

Nutritional & Health-Related Environmental Studies Newsletter

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To our readers

Happy New Year!

Our next newsletter edition is ready to share and we hope that you will find a lot of useful information in it. Don't miss our summary of the IAEA-WHO-UNICEF joint workshop on the double burden of malnutrition in October. The meeting report has just been uploaded to our website. This was the first step in the preparation of our International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions, which will be held in Vienna from **10-13 December 2018**!!! Please mark your calendars and spread the word!

You will also find more information on new research projects and our contributions to international conferences, in particular the IUNS-ICN nutrition congress. Please note that the preparation of a new cycle of our Technical Cooperation Programme for 2020–2021 starts now – more details on how to develop new projects are provided on page 6!

I would like to welcome Pernille Kæstel, our new nutrition specialist, who joined us in October from Denmark. She has a lot of experience with nutrition field research, developing training materials and assessing body composition. We had to say goodbye to Thabisile who retired from the Agency and our intern Bianca is wrapping up. She will leave us at the end of February to continue her university studies. We wish them both all the best for their future endeavours!



Cornelia Loechl, NAHRES Section Head, met with former participants of the African Francophone Nutrition Leadership Programme in Abidjan (Photo courtesy of C. Loechl)

Best wishes, Cornelia

Meetings

IAEA-WHO-UNICEF Joint Workshop on Analysis of Biological Pathways to Better Understand the Double Burden of Malnutrition and to Inform Action Planning

Fifty participants from UN Organizations (WHO, UNICEF, IAEA, FAO), academia, policy, Ministries of Health and NGO's met in Vienna from 3-5 October 2017 to discuss the double burden of malnutrition (DBM). The DBM represents the co-existence of undernutrition and overweight and obesity in populations. households and individuals. The workshop was jointly organized by IAEA. WHO and UNICEF and included biological, policy and implementation perspectives. The main focus of the workshop was how to bridge from biology to context relevant interventions and policy frameworks. The main target areas for interventions were identified as baby-friendly initiatives (e.g. in hospitals), healthy practices for feeding and physical activity in preschool and school environments, and engaging with food sectors to provide and promote healthier options. The workshop participants concluded that better understanding of biological pathways is needed to formulate effective interventions to tackle the DBM, that biological pathways should be better linked to implementation strategies, that the complexity of the DBM needs to be addressed by broad multisector interventions, and that better methods to assess the DBM and its immediate drivers are needed. Stable isotope techniques will become increasingly important in providing accurate evidence to enable design and evaluation of interventions, especially those related to infant and young child feeding in the first 1000 days, assessment of diet quality and physical activity, and body composition changes in response to diet and physical activity. Key knowledge gaps will be further addressed in a symposium hosted by the IAEA in December 2018. See announcement in the news section on page 8.

Please visit the <u>IAEA Human Health Campus</u> to see the **programme**, **abstracts**, **recorded sessions and meeting report**.

Read the IAEA <u>press release</u> posted during the workshop!

THE LANCET Global Health

In A model for integrated action: IAEA, UNICEF & WHO collaborate to tackle the double burden of malnutrition



An article in the <u>UN Special</u> (p30) further elaborated on how both undernutrition, overweight and obesity can be addressed through double-duty actions. **Enjoy reading!**



IAEA, UNICEF and WHO to jointly tackle the double burden of malnutrition





Towards a stable isotope based breath test for diagnosis of environmental enteric dysfunction

Sixteen participants including successful technical and research grantees, field experts and other gathered stakeholders in Vienna from 20-23 November 2017 for the first Research Coordination Meeting (RCM) of the Coordinated Research Project (CRP) 'Application of Stable Isotope Techniques in Environmental Enteric Dysfunction Assessment (EED) and Understanding its Impact on Child Growth'. The aim of the CRP is to develop and test the usability of a ¹³C-Sucrose Breath Test (SBT) in diagnosing EED in children. Field experts from Australia, United Kingdom, United States of America and Zambia are working to optimize and validate an existing ¹³C-SBT through higher ¹³C-enrichment of sucrose by comparing it to intestinal biopsy, dual sugar test for permeability and tryptophan metabolism. Researchers from Bangladesh, India, Jamaica, Kenya, Peru and Zambia will use the ¹³C-SBT once ready to diagnose EED and measure health endpoints and growth, in children 12-15 months of age. The ¹³C-SBT is based on measurement of the recovery of ¹³CO₂ in breath following an oral dose of ¹³C-sucrose which is broken down by sucrase into glucose and fructose in the small intestine. If the enzyme action is interfered with as in EED, the production of ${}^{13}CO_2$ in breath is limited or delayed. The RCM offered an opportunity for the harmonization of the study protocols and work plans of all six research sites to enable pooling of data based on a set of uniform indicators and standardized assessment procedures. The CRP will potentially make it possible to define EED based on clear biomarker cut-offs, something that is currently lacking.



Applying nuclear techniques to understand the link between early life nutrition and later childhood health

With a large number of applications for this Coordinated Research Project (CRP), it was a tough competition for the seven research contracts available, which were awarded to China, Ethiopia, Guatemala, India, Jamaica, South Africa and Zambia. The first meeting for the new CRP took place from 4-7 December 2017 and brought together the contract holders at IAEA's Headquarters. The ultimate objective of this initially 5-year project is to enhance knowledge of Member States on the link between early life nutrition and later childhood health. Some of the individual projects are imbedded in the Healthy Life Trajectories Initiative (HeLTI- collaboration between Canadian Institutes of Health Research and WHO, China, South Africa and India). Others are involved in an IAEA regional Technical Cooperation (TC) project on body composition in children previously treated for moderate and severe acute malnutrition (RAF/6/052). The data from the studies will provide information on body composition techniques for use in pregnancy, the impact of interventions on later childhood body composition and the relationship between maternal and offspring body composition and health. The meeting gave the opportunity for each of the investigators to present their projects, learn from experts, strengthen their design and project plans, harmonize activities and share experiences. The next activity for the teams will be a workshop on the assessment of body composition using the deuterium dilution technique and on anthropometry to be held in South Africa in August 2018. Congratulations to the Chief Scientific Investigators of this CRP.



Aflatoxin and child growth: experts gather in Vienna to deliberate the neglected hazard and how nuclear techniques can help

A consultants meeting on 'Using Stable Isotope Techniques to Better Understand the Interconnections Between Aflatoxin Exposure and Child Growth' was held at the IAEA's Headquarters in Vienna, Austria from 6-9 November 2017. Experts from Partnership for Aflatoxin Control in Africa (PACA), and International Institute of Tropical Agriculture (IITA), Nigeria; Institut National de la Recherche Agronomique (INRA), France, University of Leeds, United Kingdom, University of Buffalo, and Johns Hopkins University, USA participated in the meeting.

Stunting is a major public health problem in many low-income countries and existing nutrition-specific interventions are not able to prevent stunting completely. Other factors also contribute, and aflatoxin has been linked with impaired growth. The evidence for adverse effects of aflatoxin on immune function, growth, and productivity is available from animals, but less definitive in humans. The meeting concluded that aflatoxins and other mycotoxins constitute a major public health burden in countries where maize and groundnuts are consumed in large amounts. While aflatoxin exposure might directly affect the human biology, it may also indirectly affect child growth through reduced income and increased food insecurity related to crop loss. A causal relationship between aflatoxin and stunting remains to be established, but potential biological mechanisms of aflatoxin include impaired absorption, utilization and metabolism of nutrients and systemic effects on the immune system.



Participants of the consultants' meeting on aflatoxin exposure and child growth. (Photo courtesy of IAEA)

Several available stable isotope techniques supported by the IAEA could partly help to better understand this causal relationship. The deuterium dose-to-mother technique can be used to quantify aflatoxin exposure through breast milk intake in infancy. Isotope techniques are also available to assess potential endpoints such as iron and zinc absorption, and protein utilization. Other useful isotope techniques under development include measures of gut function and carbohydrate utilization.

UNSCN Face to Face meeting in Rome

The IAEA joined other UN Agencies at the UNSCN Face to Face Meeting on 16 November 2017 where representatives from IFAD; Bioversity/CGIAR; FAO; OCHA; UNDESA; UNEP; WFP; WHO; CFS Secretariat and the UN Network for SUN/REACH Secretariat participated. Mr Victor Owino, Nutrition Specialist in NAHRES, made a brief presentation on IAEA's work on nutrition and how it links to the SDGs and the UN Decade of Action on Nutrition. He summarized the key results of the IAEA-WHO-UNICEF Joint Workshop on 'Analysis of Biological Pathways to Better Understand the Double Burden of Malnutrition and to Inform Action Planning' that took place at the IAEA's Headquarters in Vienna, Austria, from 3-5 October 2017. Mr Owino further informed the group about the planned 'International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions' to be held at the IAEA's Headquarters Vienna, Austria from 10-13 December 2018.

For more information check out the <u>UNSCN</u> <u>Quarterly Update!</u>



Meeting participants at the UNSCN Face to Face Meeting. (Photo courtesy of FAO)

21st IUNS-ICN Nutrition Congress in Argentina

This international congress on nutrition took place in Buenos Aires, Argentina, from 15 - 20 October 2017. In two symposia, the IAEA shared new findings from Coordinated Research and Technical Cooperation projects in the area of infant feeding and sarcopenia.

Sarcopenia

The prevalence and functional impact of sarcopenia (loss of skeletal muscle mass and strength that occurs with advancing age), nutritional and lifestyle factors that contribute to sarcopenia and the diagnosis and prevention of muscle



loss were presented. It demonstrated IAEA efforts in standardizing the techniques for the early diagnosis of sarcopenia through a regional Technical Cooperation project in Latin America (RLA/6/073) that had its last coordination meeting the week before the congress took place. First project results on muscle function were presented at the symposium.

Breastfeeding

The symposium demonstrated how the objective assessment of breastfeeding practices, especially of exclusive breastfeeding, using a stable isotope

technique, contributes to improved evidence on exclusive breastfeeding rates. Maternal recalls generally overestimated exclusive breastfeeding rates, compared to the objective assessment using stable isotopes. Other interesting new findings were also presented.



Read more on the symposia!

In addition, Cornelia Loechl spoke in a symposium on addressing child malnutrition, where newer measures to advance prevention and treatment outcomes were discussed. This symposium was organized by the Tufts University Food Aid Quality Review Group. C. Loechl presented the use of the deuterium dilution technique to assess body composition and the application in different studies. The IAEA also sponsored participation of counterparts from a completed Asian regional project on infant and young child nutrition (RAS/6/073) and an ongoing national project in Morocco on iron bioavailability from wheat flour (MOR/6/022). Counterparts presented posters with preliminary results of their projects. In addition, posters showing findings from IAEA-supported studies in Haiti, Cuba and Kenya were displayed.

All abstracts of the oral and poster presentations are published as a supplement in the Annals of Nutrition & Metabolism in October 2017 and <u>freely accessible</u> here!



Congress on childhood obesity in Tunisia

The IAEA supported several sessions in the First African Congress on Nutrition from 6-8 October 2017, focusing on childhood obesity in Africa. Moreover, a regional TC project on childhood obesity among primary school children aged 8-11 in eleven countries (RAF/6/042) was featured and Thabisile Moleah, Nutrition Scientist in NAHRES, gave a presentation on 'The Use of Stable Isotope Techniques for Obesity Prevention and Control'.

Read the full article here!

IAEA represented at the SUN Global Gathering in Abidjan

From 7 - 9 November 2017, the fourth Scaling Up Nutrition (SUN) Movement Global Gathering took place for the first time in a SUN Country, in Côte d'Ivoire. One of the primary goals was to celebrate SUN countries' progress in advancing implementation of national nutrition plans, to better understand challenges and to collectively identify solutions. About 950 participants attended, the majority being SUN Government Focal Points and members of their multi-stakeholder platforms.



The remaining participants came from SUN Movement Networks, experts who are supporting SUN Countries and the SUN Lead Group, Executive Committee and Secretariat. SUN Countries and four SUN Networks showcased their progress and achievements at the 2017 Marketplace. The IAEA disseminated information on its activities in nutrition through flyers and brochures, which were displayed at the UN Network (UNN) for SUN booth.

Read more in the <u>report</u> on the Global Gathering!



IAEA outreach material displayed at the UNN for SUN booth (Photo courtesy of C. Loechl)

News

Planning for the IAEA 2020-2021 Technical Cooperation Programme

We have started planning and designing the Technical Cooperation (TC) Programme for 2020 - 2021 and are looking for interested groups with project ideas.

To discuss potential project ideas please contact your IAEA National Liaison Officer (NLO) in the country, or NAHRES (<u>nahres@iaea.org</u>) in case you don't know who your NLO is.

The TC Programme supports national and regional projects in building and strengthening capacity for evidence-based nutrition programming, using stable isotope and related techniques.

More information on the IAEA's role in nutrition programmes and **concrete steps to request project support** can be found <u>here</u> – available now in four languages!!!

World Cancer Day: 4 February

Moving closer to the World Cancer Day, we want to encourage you to make healthy choices daily!

- ✓ Get off public transport a stop earlier and walk home
- ✓ Take the stairs instead of the lift whenever you can
- ✓ Integrate pulses and fish into your diet
- ✓ Grab some fresh fruit, vegetable or other food high in fiber as a snack
- ✓



We are happy to invite you to our divisional event 'A comprehensive roadmap to a cancer-free world' on 2 February 2018!

More information and link to livestream here!

61st General Conference at the IAEA

Scientific Forum: Nutrition session on preventing disease through better nutrition

With special thanks to Noura EI-Haj, NAHU's Technical Reviewer and Communication Focal Point

The 2017 Scientific Forum (SF) took place from 19-20 September, in conjunction with the 61st IAEA General Conference, and brought together scientists, experts and policy makers from different fields to examine how nuclear science can ensure healthy lives and promote well-being for all at all ages. Throughout the two days, several high-level speakers, including King Letsie III of Lesotho, the ministers of health from Cameroon and Russia and over 40 dignitaries and experts, joined IAEA Director General Yukiya Amano to discuss the role of nuclear techniques in the diagnosis, treatment and prevention of diseases, especially the major killers of our time: non-communicable diseases.

The SF was divided into 5 thematic sessions ranging from looking at prevention through better nutrition, new developments in diagnostic techniques, the role of radiation therapy in saving and improving quality of life of cancer patients while also looking at ensuring quality and safety of diagnostic and treatment procedures in radiation medicine.

One of the sessions entitled 'Preventing Disease Through Better Nutrition' was devoted to highlighting the vital role that nutrition plays in preventing non-communicable diseases (NCDs). The presentations showcased how undernutrition and obesity coexist in communities and how therefore it is important to define targeted actions that combat all forms of malnutrition. Presenters showed how the use of nuclear and isotopic techniques enables health professionals to develop and evaluate actions to address undernutrition. obesitv and the related risks of NCDs simultaneously. In addition, this session explained how these techniques could help us understand the impact of environmental factors on child growth and human health. The session also highlighted new trends in medical imaging to better assess nutritional status.

Statements, presentations and more material is available on the IAEA Website!

Side Event: Importance of nutrition in the prevention and management of dementia

Alexia Alford, Nutrition Specialist in NAHRES, contributed to the Side Event of the IAEA's General Conference on Neuropsychiatry: 'The Revolution of Molecular Imaging in Alzheimer's Disease' with a presentation on the importance of nutrition in dementia.

Dementia is a lifelong disease process resulting from multiple risk factors, many of which are modifiable including obesity, physical inactivity, hypertension and diabetes. Prevention of dementia can begin in early life through ensuring food security and reducing childhood stunting and obesity through breastfeeding promotion, infant feeding interventions and physical activity programmes. In midlife, prevention of dementia can continue with the prevention of obesity and associated risk factors through following a diet high in polyunsaturated fats and antioxidants and low in processed and high fat foods, as well as participating in regular physical exercise. Therefore, MIND your diet. The Mediterranean-DASH Intervention for Neuro-degenerative Delay (MIND) is associated with a 30% to 35% lower risk of cognitive impairment during aging and recommends eating vegetables, nuts, berries, beans and lentils, wholegrains, seafood, poultry, olive oil. Red wine and dark chocolate show benefits as well, but should be consumed in moderation.

In terms of dementia management, the main concern is that the pathophysiological changes that occur with the condition cause decreased energy intake and increased energy requirements that lead to weight loss and nutrition deficiencies, which cycles back to worsening the cognitive impairment. Management of dementia nutrition related concerns should be individually determined and focus on maintaining adequate levels of nutritional intake while keeping active through modified enjoyable activities. Stable isotopes can be used in evaluating body composition and energy intake across the life course to understand the link between obesity, dietary intake and physical activity in dementia prevention and management.

To learn more about the Side Event visit the Human Health Campus!

NEW! Button on our <u>Human Health</u> Campus



Double Burden of Malnutrition

Click on the button above to find the recorded sessions and power point presentations from our 'IAEA-WHO-UNICEF Joint Workshop on the Analysis of Biological Pathways to Better Understand the Double Burden of Malnutrition and to Inform Action Planning' that took place from 3-5 October at the IAEA's Headquarters in Vienna, Austria.

Additionally, you can find interesting **blogs and articles** about the workshop in <u>THE LANCET</u> <u>Global Health Blog</u> and the <u>UN Special</u> (p.30/31).

Check it out!

GRAB YOUR CALENDAR!

UPCOMING! Symposium on the Double Burden of Malnutrition

The IAEA, in cooperation with WHO and UNICEF, will host an international symposium on 'Understanding the Double Burden of Malnutrition for Effective Interventions' from **10-13 December 2018** in Vienna, Austria. This symposium will provide an opportunity to address knowledge gaps and research needs in a larger forum, identify the role of stable isotope techniques to address these and to develop action plans to support Member States in reaching their defined nutrition commitments.

The announcement and call for papers are available on the <u>Event-Website</u>!



NAHU Seminar: Recording available of presentation on ¹³C-Breath Test

Mr. Tom Preston, Professor of Stable Isotope Biochemistry at the University of Glasgow, United Kingdom, joined the Human Health Seminar Series on 7 September 2017 and delivered a highly informative presentation on the 'Applications of Breath Tests in Clinical and Research Studies'. Breath tests were illustrated by describing the diagnostic ¹³C-Urea Breath Test for *H. pylori* infection, a test used in the CRP 'Stable Isotope Techniques to Design Effective Food Fortification Strategies in Settings with High Helicobacter pylori Infection', as well as tests of gastro-intestinal motility, organ function and nutrient digestion. The ¹³C-sucrose breath test has been proposed as a screening tool for intestinal permeability in the context of environmental enteric dysfunction (EED) and will be validated within the new CRP on the 'Application of Stable Isotope Techniques in EED Assessment'.



Success Story

IAEA Coordinated Research Project wins Presidential Award in Sri Lanka

With special thanks to Dr. Thushari Bandara, University of Ruhuna

I am Dr. Thushari Bandara, from Sri Lanka. In 2012, I wrote a research proposal (as a PhD candidate) with my supervisors for the IAEA CRP on determination of human milk intake and body composition in infants. I started my PhD in April 2012 under the above-mentioned CRP, with the title 'Breast Milk Consumption, Body Composition, Complementary Feeding Practices and the Nutritional Status in a Group of Infants in Sri Lanka'. The IAEA nourished me with multiple trainings opportunities, workshops, literature and advice and guidance of many experts in the field of my study. I brilliantly defended my thesis and obtained my PhD on 1 October 2015. In recognition of my PhD publications in high impact factor peer reviewed journals, I won the Presidential Award for Scientific Publications. This is the best recognized and reputed national achievement for a researcher in Sri Lanka. Further, I have won the best poster award at the Asian Congress of Nutrition in 2015, in Yokohama, Japan. I have recently been appointed as a member of the General Research Committee of the Sri Lanka Association for the Advancement of Science which is one of the main national research committees.



Dr. Thushari Bandara receiving the Presidential Award from H.E. Maithripala Sirisena, the President of Sri Lanka. (Photo courtesy of T. Bandara)

The NAHRES Team

Cornelia Loechl Alexia Alford (Murphy) Victor Ochieng Owino Pernille Kaestel Monica Atac-Bauer Umair Zaheer Bianca Wolf Section Head Nutrition Specialist Nutrition Specialist Team Assistant Team Assistant Intern

NAHRES Special An Interns' Perspective

With a bachelor's degree in Nutrition Science from the University of Vienna I was able to gain practical work experience at the IAEA in line with my fields of study and to understand the value and benefit of stable isotope techniques in the design and evaluation of nutrition interventions. During my internship, I helped in the organizational process of the joint workshop on the Double Burden of Malnutrition, contributed to the development of electronic learning modules on the use of nuclear techniques, reported on several CRP meetings and conducted literature searches on nutrition-related topics.

As an intern at a United Nations agency I was able to meet experts with years of experience and work in a multicultural team with different backgrounds, which not only enabled me to grow professionally but also helped me to further improve my language skills and intercultural competency.

Although I am sad that this will be my second and last newsletter I am compiling, I am looking forward to my development as a professional in the field of nutrition science and public health!



Feedback

The NAHRES Team appreciates your feedback! If you have any questions or comments, please send them to:

nahres@iaea.org

NAHRES CROSSWORD PUZZLE



growth?

Across: →

1. Which

- 2. Which substrate is used in the breath test to assess H. pylori infections?
- 3. The loss of skeletal muscle mass and strength occurring with advanced age, is also known as ...

- 4. Which substrate is used in the breath test, which is being developed to diagnose EED in children?
- 5. In which month does World Cancer Day take place?
- 21st IUNS-ICN 6. Where was the Congress held?

Impressum

Nutritional & Health-Related Environmental Studies Newsletter No. 07, January 2018

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