

# VIBS 681 Epidemiology Seminar

## Border Health: Zoonotic and vector-borne disease along the US-Mexico border

### Overview

The US-Mexico border is just under 2,000 miles long and is one of the busiest international borders in the world, with legal human border crossings in excess of 350 million per year. Despite border security efforts, vectors and pathogens can move freely across the geopolitical boundary. The human and animal health consequences are in some cases especially apparent in the impoverished and medically-underserved border communities, including those in south Texas. This graduate journal club will explore published papers and online tools to quantify vector-borne and zoonotic infectious disease threats along the border, drawing from faculty and student experience in the region to enhance discussions.



### Learning Outcomes

- Utilize online epidemiological resources to gather data on contemporary border health issues. Tools include:
  - Pan American Health Organization (PAHO) Alerts and Interactive Maps
  - CDC's Morbidity and Mortality Weekly Reports (MMWR)
  - Program for Monitoring Emerging Diseases (ProMED)
- Critically review peer-reviewed scientific literature.
- Understand the socioeconomic elements that must be considered in the context of zoonotic and vector-borne disease emergence along the border.
- Synthesize course concepts through leading the presentation of two research articles.

Spring 2016; 1 credit hour  
Time: TBD; Room TBD

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### Materials

Weekly course readings will be distributed via email.

### Evaluation

Your grade for this course will be S/U and will be based on attendance, participation in discussions and presentation of research articles. The presentations will involve reading the article, preparing and distributing 5-10 questions, and using the questions to facilitate discussion and learning at the meeting.

Students are expected to attend at least 11 discussion periods. A oral exam will be available to students unable to attend at least 11 presentations if absences were excused (<http://student-rules.tamu.edu/rule07>)

### ADA Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit <http://disability.tamu.edu>.

### Academic Integrity Statement

"An Aggie does not lie, cheat, or steal or tolerate those who do". Refer to the Aggie Honor System website at <http://www.tamu.edu/aggiehonor>.

SCHEDULE IS SUBJECT TO CHANGE

Week	Date	Topic	Leader	Readings
1	Jan 19-22	Orientation; Sign up for weekly presentations	Sarah Hamer	This class will focus on zoonotic and vector-borne infections along the border. For a broader perspective on health issues in the region (maternal/reproductive health, chronic disease, nutritional disease, communicable disease, etc), review: <a href="http://www.paho.org/saludenlasamericas/index.php?option=com_content&amp;view=article&amp;id=63&amp;Itemid=63&amp;lang=en">http://www.paho.org/saludenlasamericas/index.php?option=com_content&amp;view=article&amp;id=63&amp;Itemid=63&amp;lang=en</a>
2	Jan 25-29	Infectious health disparities on the border vs. non-border region		Weinberg M, Waterman S, Lucas CA et al. and the Border Infectious Disease Surveillance Project Working Group. 2003. The U.S.-Mexico Border Infectious Disease Surveillance Project: Establishing Bi-national Border Surveillance <i>Emerg Infect Dis</i> 9:97-102.  Esteve-Gassent MD, Pérez de León AA, Romero-Salas D, Feria-Arroyo TP, Patino R, Castro-Arellano I et al. 2014. Pathogenic landscape of transboundary zoonotic diseases in the Mexico–US border along the Rio Grande. <i>Front Public Health</i> 2:177.
3	Feb 1-5	Dengue: does the border limit the transmission of the virus?		Reiter P, Lathrop S, Bunning M, Biggerstaff B, Singer D, Tiwari T, et al. 2003. Texas lifestyle limits transmission of dengue virus. <i>Emerg Infect Dis</i> , 9:86  Ramos MM, Mohammed H, Zielinski-Gutierrez E, Hayden MH, Robles LopezmJL, Fournier M, et al. and The Dengue Serosurvey Working Group. 2008. Epidemic dengue and dengue hemorrhagic fever at the Texas–Mexico border: results of a household-based seroepidemiologic survey, December 2005. <i>Am J Trop Med Hyg.</i> 78:364-369.
4	Feb 8-12	Chikungunya in Texas... imported cases only, or autochthonous transmission?		This situation is unfolding in real-time. Please review interactive geographic maps of local transmission and disease alerts using the epidemiological tools listed in the learning outcomes; there may be some new papers available during the semester.
5	Feb 15-19	Chagas disease is endemic across Latin America and Texas		Beard CB, Pye G, Steurer FJ, Rodriguez R, Campman R, Peterson AT, Ramsey J, Wirtz RA, Robinson LE. 2003. Chagas Disease in a Domestic Transmission Cycle in Southern Texas, USA. <i>Emerg Infect Dis</i> 9:103-105.  Garcia MN, Aguilar D, Gorchakov R, Rossmann SN, Montgomery SP, Rivera H, Woc-Colburn L, Hotez PJ, Murray KO. 2015. Evidence of autochthonous Chagas disease in southeastern Texas. <i>Am J Trop Med Hyg.</i> 92:325-30.
6	Feb 22-26	Cattle fever ticks: Will management prevent northward movement?		Pound JM, George JE, Kammlah DM, Lohmeyer KH, Davey RB. 2010. Evidence for role of white-tailed deer ( <i>Artiodactyla: Cervidae</i> ) in epizootiology of cattle ticks and southern cattle ticks ( <i>Acari: Ixodidae</i> ) in reinfestations along the Texas/Mexico border in south Texas: A review and update. <i>J Economic Entomol</i> 103:211-218.  Estrada-Pena A, Venzal JM. 2006. High-resolution predictive mapping for <i>Boophilus annulatus</i> and <i>B. microplus</i> ( <i>Acari: ixodidae</i> ) in Mexico and Southern Texas. <i>Vet Parasitol</i> 142:350-358.

7	Feb 29- Mar 4	Rocky Mountain Spotted Fever-similarities in outbreaks on both sides of border		Eremeeva ME, Zambrano ML, Anaya L, Beati L, Karpathy SE, Santos-Silva MM, Salceda B, Macbeth D, Olguin H, Dasch GA, Aranda CA. 2011. <i>Rickettsia rickettsii</i> in <i>Rhipicephalus</i> Ticks, Mexicali, Mexico. J Med Entomol 48:418-421.  McQuiston JH, MA Guerra, MR Watts, E Lawaczek, C Levy, WL Nicholson, J Adjemian, DL Swerdlow. Evidence of exposure to spotted fever group rickettsiae among Arizona dogs outside a previously documented outbreak area. Zoonoses Publ Hlth 2011;58:85-92.
8	Mar 7-11	Leishmaniasis in cats, dogs, humans		Wright NA, Davis LE, Aftergut KS, et al. 2008. Cutaneous leishmaniasis in Texas: a northern spread of endemic areas. J Am Acad Dermatol 58: 650-652.  Petersen CA. 2009. Leishmaniasis, an emerging disease found in companion animals in the United States. Top Companion Anim Med 24:182-188.
9	Mar 14-18	<b>SPRING BREAK</b>		
10	Mar 21-25	Brucellosis- the link to imported meats and raw dairy products		Brown WH, de Anda JH. 1998. Brucellosis in adult beef cattle of Mexican origin shipped direct-to-slaughter into Texas. JAVMA 212:705.  Troy SB, Rickman LS, Davis CE. Brucellosis in San Diego: epidemiology and species-related differences in acute clinical presentations. 2005. Medicine 84:174-87.
11	Mar 28- Apr 1	Enteric bacteria and antimicrobial resistance		Nguyen AV, Cohen NJ, Gao HJ, Fishbein DB, Keir J, Ocana JM, Senini L, Flores A, Waterman SH. 2014. Knowledge, Attitudes, and Practices among Border Crossers during Temporary Enforcement of a Formal Entry Requirement for Mexican-Style Soft Cheeses, 2009. J Food Protection 77:1571-1578.  Benoit SR, Ellingso KD, Waterman SH, Pearson ML 2014. Antimicrobial resistance in eight US hospitals along the US-Mexico border, 2000-2006. Epidemiology and Infection 142:2378-2387
12	Apr 4-8	Rabies- why is it still prevalent along the border?		Lankau EW, Cohen N, Jentes ES, Adams LE, Bell TR, Blanton J et al. 2014. Prevention and control of rabies in an age of global travel: A review of travel- and trade-associated rabies, United States, 1986-2012. Zoonoses and Public Health 61:305-316.  Flores-Ibarra M, Estrella-Valenzuela G. Canine ecology and socioeconomic factors associated with dogs unvaccinated against rabies in a Mexican city across the U.S.-Mexico border. 2004. Prev Vet Med 62:79-87.
13	Apr 11-15	Vesicular stomatitis: what is the vector and why are horse owners concerned?		There have been large epizootics of VS in the western US in recent years including south Texas. Please review: <a href="https://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth/sa_animal_disease_information/sa_equine_health/sa_vesicular_stomatitis">https://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth/sa_animal_disease_information/sa_equine_health/sa_vesicular_stomatitis</a>
14	Apr 18-22	To be determined by students		
15	Apr 25-29	To be determined by students		
<b>There will be NO FINAL EXAM during finals week for VIBS 681</b>				