



Exponent[®]
Engineering & Scientific Consulting

Xiaoyu Bi

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Professional Profile

Ms. Bi has worked on a wide variety of projects, including nutritional safety assessments, dietary exposure assessments, database development and management, and data analysis. She has extensive knowledge of food consumption surveys, namely, the National Health and Examination Survey and associated nutrient composition data as well as dietary exposure modeling. In particular, she has derived and analyzed intake estimates for food contaminants, heavy metals, novel food ingredients, nutrients, and pesticides and has contributed to the assessment of associations between such intakes and the health and nutrition status of the U.S. population. She was also responsible for analyzing data from a large internet survey on food cooking preferences in the U.S.

Ms. Bi also has experience in developing Monte Carlo models and has contributed to the development and maintenance of Exponent's proprietary software Food Analysis and Residue Evaluation (FARE[®]). Ms. Bi has contributed in developing GRAS notifications, Food Additive Petitions (FAPs), and Color Additive Petitions (CAPs) in support of pre-market approval submissions to the U.S. FDA.

In addition to her experience with food consumption surveys, Ms. Bi has experience with ArcGIS and has an interest in air quality and atmospheric sciences. She interned as a GIS technician running flood risk models using the Federal Emergency Management Agency (FEMA) HAZUS-MH program within ESRI ArcGIS and developed protocol for data collection method, model simulation, questionnaires and presentations in support of a grant to test the effectiveness of a computer-assisted communication of scientific information about flooding to those that may be at risk. Prior to joining Exponent, Ms. Bi conducted research and analysis at the U.S. Geological Survey. She specialized in mineral information on metal commodities including germanium, lead, zinc, and thallium. In addition, Ms. Bi acquired knowledge and experience involving Geographic Information Systems (GIS). Ms. Bi has an undergraduate degree in Chemistry from George Mason University and a Masters of Professional Studies in Atmospheric and Oceanic Sciences (MPAO) from the University of Maryland.

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Academic Credentials & Professional Honors

M.P.S., Professional Studies, University of Maryland, College Park, 2016

B.S., Chemistry, George Mason University, 2007

Ms. Bi received an Exponent Excellence Reward in 2009 for her role in analyzing data in fish

consumption in the U.S. and implementing a Monte Carlo model for deriving estimates of long-term fish intake.

Prior Experience

GIS Technician, Environmental Science and Technology (ENST), University of Maryland, 2012-2014

Physical Scientist, U.S. Geological Survey, 2004-2007

Publications

Scrafford CG, Bi X, Multani JK, Murphy MM, Schmier JK, Barraij LM. Health Care Costs and Savings Associated with Increased Dairy Consumption among Adults in the United States. *Nutrients* 2020, 12(1), 233; <https://doi.org/10.3390/nu12010233>

Tran NL, Barraij LM, Bi X, Jack MM. Trends and patterns of caffeine consumption among US teenagers and young adults, NHANES 2003-2012. *Food Chem Toxicol* 2016; 94:227-242.

Tran NL, Barraij LM, Scrafford C, Bi X, Troxell T. Partitioning of Dietary Metal Intake--A Metal Dietary Exposure Screening Tool. *Risk Anal* 2015; 35(5):872-81.

Tran NL, Barraij LM, Bi X, Schuda LC, Moya J. Estimated long-term fish and shellfish intake--national health and nutrition examination survey. *J Expo Sci Environ Epidemiol* 2013; 23(2):128-36.

Murphy MM, Barraij LM, Bi X, Stettler N. Body weight status and cardiovascular risk factors in adults by frequency of candy consumption. *Nutr J* 2013; 12:53.

Murphy MM, Barraij LM, Herman D, Bi X, Cheatham R, Randolph RK. Phytonutrient intake by adults in the United States in relation to fruit and vegetable consumption. *Journal of the Academy of Nutrition and Dietetics* 2012; 112:222-229.

Murphy MM, Spungen JH, Bi X, Barraij LM. Fresh and fresh lean pork are substantial sources of key nutrients when these products are consumed by adults in the United States. *Nutrition Review* 2011; 31(10):776-783.

Tran NL, Barraij LM, Murphy MM, Bi X. Dietary acrylamide exposure and hemoglobin adducts — National Health and Nutrition Examination Survey (2003-04). *Food and Chemical Toxicology* 2010; 48(11):3098-3108.

Book Chapters

Bi X. U.S. Geological Survey Mineral Commodity Summaries 2007. U.S. Geological Survey, Department of the Interior, Germanium, U.S. Government Printing Office, Washington, D.C., pp. 68-69, 2007.

Bi X. U.S. Geological Survey Minerals Yearbook 2005. U.S. Geological Survey, Department of the Interior, Germanium in Metals and Minerals, U.S. Government Printing Office, Washington, D.C., pp. 31.1-31.4, 2006.

Bi X. Thallium: U.S. Geological Survey Mineral Commodity Summaries 2007. U.S. Geological Survey, Department of the Interior, U.S. Government Printing Office, Washington, D.C., pp. 168-169, 2007.

Bi X. Zinc in Metals and Minerals: U.S. Geological Survey Minerals Yearbook 2005. U.S. Geological Survey, Department of the Interior, U.S. Government Printing Office, Washington, D.C., 1:84.1-84.15, 2006.

Presentations

Mary M Murphy MM, Barraij LM, Bi X, Shumow L. Patterns of candy consumption in the United States, WWEIA, NHANES 2009-2012. The FASEB Journal 2016 30:1154.19

Barraij LM, Murphy M, Scrafford C, Bi X, DiNovi M. Development of a method for estimating long-term intake of foods and nutrients. The FASEB Journal 2012; 26:129.4.

Murphy MM, Barraij LM, Bi X, Shumow L, Bodor AR. Frequency of candy consumption and dietary and health characteristics of adults age 19-50 y in the United States. The FASEB Journal 2012; 26: 119.3.

Murphy MM, Barraij LM, Bi X, Rampersaud GC. Grapefruit consumption is associated with benefits to the intake of certain nutrients, body composition, and select physiologic parameters in U.S. women. The FASEB Journal 2012; 26: 1b346.

Shumow L, Barraij LM, Murphy MM, Bi X, Bodor AR. Candy consumption in the United States. The FASEB Journal 2012; 26: 1005.3.

Johnston JE, Bi X, Driver JH, Ross JH, Selim S. Pet spot-on products: Comparison of biomonitoring data and exposures estimated with regulatory models. Presented as part of a Symposium (Pesticide exposure and modeling: Lessons learned in environmental and occupational exposure analysis leading to advances in dietary and non-dietary pesticide assessments) at the 2012 International Society of Exposure Science (ISES) Annual Conference, Seattle, Washington.

Murphy MM, Bi X, Scrafford C, Douglass JS, Barraij LM. Nutritional contributions of lean pork to the diets of adults in the U.S. The FASEB Journal 2011 25: 602.1.

Murphy MM, Barraij LM, Bi X, Cheatham R, Randolph RK. Phytonutrient density of diets consumed by adults in the United States. The FASEB Journal 2011 25: 1b259.

Barraij L, Smith K, Scrafford C, Murphy M, Douglass JS, Bi X, Tran G. Nutritional contributions of pork to the diets of the U.S. population. The FASEB Journal 2010 24: 560.3.

Murphy MM, Barraij LM, Douglass JS, Bi X, Cheatham R, Randolph K, Herman D. Phytonutrient intakes by adults meeting fruit and vegetable recommendations versus adults not meeting recommendations. The FASEB Journal 2010 24: 560.4.

Kovacs EMR, Barraij LM, Murphy M, Bi X, Balentine DA. Nutrient profiling as a tool to improve diet quality: Impact on energy and nutrient intakes and diet quality using an NHANES-based segmentation model. The FASEB Journal 2010 24: 1b358.

Bi X, Tran N, Barraij L. Analysis of NHANES data to estimate long-term fish intake rates. The FASEB Journal 2009 23: 915.2.