

**SUMMER SCHOOL: INTRODUCTION TO TOTAL DIET STUDIES FOR ASSESSING EXPOSURE  
SUNDAY 22<sup>ND</sup> JUNE - FRIDAY 27<sup>TH</sup> JUNE 2014, TUBITAK, TURKEY**

Total diet studies complement traditional monitoring and surveillance providing a scientific basis for population dietary exposure to contaminants and nutrients and the potential impact on public health. Food selection is based on (national) consumption data, prepared as eaten, and data from related foods pooled prior to analysis. TDS-Exposure is focussing on exposure to food contaminants including heavy metals, mycotoxins and persistent organic pollutants (POPs, e.g. polychlorinated biphenyls), which pose a risk to human health and the environment, and estimation of chronic exposure to pesticide residues in food as well as food additives intake. However, exposure is based on whole diets, as consumed, rather than contamination of raw commodities as previously measured, resulting in a more realistic measure of exposure to potentially harmful compounds than currently available.

TDS facilitate risk assessment and health monitoring, but some EU Member States and Candidate Countries do not have TDS programmes or use a variety of methods to collect data, and it is not clear whether data are comparable. It is important to harmonise methods for dietary exposure risks worldwide, and TDS-Exposure will standardise methods for food sampling, analyses, exposure assessment calculations and modelling, priority foods, and selection of chemical contaminants. In the process, a variety of approaches and methods for sampling and analyses will be assessed, and best practice defined. Priority contaminants for TDS and foods that contribute most to total exposure in Europe will also be established.

Information about these and existing European TDS will be published to promote better handling of dietary exposure data, and establish a legacy of harmonised methods and science-based recommendations for public health worldwide. In addition, TDS-Exposure is providing training, enabling best practice in the creation and execution of TDS programmes, and ensuring data collected are coherent with others studies globally. This TDS-Exposure Summer School is the second of three introducing key aspects of TDS and contaminant analysis.

## **1. Programme description**

The programme consists of five elements: (1) basic foundations of total diet studies, (2) design and planning, (3) sample preparation and analysis, (4) exposure assessment and publication, and (5) quality management, each including aspects of theoretical and practical learning. **Basic foundations of total diet studies** will introduce TDS and planning as well as application of food consumption data in dietary assessment of contaminants; **Design and planning** will explain development of a food list, criteria for selecting chemical substances and populations of interest, sampling plans and collection of foods for TDS; **Sample preparation and analysis** will look at the culinary preparation of foods (as eaten) and a range of analytical issues, and how food databases are created and managed, and food information coded accurately; **Exposure assessment and publication** will explore data management using FoodCASE-Risk, exposure and risk assessment using MCRA, and how data should be processed and used appropriately; and **Quality management** will examine quality control approaches and documentation standards.

### **1.2. Educational objectives**

The objectives of this Summer School are to introduce total diet studies, generally, and dietary exposure to contaminants, specifically:

- Explore the scientific and technical knowledge underpinning total diet studies for exposure assessment
- Provide insight into methods and approaches, and the quality of data
- Enable students to apply this knowledge in their expert field (e.g. public health, food technology, research)

**1.3. Expected learning outcomes**

**a. Knowledge:** account for the design and planning for total diet studies as well as their use in monitoring and surveillance in human health, particularly in respect of dietary contaminants. Describe food sampling, preparation and analysis, data collection and quality control, and identification and selection of relevant chemical substances and populations of interest. Explain the differences between data management and quality control options, and the principles underpinning each. Describe how research and healthcare messages should be formulated based on information from these studies, and maintain knowledge and access appropriate resources.

**b. Skills:** apply knowledge to carry out independent assessment of food and application of information from TDS/TDS-Exposure as relevant to their field of expertise. Identify key aspects of TDS-Exposure research, comment on the potential and limitations, especially in exposure analysis. Understand the requirements for selecting foods, populations of interest and chemical contaminants. Use relevant IT-based tools to input and retrieve total diet study and exposure information, document and ensure data quality, and apply outcomes appropriately.

**c. Competences:** critically evaluate total diet studies information, particularly in reference to exposure to contaminants in specific populations. Demonstrate independent thinking in the application of information from total diet studies including exposure and national consumption patterns, and formulate healthcare messages based on these data. Participate effectively and with confidence in peer-group discussions developing/ applying information from total diet studies. Act autonomously in the creation, management and use of information from total diet studies including exposure assessment, and demonstrate skills relevant for future employment. Use lifelong learning skills for evaluation and critical thinking, and take responsibility for continuing professional development.

**1.4. Career outcomes**

The modules provide knowledge, skills and competence supporting an independent, professional role within international diet and health research, food manufacturing or aspects of healthcare.

## 1.5. Programme faculty and their credentials

**Gerald G Moy** served as the GEMS/ Food Manager in the 'Department of Food Safety and Zoonoses' at the World Health Organization (WHO) in Geneva for more than 20 years. GEMS/ Food, a joint WHO/ UNEP programme to monitor levels and trends of contaminants in the food supply and the diet, was instrumental in promoting total diet studies as well as the five international and several regional workshops and training courses beginning in 1999. Gerald is the co-editor of two recently published books, 'Total Diet Studies (Springer, New York, November 2013) and Encyclopaedia of Food Safety (Elsevier, London, January 2014). Amongst other consulting work, he has peer-reviewed reports from several total diet studies, including Australia and Papua New Guinea. He is also a member of the International Advisory Committee of the China National Center for Food Safety Risk Assessment, the Technical Advisory Group of World Food Program and the WHO International Virtual Advisory Group on Mass Gatherings and the Committee on Food Safety of the International Union of Food Science and Technology.

### **Total diet studies: What they are and why they are important (Monday, 23<sup>rd</sup> June 2014, 09.00-10.30)**

The protection of consumers from potential hazards in the food supply is one of the most important public health functions for any government. In this regard, the World Health Organization (WHO) has recognized total diet studies as the most cost-effective tool for assessing dietary exposures to a range of potentially hazardous chemicals and intakes of essential nutrients. The importance of total diet studies in assuring the safety of the food supply and identifying possible health risks will be described.

#### **Learning Objectives:**

1. Understand the basic differences between total diet studies and other monitoring activities
2. Appreciate the unique contribution to public health afforded by total diet studies

**Véronique Sirot** (ANSES) is a doctor of epidemiology and public health, and has been a scientific coordinator in the Risk Assessment Department of the French Agency for Food, Environmental and Occupational Health Safety (ANSES) since 2005. She works in the field of risk assessment providing input into the scientific committees of ANSES, particularly in the areas of seafood, as well as participating actively in several research projects. In charge of studies on exposure to food chemicals, Véronique was in the coordination team for the second French TDS (2005-2011), and is now involved in the on-going infant French TDS (2010-2014). She also participated in the EFSA working group on Total Diet Studies (2010-2011) and is author or co-author of about 40 articles on dietary exposure and risk/benefit assessment.

### **Criteria for selection of chemical substances and population targets (Monday, 23<sup>rd</sup> June 2014, 11.00-12.30)**

The lecture will be divided into three main parts. The first part concerns the selection of targeted populations for a TDS: selection criteria, presentation of the different possible population groups, and corresponding needs for the sampling plan. The second part will be a presentation about a prioritization tool for the selection of substances to be included in a TDS: selection criteria, judgments of the substances, and use of the tool. The third part will describe application of the tool.

#### **Learning Objectives:**

1. Populations: an overview of the population groups that can be targeted in a TDS and the corresponding methodological issues
2. Chemical substances: understand and to be able to apply the prioritization method to select chemicals for a TDS

**Aida Turrini** (CRA-NUT) has a background in statistics. She has worked at the Italian National Statistics Bureau developing software (1979-1986) but has focused on nutrition since 1986 when she became researcher at National Institute of Nutrition (INRAN). INRAN became part of the Agricultural Research Council (CRA) in 2013. Aida has been involved in three Italian nationwide dietary surveys, and coordinated the most recent one. Director of the INRAN Scientific Program for the "database system: food composition and food consumption data", Aida has considerable experience leading research teams in national and international projects covering a wide range of research where food consumption and food composition data are required including dietary evaluation and dietary exposure of the population. She has been on several Italian and European Committees as an expert in the food consumption and food information processing. She also teaches statistics and nutritional database management at graduate and post-graduate levels.

**Developing a TDS food list to compose TDS samples (Monday, 23<sup>rd</sup> June 104, 14.00-15.30)**

Participants will go through the multistep process of formulating a Total Diet Study (TDS) food list composed of food categories sufficiently representative for a reference diet, defining a sampling plan, and finally collecting the food products to compose the market baskets. Documentation, procedures, and tools are necessary for each of these steps and there are critical points in each. The availability of data and ancillary information are crucial. The kind of data available influences the potential to identify core foods and the alignment with dietary exposure evaluation. Information about the foods is fundamental in taking account of the variables affecting potential contamination at production (e.g. market share data for packed foods; varieties for fresh foods) or delivery (e.g. home treatment and cooking methods). Extensive white literature is available on TDS previously performed; a similarly set of technical publications is available for specific groups of substances (e.g. pesticides), and a series of reports concerning TDS carried out all over the world, especially where food composition tables are not available. TDS-Exposure has taken up the challenge of designing systems for implementing harmonised TDS studies throughout Europe, following the EFSA's guidelines to exploit the work done in the past and create an evidence-based system for TDS.

**Learning Objectives:**

1. Understanding the component of the process to formulate a food-shopping list
2. Aligning reference diet and composite food samples, the role of food description, and food coding systems
3. Food categories and food products, and how to obtain representatives market basket
4. Importance of ancillary information to refine the food-shopping list
5. Recording data for the future use of food products information

**Siân Astley** (EuroFIR AISBL) has worked extensively with individuals and organisations throughout Europe from a variety of disciplines including research, food and biotech industries and the media. She is author of more than 300 popular science articles for magazines and trade publications as well as 25 peer-reviewed papers, and she was awarded her Diploma in Science Communication in 2009 (Birkbeck University of London). After 14 years as a bench-scientist, Siân became Communications Manager for NuGO, one of the first FP6 Networks of Excellence, and was the European Communications Manager for the Institute of Food Research in Norwich (UK) until April 2012. Currently, she is the Training and Communication Manager for EuroFIR AISBL supporting training within EU-funded research projects and networks and communication of research activities.

**Science Communication (Monday 23<sup>rd</sup> June 2014, 16.00-18.00)**

Dissemination and communication are an integral aspect of research, but the skills and understanding necessary for effective delivery are often neglected. This lecture will explore the importance and benefits of dissemination and communication, the actors involved, and the media as a partner in public empowerment.

**Learning Objectives:**

1. Understand the differences between dissemination and communication, how science is broadcast and received by different audiences, and who and why stakeholders matter
2. Appreciate how different communication tools can and should be used effectively

**TO BE CONFIRMED****Planning a Total Diet Studies (Tuesday, 24<sup>th</sup> June 2014, 09.00-10.30)**

Planning TDS is a complicated process with many sequential steps. It is important to set principal objectives, decide about management/ budget and, technically, describe the main methodological components of a study. Participants will go through the main steps in detail to appreciate how components are inter-related and the main challenges and potential limitations of TDS.

**Learning Objectives:**

**Marcela Dofkova** (SZU) has a background of biology and qualified as specialist in public health in 2006. Since 1996, Marcela has worked in the Czech National Institute of Public Health (Státní Zdravotní Ústav) analysing data describing food consumption, nutrient intake, and dietary exposure in the Czech Republic. Marcela participated in the planning and realisation of the last national wide dietary survey organized in 2003-04 where consumption data at the individual level were collected. She also has experience in processing of data based on Household Budget Surveys. Marcela is involved in the Czech Total Diet Study, a long-term programme performed since 1994, which focuses on estimating dietary exposure/ intake of about 70 contaminants and nutrients. Results produced in national TDS serve as basis for health risk assessment associated with usual dietary habits of the Czech population, and make possible observations of trends over time. Marcela has been involved in many international research projects including TDS-Exposure and, currently, she is a member of the EFSA Network on Food Consumption Data.

**Food collection for TDS – Sampling plan (Tuesday, 24<sup>th</sup> June 11.00-12.30)**

Collection of foods for TDS is a process based on the prepared sampling plan. This is the next step after designing of the TDS food list followed by suggesting of TDS pooled samples. TDS sample plan must take into account many additional factors including number of TDS samples, number of subsamples in the pool, selection of individual food items/brands, national/regional character of food items, seasonality in consumption, type of culinary treatment. Practicalities including throughput of food collection, transportation, storage and kitchen preparations of foods are also very important for good sampling in TDS. Participants will gain an understanding of how to keep a balance between requests and practical possibilities. A part of lecture will be dedicated also to practical experience obtained in on-going pilot study.

**Learning Objectives:**

1. Be aware of sampling plan as an essential basis for food collection in TDS and understanding its components
2. Understanding the main steps in the process of food collection and its relations to other parts of TDS

**Fanny Heraud** (EFSA) has nine years experience in data collection and exposure assessment. She started work at the French Agency responsible for food safety (ANSES) in 2005 and coordinated field studies and risk assessment related to the chlordcone. In 2008, she became the deputy head of the Chemical Exposure and Quantitative Risk Assessment Unit (ANSES) and was in charge of 'pesticides residues in food'. In 2011, she joined the Evidence Management (DATA) Unit of the European Food Safety Agency (EFSA). Fanny provides support to the expert panels

in exposure assessment in field of contaminants and residues (dioxins, acrylamide, mycotoxins, pesticides residues) and nutrients, conducts methodological developments in exposure modelling and contributes to implementation of EU Menu, an initiative to collect harmonised food consumption data throughout Europe.

**Food consumption data and their use in dietary exposure assessment to contaminants (Tuesday, 24<sup>th</sup> June 2014, 14.00-15.30)**

This lecture will provide an overview of the EFSA Comprehensive European Food Consumption Database and the main principles of the dietary exposure assessment, with some illustrations based on cadmium.

**Learning Objectives:**

1. Be aware of how food consumption data are currently collected throughout Europe and collated in the EFSA Comprehensive European Food Consumption Database
2. Understand the principles of dietary exposure assessment to chemicals and especially how consumption data are used as input of exposure modelling

**Ruth Charrondiere** (FAO) is a nutritionist and has worked on dietary assessment, food composition, biodiversity, sustainable diets and exposure assessment. Ruth is also an expert in Total Diet Studies, and served on the EFSA working group on Total Diet Studies. Since 2002, Ruth has worked at the Food and Agricultural Organization of the United Nations (FAO) and she is the coordinator of INFOODS (International Network of Food Data Systems). She has contributed to capacity development in food composition through teaching in many international courses, and the development of the Food Composition Study Guide – a distance-learning tool – and the Compilation Tool – simple food composition database management system in Microsoft Excel. She has also published about 190 scientific articles, book chapters, technical or policy-guidance documents, and databases/ tables/ tools.

**Sampling plan for a TDS and its relation to the food list (Tuesday, 24<sup>th</sup> June 2014, 16.00-18.00)**

The lecture will focus on principles of representative sampling, on issues to consider when elaborating a TDS sampling plan and on sampling in relation to the TDS food list.

**Learning Objectives:**

1. Understand importance of sampling on TDS results
2. Understand the relationship between sampling and the TDS food list

**Laurence Castle** (FERA) is an analytical chemist by training. He has worked on chemical aspects of food safety and quality for many years and he has published extensively. He currently works at the Food and Environment Research Agency in York (UK) where he is a Principal Scientist. Laurence is also a member of the EFSA CEF Panel (Food Contact Materials, Enzymes, Flavourings and Processing Aids).

**Sample preparation and culinary operations (Wednesday 10<sup>th</sup> July 2013 09.00-10.30)**

A key part of TDS work is that exposure calculations are based on chemical concentrations measured in the food AS EATEN. So it is important to ensure the food preparation methods used in TDS work, properly reflect consumer practice. Depending on their chemical characteristics, food preparation methods can cause concentrations to rise, fall or remain unchanged. Food preparation methods may also introduce additional extraneous contaminants unless care is taken. There is particular interest nowadays to maximise the utility (and so spread the cost) of TDS work by using archived samples for analysis for as-yet not known (completely unknown or just not yet decided) contaminants. This re-emphasises the need not only to select the correct preparation procedures but, as crucially, to keep extensive records so that the relevance of the food preparation methods used can be evaluated later on.

**Learning Objectives:**

1. Why and how culinary operations must mimic normal consumer behaviour in the country and/or region and/or population of interest
2. How to prepare samples for analysis and/or archive in a reliable and traceable way

**Stefan Voorspoels** (VITO) is a pharmacist who specialises in analytical toxicology. He has expertise in a wide variety of organic and inorganic analytical techniques and food matrices. He has worked as a scientific officer at the European Institute for Reference Materials and Measurements (IRMM) where he was responsible for the certification of reference materials for food and environment. There, he developed a profound interest, knowledge and expertise in measurement quality and uncertainty. Currently, Stefan is scientific team leader of the analytical research team at the Flemish Institute for Technological Research (VITO). VITO is a contract research organization that develops, validates and applies analytical methodologies for amongst other things food analysis. The activities of VITO are ISO17025 accredited. Among his current research interests are new and emerging pollutants that have only recently entered our food chain and environment.

**Analytical measurements: what's behind the numbers (Wednesday, 25<sup>th</sup> June 2014, 11.00-12.30)**

Measurement data are often perceived as the absolute truth. Once out of the analytical environment, they often start to life of their own and the numbers are stripped of all meta-data. This, however, can have severe consequences towards data treatment and interpretation at a later stage. In order to assess the value of a number, it helps if the assessor has insight in how the numbers came about. After an introduction on how samples are actually analysed, it will become clear how data are generated from a food sample. The main part of the lecture will be quality of data. The origin and background of measurement uncertainty will be discussed to reveal what is behind the numbers.

**Learning Objectives:**

1. Gain insight into the process of generating measurement data (speed-course analytical technology)
2. Learn about measurement uncertainty: there is more to a number than just the digits.

**Jayne Ireland** (DFI) is a senior research scientist with 30 years of experience in the field of food composition data. She was a founding member of the French food composition data bank and was its director from 1992 until she retired at the end of 2008. At that time she was awarded the French medal of Chevalier de la Légion d'honneur. She participated in several European projects (FLAIR Eurofoods-Enfant, COST Action 99 – Eurofoods, Balaton, EFCOSUM, EuroFIR NoE and NEXUS) and food composition courses, where she promoted harmonisation of food composition databases. She now works part-time at Danish Food Informatics (DFI) on data documentation and food description, and is Secretary of the European technical committee of the LanguaL thesaurus for food description.

**Systems for describing food - LanguaL/FoodEx (Wednesday, 25<sup>th</sup> June 2014, 14.00-18.00)**

These lecture and practical session will provide an overview of systems for detailed description of food including LanguaL and the EFSA FoodEX food list combined with facet descriptors.

**Learning Objectives:**

1. Become familiar with the LanguaL multi-faceted system for food description and EFSA FoodEx2 foodlist and associated facet descriptors
2. Identify differences between the systems and their strengths and weaknesses

**Karl Presser** (ETHZ) is a postdoctoral scientist in the Department of Computer Science of ETH Zurich in the Global Information Systems Group, led by Prof. M. Norrie. He trained as a computer scientist and earned his doctoral degree at ETHZ investigating data quality on food composition data focusing on basic principles of data quality and how a computer system can support users to manage data quality. Karl was the primary creator of FoodCASE, an information system to manage food composition data where (some) research work is incorporated. Karl continues this research work as postdoc mentoring PhD students and students. Karl participated in the FP6 EuroFIR Network of Excellence and FP7 EuroFIR NEXUS. Currently, he is a work package leader for FP7 TDS-Exposure.

**FoodCASE-Risk in the context of food data (Thursday, 11<sup>th</sup> July 2013 09.00-10.30)**

The lecture will present a 'big picture' view of food data and where TDS data is located in this landscape as well as details on how to import, manage and export TDS data in FoodCASE-Risk.

**Learning Objectives:**

1. See one possible abstraction of a TDS in a software system
2. Learn how TDS data can be used in combination with other food data

**Jacob van Klaveren** received his education in Human Nutrition at Wageningen University (NL). He is an advisor for the national government, WHO, EFSA and the European Commission on various food safety issues. Since 2010, he has worked at the Dutch National Institute for Public Health and the Environment (RIVM) as senior scientific advisor for model development and integration of models in public health and risk assessment issues. Jacob has been involved in many European projects regarding integrated risk assessment and model development, and he coordinates ACROPOLIS, a project aiming to improve cumulative and aggregated exposure in Europe.

**Exposure assessment at the international level (Thursday, 26<sup>th</sup> June 2014, 11.00-12.30)**

Exposure assessment needs input data from consumption surveys and concentration data from either monitoring programmes or from Total Diet Studies. Monitoring programs are often biased towards targeted sampling. TDS concentration data are assumed to be more representative, but the quality of TDS data is also influenced by uncertainties. In this lecture, we will highlight different exposure models and the relevance of good input data for an optimal exposure assessment.

**Learning Objectives:**

Understand different exposure models and the relevance of good input data for TDS

**Isabel Castanheira** (INSA) is a principal scientist at the Instituto Nacional de Saúde Doutor Ricardo Jorge (INSA), the Portuguese National Health Institute, and chair of TC 23 IMEKO Food and Nutrition Metrology. Her research activities are performed within three interacting themes namely: Bioinorganic Chemistry, Food Safety and Quality, and Metrology of Food and Nutrition. She is interested in analysing and studying the content of classical nutrients and contaminants in food products in terms of the comparability and reliability of the measurement values. Presently, this is undertaken as part of ORQUE SUDOE EU Project and Total Diet Study Exposure as well as other national and inter-continental projects. Her contribution to ORQUE SUDOE is focused on scientific aspects of food analysis originated from backyards of Sado estuary. The work in TDS-Exposure is focused on human exposure to food contaminants including heavy metals. She is appointed responsibility for Task 9.9 – Quality Management Practices, and cooperates scientifically with WP5 – Development and implementation of (a) quality standard framework for TDS Centres in Europe. Both work packages are committed to the development of a dedicated quality system, initially in pilot countries, but to be extended to all participating organizations.

**Quality Management Principles and Practices suited to TDS (Friday, 27<sup>th</sup> June 2014, 09.00-12.30)**

Lectures will focus on quality concepts required for TDS process. Initially, a brief overview of quality tools will be presented. The key concepts that support TDS generic flowchart will be introduced. Documentation and identification of mandatory and recommended requirements will also be outlined.

**Learning Objectives:**

1. Gain insight of quality practices and principles in place at TDS projects
2. Evaluate the advantages and limitations of quality managements practices implemented in TDS beneficiaries

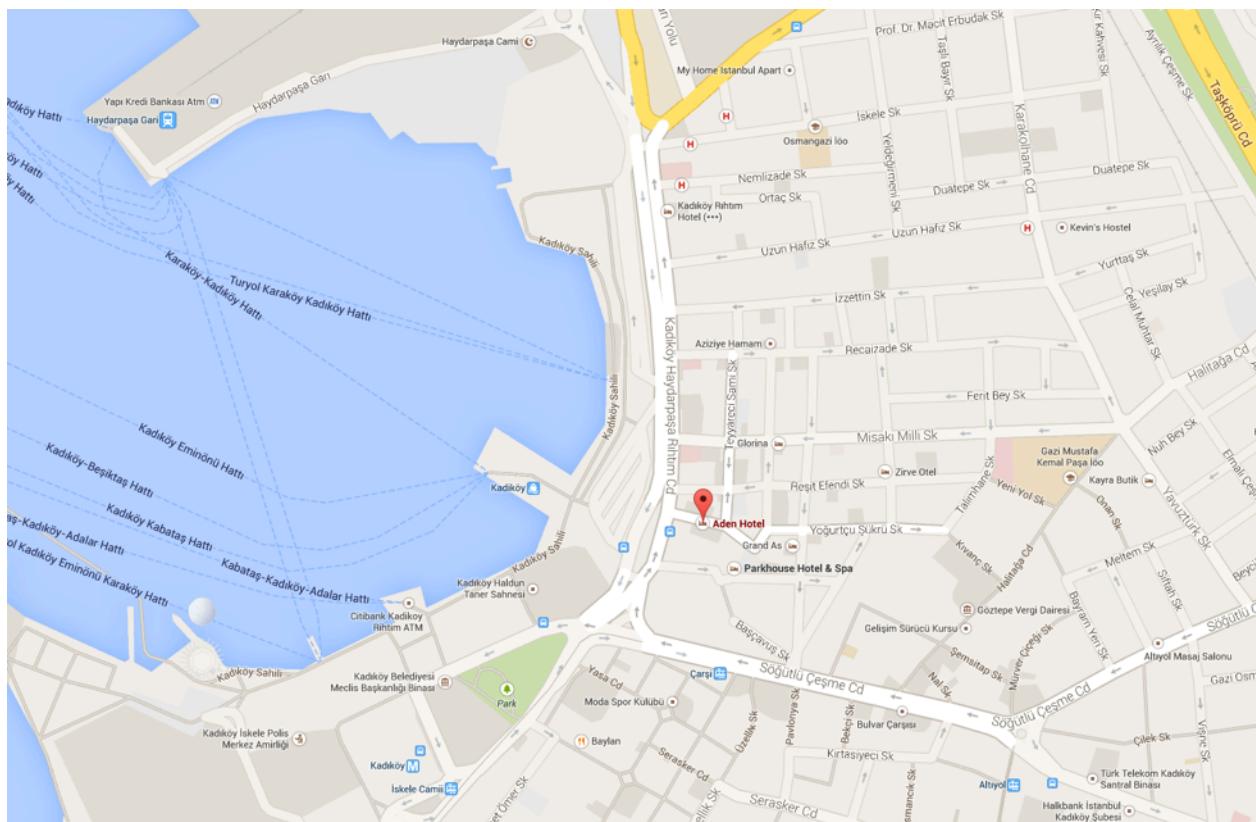
**1.6. Contact information**

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**1.7 Location**

Aden Hotel in Kadikoy (Istanbul, [http://www.adenotel.com/index\\_eng.html](http://www.adenotel.com/index_eng.html))



## **2. Admission requirements**

### **a. Standard undergraduate entry requirements**

Applicant should have at least a Bachelor of Science at Honours level (BSc Hons) or equivalent in food science or another science subject (e.g. dietetics, biology or chemistry or completed the non-clinical teaching for undergraduate medicine). Those with degrees in other science or engineering topics will be accepted provided they have A-level(s) or equivalent (Advanced Higher or International Baccalaureate) in biology, biochemistry or human biology.

### **b. English language proficiency**

These modules will be taught in English and are highly interactive. To benefit from the learning, candidates should be conversant in English and able to understand the lectures, take part in discussions and follow supplementary information.

### **c. Eligibility**

Applications are complete and received before the deadline, and applicants meet the following criteria:

- Employee or student of a Beneficiary of TDS-Exposure
- Resident of a country/ region without existing TDS (country/ regions with established TDS will be considered)
- New to established TDS (employees and students in an established within TDS)
- TDS-Exposure Beneficiary willing to pay travel costs

## **3. Programme overview**

### **a. List of modules**

Introduction to TDS studies

Criteria for selection of chemical substances and population targets

Planning of TDS

Food consumption databases and use in dietary assessments of contaminants

Developing a food list including food classification systems

Sampling plan

Food collection for TDS

Sample preparation and culinary operations

Analytical Issues

Langual and FoodEx2 including practical exercise

Data management: FoodCASE-Risk

Exposure and risk assessment: MCRA including practical exercise

Uses of TDS information

Quality management systems

## b. Programme schedule:

Time	Session	Sunday, 22nd June 2014	Monday, 23rd June 2014	Tuesday, 24th June 2014	Wednesday, 25th June 2014	Thursday, 26th June 2014	Friday, 27th June 2014
		Get together	Basic TDS/ Design and planning	Design and planning	Sample preparation and analysis	Exposure assessment	Quality assessment
08.15-09.00			Registration & Welcome, Sian Astley - EuroFIR AISBL				
09.00-10.30	Session I		Total diet studies: What they are and why they are important, Gerald Moy	Planning TDS	Sample preparation and culinary operations, Laurence Castle - FERA	FoodCASE-Risk in the context of food data, Karl Presser - ETH2	Quality management principles and practices suited to TDS I, Isabel Castanheira - INSA
10.30-11.00						<b>BREAK</b>	
11.00-12.30	Session II		Criteria for selection of chemical substances and population targets, Veronique Sirot - ANSES	Food collection for TDS, Marcela Dofkova - SZU	Analytical measurements: what's behind the numbers, Stefan Voorspoels - VITO	Exposure assessment, risk characterisation and communication (MCRA), Jacob Van Klaveren - RIVM	Quality management principles and practices suited to TDS II, Isabel Castanheira - INSA
12.30-14.00						<b>LUNCH</b>	
14.00-15.30	Session III		Developing a food list including food classification system, Aida Turrini - CRA NUT	Food consumption databases and use in dietary assessments of contaminants, Fanny Heraud - EFSA	Systems for describing food: Languil/FoodEx	Hands-on data handling (FoodCASE-Risk, MCRA), Karl Presser & Jacob Van Klaveren	Knowledge evaluation, certificates etc., Hayrettin Ozer - TUBITAK
15.30-16.00						<b>BREAK</b>	
16.00-18.00	Session IV		Science Communication, Sian Astley - EUROFIR AISBL	Sampling plan for a TDS and its relation to the food list, Ruth Charrondiere - FAO	PRACTICAL: Systems for describing food: Languil/FoodEx	Tour	FREE TIME
18.00-18.15	Session V			FREE TIME			
18.15-19.00					Feedback Session, Sian Astley - EuroFIR AISBL		
19.00-	Session VI	Informal get-together and dinner	Dinner and free time	Conference Dinner*	Dinner and free time		

**c. Description of exercises:****Criteria for selection of chemical substances and population targets (Monday, 23<sup>rd</sup> June 2014, 14.00-15.30)**

**EXERCISE:** (part 3 of the lecture) will consist in an application of the prioritization tool. Depending on time, the exercise could be about the definition of the weights allocated to prioritization criteria and/or the evaluation of one or several substances regarding the prioritization tool

**Systems for describing food - Langual/FoodEx (Wednesday, 25<sup>th</sup> June 2014, 14.00-18.00)**

**EXERCISE:** The intention is to present an overview of the Langual and FoodEx tools and try to code some products and discuss the outcomes. Participants are encouraged to bring a few food labels (actual or printed label information) for a range of products from their own country, which they can try to code, either individually or in groups, and see what interesting problems arise. The value of the exercise is in getting an idea of what is involved and the difficulties. The systems are very comprehensive and complex so it will just be a snapshot with (hopefully) some interesting discussion but not necessarily all the answers!

**Exposure assessment at the international level (Thursday, 26<sup>th</sup> June 2014, 11.00-12.30)**

**EXERCISE:** Students will learn how to upload TDS data to the MCRA software and how to perform an exposure assessment with different input data.

**Quality Management Principles and Practices suited to TDS (Friday, 27<sup>th</sup> June 2014, 09.00-12.30)**

**EXERCISE:** Describe a flowchart for TDS project at country-level and identify similarities and differences with a generic TDS flowchart

**d. Additional reading**

- Andersen, Buchberger & Worsfold (2013) European Analytical Column Trends – Meeting Report *Trends in Analytical Chemistry* **46**: xvii-xix
- Castanheira I., Roe M., Westenbrink S., Ireland J., Møller A., Salvini, S. Beernaert H. Oseredczuk M. C, Calhau M. A. (2009) Establishing quality management systems for European food composition databases. *Food Chemistry* 113: 776-780 - <http://dx.doi.org/10.1016/j.foodchem.2008.05.091>
- Effective Media Communication during Public Health Emergencies (WHO Handbook); Theory at a Glance (National Cancer Institute, US Department of Health and Human Services) - <http://www.who.int/csr/resources/publications/WHO%20MEDIA%20HANDBOOK.pdf>
- EFSA (2011); Use of the EFSA Comprehensive European Food Consumption Database in Exposure Assessment - <http://www.efsa.europa.eu/en/efsajournal/pub/2097.htm>
- EFSA Scientific Report 'Evaluation of the FoodEx, the food classification system applied to the development of the EFSA Comprehensive European Food Consumption Database' European Food Safety Authority (EFSA), Parma, Italy <http://www.efsa.europa.eu/en/efsajournal/doc/1970.pdf>
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**e. Review of learning**

- *model answers will be provided after the event*

**Total diet studies: What they are and why they are important (Monday, 23<sup>rd</sup> June 2014, 09.00-10.30)**

1. What are some of the challenges in protecting the public from risks posed by chemicals in the food supply?
2. What are the main advantages of total diet studies in assessing dietary exposure to chemical?

**Criteria for selection of chemical substances and population targets (Monday, 23<sup>rd</sup> June 2014, 11.00-12.30)**

1. What typologies of populations can be targeted in a TDS?
2. What are the main steps of the HAP method?

**Developing a TDS food list to compose TDS samples (Monday, 23<sup>rd</sup> June 2014, 14.00-15.30)**

1. Which criteria are fundamental for formulating a TDS food-shopping list representative of a reference diet in a population group?
2. Which tasks are necessary to transform a TDS food list in a TDS food-shopping list?
3. Why is recording food information important?

**Science Communication (Monday, 23<sup>rd</sup> June 2014, 16.00-18.00)**

1. What is the difference between dissemination and communication?
2. What are the five Ws and 1H?
3. What is the primary difference between how scientific publication deliver information compared with other sources?

**Planning a Total Diet Studies (Tuesday 24<sup>th</sup> June 2014, 09.00-10.30)**

What are the core components in a TDS planning?

**Food collection for TDS – Sampling plan (Tuesday, 24<sup>th</sup> June 2014, 11.00-12.30)**

What factors influence a number of foods pooled into one TDS sample and what is a minimum when you start without relevant evidence based information?

**Food consumption data and their use in dietary exposure assessment to contaminants (Tuesday, 24<sup>th</sup> June 2014, 14.00-15.30)**

1. What are the main needs in term of food consumption data in order to perform an exposure assessment?
2. What are the main sources of food consumption estimates?

**Sampling plan for a TDS and its relation to the food list (Tuesday, 24<sup>th</sup> June 2014, 16.00-18.00)**

1. What are the most important issues to remember concerning sampling?
2. What are the two disadvantages of pooling?

**Sample preparation and culinary operations (Wednesday, 25<sup>th</sup> June 2014, 09.00-10.30)**

1. What is the guiding principle and the single most important aim of food preparation done in the TDS kitchen?
2. What are the advantages and disadvantages of using tap water in the reconstitution of dehydrated foods and for cooking in the TDS kitchen, compared to the alternative of using distilled or deionised water.

**Analytical measurements: what's behind the numbers (Wednesday, 25<sup>th</sup> June 2014, 11.00-12.30)**

1. Briefly describe how the dioxin concentrations are determined in a fish composite sample. What kind of metadata will help you to assess the quality of the numbers given to you?
2. What are the two main approaches in how an uncertainty budget can be established? How can one assess whether a reported uncertainty is realistic or not? And how can an uncertainty be lowered if necessary?

**Systems for describing food - Langual/FoodEx (Wednesday, 25<sup>th</sup> June 2014, 14.00-18.00)**

1. What is the central feature of FoodEx2?
2. What is the main purpose of Langual?
3. Which FoodEX2 facet type and facet code would be used for a 'smoked' food and what is the associated Langual code?
4. How can a Langual term be added or amended?

**FoodCASE-Risk in the context of food data (Thursday, 26<sup>th</sup> June 2014, 09.00-10.30)**

1. What is the advantage of using an electronic information system to manage TDS data in comparison to a basic tool such as EXCEL or ACCESS?
2. Describe the basic steps of TDS, and explain how FoodCASE-Risk covers these steps including missing elements

**Quality Management Principles and Practices suited to TDS (Friday, 27<sup>th</sup> June 2014, 09.00-12.30)**

1. What is the difference between harmonization and standardization?
2. What are the sections and steps of TDS flowchart and associated quality documents?