

# Meagan C. Fitzpatrick, Ph.D.

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Center for Vaccine Development and Global Health  
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## Education

2014 Ph.D. in Epidemiology of Microbial Diseases, Yale University  
2006 B.S. in Biological Sciences, University of Notre Dame

## Positions

2019 – present Assistant Professor, Center for Vaccine Development and Global Health  
University of Maryland School of Medicine  
2018 – present Affiliate, Center for Infectious Disease Modeling and Analysis  
Yale School of Public Health  
2017 – 2019 Research Associate, Center for Vaccine Development and Global Health  
University of Maryland School of Medicine  
2016 – 2017 Postdoctoral Fellow, Center for Vaccine Development and Global Health  
University of Maryland School of Medicine  
2015 – 2016 Postdoctoral Associate, Center for Infectious Disease Modeling and Analysis  
Yale School of Public Health

## Publications

32. Wells, CR\*; **Fitzpatrick, MC\***; Sah, P; Shoukat, A; Pandey, A; El-Sayed, AM; Singer, BH; Moghadas, SM; Galvani, AP. Projecting the demand for ventilators at the peak of COVID-19 outbreaks in the United States. *The Lancet*, in press.  
\*Authors contributed equally to this paper.
31. Moghadas, SM; Shoukat, A; **Fitzpatrick, MC**; Wells, CR; Sah, P; Pandey, A; Sachs, JD; Wang, Z; Meyers, LA; Singer, BH; Galvani, AP. (2020) Projecting hospital utilization during the COVID-19 outbreaks in the United States. Online first; 10.1073/pnas.2004064117.
30. Galvani, AP; Parpia, AS; Foster, EM; Singer, BH; **Fitzpatrick, MC**. (2020) Improving the prognosis of healthcare in the United States. *The Lancet*. 395(10223): 15 – 21.
29. Alfaro-Murillo, JA; Ávila-Agüero, ML; **Fitzpatrick, MC**; Crystal, CJ; Falleiros-Arlant, LH; Galvani, AP. (2020) The case for replacing the live oral polio vaccine with the inactivated vaccine throughout the Americas. *The Lancet*. 395(10230): 1163 – 1166.
28. Craig, R; Kunkel, E; Crowcroft, N; **Fitzpatrick, MC**; de Melker, H; Althouse, BM; Merkel, T; Scarpino, SV; Koelle, K; Friedman, L; Arnold, C; Bolotin, S. (2020) Asymptomatic infection and transmission of pertussis in households: a systematic review. *Clinical Infectious Diseases*. 70(1): 152 – 161.
27. **Fitzpatrick, MC**; Bauch, CT; Townsend, JP; Galvani, AP. (2019) Modelling microbial infection to address global health challenges. *Nature Microbiology*. 4(10): 1612 – 1619.

26. Sah, P; Alfaro-Murillo, JA; **Fitzpatrick, MC**, Neuzil, KM; Meyers, LA; Singer, BH; Galvani, AP. (2019) Future epidemiological and economic impacts of universal influenza vaccines. *Proceedings of the National Academy of Sciences, USA*. 116(41): 20786 – 20792.
25. Wells, CR; Pandey, A; Parpia, AS; **Fitzpatrick, MC**; Meyers, LA; Singer, BH; Galvani, AP. (2019) Ebola vaccination in the Democratic Republic of the Congo. *Proceedings of the National Academy of Sciences, USA*. 116(20): 10178 – 10183.
24. Beyene, TJ; **Fitzpatrick, MC**; Galvani, AP; Mourits, MCM; Revie CW; Cernicchiaro N; Sanderson MW; Hogeveen H. (2019) Impact of One-Health framework on vaccination cost-effectiveness: A case study of rabies in Ethiopia. *One Health*. 8:100103.
23. España, G; Yao, Y; Anderson, KB; **Fitzpatrick, MC**; Smith, DL; Morrison, AC; Wilder-Smith, A; Scott, TW; Perkins, TA. (2019) Model-based assessment of public health impact and cost-effectiveness of dengue vaccination following screening for prior exposure. *PLoS Neglected Tropical Diseases*. 13(7): e0007482.
22. Neuzil, KM; **Fitzpatrick, MC**. (2019) The Impact of Influenza Vaccine: It's the Size of the Glass. *Clinical Infectious Diseases*, ciz078. <https://doi.org/10.1093/cid/ciz078>.
21. Pandey, A; **Fitzpatrick, MC**; Galvani AP. (2019) Metrics and benchmarks for HIV transition – Authors' reply. *The Lancet HIV*. 6(3): e150.
20. Galvani, AP; Pandey, A; **Fitzpatrick, MC**; Medlock, J; Gray, GE. (2018) Defining control of HIV epidemics. *The Lancet HIV*. 5(11): 667 – 670.
19. **Fitzpatrick, MC**; Gray, GE; Galvani, AP. (2018) Facing the Future – the Challenge of Vanquishing HIV for the Next Generation. *JAMA Pediatrics*. 172(7): 609 – 610.
18. Sah, P; Medlock, J; **Fitzpatrick, MC**; Singer, BH; Galvani, AP. (2018) Optimizing the impact of low-efficacy influenza vaccines. *Proceedings of the National Academy of Sciences, USA*. 115(20): 5151 – 5156.
17. Durham, DP; **Fitzpatrick, MC**; Ndeffo-Mbah, ML; Parpia, MS; Michael, NL; Galvani, AP. (2018) Evaluating Zika vaccination strategies in the Americas. *Annals of Internal Medicine*. 168(9): 621 – 630.
16. Haidara, FC; Tapia, MD; Sow SO; Doumbia, M; Coulibaly, F; Diallo, F; Traoré, A; Kodio, M; Kelly, CL; **Fitzpatrick, MC**; Kotloff, K; Victor, JC; Neuzil, K. (2018) Evaluation of a Booster Dose of Pentavalent Rotavirus Vaccine Co-Administered with Measles, Yellow Fever and Meningitis A Vaccines in 9-month-old Malian Infants. *Journal of Infectious Diseases*. 218(4): 606 – 613.
15. **Fitzpatrick, MC**; Singer, BH; Hotez, PJ; Galvani, AP. (2017) Saving lives efficiently across sectors: the need for a Congressional cost-effectiveness committee. *The Lancet*. 6736(17): 17 – 19.
14. Galvani, AP; **Fitzpatrick, MC**; Vermund, SH; Singer, BH. (2017) Fund global health: Save lives and money. *Science*. 356: 1018 – 1019.

13. Sah, P; **Fitzpatrick, MC**; Pandey, A; Galvani, AP. (2017) HIV criminalization exacerbates subpar diagnosis and treatment across the United States: response to the ‘Association of HIV diagnosis rates and laws criminalizing HIV exposure in the United States.’ *AIDS*. 31(17): 2437 – 2439.
12. Galvani, AP; Durham DP; Vermund, SH; **Fitzpatrick MC**. (2017) California Universal Health Care: an economic stimulus and life-saving proposal. *The Lancet*. 390(10106): 2012 – 2014.
11. **Fitzpatrick, MC**; Shah, HA; Pandey, A; Bilinski, AM; Kakkar, M; Clark, AD; Townsend, JP; Abbas, SS; Galvani, AP. (2016) One Health approach to cost-effective rabies control in India. *Proceedings of the National Academy of Sciences, USA*. 113(51): 14574 – 14581.
10. Bilinski, AM; **Fitzpatrick, MC**; Rupprecht, CE; Paltiel, AD; Galvani, AP. (2016) Optimal frequency of rabies vaccination campaigns in sub-Saharan Africa. *Proceedings of the Royal Society B*. 283(1842): 20161211.
9. **Fitzpatrick, MC**; Wenzel, NS; Scarpino, SV; Althouse, BM; Atkins, KE; Galvani, AP; Townsend, JP. (2016) Cost-effectiveness of next-generation vaccines: the case of pertussis. *Vaccine*. 34(29): 3405 – 3411.
8. Atkins, KE\*; **Fitzpatrick, MC\***; Galvani, AP; Townsend, JP. (2016) Cost-effectiveness of pertussis vaccination during pregnancy in the US. *American Journal of Epidemiology*. 183(12): 1159 – 1170.  
\*Authors contributed equally to this paper.
7. DeAngelis, H; Scarpino, SV; **Fitzpatrick, MC**; Galvani, AP; Althouse, BM. (2016) Epidemiological and economic impacts of priming with whole-cell *Bordetella pertussis* vaccine. *JAMA Pediatrics*. 170(5): 459 – 465.
6. Alfaro-Murillo, JA\*; Parpia, AS\*; **Fitzpatrick, MC\***; Tamagnan, JA; Medlock, J; Ndeffo-Mbah, ML; Fish, D; Ávila-Agüero, ML; Marín, R; Ko, AI; Galvani, AP. (2016) A cost-effectiveness tool for informing policies on Zika virus control. *PLoS Neglected Tropical Diseases*. 10(5): e000473  
\*Authors contributed equally to this paper.
5. **Fitzpatrick, MC**; Hampson, K; Cleaveland, S; Mzimhiri, I; Lankester, F; Lembo, T; Meyers, LA; Paltiel, AD; Galvani, AP. (2014) Cost-effectiveness of canine vaccination to prevent human rabies in rural Tanzania. *Annals of Internal Medicine*. 160(2): 91 – 100
4. Dunn, JM; Krause, PJ; Davis, S; Vannier, EG; **Fitzpatrick, MC**; Rollend, L; Belperron, AA; States, SL; Stacey A; Bockenstedt, LK; Fish, D; Diuk-Wasser, MA. (2014) *Borrelia burgdorferi* promotes the establishment of *Babesia microti* in the northeastern United States. *PLoS ONE*. 9(12): e115494
3. **Fitzpatrick, MC**; Hampson, K; Cleaveland, S; Meyers, LA; Townsend, JP; Galvani, AP. (2012) Potential for rabies control through dog vaccination in wildlife-abundant communities of Tanzania. *PLoS Neglected Tropical Diseases*. 6(8): e1796
2. Coulibaly, MB; Lobo, NF; **Fitzpatrick, MC**; Kern, M; Grushko, O; Thaner, DV; Traore, SF; Collins, FH; Besansky, NJ. (2007) Segmental duplication implicated in the genesis of inversion 2Rj of *Anopheles gambiae*. *PLoS ONE*. 2(9): e849

1. Stump, AD; **Fitzpatrick, MC**; Lobo, NF; Traore, S; Sagnon, NF; Costantini, C; Collins, FH; Besansky, NJ. (2005) Centromere-proximal differentiation and speciation in *Anopheles gambiae*. *Proceedings of the National Academy of Sciences, USA*. 102(44): 15930 – 15935

### **Awards & Fellowships**

- 2017 Fellowship in Vaccinology (T32), University of Maryland School of Medicine
- 2014 Global Health Justice Partnership (Student Fellow), Yale University
- 2011 Lindsay Fellowship for Research in Africa, Yale University
- 2009 Downs International Health Student Travel Fellowship, Yale University
- 2006 Outstanding Senior Biological Scientist, University of Notre Dame
- 2005 Kellogg Institute Undergraduate Summer Research Grant, University of Notre Dame

### **Research Support**

- 2018-2023 *Mathematical modeling to optimize rotavirus vaccination in sub-Saharan Africa*  
sponsor: National Institute of Allergy and Infectious Diseases  
1K01AI141576-01  
PI, 75%
- 2018-2022 *Assessment of azithromycin impact to optimize future program design in Mali*  
sponsor: Bill and Melinda Gates Foundation  
OPP1196125  
Sub-study Lead, 10%; PI: Karen Kotloff
- 2018-2019 *Modeling the Population Impact and Cost-Effectiveness of Novel Pertussis Vaccines on Pertussis Infection and Associated Disease in the United States*  
sponsor: US Centers for Disease Control and Prevention  
PI, 19%

### **Invited Talks**

- 2020 Biology Department, Colgate University  
*Building the One Health Case for Canine Rabies Control*
- 2019 Grand Rounds, Mercy Medical Center, Baltimore  
*The Impact of Influenza Vaccine: Is the Glass Half-Empty or Half-Full?*
- 2019 IDWeek 2019, Infectious Disease Society of America  
*Influenza Vaccine and Indirect Protection: Optimizing the Impact of Influenza Vaccine*
- 2019 Grand Rounds, University of Maryland School of Medicine, Department of Medicine  
*The Impact of Influenza Vaccine: Is the Glass Half-Empty or Half-Full?*
- 2019 Annual Conference on Vaccinology Research  
*Infectious Disease Modeling: Design and Pitfalls*
- 2017 Maryland Institute for Applied Environmental Health  
*One Health for Rabies Control: Mathematical and Economic Modeling*
- 2016 Arthur M. Sackler Colloquium of the National Academy of Sciences  
*One Health Approach to Rabies Control*
- 2015 Public Health Foundation of India  
*Modeling Rabies Control in Tamil Nadu*
- 2015 Dept. of Epidemiology and Environmental Health, SUNY Buffalo  
*Public Health Decision-Making with Mathematical Models*
- 2012 Using Modeling to Inform Public Health (series), New York University  
*Rabies Vaccination in Tanzania: Challenges and Strategies*

### **Conferences & Meetings**

- 2019 Respiratory Diseases Branch, DMID, NIAID consultation meeting  
“Overcoming Waning Immunity in Pertussis Vaccines”  
Rockville, MD
- 2017 American Society of Tropical Medicine and Hygiene  
*One Health Approach to Cost-Effective Rabies Control in India* (poster)
- 2016 Mathematical Biology for Understanding Emerging Infectious Diseases at the  
Human-Animal-Environment Interface: a “One Health” Approach  
Banff International Research Station  
*One Health Approach to Rabies Control*
- 2016 Infectious Diseases Across Scales (IDEAS) invited workshop on pertussis resurgence  
Santa Fe Institute
- 2014 American Society of Tropical Medicine and Hygiene  
*Canine Vaccination to Prevent Human Rabies in Tanzania* (Scientific Session 62)
- 2014 Global Summit Meeting, Global Pertussis Initiative  
Dublin, Ireland
- 2012 Modeling of Infectious Disease Agents Study (MIDAS) meeting  
*Potential for Rabies Control by Dog Vaccination in Tanzania*
- 2009 American Society of Tropical Medicine and Hygiene  
*Dengue Risk along an Altitudinal Gradient in Venezuela* (poster)  
*The Effect of Wildlife Transmission on Rabies Vaccination Thresholds* (poster)

### Teaching

- 2019 Guest Lecturer, UMSOM, *Vaccinology*
- 2014 Guest Lecturer, Yale College, *Studies in Evolutionary Medicine*
- 2013 Guest Lecturer, YSPH, *Probabilistic Modeling in Ecology, Evolution, and Disease*
- 2012 Guest Lecturer, YSPH, *Probabilistic Modeling in Ecology, Evolution, and Disease*
- 2010 Guest Lecturer, YSPH, *Vaccines: Concepts in Biology*
- 2009, 2010 Teaching Fellow, YSPH, *Issues in Bioethics*
- 2009 Teaching Fellow, YSPH, *Biology of Disease Vectors*
- 2009 – 2014 Program in College Teaching Preparation  
McDougal Graduate Teaching Center at Yale University

### Additional Research Experience

- 2014 – 2015 Consultant, Yale School of Public Health, in collaboration with Merck
- 2012 – 2014 Consultant, Yale School of Public Health, in collaboration with Sanofi-Pasteur
- 2007 – 2008 Research Assistant, Center for Vaccine Development, University of Maryland  
PI: Dr. Kirsten Lyke
- 2006 – 2007 Senior Laboratory Technician, Johns Hopkins Bloomberg School of Public Health  
PIs: Dr. Joseph Margolick and Dr. Homayoon Farzadegan
- 2004 – 2006 Undergraduate Researcher, University of Notre Dame  
PI: Dr. Nora Besansky

### Professional Affiliations

- 2018 – present Member, IMMUNISING PREGNANT WOMEN AND INFANTS NETWORK (IMPRINT)
- 2014 – 2018 Member, American Society of Tropical Medicine and Hygiene (ASTMH)

**Academic Service**

Ad hoc reviewer for *American Journal of Tropical Medicine and Hygiene*, *Parasitology*, *PLoS Neglected Tropical Diseases*, *PLoS ONE*, *Proceedings of the Royal Society B*, *Science Translational Medicine*, *Transboundary and Emerging Diseases*, and *Vaccine*