

MODELING AND RISK ANALYSIS PDG

Attendees: Heidy den Besten (Chair), VM Balasubramaniam (Vice Chair), Niam Abeysiriwardena, Douglas Adjei Afrane, Leili Afsah-Hejri, Hany Anany, Lauane Araujo, Ryan Arsenault, Vera Arthur, Charles Bakin, VM Balasubramaniam, Adriana Belas, Andrzej Benkowski, Aditi Bhadauria, Rachel Binet, Micah Black, Aaron Bodie, Samantha Bolten, Amy Bosco, David Bosco, Mick (Joseph) Bosilevac, Alex Brandt, Brett Burkard, Astrid Cariou, Catharine Carlin, Michelle Carter, Mark Carter, Erdogan Ceylan, Ines Chambino, Alexander Cheah, Yuhuan Chen, Mike Clark, Pamela Coleman, Nigel Cook, Chris Crowe, Alvaro De Bonis, Antonio De Jesus Torres, Suresh Devatkal, Augustine Dinovo, Prantho Malakar Dipta, Melanie Downs, Erin Dreyling, Mariem Ellouze, Jose Emilio Esteban, Natoavina Faliarizao, Xuetong Fan, Peyman Fatemi, Rahul Fnu, Nicholas Fougere, Mario Gadanho, Zhujun (Abby) Gao, Ariel Garsow, Brandon Gartman, Jaber Ghorbani, Rusty Gildner, Eduardo Gutierrez Rodriguez, Lauren Hamilton, Jon Hammond, Kailyn Hanke, Minghao He, Ian Hildebrandt, Brittany Holmes, Laura Howard, Kristen Hunt, Keith Ito, Farnaz Izadi, Melisa Jaramillo Zapata, John Jarosh, Lee-Ann Jaykus, Megan Jensen, Craig Jewell, Suzanne Jordan, YeonJin Jung, Veronica Kays, Leonie Kemmerling, Sébastien KEROMNES, Sharlanda Khosravi, Myungji Kim, Jens Kjaer, Maria Klobongona, Jeffrey Kornacki, Shige Koseki, Shanmukh Kottapalli, Kento Koyama, Kunihiro Kubota, Gillian Kuehnle, Quynh Le, Nadia LE DEN, Lorenzo Lee, David Legan, Xiang Li, Jingqiu Liao, Xiyang Liu, John LoPorto, Dave Luedeke, Bradley Marks, Nicole Martin, Ryan Maus, Karen McWilliams, Rodrigo Mendoza, Razieh Sadat Mirmahdi, Naim Montazeri, Diana Mora-Lee, Paul Morin, Nikos Natsaridis, Ramin Nemati, Nicolas Nguyen Van Long, Rejoice Nyarku, Amin Omairi Nasser, Andrew Stiven Ortiz Balsero, Georgios Papageorgiou, Mehul Patel, Sophie PIERRE, Karen Pietrzen, Alda Pires, Aytan Pirverdiyeva, Laurie Post, Christophe QUIRING, Narindra Randriamiarintsoa, Marco Reina, Marianna Rhatigan, Amber Richards, Anne Rölfling, Hilal Samut, Kristin Sanders, Nirmal Thirunavookarasu Sankaranarayanan, Annette Sansom, Sofia Santillana Farakos, Buddhi Sapkota, Roger Schaller, Kristin Schill, Anna Schumann, Nikki Shariat, Arlette Shazer, Katherine Sierra, Panos Skandamis, Daniel Smieszek, Robbie Smith, Aswathi Soni, Brad Stawick, Stacy Stoltenberg, Irshad Sulaiman, VIANCA TASHIGUANO, Nikki Taylor, Christopher Thomas, Leslie Thompson-Strehlow, Evangelia Tsara, Alex Tudor, ERICA TURLEY, Jeff Veesenmeyer, Tushar Verma, Brent Wallen, Yiqing Wang, Surabhi Wason, Morgan Welch, Dina Weston, Weifan Wu, Season Xie, Shuang Yu, Nuradeen Yusuf, Justin Zangl, Don Zink, Anthony Zoropogui, Marcel Zwietering.

Number of Attendees: 162.

Minutes Recording Secretary: Nirmal Thirunavookarasu Sankaranarayanan, Student PDG Liaison

Meeting Called to Order: 8.30 A.M. CDT on Sunday, July 26, 2026.

Dr. Den Besten read the Antitrust Policy, emphasizing that PDG members must adhere to guidelines prohibiting discussions on trade secrets, price fixing, and related topics.

Welcome and Agenda: Dr. Den Besten opened the meeting with a welcome message and provided an overview of the meeting agenda. Dr. Den Besten presented PDG leadership updates.

Old Business:

Approval of Minutes: Dr. V.M. “Bala” Balasubramaniam moved to adopt the 2025 PDG meeting minutes as published on the IAFP website. The motion was seconded by Mr. Keith Ito and unanimously approved.

Achievements: The PDG had a 43% acceptance rate for sponsored proposals (including symposia, roundtables, workshops, and webinars) submitted to IAFP. Of the 23 proposals submitted, 10 were accepted. The acceptance rate increased from 35% in 2025 to 43% and Dr. Den Besten applauded the efforts of the members for this success.

New Business:

Leadership changes: Dr. Abdullatif Tay’s term as Chair ended in 2026. The past vice chair, Dr. Heidy den Besten was named the incoming Chair of the PDG. Dr. Bala was elected as the vice chair of the PDG.

Mission Statement Update: Proposal to delete ‘microbial’ from the mission to underline the general scope of the PDF. Keeping predictive modeling (PM) in the new proposed mission statement was approved. The motion was proposed by Dr. Tay and seconded by Dr. Ellouze.

Important Dates and Deadlines: Proposal submissions for the 2027 IAFP Meeting in Kansas City are due September 29, 2026, and final speaker information are due January 12, 2027. Dr. Den Besten emphasized that members should also target webinar submissions that are less stringent on timelines, have a wider reach, and can strengthen PDG proposal quality and submission success rates.

Journal Opportunity: Dr. Den Besten highlighted that the impact factor of the Journal of Food Protection (JFP) has increased significantly and encouraged the members to publish invited review articles in the journal.

Updates from outside the MRA PDG:

ICPMF Update: Dr. Shige Koseki, Chair of ICPMF, provided updates on the activities of ICPMF. ICPMF 14 will be held in June 23 – 25, Shanghai 2027, and further details can be found on the official website. ICPMF had two newly elected board members Dr. Coroller and Dr. Skandamis. Shige concluded by encouraging PDG members to submit and engage in upcoming ICPMF 14 conference.

ISO Cardinal Parameters:

Dr. Mariem Ellouze gave a talk on the new ISO standard 23691:2026. She mentioned about the purpose of the new standards and the steps involved in the development. She also emphasized on the need for standardization and acknowledged the collaborators involved in development of the new ISO standard.

Student PDG Updates: Nirmal Thirunavookarasu Sankaranarayanan, a PhD candidate from Tennessee State University, presented updates on the student PDG's 2025-26 activities and opportunities for members to engage with and collaborate with the student PDG.

Student Awards: Dr. Den Besten thanked the reviewers for selecting the best abstracts and presented student abstract awards to the first-place winner, Leonie Kemmerling, and the second-place winner, Yuan Su. Certificates were awarded to both recipients. Dr. Den Besten recognized and welcomed all the new members to the PDG.

Guest Speaker: Dr. Kento Koyama, presented a technical talk on Machine learning vs Mathematical models and reviewed the transition from traditional deterministic growth models, such as the Baranyi primary model, toward modern machine learning approaches. It was highlighted that machine learning methods, including Support Vector Regression (SVR), Extremely Randomized Trees (ETR), and Gaussian Process Regression (GPR), can accurately predict *Escherichia coli* O157 growth without requiring predefined primary and secondary model structures. The presentation then shifted to stochastic aspects of bacterial growth. It was emphasized that microbial growth is inherently variable. The presentation explained that these sources of variability influence both the number of cells observed at a given time and the time required for a population to reach a specific concentration. Mathematical representations using Poisson and negative binomial probability distributions, were presented as ways for capturing this variability, particularly for small bacterial populations. The presentation concluded that integrating stochastic components with machine learning provides a more realistic representation of bacterial population behavior than deterministic models alone. By incorporating the omics, metabolomics or the spectral data into the machine learning models in the future can even enhance the predictive behavior.

Future Proposals for 2027 IAFP Symposia, Roundtables, Webinars, and Workshops (Group Session): An extensive discussion on proposals for the 2027 annual meeting was conducted by dividing the members into three groups by category: predictive modeling, risk assessment, risk communication and management. The groups discussed future topics for 30 minutes, and the facilitator for each group reported a summary of the discussion and potential ideas. These are captured in the addendum.

Addendum: Future proposals

Predictive Modelling – Dr. Ellouze mentioned that webinars on microbial risk ranking in low moisture dry matrices and microbial inactivation and predictive tool application would be conducted by Dr. Den Besten. Dr. Tay and Dr. Ian would work on modeling of microbial inactivation in low moisture foods. Dr. Skandamis will focus on a webinar or symposium on different ways or approaches of modelling and further can be converted to a review paper.

Risk Assessment: Dr. Zwietering listed the potential topics which were discussed: Surrogate selection for noroviruses and viable non cultivable cells will be led by Dr. Soni. The data gathering standardization of meta data and data quality will be led by Dr Liao. Dr. Chen will lead communication for risk assessment and intervention strategies.

Risk Communication and Management: Dr. Ariel highlighted the important points in discussion and mentioned that she will lead a public health crisis on sodium consumption and cardiovascular diseases and about the consumer acceptance and preference. Review of the available food safety tools and designing a model for user lead by Dr Randriamiarintsao and Dr Klobongona.

Recommendations to the Executive Board:

1. Rotation of timing of the PDG meetings facilitating increased number of attendees.

Next Meeting Date: July 18, 2027, Kansas City, MO.

Meeting Adjourned: 10:10 A.M.

Chairperson: Dr. Heidi Den Besten.