NUS National University of Singapore | Saw Swee Hock School of Public Health

EVENT REPORT

Health Executives in Asia Leaders (HEAL)

Food for Health Through the Life Course

Published: October 2021

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Supported by

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Contents

Introduction to the HEAL Programme

The Healthcare Executive in Asia Leaders (HEAL) Programme was a series of four webinars and four workshops hosted by the Saw Swee Hock School of Public Health at the National University of Singapore from March to August 2021. The programme was supported by Temasek Foundation, in partnership with The American Chamber of Commerce in Singapore.

The importance for managers and leaders, including those in non-health professions, to understand how health issues impact society and business and vice versa is increasingly becoming apparent, particularly in light of the COVID-19 experience. The HEAL programme aimed to equip managers and executives in leadership capacities in all sectors to effectively understand and navigate modern health challenges and to develop an ability to integrate health considerations into their decision making. It is timely to address some aspects of this complex interrelation, and each of the four webinars/workshops examined one specific topic under this lens with a focus on the experience in Southeast Asia, and Asia more broadly.

Throughout this series, and in particular through the workshops, participants discussed topics of relevance within the broad areas of precision public health, food and nutrition, healthy cities, and commercial determinants of health, and related the discussion to their own countries and professional sectors. Guest speakers also shared their expertise and provided their perspectives. One of the outcomes of the series was to build a multi-sectoral cohort of like-minded professionals who can support each other in developing their understanding of public and global health.

Food for Health through the Life Course

Participants were introduced to the role of food and its environments in promoting health. The event details and speakers were as follows:

Webinar
Wed, 24 March 2021
4:00-5:30pm (SGT)

Speakers

- **Prof Berthold Koletzko**
  Else Kröner-Seniorprofessor of Paediatrics, *Ludwig Maximilians University of Munich*
  Head, Division Metabolic & Nutritional Medicine, *Dr. von Hauner Children's Hospital, University of Munich*

- **Dr Christophe Lay**
  Senior Scientist Gut Microbiome, *Danone Nutricia Research*
  Honorary Adjunct Associate Professor, *Department of Paediatrics, NUS Yong Loo Lin School of Medicine*

Moderated by

- **Asst Prof Mary Chong**
  Assistant Professor, *NUS Saw Swee Hock School of Public Health*
  Principal Investigator (Human Development), *Singapore Institute for Clinical Sciences (SICS), Agency for Science, Technology and Research (A*STAR)*

Workshop
Thu, 24 June 2021
2:00-4:00pm (SGT)

Speaker

- **Beverly J Postma**
  CEO, *Roundtable on Sustainable Palm Oil (RSPO)*

Facilitated by

- **Assoc Prof Jeremy Lin**
  Director, Leadership Institute for Global Health Transformation (LIGHT), *NUS Saw Swee Hock School of Public Health*

Executive Summary

This report will highlight some of the key learnings from these discussions, which centred on three broad takeaways:

1. **The first 1,000 days.** The first 1,000 days of a child's life – between a woman's pregnancy and the first two years of life – is an important and cost-effective window to promote long-term health performance, wellbeing, and quality of life.

2. **Food environments affect one's dietary behaviour.** Other than consumers' individual behaviour, governments and industries also play a part in shaping the food environment and enabling individuals to have better nutrition.

3. **Potential solutions to improve health through the diet.** As the determinants of nutrition are highly complex, different tools at the individual, government, and industry level as well as collaboration between key stakeholders should be leveraged to address this issue.

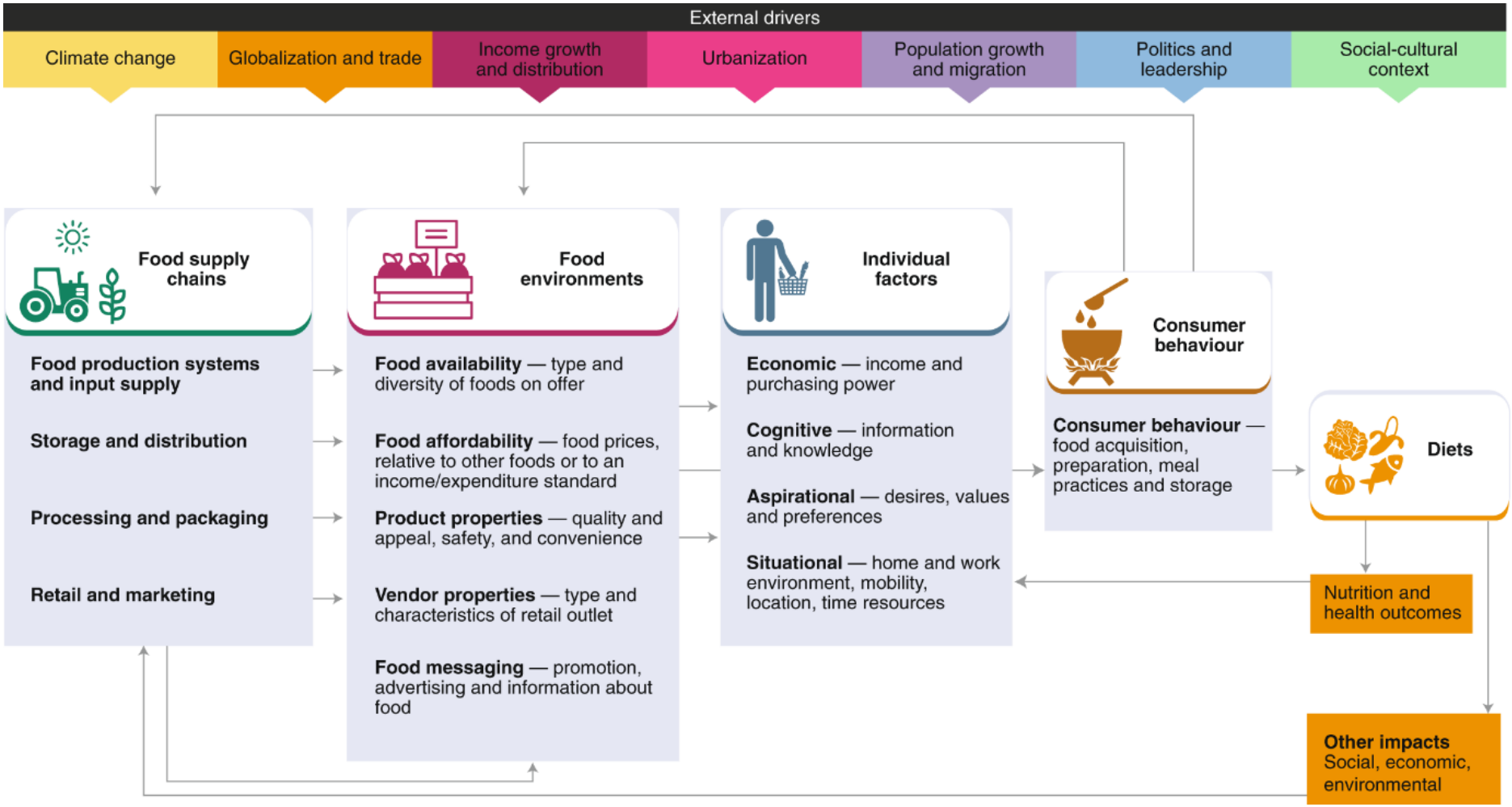
Introduction to Food for Health through the Life Course

The prevalence of non-communicable diseases (NCDs) is on the rise. It is responsible for more than 70% of global deaths each year and disproportionately affects lower-income countries as well as vulnerable and disadvantage groups. Therefore, tackling NCDs through prevention and control is as a global health priority in the era of COVID-19 and beyond. Among lifestyle risk factors that contribute to NCDs, unhealthy diet is recognised as the most important preventable risk factor.

Nutrition is a foundation for health and wellbeing for all individuals. There is strong evidence that avoiding excessive consumption of animal-source foods and replacing them with fruits, vegetables, legumes, and other plant-based foods is associated with lower risks of chronic diseases and premature mortality. Concomitantly, recent data points towards the benefits of consuming whole and minimally processed foods for a healthier gut and consequently better health. Indeed, growing concerns around food safety, security and sustainability amid the coronavirus pandemic are also contributing to a shift towards more plant-based food options among consumers.

Dietary behaviour change is challenging as we are combating entrenched habits and behaviours that have developed from infancy and have been reinforced through a lifetime of exposure. It is increasingly recognised that the developmental phase of early life provides an opportune time for interventions, and which is believed to be more effective in the prevention of long-term chronic diseases. This, combined with increasing evidence demonstrating the tracking of risk factors and habits from childhood to adulthood, have shifted the health paradigm to promoting health and preventing disease through the life course approach.

Besides individual factors, the macro-environment also plays a part in promoting healthy diets. Modern food systems have made unhealthy high calorie foods more affordable and widely available, accompanied by a reduction in the consumption of nutrient dense foods. However, many challenges remain in the way of improving health through diet, as policies and commercial determinants that shape these habits are multifaceted, as illustrated in the Food System Framework below. COVID-19 and climate change further exacerbate food security risks and widen the inequality gap across and within geographical boundaries. Tackling this issue will require reimagining the modern food system with collaboration between the public and private sector.



Food systems framework (Fanzo et al., 2020)

Acronyms and Abbreviations

BMI	Body mass index
ESG	Environmental, social and governance
FAO	Food and Agriculture Organization
IAP	Intrapartum antibiotic prophylaxis
NCDs	Non-communicable diseases
RCT	Randomised clinical trial
RSPO	Roundtable on Sustainable Palm Oil
SME	Small and medium-sized enterprises
WHO	World Health Organization

1. The First 1,000 Days

Strategies to improve health through diet span across an individual's life course, from as early as gestation and childhood to adolescence and adulthood. Research points to the first 1,000 days – between a woman's pregnancy and her child's first two years of life – as an important and cost-effective window of opportunity to promote long-term health performance, wellbeing, and quality of life throughout one's life course.

The effect of diet on preventing NCDs later in life could be, in part, modulated by infants' and their mothers' gut microbiome. Gut microbiome, especially in the first 1,000 days, is therefore crucial for the development of immunity in early life and can affect lifelong health.

In their lectures, Prof Koletzko and Dr Lay presented evidence and diet recommendations in the first 1,000 days to prevent NCDs later in life.

***In Utero* Factors During Pregnancy**

- Prenatal hunger increases the risk of NCDs in offspring, including obesity, later in life.
- Mothers with higher BMI are more likely to have children with higher BMI. This finding was also replicated in Asian studies such as Singapore's Growing up towards Healthy Outcomes (GUSTO) study.
- During late pregnancy, the maternal gut microbiome is enriched in *Bifidobacterium*, a bacteria group that consumes human milk oligosaccharides. Prenatal antibiotic exposure may therefore disrupt the maternal gut microbiome and indirectly impact the fetus' health, leading to allergy or obesity in her child.
- Emerging animal and human studies also suggest that high-fibre diets like the Mediterranean diet positively modulate maternal gut microbiota and reduce the risk of allergies.

Pregnant women are therefore encouraged not to "eat for two, but think for two" by maintaining a healthy diet throughout her pregnancy.

Factors at Birth

- Compromised microbiome is a risk factor for allergy and obesity and can occur with certain modes of delivery and the use of intrapartum antibiotic prophylaxis (IAP). Compared to babies delivered via vaginal birth without IAP, about 65% of babies delivered by c-section or vaginal birth with IAP had a compromised microbiome, depleted in *Bifidobacterium* and enriched in other opportunistic pathogens, at one year of age. Preliminary data suggest that probiotics with *Bifidobacterium* may reset the gut microbiome in babies with compromised microbiome.

Factors in the First Two Years of Life After Birth

- The benefits of breastfeeding are unequivocal. Breastfeeding prevents rapid weight gain, supports immunity through gut functioning and development, and is associated with less obesity at school age.
- The "early protein hypothesis" suggests that high protein intake in the first two years of life induces greater weight gain and increases obesity risk later in life, which is supported by randomised clinical trials (RCTs).
- Where breastfeeding is not possible, infant formula with less but high-quality protein is recommended over cows' milk if feasible and affordable. However, animal protein is still recommended over soy-based formula as plant-based proteins require higher intake to meet essential amino acid requirements.
- In the first year of life, there is a successive microbial colonisation. When a baby starts weaning, *Bifidobacterium* starts to decrease while bacteria that digest fibres and phytonutrients in plant-based foods increase. The latter strengthens the gut and immune system by producing metabolites such as butyrate. Babies who develop allergies in their first year of life have been found to have a depletion of these beneficial microbes.

Parents of infants should promote, protect, and support breastfeeding. When a baby starts weaning, opt for a healthy diet rich in plant-based foods.

2. Food Environments

Nutritious food is significantly more expensive than fast food in many areas, and hence remains out of reach for the average consumer. As nutrition is central to health and wellbeing of the individual and society, it should be made accessible and sustainable. Participants shared some factors in the food environment that may have contributed to the lower consumption of nutritious foods.

- Prices of nutritious food could be driven by inefficiencies in the supply chain, where fresh produce is transported over large distances through the country to reach consumers in the city. With proper urban planning and technology use, prices of vegetables could be reduced if farms were moved nearer to the city.

- There is also a common belief that nutritious foods are less delicious and therefore less appealing than unhealthy foods. On top of reducing prices, there could be more product development to improve the flavour of nutritious foods, so that more consumers will opt for the healthier options.

- Food is closely linked to human health and climate change. The proposed planetary health diet is one that is good for people and the planet. Therefore, more emphasis should be placed on understanding consumer behaviour and promoting both sustainable terrestrial and marine foods as part of the strategy for healthier people and a healthier planet.

- Innovation and technology in food producers oftentimes create more health problems, for example NCDs including obesity and diabetes. There should be more pressure on the food industry to address these problems, but there is a lack of collaborative platforms between industry associations, especially in Asia.

- It is also challenging to convince corporations to prioritise sustainability over profit-making.

- Public policy, especially when there are conflicting goals between economic growth and sustainability, remains a challenge in the food industry. An example is the Roundtable on Sustainable Palm Oil (RSPO), a certification scheme established in 2004 that aims to promote the growth and use of sustainable palm oil products through global standards and multistakeholder governance. RSPO has 5000 members across the palm oil supply chain, but only certifies 20% of the global palm oil supply. Gaining the buy-in of small and medium-sized enterprises (SMEs) remains challenging. WHO's recommendation to eliminate *trans*-fats has also increased the demand and profitability of palm oil, which created jobs and reduced poverty in developing countries. However, at the same time, these countries have seen more deforestation. It is challenging to balance different SDGs (i.e., poverty reduction vs zero deforestation) when they are in conflict.

3. Potential Solutions to Improve Health through the Diet

Food is intrinsically linked to human health through the life course. However, there remains many challenges to leveraging nutrition and diet for NCD prevention due to the complex web of stakeholders and processes involved. Several solutions were discussed during the webinar and workshop.

1. **Informing individuals on how to make better decisions through the health system**

    - Healthcare providers should counsel both pregnant women and their partners about the benefits of breastfeeding. In Germany, the non-supportive attitude of partners was found to be the main influencing factor reducing breastfeeding initiation.

    - The Early Nutrition eAcademy Southeast Asia (ENeA^{SEA}), supported by the EU, provides eLearning for practicing doctors and healthcare professionals (HCPs) to keep them abreast of the latest research. These modules provide science-based knowledge and skills for HCPs to counsel women and families about early nutrition and lifestyle changes to reduce NCDs. The programme was developed in collaboration with universities in Thailand and Malaysia and are available in English, Thai, and Malay.

2. **Partnerships between public sector, private sector, and academia**

    - Government agencies can partner major food providers to understand commercial factors that affect one's food choices. For instance, Singapore's Health Promotion Board (HPB) has partnered with McDonalds to understand social marketing and customer engagement.

    - Industry leaders have convened to form Food Industry Asia, which aims to solve problems with governments and civil society pre-competitively. On top of financial support, regional CEOs are required to be present as decision makers. Key topics on the agenda are nutrition and public health, food safety, regulatory harmonisation, and more recently, sustainability. Multistakeholder roundtables were then created to address each topic in areas such as capacity building and self-regulation of industries.

3. Goal-setting and political willpower

- Countries with limited natural resources could target better health outcomes through improving their self-sufficiency and reducing food price volatility. For example, Singapore aims to produce 30% of its nutritional needs by 2030.

References

Fanzo, J., Haddad, L., McLaren, R., Marshall, Q., Davis, C., Herforth, A., ... & Kapuria, A. (2020). The Food Systems Dashboard is a new tool to inform better food policy. *Nature Food*, *1*(5), 243-246.

Other Resources

Watch the HEAL webinar on "Food for Health through the Life Course" here: https://www.youtube.com/watch?v=ghBcISeeWVo&ab_channel=SawSweeHockSchoolofPublicHealth

WHO: Healthy diet
https://www.who.int/news-room/fact-sheets/detail/healthy-diet

Speakers

Webinar Speaker

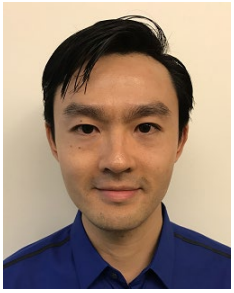
Prof Berthold Koletzko

Else Kröner-Seniorprofessor of Paediatrics, *Ludwig Maximilians University of Munich*

Head, Division Metabolic & Nutritional Medicine, *Dr. von Hauner Children's Hospital, University of Munich*

Dr Koletzko is Else Kröner-Seniorprofessor of Paediatrics at LMU and heads the Division Metabolic & Nutritional Medicine at Dr von Hauner Children's Hospital. His work focuses on metabolic and nutritional modulators of child health and disease prevention. He has authored 1072 journal articles (Web of Science H-index 85, Citations 28,083), 232 book chapters, and 43 books/monographies.

Dr Koletzko serves as the president of the Federation of International Societies of Paediatric, Gastroenterology, Hepatology and Nutrition and the International Society for Research in Human Milk and Lactation; Strategic Advisor on Nutrition and Standing Committee; Member, International Pediatric Association; Chair of the Committee Nutrition, German Society of Paediatrics and Adolescent Medicine and Secondary-Tertiary Care Council and Executive Committee Member, European Academy of Paediatrics. He also served as member of the grant review board medicine, German Research Council, and as chair and deputy chair of their Clinical Trial grant review board. Dr Koletzko is Editor-in-Chief of Annals of Nutrition and Metabolism and World Review of Nutrition and Dietetics, and Associate Editor of Current Opinion in Clinical Nutrition and Metabolic Care and Monatsschrift Kinderheilkunde. He acts as Scientific Advisor to the German Federal Government, the Innovation Initiative of the Chancellor of the Federal Republic of Germany, the European Commission, the European Parliament, the WHO, the Food and Agriculture Organisation (FAO) of the United Nations (UN), and other national and international governmental bodies and organisations.



Webinar Speaker

Dr Christophe Lay

Senior Scientist Gut Microbiome, *Danone Nutricia Research*
Honorary Adjunct Associate Professor, *Department of Paediatrics, NUS Yong Loo Lin School of Medicine*

Dr Lay is a Senior Scientist of Gut Microbiota/Microbiome at Danone Nutricia Research in Singapore and an Honorary Adjunct Associate Professor in the Department of Paediatrics, NUS Yong Loo Lin School of Medicine. He graduated with a PhD in gut microbiology from the Paris-Sud XI University, France. His research interests revolve around the human gut microbiome and its contribution to maternal child health.

Webinar Moderator

Asst Prof Mary Chong

Assistant Professor, *NUS Saw Swee Hock School of Public Health*
Principal Investigator (Human Development), *Singapore Institute for Clinical Sciences (SICS), Agency for Science, Technology and Research (A*STAR)*

Dr Chong's main research is on Maternal and Child Nutrition. Trained as a clinical dietitian, she attained her PhD at the University of Oxford, UK, and is currently Assistant Professor at the NUS Saw Swee Hock School of Public Health. She is also Principal Investigator at the Singapore Institute for Clinical Sciences, A*STAR.

She is the Nutrition Lead for the Growing Up in Singapore Towards Healthy Outcomes (GUSTO) study, a mother-offspring cohort study in Singapore and is involved in two pre-conception studies, SPRESTO and NiPPeR.

Dr Chong has a special interest in diet and lifestyle behaviours and has been researching in this area with web-based technologies in children and adults. Her current work includes investigating behavioural determinants of health in children, from which her team has developed a web-based, time-use application (MEDAL) to assess diet and lifestyle in schoolchildren.

She has been invited to speak at national and international conferences and has published over 140 papers in peer-reviewed journals. She is currently a member of the Advisory Panel on Parenting for the Ministry of Social and Family development and a committee member for the Physical Education Syllabus Review and Development, Ministry of Education.

Workshop Speaker

Beverly J Postma

CEO, *Roundtable on Sustainable Palm Oil (RSPO)*

Beverley is an International CEO and sustainability leader with 30 years in the global food system. A proven P&L leader, coalition-builder, and ESG strategist with board level experience across APAC, EMEA, LatAm and USA. Bev is an accomplished fundraiser and investor in biotech, nutrition, and sustainable agriculture with a passion for driving social impact through diversity and inclusion. In 2010 she launched and ran a major industry association in Asia before moving to the US to lead a $400m agri-tech venture funded by the Bill & Melinda Gates Foundation. In 2017, she reached the finals of the MacArthur Foundation's 100&Change Competition, securing $15m to improve nutrition in Africa. Convinced of the power of diversity and inclusion, Bev is a mentor and coach and has led high-performing teams across the full breadth of the value chain for non-profit organisations and leading FMCG brands.

Course Facilitator

Assoc Prof Jeremy Lim

Director, Leadership Institute for Global Health Transformation (LIGHT), *NUS Saw Swee Hock School of Public Health*

Associate Professor Jeremy Lim is the Director of LIGHT, a global health initiative in the NUS School of Public Health, where he leads projects primarily in health systems strengthening and universal health coverage. He brings diverse and unique perspectives having spent substantial time in public and private healthcare across Asia as well as in policy formulation with Singapore's Ministry of Health.

Outside academia, Jeremy serves on the boards of various for-profit and not-for-profit organisations in different aspects of healthcare including migrant worker health, end of life care and digital health interventions. He is trained in surgery and public health, attaining post-graduate qualifications from both the United Kingdom and the United States.

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