategies that tackle vitamin D insufficiency among this population.**

In the second presentation, Dr. Soma Mitra of the University of Nottingham Malaysia Campus shared with participants her study on **Assessing Musculoskeletal Health in Malaysian School Children**. In recent years, a new picture of the role of vitamin D in the functions of skeletal muscle is emerging. She presented an overview of the study that is proposed to be conducted in school children between the ages 8 and 15 years. It is hoped to generate reference data and establish norms for Malaysian children on (a) grip strength and (b) bone ultrasound attenuation. In the future, this research group also proposed to validate the above observations with serum 25 OH D (biomarker of Vitamin D) levels to establish surrogacy of muscle strength measurements and bone ultrasound measurements as clinical markers of Vitamin D status.

Dr. Hamid Jan, Universiti Sains Malaysia, presented the third paper on **Maternal Plasma and Breast Milk Vitamin D level from the USM Birth Cohort Study**. The study was carried out to assess maternal plasma and breast milk 25-hydroxyvitamin D (25 (OH) D) concentrations and to determine the association between maternal plasma and breast milk 25 (OH) D levels. Data was obtained from the Universiti Sains Malaysia Birth Cohort Study, conducted from April 2010 to December 2012. The means of maternal plasma 25 (OH) D concentrations in the second and third trimesters of pregnancy were 48.40nmol/L and 59.10nmol/L, respectively. Most women (57%) had 25(OH) D insufficiency in the second trimester and 4% had 25(OH) D deficiency. There were 60% women with normal plasma 25 (OH) D levels in the third trimester of pregnancy. All breast milk samples during the first year of postnatal life were shown with low levels of 25 (OH) D. No significant differences were detected among the breast milk 25 (OH) D concentrations from birth until 12 months of postnatal age. Increased maternal plasma 25 (OH) D concentration in the third trimester of pregnancy was associated with elevated level of breast milk 25 (OH) D at birth. **The high prevalence of inadequate levels of maternal plasma and breast milk vitamin D might impose negative effects on maternal and children's health. Strategy to improve vitamin D status among pregnant women is therefore warranted.**

Dr. Mazliza Ramly, University of Malaya shared with participants preliminary findings from the study entitled A randomized controlled trial of vitamin D supplements' effect on cardiometabolic risks and quality of life among pre-menopausal women. The study aimed to **investigate whether vitamin D supplements can reduce the cardiometabolic risks and improve the quality of life among urban premenopausal women with vitamin D deficiency**. A total of 192 pre-menopausal women age 30 – 55 years that were vitamin D deficient were recruited for this double blind, parallel, randomized controlled trial. They were randomized to receive either vitamin D supplement (50,000 IU weekly for 8 weeks and 50,000 IU monthly for 10 months) (n=51) or placebo (n=59) for 12 months. To date, only 110 (57%) participants completed all study visits. Results obtained thus far showed that supplementation with vitamin D significantly increased serum total 25(OH)D to at 6 and 12 months respectively. However, there were no significant differences between groups for all cardiometabolic risks as well as health related quality of life using SF-36v2. Dr. Mazliza concluded that improving vitamin D status through dietary supplementation in short term (12 months) is unlikely to reduce cardiometabolic risks and health-

related quality of life. Longitudinal studies may be required to establish the causality of vitamin D and cardiometabolic risks.

In the last paper in this series, Professor Khor Geok Lin, International Medical University, Malaysia, presented an overview of **Studies on Vitamin D in Malaysia: Issues and Gaps**. A review of 7 research studies conducted in the past decade in Malaysia that included data on vitamin D identified **common key issues of concern as well as highlighted information gaps to share with stakeholders**. Two methodological issues that are of universal interest were addressed. Firstly, the use of different assay methods by different laboratories has raised worldwide concern on the accuracy of results. Some assay methods are reportedly not producing accurate estimates of total circulating 25OHD, and significant discrepancies of results between methods have also been reported. The second methodological issue is on the current practice of relying on a single cut-off point for vitamin D insufficiency. While there is increasing convergence on the level of less than 50nmol/l among researchers worldwide, yet others have argued for higher levels, which are more compatible with clinical outcomes. A major gap highlighted is the lack of accurate data on vitamin D contents in foods and in dietary supplements. This information gap hampers the accurate assessment of dietary intake of vitamin D. Also lacking is a reliable measure of sun exposure that is feasible not only in research, but practicable as guidance for the general population. In light of the growing universal interests on the ubiquitous roles of vitamin D, efforts toward realising accurate assessment and viable guidelines for improving patient care and public health practice deserve full support.

## Future Directions in Vitamin D Research

The Seminar ended with a panel discussion focused on discussing several key issues related to vitamin D, especially in relation to Malaysia. The discussions centred around highlighting the studies on vitamin D status of Malaysians, identifying the main research gaps and proposals for future activities and actions. Major issues to be addressed include the different methods for determining vitamin D status, and the different cut-offs used by research groups to determine deficiency or insufficiency. It was also highlighted that the lack of data on the vitamin D content of local foods has hampered dietary studies on intake of the vitamin. Finally, it was suggested that further meetings and discussions are required to map out future directions for research and interventions.



# Upcoming Activity Highlights

## Meetings

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### **Maternal, Infant and Young Child Nutrition**

*June, 2014, Jakarta, Indonesia*

ILSI SEA Region continues its extensive Maternal, Infant and Young Child Nutrition program with this seminar, to be held this year in Jakarta, Indonesia. The seminar will examine the current nutrition and health status of and programs for pregnant and lactating mothers, infants and young children, and their implications for the health of these groups. The seminar will also identify gaps in existing knowledge and programs in these areas, and discuss best practice in addressing these gaps.

### **Food Allergens – Science and Challenges in Southeast Asia**

*November, 2014, Bangkok, Thailand (TBC)*

Food-related allergies are becoming an emerging public health issue in Southeast Asia, with an increasing number of incidences being reported. However, it is currently not immediately clear as to which types of food allergens are of most public health relevance to Southeast Asian population groups. While some countries have adopted mandatory allergen requirements at the national level, there is no existing risk-based guidelines for local food industries to follow in order to label trace allergens that may exist due to adventitious presence. Recognizing the need for further scientific understanding on some of these issues, the seminar and workshop will aim to share relevant information on the science and risk assessment of food allergens, as well as successful risk management initiatives that have been developed and implemented in other regions and countries.

## On-going Research and Collaborative Projects

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### **Sugar Consumption in Southeast Asia**

ILSI SEA Region's scoping review of sugar consumption in Southeast Asian countries is currently ongoing. The objective of the scoping review is to summarize available information regarding levels of consumption of 'free' or 'added' sugar in Southeast Asian countries; to estimate the contribution of sugar to the energy intake of Southeast Asian populations; and to identify the major sources of added sugar in the diet in these countries.

### **Perceptions on Sweeteners**

The upcoming research commissioned by ILSI SEA Region, titled '**Attitudes and Perceptions of Food, Nutrition and Public Health Communicators in selected SEA Countries on Sugar Substitutes/Sweeteners**' aims to elucidate attitudes and perceptions of food, nutrition and public health communicators in five Southeast Asian countries, namely, Indonesia, Malaysia, Philippines, Thailand and Vietnam, towards the safety and benefit of sweeteners (including both 'natural' vs 'artificial' sweeteners). The study seeks to identify determinants for risk or benefit perception in relation to the use of sweeteners in foods. The research outcomes will be useful to inform future risk/benefit communications and also be used to predict acceptance of sweeteners.

# ILSI SEA Region Calendar of Activities 2014 – 2015

Meetings		Research & Collaborative Projects	
ILSI Annual Meeting 2014	January 17-22, 2014 Bermuda	Investigation of Commodity Food Standards and Methods of Analysis in East Asia <i>In collaboration with ILSI Japan, ILSI Focal Point China, ILSI Korea, ILSI India and ILSI Taiwan</i>	On-going
Workshop and Roundtable Discussion on Food Safety and Standards <i>In collaboration with ILSI Japan</i>	March 4-5, 2014 Myanmar	ASEAN Risk Profiles for Contaminants of Concerns: Mycotoxins	On-going
Physical Activity and Exercise Across the Lifespan – Implications for Obesity Satellite Symposium to the 12th International Congress on Obesity 2014	March 16, 2014 Malaysia	Systematic Review on Salt Sensitivity: Is there a Genetic Pre-disposition that Predicts Cardiovascular Disease Risk? <i>In collaboration with CSIRO, Australia</i>	On-going
Energy Balance and Active Living: Perspectives on Obesity Prevention	March 22, 2014 Singapore	Estimation of Sodium Intake among Filipinos and their Sources in the Diet <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going
ILSI Southeast Asia Region Annual Meeting and Scientific Symposium	April 10-11, 2014 Singapore	Validation of WHO Complementary Feeding Indicators against Dietary Intakes of Malaysian Children Aged 6-23 months <i>In collaboration with International Medical University (IMU), Malaysia</i>	On-going
8th Congress of the International Society of Nutrigenetics/Nutrigenomics	May 2-3, 2014 Australia	Scoping Review on Sugar Intake in Southeast Asia: Levels of Consumption and Major Sources in the Diet	On-going
National Workshop on Total Diet Studies	June, 2014 Indonesia	Data Analysis: Levels and Sources of Sugar Intake in the Philippines <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going
Seminar on Maternal, Infant and Young Child Nutrition	2nd Quarter, 2014 Indonesia	Investigation of the Occurrence of Hemoglobinopathies among Anemic Individuals in the Philippines: Data from the National Nutrition Survey <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going
4th Expert Consultation on Maternal, Infant and Young Child Nutrition	2nd Quarter, 2014 Indonesia	Risk and Benefits of Intense Sweeteners – Attitudes and Perceptions of Food Experts and Opinion Leaders	On-going
Seminar on Vitamin D and Health	2nd/3rd Quarter, 2014 Vietnam	Database on Functional Foods and Ingredients in Southeast Asia: Background Information and Link to Studies	Upcoming
11th ASEAN Food Safety Standards Harmonization Seminar and Workshop	September, 2014 Lao PDR	Systematic Review of Infant and Young Child Feeding Practices in Southeast Asia	Planned
Regional Conference on the Gut Microbiome	Sept/Oct, 2014 Singapore	Food Consumption Data: Sources and Methodologies in the SEA Region	Planned
Seminar and Workshop on Food Allergens – Science and Challenges for Southeast Asia	4th Quarter, 2014 Thailand	Vitamin D Status of Pregnant Adolescents in Southeast Asia	Planned
9th Seminar and Workshop on Nutrition Labelling, Claims and Communication Strategies	4th Quarter, 2014 Philippines		
Conference on Microbial Food Safety and Emerging Pathogens	2015 TBC		

## Publications

Research and Policy to Achieve Healthy Aging in Asia: Recommendations from an Expert Workshop <i>Asia Pacific Journal of Clinical Nutrition</i>	1st Quarter 2014 Open Longevity Science
Review: The Prevalence of Childhood Obesity in Thailand and Associated Factors	Submitted
Scoping Review on Sugar Intake in Southeast Asia: Levels of Consumption and Major Sources in the Diet	TBC
Estimation of Sodium Intake among Filipinos and their Sources in the Diet	TBC



ILSI SEA Region Conference on

# THE GUT, ITS MICROBES AND HEALTH

– New Knowledge and  
Applications for Asia

October 8-9, 2014 | Singapore

The human intestine carries about 100 trillion microorganisms, representing hundreds of bacterial species, yeasts and parasites. This colonic microbiota is unique to each individual host, and changes in response to diet, pharmaceutical input, age, disease, environmental exposure, and medical or surgical intervention.

Advances in technology and bioinformatics have made it possible to examine the influence of the intestinal ecosystem on human health. There is increasing evidence that the nutritional value of food is influenced in part by the structure and operations of a consumer's gut microbial community, and that food in turn shapes the individual's microbiome.

Understanding the intestinal microbiome is essential for developing disease prevention strategies and personalized health care regimens. This conference aims to highlight current scientific knowledge on the gut microbiome, its interactions with diet and nutrition, and the implications for health and disease particularly in Asian populations.

## Program Topics

- Gut physiology and intestinal microbiota during the life cycle
- Population differences in gut microbiome
- Characterization of gut flora in diseased vs healthy populations
- Environmental factors affecting the gut microbiome
- Functional foods and gut health – probiotics/pre-biotics
- Future directions in gut microbiome research – biomarkers, study design

**For more information please contact:**

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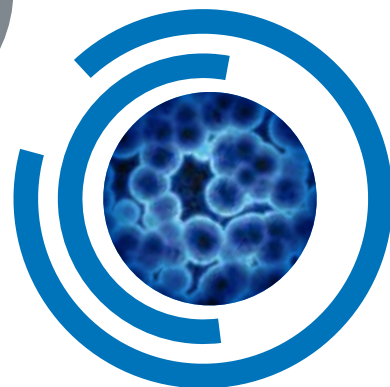
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## Who Should Attend

Nutrition and health professionals, policy makers and government representatives involved in health promotion, food and nutrition industry professionals, academia and researchers



Organizer

Collaborators





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