Curriculum Vitae

Chad Richard Wells
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Birthdate: December 27, 1984
Citizenship: Canadian

Education

2009 – 2012 : PhD, Applied Mathematics, University of Guelph, Guelph, Ontario, Canada
(Supervisor: Dr. Chris Bauch)

2007 – 2009 : MSc, Applied Mathematics, University of Waterloo, Waterloo, Ontario, Canada
(Supervisors: Dr. Brian Ingalls and Dr. Zoran Miskovic)

2003 – 2007 : BA, Financial Mathematics, Wilfrid Laurier University, Waterloo, Ontario, Canada

Academic research positions

September, 2012 – August, 2018 : Postdoctoral Associate,
Center for Infectious Disease Modeling and Analysis,
Yale School of Public Health, New Haven, CT, USA
(Mentor: Dr. Alison Galvani)

Non-academic research positions

September, 2018 – Present : Research Consultant, Guelph, Ontario, Canada

Academic teaching positions

2012 : Teaching Assistant, MATH 3510, Biomathematics, University of Guelph
(Graded assignments and examinations)

2011 : Instructor, MATH 3510, Biomathematics, University of Guelph
(Created assignments, examinations and taught the course)

2010 : Teaching Assistant, MATH 3510, Biomathematics, University of Guelph
(Graded assignments and examinations)

2010 : Teaching Assistant, MATH 2000, Set Theory, University of Guelph
(Aided students in problems through instruction of weekly labs)

2009–2012 : Teaching Assistant, Math Help Desk, University of Guelph
(Provided tutoring to students taking first and second year mathematic courses)

Awards

2012 : Ontario Graduate Fellowship

2010 : Ontario Graduate Scholarship in Science and Technology

2007 : NSERC Undergraduate Research Award

2006 : NSERC Undergraduate Research Award

2005 : NSERC Undergraduate Research Award

Publications

1. A. Shoukat, **C. R. Wells**,J. M. Langley,B.H. Singer,A. P. Galvani,S. M. Moghadas (2020) Projecting Critical Care Demand for COVID-19 Outbreaks in Canada, Canadian Medical Association Journal (In Press)

2. S. M. Moghadas, A. Shoukat, M. C. Fitzpatrick, **C. R. Wells**, P. Sah, A. Pandey, J. D. Sachs, Z. Wang, L. A. Meyers, B. H. Singer, A. P. Galvani (2020) Projecting hospital utilization during the COVID-19 outbreaks in the United States, Proceedings of the National Academy of Sciences Apr 2020, 202004064; DOI: 10.1073/pnas.2004064117

3. **C.R. Wells**, P. Sah, S. M. Moghadas, A. Pandey, A. Shoukat, Y. Wang, Z. Wang, L. A. Meyers, B. H. Singer, A. P. Galvani (2020): Impact of international travel and border control measures on the global spread of the novel 2019 coronavirus outbreak, Proceedings of the National Academy of Sciences of the United States of America, Mar 2020, 117 (13) 7504-7509; DOI: 10.1073/pnas.2002616117

4. A. Shoukat, P. Sah, A. Pandey, **C. R Wells**, Y. Wang, Z. Wang, B. H. Singer, A.P. Galvani, S. M. Moghadas (2020): Transmissibility of the initial cluster of COVID-19 patients in Wuhan, China, National Collaborating Centre for Infectious Diseases, NCCID Special Post

5. **C.R. Wells***, A. Pandey*,M. L. Ndeffo Mbah, B.A. Gaüzère, D. Malvy, B. H. Singer, and A. P. Galvani (2019): The exacerbation of Ebola outbreaks by conflict in the Democratic Republic of the Congo, Proceedings of the National Academy of Sciences of the United States of America, Oct 2019, 201913980; DOI: 10.1073/pnas.1913980116

6. **C.R. Wells***, A. Pandey*, A. S. Parpia, M. C. Fitzpatrick, L. A. Meyers, B. H. Singer, A. P. Galvani (2019): Ebola vaccination in the Democratic Republic of the Congo, Proceedings of the National Academy of Sciences of the United States of America, 116 (20) 10178-10183

7. **C.R. Wells** and A.P. Galvani (2015): Public health impact of disease–behavior dynamics: Comment on "Coupled disease–behavior dynamics on complex networks: A review" by Z. Wang et al., Physics of Life Reviews, Vol. 15, pg 55-56, ISSN 1571-0645

8. **C. Wells**, D. Yamin, M.L. Ndeffo-Mbah, N. Wenzel, S. G. Gaffney, J.P. Townsend, L.A. Meyers, M. Fallah, T.G. Nyenswah, F.L. Altice, K.E. Atkins, and A.P. Galvani (2015): Harnessing case isolation and ring vaccination to control Ebola, PLoS Neglected Tropical Diseases, 9(5): e0003794

9. S.V. Scarpino, A. Iamarino, **C. Wells**, D. Yamin, M. Ndeffo-Mbah, N.S. Wenzel, S.J. Fox, T. Nyenswah, F.L. Altice, A.P. Galvani, L.A. Meyers, and J.P. Townsend(2015): Epidemiological and viral genomic sequence analysis of the 2014 Ebola outbreak reveals clustered transmission, Clinical Infectious Diseases, 60(7):1079–82

10. **C.R. Wells**, E. Klein and C.T. Bauch (2013): Policy resistance undermines superspreader vaccination strategies for influenza, PLoS Computational Biology, Vol. 9, No. 3, e1002945

11. **C.R. Wells** and C.T. Bauch (2012): The impact of personal experiences with infection and vaccination on behaviour-incidence dynamics of seasonal influenza. EPIDEMICS, Vol. 4, pg 139-151

12. **C.R. Wells**, J.M. Tchuenche, L.A. Meyers, A.P. Galvani and C.T. Bauch (2011): Impact of Imitation Processes on the Effectiveness of Ring Vaccination, Bulletin of Mathematical Biology, Vol. 73, No. 11, pg 2748-2772

Publications in submitted

1. **C.R. Wells**, Y. Cao, D. P. Durham, S. N. Byrareddy, A. A. Ansari, N. H. Ruddle, J. P. Townsend, A. P. Galvani, and A. S. Perelson: Mechanistic basis of post-treatment control of SIV after anti-$\alpha 4\beta 7$ antibody therapy (PLoS Computational Biology)

2. **C.R. Wells**,A. Huppert, M. C. Fitzpatrick, A. Pandey, B. Velan, B. H. Singer, C. T. Bauch, and A. P. Galvani: Prosocial polio vaccination in Israel (Proceedings of the National Academy of Sciences of the United States of America)

Publications in preparation

1. **C.R. Wells**, A.P. Galvani, and A.S. Perelson: The heterogeneous contribution of cell-to-cell infection among the lymphatic tissue during acute HIV infection

2. **C.R.Wells**, A. Pandey, B. H. Singer, A. P. Galvani: Cholera amongst the backdrop of civil war

Presentations

2019 : DRC Ebola Modeling Coordination Group meeting, Quantifying the impacts of conflict and violence on Ebola outbreaks in the DRC (with A. Pandey)

2018 : Seminar, University of Guelph, Department of Animal Bioscience, Mathematical modelling: Spanning Acute infections to zoonotic diseases

2018 : Seminar, Canadian Society of Applied and Industrial Mathematics (CAIMS) Conference- "Quantifying Cell-To-Cell Infection in Lymphoid Tissue During Acute HIV Infection"

2018 : Seminar, Cornell College, "The Application of Mathematics to Infectious Diseases"

2015 : Applied Mathematics, Modeling, and Computational Science (AMMCS) Conference- "The importance of cell-to-cell transmission during the acute stage of HIV infection"

2014 : MS2Discovery Seminar, Wilfrid Laurier University, "Disease Interventions Implemented in Social Networks"

2014 : Epidemiology of Microbial Diseases Research Forum, Yale University, "The role of cell-to-cell transmission in early HIV infection"

2013 : Applied Mathematics, Modeling, and Computational Science (AMMCS) Conference- "The importance of cell-to-cell transmission during the acute stage of HIV infection"

2013 : Applied Mathematics, Modeling, and Computational Science (AMMCS) Conference- "Policy resistance undermines superspreader vaccination strategies for influenza"

2013 : Epidemiology of Microbial Diseases Research Forum, Yale University, "Policy resistance undermines superspreader vaccination strategies for influenza"

2012 : The Society for Mathematical Biology Annual Meeting and Conference– "The Impact of Personal Experiences with Infection and Vaccination on Behaviour-Incidence Dynamics of Seasonal Influenza"

2012 : University of Guelph – "Impact of Individual Past Experiences on the Vaccination against Influenza"

2012 : McMaster University, Mathematical Biology Seminar, "The Impact of Personal Experiences with Infection and Vaccination on Behaviour-Incidence Dynamics of Seasonal Influenza"

2011 : Applied Mathematics, Modeling, and Computational Science (AMMCS) Conference- "The Impact of Individual and Social Psychology on the Effectiveness of Vaccination Against Infectious Diseases"

2011 : AMMCS- "Modelling Behaviour-Incidence Dynamics: The Impact of Social Contact Structure and Social Learning" (Given for Chris Bauch)

Poster

2012 : Guelph Biomathematics and Biostatistics Symposium - Frontiers in Networks: Models and Applications- "The impact of personal experiences with infection and vaccination on behaviour incidence dynamics of seasonal influenza"

Academic service

2013 : Co-organizer of symposium "Complex Dynamics of Population Behaviour" - Applied Mathematics, Modeling, and Computational Science (AMMCS) Conference

Dissertations

University of Guelph Doctorate Thesis: "The impact of psychology on the effectiveness of voluntary vaccination against infectious diseases in networks"

University of Waterloo Master's Thesis: "Comparison of Approximation Schemes in Stochastic Simulation Methods for Stiff Chemical Systems"