Viral and Parasitic Foodborne Diseases PDG

Attendees: Kristen Gibson (Chair), Sonia Almeria (Vice Chair), Laura Ewing, Hiroki Abe, Grace Akumu, Brienna Anderson, James Arbogast, Rosie Beaulieu, Davis Blasini, William Burkhardt, Changsun Choi, Bryant Davenport, Brenna DeRocili, Samantha Dicker, Doris D'Souza, Martin Duplessis, Malak Esseili, Todd Frantz, Charles Gerba, Sanjay Gummalla, Olivia Haley, Lauren Hamilton, Diana Hao, Riya Hooda, Valerie Jackson, Julie Jean, Bijay Khajanchi, Minji Kim, David Kingsley, Margaret Kirchner, Kali Kniel, Alison Lacombe, Guylaine Laganiere, Anne-Marie Lauzier, Alvin Lee, Susan Leonard, Dan Li, Mark Loh, Jenny Maloney, Mark Mammel, Chip Manuel, Kyle McCaughan, Miriam Mendez, Razieh Sadat Mirmahdi, Neda Nasheri, Angela Nguyen, Alexis Omar, Rocio Ortega, Geun Woo Park, Claudia Pegueros, Anne-Marie Perchec Merien, Victoria Pruente, Mavra Qamar, Jorge Quintanilla Portillo, Sarita Raengpradub, Walter Randazzo, Gustavo Reyes, Kis Robertson Hale, Rachel Rodriguez, Monica Santin-Duran, Brooke Schwartz, Jason Sharrett, Antoine Stevens, Sloane Stoufer, Gabriella Strocko, Yuan Su, Manish Thapaliya, Francis Torko, Mathilde Trudel-Ferland, Grace Tung, Branko Velebit, Mariana Villarreal Silva, Jan Vinje, Michael Weber, Jacquelina Woods, Qianru Yang, Kang Zhou.

Number of Attendees: 76.

Meeting Called to Order: Sunday, July 14th, 2024, 1:00 p.m. Pacific Time.

Minutes Recording Secretary: Claudia Pegueros.

Old Business: The minutes from IAFP 2023 PDG meeting were approved with no modifications.

New Business: Four main topics were on the agenda. IAFP Announcements: The Notices from the IAFP Executive Board (about number of attendees, record membership this year, the role of the PDGs, publication in the journals of the IAFP association and the possibility of suggest topics for special issues, PDGs to suggest webinars, ways to get involved in the association, IAFP App, thanks to the California Affiliate and the Local Arrangements Committee and the existence of a welcome booth and a quiet room among others) were provided by Kristen Gibson. There were no updates from the Student PDG. The Anti-Trust Guidelines were reviewed (can't dos) and additional safety announcements were provided by Kristen Gibson. These updates and announcements included the following:

Highlights from the IAFP 2024 program relevant to the PDG*:* Kristen/Sonia reviewed accepted sponsored or co-sponsored proposals including symposia and roundtables. There was also a note about numerous posters and technical sessions that will be presented relevant to the Viral and Parasitic Foodborne Diseases PDG.

Update on foodborne parasitic diseases: Dr. Susan Leonard, U.S. FDA. Genotyping *Cyclospora* with Improved Sensitivity and Genetic Resolution – Dr. Leonard presented a new targeted sequencing (TAS) approach needed for *C. cayetanensis* since a previous method (MLST with 8 markers) was not sensitive enough for detection of the parasite in produce. To increase the resolution, a bait capture step was included. A first version with 52 markers was shown to be able to differentiate the source of oocysts in clinical and produce samples with low levels of oocysts. The method showed improved resolution versus the MLST in both clinical samples and produce. Seeding of produce directly with clinical samples was able to relate the source of contamination, which is of critical importance for traceback investigations in outbreaks. A second version with 63 markers has also been developed. The future work involves a genotype reference dataset including international samples.

Dr. Jenny Maloney, USDA, ARS. *Enhancing detection of protozoa in fresh produce* – Dr. Maloney introduced the importance of several protozoa (*Cryptosporidium* spp*.*, *Giardia* spp., and *Cyclospora cayetanensis*) in foodborne and waterborne outbreaks. She focused on the many undetermined cases of *Giardia* spp., and the possibility of multiple routes of contamination with the parasite. This parasite is zoonotic, complex, underreported, and has a wide range of hosts which means that a One Health approach needs to be followed. Dr. Maloney focused on the diagnostic of the parasite and the need of methods that allow to detect species/assemblage composition within a sample. She showed data from a study using next generation sequencing (NGS) to detect mixed assemblages in fecal samples in cattle that support the superiority of NGS

versus Sanger sequencing. Dr. Maloney showed NGS results in fresh produce (Romaine lettuce) unseeded and seeded with cysts of *Giardia* spp. (5, 20, 100, and 1000 cysts) with a limit of detection of as few as 20 cysts/25 g of Romaine lettuce.

Update on viral foodborne diseases: Dr. Kali Kniel, University of Delaware. *Summary and discussion of the JEMRA meeting on foodborne virus risk* – Dr. Kniel presented the summary of the joint FAO/WHO risk assessment meeting on viruses. After a brief introduction on the objectives of the meeting, she presented two different meetings/parts. In the first meeting after a careful review of the literature on surveillance, the expert solicitation ranked the main viruses for their global importance (norovirus, hepatitis A, others) as well as their main sources (e.g., prepared foods, frozen berries, and shellfish). They discussed how the role of each source was differential by regions. They included the study of Hepatitis E virus in pork and wild game, as well as other emerging viruses (e.g., Nipah, Viral tick encephalitis) and detection methods and limitations. The use of viral indicators (in water, shellfish) was discussed with a lack of consensus. In the meeting/part 2, there was a focus on prevention in shellfish and fresh and frozen produce. Possible interventions, treatment for irrigation water and produce treatment in prepared and RTE foods were discussed, including biosecurity measures or possible inactivation techniques. Data gaps on detection, capacity building and surveillance were mentioned.

In preparation for IAFP 2025 in Cleveland, Ohio, July 27–30, 2025, roundtable and symposia topics were suggested and discussed. There was a fire alarm in the middle of the discussion session and the meeting was interrupted. Therefore, there was no time for many topics to be discussed. Topics suggested included: Sessions on emerging virus, including high pathogenic avian influenza, Handwashing: new formulation advances and education at end-user level for viruses, Produce wash waster sanitizers and efficacy against viruses: use, adequate concentration and types of sanitizers, and education about lack of efficacy against viruses at current allowable concentrations. Bioinformatics for both virus and parasites, Methods validation for foodborne parasites, Artificial intelligence and diagnostic measures for parasites and virus, Effect of the environment and extreme weather events on the prevalence of parasites (and viruses).

Recommendations to the Executive Board: None.

Next Meeting Date: Sunday, July 27, 2025, Cleveland, Ohio.

Meeting Adjourned: 2:30 p.m. Pacific Time.

Chairperson Name: Kristen Gibson