ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASES NORTH-EAST MEETING – NE-EEID 2025

PROGRAM
Penn State, Millennium Science Complex 14-15 November

FRIDAY 14

8.00-8.50 am Breakfast

8.50-9.00 am Welcome and Remarks

9.00-10.20 am **SI: VECTOR-BORNE DYNAMICS AND PATTERNS**
(Chair: Nita Bharti)

9.00-9.20 Serotype Succession in the Shadows: Bayesian Inference Illuminates Spatial Ecology of Dengue Turnover (T. Alleman, L. Alexander, A. Bento)
9.20-9.40 Extreme weather events and malaria ecology in southeast Africa (B. Rice, E. Raobson, M. Maelys Tolojanahary, C. J. E. Metcalf)
9.40-10.00 Oropouche Outbreaks: Environmental, Agricultural, and Human Predictors of Risk (L. Alexander, X. Hua, A. Bento, W. de Souza)
10.00-10.20 Discussion

10.20-10.30 am Coffee break

10.30 am -12.10 pm **S1: VECTOR-BORNE WITHIN HOST PROCESSES**
(Chair: Emily Bruns)

10.30-10.50 Effects of Host Microbiota on Pathogen Spread are Governed by Vector-Natural Enemy Dynamics (L. A. Nell, T. A. Hendry, A. M. Hein, M. A. Greischar)
10.50-11.10 Optimal cues for reproductive investment in malaria parasites (A. L. Wang, M. A. Greischar, N. Mideo)
11.10-11.30 Multiplication Rates in Human Malaria Infections: Implications for Classic Tradeoffs with Infection Duration (M. A. Greischar, L. M. Childs)
11.30-11.50 Keeping Time with the Host: Reconstructing the Developmental Rhythms of Malaria Parasites (N. Chen, L. Nell, M. Greischar)
11.50-12.10 Discussion

12.10-1.10 pm Lunch

1.10-2.50 pm **S2: EPIDEMIOLOGY AND CONTROL**
(Chair: Ana Bento)

1.10-1.30 Hidden Hotspots: School District Boundaries Shape Measles Transmission Risk in the U.S. (S. Chen, A. I. Bento)

1.30-1.50 Higher vaccination coverage and lower seroprevalence: exploring waning of immunity in the context of foot-and-mouth disease in India (D. Bhatia, G. Guyver-Fletcher, M. Tildesley, M. Ferrari)
1.50-2.10 Is the honeymoon over? Dynamic impacts of abrupt reductions in vaccine uptake (E. Howerton, B. Grenfell, J. Metcalf)
2.10-2.30 Optimization of vaccination strategies with two types of vaccines in an epidemic setting (M. J. Ferrari, K. Zou)
2.30-2.50 Discussion

2.50-3.00 pm Coffee break

3.00-4.40 pm **S3: EVOLUTIONARY DYNAMICS AND PROCESSES**
(Chair: David Kennedy)

3.00-3.20 The interplay between migration and selection on the dynamics of pathogen variants (W. Benhamou, R. Choquet, S. Gandon)
3.20-3.40: Pathogens pull hardest in the coevolutionary arms-race to determine age-specific transmission biases (S. Hulse, E. Bruns)
3.40-4.00: Characterizing how reassortment shapes H3Nx influenza A virus evolution across diverse hosts (M. A. Maltepes, S. Shank, A. Markin, T. Anderson, L. H. Moncla)
4.00-4.20 Intensive transmission in wild, migratory birds drove rapid geographic dissemination and repeated spillovers of H5N1 into agriculture in North America (L. Damodaran, A. Jaeger, L. H. Moncla)
4.20-4.40 Discussion

5.00-7.00 pm **POSTER SESSION**

SATURDAY 15

8.00-9.00 am Breakfast

9.00-10.40 am **S4: ENVIRONMENT, IMMUNITY AND BEHAVIOR**
(Chair: Katie Risher)

9.00-9.20 How heat shapes disease dynamics (Anther-smut disease)? (Y Yang, E. Bruns)
9.20-9.40 Multiple Environmental Conditions Precede Ebola Spillover in Central Africa (K Baranowski, N. Bharti)
9.40-10.00 Genetic and environmental variation of immune function shape life cycle dynamics of *Trichuris muris* (D. Chang van Oordt, O. Oyesola, D. Metz, S. Chang, P. Loke, C. Cressler, A. Graham)
10.00-10.20 Long-term temporal dynamics of influenza A virus antibodies in black vultures (*Coragyps atratus*) after an H5N1 highly pathogenic influenza A virus outbreak (T.B. Dennon, K. Van Why, D. E. Stallknecht, R. L. Poulson, A. Di Salvo, L. Williams, E. A. Miller, K. D. Niedringhaus, I. Gereg, J. D. Brown)
10.20-10.40 Discussion

10.40-10.50 am Coffee break

10.50 am -12.10 pm **S4: ENVIRONMENT, IMMUNITY AND BEHAVIOR**
(Chair: Sagan Friant)

10.50-11.10 Portrait of viral communities in deer upper respiratory tracts across the United States. (A.O.G. Hoarau, J. Høy-Petersen, J. Alder, S. Hattaway, G. Wittemyer, G. Bastille-Rousseau, T. Kishimoto, T. Anderson, T. Gallo, J. M. Mullinax, A. A. Roess, M. E. Craft, J. D. Forester, T. J. Gardwood,

T. M. Wolf, J. L. Malmberg, T. Nordeen, G. C. Titcomb, M. A. Diuk-Wasser, L. D. Plimpton, M. C. VanAcker, A. Baker, A. M. Corondi, W. D. Walter, T. S. Walters, D. M. Grove, J. R. Kosiewska, D. L. Metts, C. Mitchell, L. I. Muller, M. Q. Wilber, J. D. Wyrick, K. R. Manlove, M. Morrison, L. Smith, G. Wilson-Henjum, K. M. Pepin, R. B. Gagne)

11.10-11.30 HIV testing history homophily in the Likoma Island sociocentric sexual network study (K. Risher, A. Choko, P. Janulis, M. Birkett, S. Helleringer)

11.30-11.50 Human-Taenia (tapeworm) evolutionary history and insights to the advent of hominin meat-eating behavior (N. Grube)

11.50-12.10 Discussion

12.10-12.15 pm Closing remarks

On-line program:
https://www.huck.psu.edu/events/eastern-ecology-and-evolution-of-infectious-diseases-day-2

Location: Penn State, Millennium Science Complex Commons (3rd floor)
Visitor parking: available at the East-Deck Parking, 454 Bigler Rd.
WiFi: Eduroam or PSU-guest

POSTERS

P1: Yimei Li (Princeton University). Spatio–temporal modelling of in vitro viral infection: the impact of defective interfering particles on type I interferon response.

P2: Youngseo Jeong, N. Mideo (University of Toronto). Immunodeficient hosts facilitate parasite adaptation to immunocompetent hosts.

P3: Weixin Du, M. Greischar (Cornell University). Examining immunity to malaria infections through the lens of transmission investment.

P4: Ryan W. Koch, A. O.G. H., T. de Ruyter, C. Duffy, L. Pascarosa, K. A. Campbell, C. L. Maynard, A. Cushman, H. Flick, A. Musselman, J. Patsko, R. Bealer, G. Rhone, M. J. Casalena, A. Di Salvo, K. Duren, E. A. M., J. T. Armstrong, C. Sobotyk, F. E. Buderman, K. D. Niedringhaus, B. Geary, R. S. Larsen, E. Anis, R. B. Gagne (UPenn). Risk factors and coinfection dynamics of pathogens in wild turkeys (*Meleagris gallopavo*) from Pennsylvania, USA.

P5: Christian E. Herrera, M Zeller, T. F. Aderibigbe, K. Jan, W. A. Ayambem, E. R. Davenport, A. O. Alobi, N. M. Ifebueme, O. M. Otukpa, K. E.T. Thompson, M. Meremikwu, P. Hudson, K. Andersen, S. R. Friant (Penn State) Diverse Bacterial and Viral Pathogens in Wild Meat Across a Bushmeat Supply Chain Network in Cross River State, Nigeria.

P6: Christina Harden (Penn State). Rats everywhere, all the time: Leveraging local knowledge to characterize human-rodent interface in Lassa-endemic Nigeria.

P7: Clara R. Malekshahi, L. Damodaran, A. Jaeger, B. Geary, E. Gagne, L. Moncla (UPenn). High Resolution Mapping of HPAI H5N1 Shows Geographic and Temporal Patterns in Viral Transmission and Dissemination.

P8: Ethan T. Welch, MPH, Terrence E. Murphy, Casey N. Pinto (Penn State – Hershey). Comparison of Global *Neisseria Gonorrhoeae* Resistance to Ciprofloxacin by World Health Organization Region, 2009-2018.

P9: Michael Shull, E. Hanks, J. Conway, N. Wikle (Penn State). Global Penalization of Differential Equation Model for in host HIV & SHIV Dynamics.

P10: Elvira D'Bastiani, F. V. S. de Abreu, F. Souza Campos, D. Simonini Teixeira, Ana I. Bento (Cornell University). Yellow fever spillover: unraveling eco-evolutionary feedbacks across spatial and temporal scales.

P11: Anthony Taylor, C. Rosa, M. Archetti (Penn State). Coexistence, Not Extinction: *Tombusvirus lycopersici* and its Defective Interfering RNA DI72 Form a Stable Equilibrium in planta.

P12: Kate M. Lagerstrom, A. H. Moeller (Princeton University). Transmission of bacteria and antibiotic resistance genes from humans to captive animals.

P13: Michelle Launi, E. Bruns (University of Maryland). Does competition make populations sicker or healthier? Exploring juvenile density effects on disease transmission in plants.

P14: Bhargav Srinivasan, S. Hulse, E. Bruns (University of Maryland). When should a pathogen strike: navigating the landscape of birth pulses and mating season.

P15: Louie Gold, M. A. Greischar (Cornell University). Cross-scale selection pressures on pre-symptomatic transmission.

P16: Holly A. Burrows, E. Howerton, D. A. T. Cummings, B. T. Grenfell, C. J. E. Metcalf (Princeton University). Investigating the invasibility and cooccurrence of dengue serotypes.

P17: Brandon J. Simony, D. A. Kennedy (Penn State). Modeling the evolution of resistance under combination therapy.

P18: David Romero, D. A. Kennedy (Penn State). Detecting Host-Associated Selection in Infectious Hematopoeitic Necrosis Virus.

P19: Jennifer Høy-Petersen, Justin D. Brown, Erin McDaniel, Matthew Shaub, Emma Grunwald, Madison A. Davis, Roderick B. Gagne, Michelle Gibison, Andrew Di Salvo, Andrea Korman, Christopher S. Rosenberry, David Stainbrook, Alec Baker, Jessie E. Edson, Tyler S. Walters, Kevin Niedringhaus (UPenn). Are wild white-tailed deer in Pennsylvania dying with or of chronic wasting disease?

P20: Erika Machtinger (Penn State). VectorED Network: From Foundation to Impact in Vector-Borne Disease Training, Education, and Evaluation.