FACULTY PROFILE

Mohammad A. Alkhamis, DVM, MPVM, PhD

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Professional Summary

Dr. Mohammad A. Alkhamis is an assistant professor at the Department of Epidemiology and Biostatistics, Faculty of Public Health, Kuwait University. His scientific expertise includes statistical learning, Bayesian statistics, big data, one health and applications of advanced epidemiological methods in disease surveillance, control, and prevention. His current research interests include tracing the origins and dispersal of infectious pathogens using Bayesian phylodynamic methods and applications of machine-learning methods in infectious disease prediction and mapping. His teaching expertise includes classical statistics and epidemiology, spatial epidemiology, and evolutionary epidemiology. Dr. Alkhamis also served as an adjunct assistant professor at the University of Minnesota between 2015 and 2020 and is currently a technical advisor for the OIE collaborating canter of animal health and food safety at the university of Minnesota. In the past four years, Dr. Alkhamis published more than 35 publication indexed in Pubmed (25 as the corresponding author) and edited one book. Dr. Alkhamis has collaborated with national and international organizations (OIE, FAO, USDA, DHS, NPB) on projects related to the applications of advanced surveillance methods on transboundary infectious diseases.

Education and Training

- P.h.D in Epidemiology, Health Science Center, University California Davis, USA, 2014
- Master of preventive veterinary medicine, School of Veterinary Medicine, Health Science Center, University California Davis, USA, 2009
- D.V.M, School of Veterinary Medicine and Animal Resources, King Faisal University, Kingdom of Saudi Arabia, 2004

Research Interests and Projects

Dr. Alkhamis current research interests and projects are focused on the areas of evolutionary epidemiology of infectious diseases, spatial epidemiology and disease mapping, applications of machine learning methods in surveillance of communicable and non-communicable diseases, one health, big data, application of machine learning and computational biology in epidemiology, and the development of early warning systems for disease surveillance. He is currently working on research activities related to novel approaches for surveillance of COVID-19 in Kuwait, as well as food animal pathogens in the USA and the European Union.

Selected Publications (*) corresponding author

1. Alsayegh F, **Alkhamis MA***, Ali F, Attur S, Fountain-Jones NM, Zubaid M. Anemia or other comorbidities? using machine learning to reveal deeper insights into the drivers of acute coronary syndromes in hospital admitted patients. PLOS ONE. 2022;17(1):e0262997. doi: 10.1371/journal.pone.0262997.

2. **Moh A. Alkhamis**, Nicholas M. Fountain-Jones, Cecilia Aguilar-Vega, José M. Sánchez-Vizcaíno. Environment, vector or host? Using machine learning to untangle the mechanisms driving arbovirus outbreaks. 2021. Ecological Applications. Epub 2021/07/11. doi: 10.1002/eap.2407.

3. **Alkhamis MA***, Youha SA, Khajah MM, Haider NB, Alhardan S, Nabeel A, et al. Spatiotemporal Dynamics of COVID-19 epidemic in the State of Kuwait. International Journal of Infectious Diseases. 2020 Jun 30. PubMed PMID: 32619761. Pubmed Central PMCID: PMC7326444. Epub 2020/07/04.

4. **Alkhamis MA***, Aguilar-Vega C, Fountain-Jones NM, Lin K, Perez AM, Sanchez-Vizcaino JM. Global emergence and evolutionary dynamics of bluetongue virus. Scientistic Reports. 2020;10(1):21677. Epub 2020/12/12. doi: 10.1038/s41598-020-78673-9. PubMed PMID: 33303862.

5. **Alkhamis MA***, Li C, Torremorell M (2020) Animal Disease Surveillance in the 21st century: Applications and Robustness of Phylodynamic Methods in recent U.S. Human-like H3 Swine Influenza Outbreaks. Frontiers in Veterinary Science. https://doi.org/10.3389/fvets.2020.00176.

6. Omondi G, **Alkhamis MA***, Obanda V, Gakuya F, Sangula A, Pauszek S, et al. Phylogeographic and cross-species transmission dynamics of SAT1 and SAT2 Foot-and-Mouth Disease Virus in Eastern Africa. Molecular Ecology. 2019. Epub 2019/05/11. doi: 10.1111/mec.15125.

7. **Alkhamis MA***, Fernández-Fontelo A, VanderWaal K, Abuhadida S, Puig P,Alba-Casals A (2018). Temporal dynamics of Middle East respiratory syndrome coronavirus in the Arabian Peninsula, 2012–2017. Epidemiology and Infection 1–10. https:// doi.org/10.1017/S0950268818002728.

8. **Alkhamis MA***, Arruda AG, Morrison RB, Perez AM. 2017. Novel approaches for Spatial and Molecular Surveillance of Porcine Reproductive and Respiratory Syndrome Virus (PRRSv) in the United States. Scientific Reports 7:4343.

9. Belkhiria J, **Alkhamis MA**, Martinez-Lopez B. 2016. Application of Species Distribution Modeling for Avian Influenza surveillance in the United States considering the North America Migratory Flyways. Scientific Reports 6:33161.

10. **Alkhamis M***, Hijmans RJ, Al-Enezi A, Martinez-Lopez B, Perea AM. 2016. The Use of Spatial and Spatiotemporal Modeling for Surveillance of H5N1 Highly Pathogenic Avian Influenza in Poultry in the Middle East. Avian Diseases 60:146-155.

11. **Alkhamis MA***, Moore BR, Perez AM. 2015. Phylodynamics of H5N1 Highly Pathogenic Avian Influenza in Europe, 2005-2010: Potential for Molecular Surveillance of New Outbreaks. Viruses 7:3310-3328.

Professional Affiliations

- Technical advisor for the OIE collaborating canter of animal health and food safety, collage of veterinary medicine, University of Minnesota (2020-present).
- Associate editor in the open access journal Frontiers in Veterinary Sciences, Section Veterinary Epidemiology and Economics Member (2015-present).
- Adjunct Faculty— University of Minnesota, Department of Population Health, School of Veterinary Medicine (2015-2020).
- Health policy advisor, office of the undersecretary of ministry of health, Kuwait. (Seconded 2021-present).
- Public academic interviews YouTube channel: https://www.youtube.com/playlist?list=PLs5jhys5g0taK4jlImJONeLN_s_FoaeU1