

CURRICULUM VITAE

DATE: December 19, 2025

NAME: Marc Lipsitch

ADDRESS: Department of Epidemiology
Harvard T.H. Chan School of Public Health
677 Huntington Avenue
Boston, MA 02115
Email: mlipsitc@hsph.harvard.edu

DATE & PLACE OF BIRTH: November 15, 1969, New Haven, CT, USA

EDUCATION:

<i>Date</i>	<i>Discipline</i>	<i>Degree</i>	<i>Institution</i>
1991	Philosophy	B.A. <i>summa cum laude</i>	Yale University
1995	Zoology	D.Phil.	University of Oxford

POSTDOCTORAL TRAINING:

1995-1999	Biology	Postdoc with Dr. Bruce Levin	Emory University
-----------	---------	------------------------------	------------------

APPOINTMENTS:

2026-	Professor, Stanford University. Appointments: Berberian Chair and Senior Fellow, Center for International Security and Cooperation; Division of Infectious Diseases and Geographic Medicine, Department of Medicine, School of Medicine; Department of Biology, School of Humanities and Sciences.
2006-12/2025	Professor, Department of Epidemiology and Department of Immunology and Infectious Diseases, Harvard School of Public Health
2009-12/2025	Director, Center for Communicable Disease Dynamics, Harvard School of Public Health
2009-12/2025	Associate Member, Broad Institute, Cambridge, MA
2019-present	Honorary Faculty Member, Wellcome Sanger Institute, Hinxton, UK
2022-6/2025	Senior Advisor, Center for Forecasting and Outbreak Analytics, US Centers for Disease Control and Prevention, Atlanta, GA

1997-1999	Visiting Scientist, Respiratory Diseases Immunology Section, Centers for Disease Control and Prevention
1999-2004	Assistant Professor, Department of Epidemiology, Harvard School of Public Health
2004-2006	Associate Professor, Department of Epidemiology and Department of Immunology and Infectious Diseases, Harvard School of Public Health
2012-2018	External Faculty Member, Santa Fe Institute, Santa Fe, NM
2021-2022	Director for Science, Center for Forecasting and Outbreak Analytics, US Centers for Disease Control and Prevention, Atlanta, GA

HONORS AND DISTINCTIONS:

1991	Phi Beta Kappa, Yale College
1992-1995	Rhodes Scholar, University of Oxford, England
2002	Ellison Medical Foundation New Scholar in Global Infectious Disease
2002	PhRMA Foundation Research Starter Award in Health Outcomes
2002	ICAAC Young Investigator Award, American Academy of Microbiology
2006	Mentoring Award, Harvard School of Public Health
2009	Thompson Science Hall of Fame, Westminster Schools, Atlanta, GA
2011	Kenneth Rothman Award, Best Paper in <i>Epidemiology</i> in 2010
2012	Junior Faculty Mentoring Award, Harvard School of Public Health
2013	Reviewer of the Year in <i>Epidemiology</i> in 2012
2014	Member, winning team (PI Shaman), <u>CDC Predict the Influenza Season Challenge</u>
2015	Elected Fellow, American Academy of Microbiology
2016	Robert Austrian Lecturer, International Symposium on Pneumococci and Pneumococcal Diseases
2018	2017 Article of the Year, American Journal of Epidemiology
2019	23 rd Annual Robert M. Fekety, Jr., MD Lecturer, University of Michigan
2020	Elected Member, National Academy of Medicine
2021	Special Award, American College of Epidemiology
2021	Wade Hampton Frost Lectureship Award, American Public Health Association
2023	Distinguished Alumni Award, Westminster Schools, Atlanta, GA
2023	<u>STATus List</u> , STAT News, Boston, MA

PROFESSIONAL SERVICE:

1999	Temporary Advisor, WHO. Priorities for Pneumococcal and Hib Vaccine Development and Introduction. Geneva, Switzerland
2000, 2002	National Institutes of Health, National Center for Research Resources, Special Emphasis Panel, Centers of Biomedical Research Excellence

2001-2003	Consultant and invited speaker for three public meetings, FDA Center for Veterinary Medicine. Topic: regulation of antimicrobial drugs in veterinary medicine
2002	Member, WHO Pneumococcal Vaccine Trials Nasopharyngeal Carriage Study Group
2003	Member, WHO Working Group on SARS Epidemiology and Modeling
2003-2004	US Department of Defense, Defense Science Board Task Force on SARS Quarantine
2005	Consultant, Ministry of Foreign Affairs, Canada – Pandemic Influenza
2005	Consultant, Congressional Budget Office – Pandemic Influenza
2006, 2007	National Institutes of Health Study Section on Genetic Variation and Evolution
2007, 2008, 2012	National Institutes of Health Special Emphasis Panels, various
2007-2011	Report reviewer, National Research Council, NEIDL Risk Assessments
2008	Food and Drug Administration, Antiviral Advisory Committee, guest member
2008-2009	Member, World Economic Forum Global Agenda Council on Pandemics
2009	Consultant, Mexico Ministry of Health, Pneumococcal Conjugate Vaccine
2009	US President's Council of Advisors on Science and Technology (PCAST)-H1N1 Working Group
2009	Massachusetts Department of Public Health H1N1 Advisory Group
2009-2010	Team B Advisory Body to CDC on Novel H1N1 Influenza
2010-2013	Member, Informal Advisory Group on 2009 Pandemic Influenza Mortality, WHO
2010-	Member, Pneumococcal Serotype Replacement Technical Advisory Group, WHO
2011-	Member, Scientific Advisory Board, Pneumococcal Global Sequencing Project (Gates Foundation, Keith Klugman, PI)
2014-2016	Member, CIDRAP/Wellcome Trust Team B on Ebola Vaccines
2015	Member, Scientific Advisory Group, Norwegian Institute of Public Health/WHO/MSF Ebola Virus Vaccine Trial
2015	Member, Scientific Review Committee, Wellcome Trust Sanger Institute 5-Year Review (4-day evaluation visit)
2017-	Member, Biological Agents Containment Working Group, Board of Scientific Counselors, Office of Public Health Preparedness and Response, CDC
2018-	Member, Advisory Board, Vaccines and Immunotherapies, CARB-X
2018-	Member, Technical Advisory Group, Pneumococcal Serotype Replacement and Distribution Project (PSERENADE), International Vaccine Action Center
2019-21	Co-chair, WHO Working Group on Vaccines and Antimicrobial Resistance (VAC-AMR)
2019	Member, Steering Committee, Scorecard on Progress on Recommendations of the Review of Antimicrobial Resistance, Chatham House

2020- Faculty Associate, Safra Center for Ethics, Harvard University
2020-1 Member, Massachusetts Governor's Medical Advisory Committee
2020-1 Member, Massachusetts COVID-19 Vaccine Working Group
2020-1 Ad hoc expert, WHO Strategic Advisory Group of Experts, COVID-19 Vaccine Working Group
2020-1 Member, WHO Working Group on COVID-19 Vaccine Effectiveness Studies
2020-1 Member, WHO Technical Advisory Group on COVID-19 Epidemiology
2021-3 Senior Advisor, COVID-19 Commission Planning Group, Miller Center, University of Virginia
2021- Scientific Advisory Committee, Coalition for Epidemic Preparedness Innovations (CEPI)
2023 Member, Pathogens Project, *Bulletin of the Atomic Scientists*
2023- Member, *Lancet* Commission on Epidemiological Modelling
2023 Ad hoc member, Board of Scientific Counselors, NIAID, NIH
2023- Member, WHO TAG on Responsible Use of the Life Sciences and Dual-Use Research

EDITORIAL BOARDS:

2002-2012 Associate Editor, *American Journal of Epidemiology*
2004-2008 Associate Faculty Editor, *Emerging Themes in Epidemiology*
2009-2010 Member, Faculty of 1000 Biology
2006-2016 Editorial Board, *PLoS Medicine*
2008-2011 Associate Editor, *Epidemics*
2008-2011 Editorial Board, *Emerging Health Threats*
2009-2010 Board of Editorial Advisors, *Journal of Infectious Diseases*
2009-2021 Editorial Board, *Epidemiology*
2015-2022 Board of Reviewing Editors, *eLife*
2024- Editorial Board, *mBio*

PROFESSIONAL SOCIETIES:

Society for Epidemiologic Research
American Society for Microbiology
National Center for Science Education
Union of Concerned Scientists

PUBLIC HEALTH ORGANIZATIONS:

Founder, Cambridge Working Group, 2014
Founder, Society for Safe Science, 2014
Member, Pathogens Project, *Bulletin of the Atomic Scientists*, 2023-

SCIENTIFIC COMMITTEES AND CONFERENCE ORGANIZING:

Scientific Committee: 4th International Symposium on Pneumococci and Pneumococcal Diseases, Helsinki, Finland, May 2004
Scientific Committee: 5th International Symposium on Pneumococci and Pneumococcal Diseases, Alice Springs, Australia, May 2006
Scientific Committee: 6th International Symposium on Pneumococci and Pneumococcal Diseases, Reykjavik, Iceland, June 2008
Scientific Committee: 7th International Symposium on Pneumococci and Pneumococcal Diseases, Tel Aviv, Israel, March 2010
Scientific Committee: 9th International Symposium on Pneumococci and Pneumococcal Diseases, Hyderabad, India, March 2014
Conference Chair: First Annual Center for Communicable Disease Dynamics Symposium: Surveillance for Decision Making in Emerging Diseases: Lessons from the 2009 H1N1 Pandemic Influenza. Boston, June 2010
Organizing Committee: Epistemology of Modeling and Simulation. University of Pittsburgh, April 2011.
Conference Chair: Second Annual Center for Communicable Disease Dynamics Symposium: Antimicrobial Resistance: Biology, Population Dynamics and Policy Options. Boston, October 2011
Conference Chair: Epidemics³, Boston, November 2011
Scientific Committee: Epidemics⁴, Amsterdam, November 2013
Conference organizer: Workshop on Modeling and Simulation for Infectious Disease Trial Design, Seattle, August 2016 (with Betz Halloran)
Workshop organizer: Ethical Design of Vaccine Trials in Emerging Infections, ETHOX, Oxford, UK, July 2017 (with Rebecca Kahn, Nir Eyal, Annette Rid)
Scientific Committee: 12th International Symposium on Pneumococci and Pneumococcal Diseases, Toronto, 2020
Advisory group on COVID-19, Science Philanthropy Alliance, August 2020

GRANT AND OTHER EXTERNAL REVIEWER SINCE 2003:

Research Fund for the Control of Infectious Disease (RFCID), Hong Kong Semi-Autonomous Region, China
UK Medical Research Council
Wellcome Trust (UK)
Department of Veterans Affairs, USA
Alliance for the Prudent Use of Antibiotics
Swiss National Science Foundation
RIVM (National Institute of Health and Environment), Netherlands
Innovational Research Incentives Scheme, Royal Netherlands Academy of Sciences
National Institutes of Health, ad hoc member, GVE study section (4x), IRAP study section (1x), several telephone special review groups
Health Research Council of New Zealand
AXA Foundation Fellowships
Canadian Institutes of Health Research

Royal Society of New Zealand
French National Research Agency (ANR)
Royal Society (UK)
NIH Special Emphasis Panels (2013/01 ZRG1 IDM-A (02) S; 2014/08 ZRG1 RPHB-W (53) R - RFA-RM-13-009: NIH Director's Early Independence Awards Review)
Dutch Research Council NOW (2011, 2017)
NIH Special Emphasis Panel (2014/10 ZRG1 IDM-S (02) M)
Chair of NIH Infectious Diseases and Microbiology Integrated Review Group, ZRG1 IDM S02 10/2014 council
External reviewer, quinquennial review of the Sanger Institute, Wellcome Trust (2015)
NIH CRFS Study section, ad hoc member, 2015
UK Medical Research Council (2016)
External review, Johns Hopkins Department of Epidemiology (2023)
Ad hoc member, NIAID Board of Scientific Counselors (2023)
ASPB Study section *ad hoc* reviewer (Feb 2024)
ASPB Study section Special Emphasis Panel, *ad hoc* reviewer (Nov 2024)

INVITED TALKS (SINCE 2020):

3/2020	National Academy of Medicine/American Public Health Association First Webinar on COVID-19, Washington DC (via Zoom)
3/2020	Harvard Kennedy School Growth Lab, Cambridge, MA (via Zoom)
3/2020	White House Modeling Consortium, Washington DC (via Zoom)
4/2020	European Central Bank (via Zoom)
4/2020	<i>USA Today</i> Editorial Board (via Zoom)
4/2020	<i>New York Times</i> Editorial Board (via Zoom)
4/2020	Harvard Medical School Department of Medicine Grand Rounds (one of many short talks, via Zoom)
5/2020	Massachusetts Coalition for Pathogen Research (one of many short talks, via Zoom)
5/2020	Covid symposium, National Institute of Statistical Science/American Statistical Association
5/2020	Private briefing, Deputy Prime Minister Chrystia Freeman, Ottawa, Canada
5/2020	Briefing, New Democrat Coalition (via Zoom)
5/2020	Isaac Newton Institute, Cambridge University, UK (via Zoom)
5/2020	Futureproofing Public Health, University of Stellenbosch (via Zoom)
5/2020	Private briefing, Rahul Gandhi, Leader, Congress Party, India
5/2020	Harvard Club of Boston (via Zoom)
5/2020	Tsinghua University / AAAS Symposium, Beijing (via Zoom)
5/2020	Institute for Genome Sciences, University of Maryland (via Zoom)
5/2020	National Academy of Sciences, Section 43 (via Zoom)
5/2020	Medical Grand Rounds, Boston Children's Hospital (via Zoom)

5/2020 Vaccine Research Center, Beth Israel Deaconess Medical Center (via Zoom)

5/2020 American Statistical Association and the National Institute of Statistical Sciences (via Zoom)

6/2020 International Monetary Fund (via Zoom)

6/2020 Webinarium: Role of a Medical University in a Pandemic, Karolinska Institutet, Stockholm (via Zoom)

7/2020 Bipartisan Commission on Biosecurity (via Zoom)

7/2020 National Bureau of Economic Research (via Zoom)

7/2020 SAGE Working Group on COVID-19 Vaccines (panelist) (via Zoom)

7/2020 Congressional Briefing on Human Challenge Trials, organized by 1DaySooner and Rep. Bill Foster (via Zoom)

7/2020 International Symposium on Novel Ideas in Science and Ethics of Vaccines against COVID-19 Pandemic, India Council of Medical Research (via Zoom)

7/2020 Private and Public Science, Advisory, and Consumer Food Policy Group (PAPSAC), Harvard Kennedy School (via Zoom)

8/2020 National Academies (NASEM) Committee on Equitable Allocation of Vaccine for the Novel Coronavirus (panel) (via Zoom)

8/2020 Mathematical Sciences Research Institute, University of California, Berkeley (via Zoom)

8/2020 Science and Society, Duke University (panel) (via Zoom)

8/2020 Giving Pledge Meeting – Q&A with Scott Dowell, Bill and Melinda Gates Foundation (via Zoom)

8/2020 Janelia Farm, Howard Hughes Medical Institute, via Zoom

9/2020 Harvard Medical School Center for Bioethics, Cambridge MA (via Zoom)

9/2020 National Institute of Statistical Sciences, Research Triangle, NC (via Zoom)

9/2020 American Physical Society, College Park, MD (via Zoom)

9/2020 COVID-19 Modeling Consortium, Austin, TX (via Zoom)

10/2020 American Lung Association, Chicago, IL (via Zoom)

10/2020 Board of Directors, Blue Cross-Blue Shield of Massachusetts

10/2020 Sanofi-Pasteur (via Zoom)

11/2020 Journal of the American Medical Association (via Zoom)

11/2020 BMJ/University of Bristol "COVID Known Unknowns" Symposium (via Zoom)

11/2020 Harvard Chan Leadership Forum "Race for the COVID Vaccine" (via Zoom)

11/2020 Bristol Myers Squibb (via Zoom)

12/2020 Public Health Institute, Oakland CA (via Zoom)

12/2020 American Academy of Religion Bioethics Section (via Zoom)

12/2020 "Trust in Democracy, Trust in Science", Harvard Data Science Institute and Harvard Kennedy School Radcliffe Institute, Harvard University (panel) (via Zoom)

12/2020 Journal of the American Medical Association (via Zoom)

1/2021 FXB Center for Health and Human Rights, Harvard University (via Zoom)

1/2021	Harvard Chan Leadership Forum "Disrupted School Year and Public Health" (via Zoom)
1/2021	Center for Philosophy of Science, University of Pittsburgh (via Zoom)
1/2021	Harvard Chan Leadership Forum "COVID-19 Vaccine Rollout" (via Zoom)
1/2021	Harvard-Radcliffe Club of Vermont (via Zoom)
1/2021	Library of Congress (via Zoom)
1/2021	Harvard Hillel (via Zoom)
2/2021	Harvard School of Public Health (via Zoom)
3/2021	European Central Bank (via Zoom)
3/2021	Boston City Council
3/2021	The Global Health Network (via Zoom)
3/2021	Korean Academy of Science (via Zoom)
4/2021	Symposium on Herd Immunity, Stanford University (via Zoom)
4/2021	The Alan Turing Institute (via Zoom)
5/2021	Harvard Radcliffe Institute (via Zoom)
6/2021	Thygeson Lecture, Department of Ophthalmology, University of California, San Francisco (via Zoom)
6/2021	Brookings Institution (via Zoom)
6/2021	Keynote Address, Society for Epidemiologic Research (via Zoom)
8/2021	Harvard School of Public Health (via Zoom)
11/2021	Royal Society of London (panel) (via Zoom)
2/2022	ProPublica and STAT (panel) (via Zoom)
5/2022	Nobel Symposia in Economics and Medicine (panel)
5/2022	Longwood Healthcare Leaders (panel)
6/2022	MIDAS Network (via Zoom)
10/2022	Harvard Chan Studio (panel) (via Zoom)
10/2022	FDA/CBER Biological Effectiveness and Safety (BEST) (via Zoom)
10/2022	Johns Hopkins School of Public Health, American Journal of Epidemiology 100 th Anniversary Symposium, Baltimore, MD
10/2022	Optum Healthcare Conference, Bloomington, MN
11/2022	Harvard School of Public Health (via Zoom)
11/2022	Keynote Address, Wellcome Sanger Institute Retreat, Hinxton, UK
12/2022	Yale University School of Public Health
1/2023	Public Services Council (via Zoom)
1/2023	Fields Institute, Toronto (via Zoom)
3/2023	Science for Decision Making Event for Senior Leaders, US CDC, Atlanta
4/2023	<u>Keynote</u> , Pathogens Project meeting, Geneva, Switzerland
4/2023	Panel member, launch of Lessons from the COVID War, National Academies of Science Engineering and Medicine, Washington, DC
5/2023	International Monetary Fund Independent Evaluation Office Seminar (<u>webinar</u>)
5-6/2023	Participant, Biosecurity in the Age of A.I., Rockefeller Bellagio Center, Italy

6/2023 Keynote, Rutgers Center for Population-Level Bioethics Retreat, Hastings, NY

6/2023 Panel member, Science Policy after the COVID-19 Crisis, American Enterprise Institute, Washington DC

6/2023 COVID-19 Scientific Interest Group, National Institutes of Health, Bethesda, MD

9/2023 IPC Think Tank, Chateau Bossey, Geneva, CH

9/2023 International Conference on Prevention and Infection Control, Geneva, CH

9/2023 Panel member, Precision Medicine Without Borders, Harvard Medical School, Boston, MA

11/2023 Infectious Diseases across Scales, Emory University, Atlanta, GA

11/2023 European Centers for Disease Control, Stockholm, Sweden (Zoom)

11/2023 Panel Member, Duke-Margolis Center for Health Policy, Washington, DC

2/2024 Center for International Security and Cooperation, Stanford University, CA

2/2024 Infectious Diseases Grand Rounds, Stanford University, CA

2/2024 Panel member, American Enterprise Institute, Washington, DC

2/2024 President's Dream Colloquium, Simon Fraser University, Vancouver, BC, Canada

2/2024 Fred Hutch Cancer Research Center, Seattle, WA

3/2024 Hayden-Farr Lecture, Division of Infectious Diseases, School of Medicine, University of Virginia, Charlottesville, VA

6/2024 Ecology and Evolution of Infectious Diseases conference, Stanford University, Stanford, CA

7/2024 Pandemic Sciences Institute, University of Oxford, Oxford, UK

7/2024 Oxford Brookes University, Oxford, UK

8/2024 Isaac Newton Institute, Cambridge University, Cambridge, UK (via Zoom)

9/2024 Department of Biology, Stanford University, Stanford, CA

9/2024 Proctor Foundation, University of California, San Francisco

9/2024 Kaiser Permanente Northern California, Oakland

10/2024 Korean Disease Control Agency, Seoul, Republic of Korea

10/2024 International Vaccine Institute, Seoul, Republic of Korea

11/2024 Southern University of Science and Technology, Shenzhen, PRC

11/2024 University of Hong Kong School of Public Health, Hong Kong

11/2024 Keynote Address: Infectious Diseases Modeling conference, Bangkok, Thailand

12/2024 Keynote Address: Deutsche Gesellschaft für Epidemiologie, Hamburg, DE (by zoom)

12/2024 Harvard-MIT Center for Regulatory Science, Boston, MA

12/2024 Harvard Student OpenBio Biosecurity Team, Cambridge, MA

1/2025 Panel discussion, National Academies of Science, Engineering and Medicine "Preventing Patient Zero", Washington, DC (by Zoom)

1/2025 Nuclear Threat Initiative NTI|Bio and Chinese Arms Control and Disarmament Association CACDA forum on Biosecurity (by Zoom)

1/2025 Columbia University Mailman School of Public Health, New York

RESEARCH SUPPORT:

Past Funding

- | | |
|-----------|---|
| 1997-1999 | NIH postdoctoral fellowship 1 F32 GM019182 Population Genetics of Bacterial Infection and Treatment. Role: PI |
| 1997-1999 | SmithKlineBeecham unrestricted educational grant. Effects of Antiviral Usage on Resistance in Herpes Simplex Virus, Type 1. Bruce R. Levin, PI. Role: Co-PI |
| 2001-2005 | NIH research grant R01 AI051929. Drug Resistance in Tuberculosis: Genetics and Dynamics. Eric Rubin, PI. Role: Co-PI |
| 2001-2006 | NIH research grant R01 AI48935. Vaccination and the Evolutionary Dynamics of Pneumococci. Role: PI |
| 2006-2011 | NIH research grant R01 AI048935 Mechanisms of Capsular Diversity in <i>Streptococcus pneumoniae</i> . Role: PI |
| 2002 | PhRMA Foundation Research Starter Grant. Planning and Assessing Antimicrobial Cycling and Other Interventions to Control Resistance in Hospitals. Role: PI |
| 2002-2006 | Ellison Foundation New Scientist in Global Infectious Diseases Award. Antibiotic Resistance in <i>Streptococcus pneumoniae</i> : Transmission Dynamics and Consequences for Public Health. Role: PI |
| 2003-2006 | NIH research grant 5 R21 AI055825. Epidemiologic Methods: Resistant Nosocomial Infections. Role: PI |
| 2004-2013 | NIH/NIAID R01 AI058736 (Freedberg). Optimizing HIV care in less developed countries. Role: Consortium Co-Investigator |
| 2006 | Taplin Foundation Equipment Grant, Harvard School of Public Health. |
| 2006 | NIAID/TIGR Pathogen Functional Genomics Resource Center grant of access to free microarrays. Effects of Host Immunity on Pneumococcal Gene Expression. Role: PI |

- 2006-2009 NIH cooperative agreement U01 GM076497. Methodological Approaches to Planning and Analysis of New Infectious Diseases. Role: PI. Replaced by U54 GM088558.
- 2006-2016 NIH/NIAID R01 AI066304 (Finkelstein). Conjugate Vaccine Impact of Pneumococcal Carriage, Disease, and Population (SPARC2). Role: Consortium PI
- 2010-2014 NIH/NIMH R01 MH087328 (Seage). Modeling the Impact of HIV Prevention Interventions (CEPAC Dynamic). Role: Co-PI
- 2011-2016 NIH/NIGMS R01 GM100467 (Shaman). Influenza Outbreak Prediction: Applying Data Assimilation Methodologies to Make Skillful Forecasts of an Inherently Chaotic, Nonlinear System. Role: Consortium PI
- 2012-2018 NIH/NIAID R01 AI048935. Mechanisms and Population Genomics of Pneumococcal Antigenic Diversity. Role: PI
- 2013-2019 NIH/NIGMS R01 AI106786-05 NCE (PI: Hanage). Ecological and Genetic Contributions to the Spread of Resistance in Pnumococcus. Role: Co-PI
- 2014-2018 Pfizer Inc. (No number). Modeling serotype replacement with Prevnar13 using an agent-based model (Phase 2). Role: PI
- 2014-2018 NIH/NIGMS R01 GM116525-03 (Seage). Calibration and Simulation of the Botswana Combination Prevention Project. Role: Co-PI
- 2014-2018 Program for Appropriate Technology in Health. 1773-00460733-COL. Modeling pneumococcal population dynamics under serotype-nonspecific vaccination. Role: PI
- 2015-2018 NIH/NIAID R21 AI112991-02 NCE (Huttenhower). Staphylococcus Aureus Carriage and the Nasal Microbiome. Role: Co-PI
- 2015-2020 NIH/NIGMS R01 GM113233 (Wargo). The impacts of host vaccination and selective breeding for disease resistance on pathogen transmission and ecology in freshwater aquaculture. Role: Consortium PI
- 2017-2019 Pfizer Inc. CP147216 (Lipsitch/Lewnard). Quantifying pneumococcal conjugate vaccine impact against otitis media. Role: Co-PI
- 2017-2020 CDC 1 U01 CK000538-01 (Samore). Modeling and simulation to support antibiotic stewardship and epidemiological decision-making in healthcare settings. Role: Consortium PI

2014-2021	NIH/NIGMS U54 GM088558. MIDAS Center for Communicable Disease Dynamics. Role: PI
2018-2022	NIH/NIAID 5 R01 AI128344-01 (Hanage). Deep sequencing of pathogens to precisely define transmission networks using rare variants. Role: Co-PI
2018-2021	National Institute for Health Research. PR-OD-1017-20006 (PI: Cooper / University of Oxford). Leveraging Pathogen Sequence Data and Adaptive Designs to Improve Vaccine Trials in Emerging Epidemics in LMICs. Role: Consortium PI
2018-2020	Pfizer Inc. A34479 (Lewnard). Changes in antimicrobial prescribing for otitis media in the era of pneumococcal conjugate vaccination. Role: Co-PI
2020-2022	Wellcome Trust. 219759/Z/19/Z. Vaccine-avertable antimicrobial prescribing from influenza and RSV: a mixed-methods observational study. Role: PI
2020-2022	Wellcome Trust. 219812/Z/19/Z (Grad). Reducing antibiotic prescribing through a prioritized vaccination strategy. Role: Co-PI
2022 (gift)	Heinz Family Foundation Operating Gift to CCDD.
2022 (gift)	Good Ventures Foundation Operating gift to CCDD.
2023 (gift)	Effective Ventures Operating Gift to CCDD.
2019-2024	CDC U01 IP001121-02 (PI: Rosenfeld / Carnegie Mellon University). Delphi Influenza Forecasting Center of Excellence. Role: Consortium PI
2021-2024	R01 GM139926 University of Michigan (Shi). Accounting for Hidden Bias in Vaccine Studies: A Negative Control Framework. Role: subcontract PI
2020-2025	CDC U01 CK000585-01 (Samore). Modeling and Simulation to support Epidemiological decision-making in Healthcare settings. Role: Consortium PI
2021-2025	CDC Intergovernmental Personnel Agreement (IPA). Center for Forecasting and Outbreak Analytics.
2023-2025	CDC Intergovernmental Personnel Agreement (IPA). National Center for Immunization and Respiratory Diseases. Division of Bacterial Diseases.

Current Funding

- 2020-2025 Open Philanthropy Project / Silicon Valley Community Foundation. 2020-211809. Research and Policy Activities on Biosafety and Biosecurity. Role: PI
- 2020-2025 NIH/NCI U01 CA261277-01. Causal, Statistical and Mathematical Modeling with Serologic Data. Role: PI
- 2020-present Morris-Singer Foundation. Morris-Singer Fund for the Center for Communicable Disease Dynamics. Role: PI
- 2020-present NIH/NIAID 2T32AI007535 Epidemiology of Infectious Diseases. Training grant for 5 predoc, 2 postdocs. Role: PI (previously co-PI, became PI 2020)
- 2022 (gift) Waking Up Foundation Operating gift to CCDD.
- 2023 (gift) DALHAP (Do as Little Harm as Possible) Operating gift to CCDD.
- 2023 (gift) VK CCDD Fund Operating gift to CCDD.
- 2025 (gift) Drue and H.J. Heinz II Charitable Trust Operating gift to CCDD.

Pending Funding

- 2025 NIH R01: Human Papillomavirus coinfections and cancer: effects of vaccine-induced eliminations (PI Dillner). Role: Subcontract PI.

TEACHING EXPERIENCE:

Full Courses

Biostatistics 516: Inferential Methods for Infectious Diseases. Co-developer and co-instructor of course.

Taught 2011 (Spring 2)

Epidemiology 260: Mathematical Models of Infectious Diseases: Developed course, sole instructor.

Taught 2001, 2002, 2003, 2005, 2007, 2009, 2011, 2014, 2016, 2018, 2020, 2023, 2024, 2025 always d period (Spring 2).

Interdepartmental 267-268: Seminar in Infectious Disease Epidemiology: Developed and taught course jointly with Dr. Megan Murray in 2000; sole instructor in 2001 and 2002. *Taught 2000-2001 as full year; taught 2001 and 2002 as fall only (ID267ab).*

Interdepartmental 298: Inference in Infectious Disease Epidemiology. Developed course, sole instructor. *Taught 2005, 2007 winter session.*

Epidemiology 502: Biology and Epidemiology of Antibiotic Resistance. Co-developed and co-taught course with Dr. Gili Regev-Yochay. *Taught 2008, 2010, 2012, 2014, 2016, 2018, 2020 winter session, 2023, 2024, 2025.*

Participation

Epidemiology 201: Introduction to Epidemiology. One week each year (2 2-hr. lectures). *Taught 2000-2007; coinstructor 2005-7.*

Epidemiology 200: Principles of Epidemiology. One lecture per year. *Taught 2000-2005; coinstructor 2005-7.*

Epidemiology 289: two lectures on Infectious Disease Epidemiology, 2010

Interdepartmental 229: Epidemiology of Infectious Diseases of Importance in Developing Countries (and predecessors). One lecture per year. *Taught 2000-2006.*

DBS205: Biological Sciences Seminars. One presentation of research per year. *Taught 2002, 2005, 2015.*

RDS281 (now 285): Decision Analysis Methods in Public Health and Medicine. One lecture on infectious diseases and dynamic modeling. *Taught 2002-2007, 2010.*

IMI225 Design and Development of a vaccine. One lecture per year. *Taught 2007.*

IMI227 Genetics of Infectious Disease. One lecture per year. *Taught 2007-8.*

Epidemiology 205: Practice of Epidemiology. Supervised one student. *Participated 2000.*

Epidemiology 294: Screening. Two lectures on introductory Infectious Disease Epidemiology
2011, (Spring 2)

ID517 Public Health Response to Mass Emergencies. One lecture.
Taught 2008.

Life Sciences 120 (Harvard College): Global Health Threats.
One to three lectures, 2011, 2012, 2016

Probabilistic Risk Analysis (HSPH Continuing Education). One lecture per year.
Taught 2002-2004.

Health Science & Technology Microbiology (HMS). One lecture per year.
Taught 2002, 2003, 2005, 2007, 2008, 2009.

Modern Medical Microbe Hunters (HMS). One lecture per year.
Taught 2000, 2001, 2002, 2004.

Epidemiology 513: Issues in the Reporting of Clinical Trials. *Guest lecture 2011.*

Epidemiology 203. Four, 2-hour lectures per year on infectious disease epidemiology
2012, 2014, 2016, 2017, 2018, 2019, 2023, 2024, 2025

ID250 Ethical Basis of Public Health Practice. One lecture per year
Guest lecture 2015

GHP539 Control of Infectious Diseases in Low/Mid Income Countries: Social, Political
and Economic dimensions
Guest lecture 2017

MPH100
Guest lecture 2019, 2020 (Spring and Fall)

MPH105
Guest lecture 2021, 2022, 2023, 2024 (1-2 per year)

Harvard College Gen Ed 1098 Natural Disasters
Guest lecture 2020

ID503 Vaccines
Guest lecture 2022, 2023

Short Courses Outside Harvard

Harvard-Karolinska Summer School on Modern Methods in Biostatistics and
Epidemiology, Treviso, Italy. Infectious Disease Epidemiology. Developed a 1-week
intensive introductory course with exercises and was sole instructor. *Taught 2005.*

Hong Kong Centre for Health Protection Short Course in Mathematical Modelling of Infectious Diseases. Participated in course development and taught three lectures. *Taught 2006.*

Infection and Immunity in Children, Department of Paediatrics, Oxford University, UK. Delivered 1 lecture by videolink. *Taught June 2010.*

Winter Forum – Pandemic 2011. Duke Global Health Institute and Office for Undergraduate Education, Durham, NC. Delivered one lecture by videolink. *Taught January 2011.*

Practical Short Course in Infectious Disease Modeling. National Center for Immunization and Respiratory Diseases, US Centers for Disease Control & Prevention (CDC). Course director (collaboratively with Hong Kong University and Imperial College London) and instructor. *Taught June 2011.*

Erasmus Summer Program, Erasmus University, Rotterdam, Netherlands. Master Class taught by videolink. *Taught August 2011.*

Short Course in Infectious Disease Modeling: Hong Kong University and HSPH CCDD: *Kuala Lumpur 2014, Bangkok 2012*

Course organizer and faculty: Short Course in Infectious Disease Modeling: HSPH CCDD, Imperial College London, Hong Kong University
Centers for Disease Control and Prevention 2011, 2014

Faculty Guest Lecturer: ICARe (International course on Antibiotic Resistance), Pasteur Institute, at Fondation Merieux, Les Pensieres, France.
2018, 2019

Online Modules

Herd Immunity in: Vaccines 101, Harvard School of Public Health online course
Recorded Summer 2014

Heterogeneity in: Epidemics, University of Hong Kong HKUx EdX course
Recorded Summer 2014

Guest Teaching Outside Harvard

Georgetown University Department of Microbiology and Immunology: guest lecture in Science Diplomacy and World Health, Tomoko Steen instructor (2014, 2016)

Princeton University Woodrow Wilson School: guest lecture in Topics in Development: Global Challenges of Infection, Burden and Control, Adel Mahmoud and Bryan Grenfell instructors (2016, 2018)

Supervision

Research Scientist supervisor:

2005-2008	Krzysztof Trzcinski, D.V.M., Ph.D., Research Scientist
2008-2009	Krzysztof Trzcinski, D.V.M., Ph.D., Senior Research Scientist (now Assistant Professor, University of Utrecht, Netherlands)
2008-2010	Edward Goldstein, Ph.D., Research Scientist
2010-2018	Edward Goldstein, Ph.D., Senior Research Scientist
2019-2020	Rene Niehus, Ph.D, Research Associate. Now Mathematical Modeler, European CDC

Postdoctoral supervisor:

2001-2005	Krzysztof Trzcinski, D.V.M., Ph.D. Currently Principal Investigator, University of Utrecht, Netherlands.
2001-2002	Noman Siddiqi, Ph.D. (Co-supervisor with Eric Rubin). Currently BL3 Manager, Harvard School of Public Health
2001-2002	Susan Huang, M.D., M.P.H. (Secondary advisor). Currently Professor of Infectious Disease, University of California, Irvine).
2002-2003	Ben Cooper, Ph.D. Currently Professor, Nuffield Department of Medicine, University of Oxford.
2003-2005	Michael Palmer, Ph.D. Currently visiting scientist, Stanford University
2004-2008	Gili Regev-Yochay, M.D. Currently Professor, Tel Aviv University and Head of Infectious Diseases Epidemiology Unit, Gertner Institute, Tel Aviv, Israel.
2006-2008	Debby Bogaert, M.D., Ph.D. Currently Professor of Pediatric Infectious Diseases, University of Edinburgh
2008	Edward Goldstein, Ph.D.
2010	Daniel Weinberger, Ph.D. Currently Professor, Yale School of Public Health
2009-2011	Joel Miller, Ph.D. Currently Associate Professor, LaTrobe University, Australia
2010-2013	Sarah Cobey, Ph.D. Currently Professor of Ecology and Evolution, University of Chicago
2010-2014	Yuan Li, Ph.D. Currently Epidemiologist, CDC
2010-2014	Yonatan Grad, M.D., Ph.D. Currently Professor, Harvard TH Chan School of Public Health
2011-2013	Nicholas Croucher, Ph.D. (co-advisor with W. Hanage). Currently Associate Professor, Imperial College

2013-2016	Colin Worby, Ph.D. (co-advisor with W. Hanage) Currently Staff Scientist, Broad Institute.
2013-2019	Hsiao-Han Chang, Ph.D. (co-advisor with C. Buckee). Currently Associate Professor, National Tsing Hua University, Taiwan
2014-2016	Nadia Abuelezzam, Sc.D. (secondary advisor with George Seage). Currently Associate Professor, Michigan State University.
2014	Ben Althouse, Ph.D. (external faculty advisor for his Santa Fe Institute Postdoc), Currently Medical Affairs Lead, Pfizer
2015-2017	Kate Langwig, Ph.D. Currently Associate Professor of Ecology, Virginia Tech
2015-2018	Taj Azarian, Ph.D. Currently Assistant Professor of Medicine, Burnett School of Biomedical Sciences, Department of Molecular Microbiology, University of Central Florida College of Medicine
2015-2018	Brian Arnold, Ph.D. Currently Data Scientist, Princeton University
2015-2018	Maria Georgieva, Ph.D. Postdoctoral Fellow, Institute of Microbiology, University Hospital Lausanne
2016-2018	Samantha Palace, Ph.D. (co-supervisor with Y. Grad). Currently Research Scientist, Harvard Chan School of Public Health
2017-2018	Lucy Li, Ph.D., Currently Founder, Feature Health Inc.
2017-2018	Joseph Lewnard, Ph.D. Currently Associate Professor, Department of Epidemiology, UC Berkeley
2017-2019	Ayesha Mahmud, Ph.D. (Co-advisor with C. Buckee). Currently Assistant Professor, Department of Demography, UC Berkeley
2018-2021	Pamela Martinez, Ph.D. (Co-advisor with C. Buckee). Currently Assistant Professor, University of Illinois
2019-2022	Xueting Qiu, Ph.D. (Co-advisor with W. Hanage).
2019-2022	Lerato Magosi, D.Phil., Currently SEED Fellow, Wellcome Sanger Institute
2020	Lee Kennedy-Shaffer, Ph.D., Currently Assistant Professor, Yale School of Public Health
2020-2022	Rebecca Kahn, Ph.D., Currently Team Lead, CDC
2022-2025	Mui Pham, Ph.D.
2022-2024	Christopher Boyer, Ph.D., Currently Assistant Professor at Case Western University School of Medicine
2023-2025	Julia Deichmann, Ph.D.
2024-present	Juan Gago, Ph.D.
2025-present	Alaric D'Souza, M.D., Ph.D.
2025	Katherine Jia, Ph.D. Currently Postdoc, BU School of Public Health.

Doctoral student supervisor:

2000-2001	Ivo Foppa (Epi). Currently Head, Infectious disease epidemiology at Hessisches Landesamt für Gesundheit und Pflege, Germany
2000-2005	Hailay Teklehaimenot (Epi). Currently US CDC

2000-2001	Robert Suruki (Epi): completed doctoral studies with another advisor; currently at GlaxoSmithKline.
2001-2006	Christina Mills (Epi). Currently Attending Physician, Boston Children's Hospital Boston
2002-2005	Alethea McCormick (Epi). Currently Research Associate, Harvard School of Public Health
2002-2011	Sibel Ascioğlu (Epi). Currently at Glaxo SmithKline
2003-2008	Virginia Pitzer (Epi). Currently Professor, Yale School of Public Health
2004-2012	Jessica Hartman Jacobs (Epi)
2006-2012	Justin O'Hagan (Epi). Currently Head of Outcomes Research, Dengue, Merck.
2006-2010	Daniel Weinberger (BPH). Currently Professor, Yale School of Public Health
2007-2008	Chris Ford (BPH). Currently vice-president, Seres Biosciences.
2007-2008	Karell Pelle (BPH)
2014-2018	Matthew Hitchings (Epi). Currently Assistant Professor, University of Florida
2016-2020	Christine Tedijanto (Wen), currently Bill and Melinda Gates Foundation (Population Health Sciences/Epi)
2016-2021	Emma Accorsi, currently Epidemiologist, CDC (Population Health Sciences/Epi)
2018-2020	Rebecca Kahn, currently Team Lead, CDC (Population Health Sciences/Epi)
2019-2023	Keya Joshi, currently at Moderna (Population Health Sciences/Epi)
2021-2025	Katherine Jia (Population Health Sciences/Epi)
2021-present	Eva Rumppler (Population Health Sciences/Epi)
2022-2023	Taylor Chin, currently at Goldman Sachs (Population Health Sciences/Epi)
2022-2024	Nicole Kogan (Population Health Sciences/Epi)
2022-present	Alex Zapf (Population Health Sciences/Epi)
2023-present	Katherine Budeski (Epi)
2023-present	Indra Gonzalez Ojeda (Biophysics)
2024-present	Alec Aaron (Population Health Sciences/Epi)

Master's student supervisor:

2000-2002	Alison Han (MPH)
2000-2008	Catherine Laine (Epi MSc). Currently Founder and Deputy Director, Appropriate Infrastructure Development Group.
2001-2002	Benjamin Ip, MD (MPH)
2001-2002	Rajneesh Hazarika, MD (MPH)
2002-2004	Hoa Nguyen, MD (MS)
2003-2005	Dereje Dengela (MS)
2004-2005	Heather Green (MS)
2004-2005	Wei-yen Lim, MD (MPH)

2004-2005	Phil James, MD (MPH)
2005-2006	Jeffrey Cloud, MD (MPH)
2005-2006	Yen-Tsung Huang, MD (MPH)
2005-2006	Minghua Chen, MD (MPH)
2006-2007	Chou-Cheng Lai, MD (MS)
2006-2007	Jennifer Shuford, MD (MPH)
2006-2007	Chih-Hao Chen, MD (MS)
2006-2007	Mark Brady (MPH)
2007-2008	Indrajit Hazarika, MD (MPH)
2007-2008	Hyun Joon Shin, MD (MPH)
2007-2008	Amit Vora (MPH)
2005-2006	Christie Jeon (MS)
2004-2007	Gili Regev-Yochay, MD (MS)
2009-2011	Weixiong Ke
2010-2012	Karen Aanensen
2011-2013	Talia Quandelacy
2011-2013	Patrick Mitchell
2013-2014	Fausto Bustos
2016-2017	Say Tat Ooi, MD (MPH)
2016-2018	Michael Martin (MS)
2016-2018	Inga Holmdahl (MS)
2016-2018	Rebecca Kahn (MS)
2017-2019	Sarah Lapidus (MS)
2018-2020	Nancy Li (MS)
2019-2020	Eva Rumpler (MS)
2019-2021	Rafia Bosan (MS)
2022-2024	Eve Denayer Cumplido (MS)
2022-2024	Alicia Madden (MS)
2022-2023	Emnet Sisay (MS)
2023-2025	Ziyuan Zhang (MS)
2023-2024	Pooja Chitneni, MD (MS)
2024-present	Caroline Tangoren (MS)
2024-present	David Roach, PhD (MSc)

Undergraduate supervisor:

Summer 2001	Eneida Villanueva (Summer Minority Intern)
Fall 2001	Jonathan Burton-MacLeod (Bio 91r supervised reading, FAS)
2016-2018	Alan Yang (Supervised research)
Summer 2018	Tara E. Gallagher, Dartmouth College (Summer intern)
2021-2024	Aishani Aatresh (Supervised research)

Thesis committees:

2000-2001	Megan Murray (Dr. P.H., completed 2000-1)
2004-2007	Eben Kenah (Epidemiology)

2004-2005	Y. Claire Wang (Health Policy and Management)
2005	Seema Thakore Meloni (Ph.D., Biological Sciences in Public Health)
2005-2007	Mary Farrow (Ph.D., Biological Sciences in Public Health)
2007-2010	Kevin Chan (Population & International Health)
2008-2011	Amy Bei (Ph.D., Biological Sciences in Public Health)
2010-2013	Chris Ford (Ph.D., Biological Sciences in Public Health)
2010-2013	Regina Joice (Ph.D., Biological Sciences in Public Health)
2011	Rachel Daniels (Ph.D., Biological Sciences in Public Health)
2011-2017	Freeman Suber MD (Ph.D., Biological Sciences in Public Health)
2011-2012	Tami Lieberman (Ph.D., Systems Biology)
2011-2013	Wei Wu (Epidemiology)
2013	Opponent, PhD of Rolf Ypma, University of Utrecht
2014	Clare Louise Kinnear, PhD, The University of Melbourne (external examiner)
2015-2017	Corey Peak (SD, Epidemiology)
2015-2016	Patrick Mitchell (SD, Epidemiology)
2016	Hattie Chung (PhD, Systems Biology, Harvard GSAS), examination committee
2016	Nicole Espy (PhD, BPH, defense committee)
2015-2017	Quizhi Chang (SD, Epidemiology)
2017-2019	Eric Mooring (SD, Epidemiology)
2017-2018	Rebecca Mandt (PhD, BPH)
2017-2020	Sarah McGough (PhD, Population Health Sciences)
2018-2020	Lee Kennedy-Shaffer (PhD, Biostatistics)
2021-2023	Katherine Li (PhD, Population Health Sciences)
2023-2025	Anuraag Gopulani (PhD, Biostatistics)
2024-present	Léa Cavalli (PhD, Population Health Sciences)
2025-present	Jo Yi Chow (Nanyang Technical University, Singapore)

Oral exam committees:

2001	Yemane Yihdego (IID)
2001	Chris Mores (IID)
2002	Pride Chigwedere, MD (IID)
2004	Beth Ann Griffin (Biostatistics)
2004	Eben Kenah (Epidemiology)
2004	Laura Forsberg (Biostatistics)
2007	Kevin Chan (Population & International Health)
2008	Hsien-Ho Lin (Epidemiology)
2009	Regina Joice (BPH)
2009	Celene Chang (BPH)
2009	Kathleen Wirth (Epi)
2011	Freeman Suber (BPH)
2011	Wei Wu (Epi)
2012	Nicanor Rodriguez, DVM (IID)
2016	Corey Peak (Epi)
2016	Qiuzhi Chang (Epi)

Laboratory rotations supervised:

2000	Chun Chao (MS student, Immunology & Infectious Diseases)
2004	Adam MacNeil (PhD, Biological Sciences in Public Health)
2006	Daniel Weinberger (PhD, Biological Sciences in Public Health)
2006	Amy Bei (PhD, Biological Sciences in Public Health)
2008	Chris Ford (PhD, Biological Sciences in Public Health)
2009	Richa Gawande (PhD, Biological Sciences in Public Health)
2010	Sri Kalyanamaran (PhD, Biological Sciences in Public Health)
2011	Wen Xie (PhD, Biological Sciences in Public Health)
2016	Rebecca Mandt (PhD, Biological Sciences in Public Health)

SCHOOL AND DEPARTMENTAL SERVICE

Center for Communicable Disease Dynamics

- Founding director, 2009-present

Interdisciplinary Program in the Epidemiology of Infectious Disease

- Steering committee, 2000-present
- Seminar Coordinator, 2000-present
- Associate Director, 2004-2021
- Director, 2021-present

Biological Sciences in Public Health Program

- Admissions interviewer, 2001-present
- Curriculum Committee, 2006-2012

Department of Epidemiology

- Co-leader, department retreat, 2001
- Admissions committee, 2001-present
- Mental Health Committee, 2023-present

HSPH Epidemiology and Biostatistics Planning Committee: member, 2003-2004

HSPH Allston Planning Committee: member, 2003-2004

HSPH Information Technology Advisory Committee: member, 2004-2005

HSPH Committee on Educational Policy: member, 2005-2008

HSPH Standing Committee on Appointments, Reappointments, and Promotions:
member, 2008-present, vice-chair 2010-2012, chair 2012-2013

University Pandemic Response Planning Committee: member, 2005-2021

Bioinformatics Junior Faculty Search Committee: member, 2007-2008

Epidemiology Methods Junior Faculty Search Committee: member, 2008

Epidemiology Infectious Diseases Junior Faculty Search Committee: chair, 2008

HSPH Committee on the Concerns of Women Faculty: member, 2010-2012

HMS Subcommittee on Admissions for the MD/PhD: member, 2010-2012, 2014-2022

Harvard University Office of Scholarly Communication Advisory Committee,
member, 2013-2022

Harvard T.H. Chan School of Public Health Dean Search Advisory Committee,
member, 2015

**Harvard T.H. Chan School of Public Health Faculty Judge, Postdoctoral
Association Travel Awards,** member, 2016

Epidemiology Junior Faculty Search Committee, 2017-2018, again in 2022

BIBLIOGRAPHY

Peer-Reviewed Articles

1. Petrie M, Lipsitch M. Avian polygyny is most likely in populations with high variability in heritable male fitness. *Proc R Soc Lond B*. 1994 Jun 22;256(1347):275-80. doi: [10.1098/rspb.1994.0081](https://doi.org/10.1098/rspb.1994.0081).
2. Lipsitch M, Nowak MA. The evolution of virulence in sexually transmitted HIV/AIDS. *J Theor Biol*. 1995 Jun 21;174(4):427-40. doi: [10.1006/jtbi.1995.0109](https://doi.org/10.1006/jtbi.1995.0109). PMID: 7666673.
3. Lipsitch M, Nowak MA, Ebert D, May RM. The population dynamics of vertically and horizontally transmitted parasites. *Proc Biol Sci*. 1995 Jun 22;260(1359):321-7. doi: [10.1098/rspb.1995.0099](https://doi.org/10.1098/rspb.1995.0099). PMID: 7630898.
4. Lipsitch M, Herre EA, Nowak MA. Host Population Structure and the Evolution of Virulence: A “Law Of Diminishing Returns”. *Evolution*. 1995 Aug;49(4):743-748. doi: [10.1111/j.1558-5646.1995.tb02310.x](https://doi.org/10.1111/j.1558-5646.1995.tb02310.x). PMID: 28565133.
5. Mangin KL, Lipsitch M, Ebert D. Virulence and transmission modes of two microsporidia in *Daphnia magna*. *Parasitology*. 1995;111(2):133-142. doi: [10.1017/S0031182000064878](https://doi.org/10.1017/S0031182000064878).
6. Lipsitch M, Siller S, Nowak MA. The Evolution of Virulence in Pathogens With Vertical and Horizontal Transmission. *Evolution*. 1996 Oct;50(5):1729-1741. doi: [10.1111/j.1558-5646.1996.tb03560.x](https://doi.org/10.1111/j.1558-5646.1996.tb03560.x). PMID: 28565576.
7. Lipsitch M, Moxon ER. Virulence and transmissibility of pathogens: what is the relationship? *Trends Microbiol*. 1997 Jan;5(1):31-7. doi: [10.1016/S0966-842X\(97\)81772-6](https://doi.org/10.1016/S0966-842X(97)81772-6). PMID: 9025233.
8. Antia R, Lipsitch M. Mathematical models of parasite responses to host immune defences. *Parasitology*. 1997;115 Suppl:S155-67. doi: [10.1017/s003118209700200x](https://doi.org/10.1017/s003118209700200x). PMID: 9571700.
9. Levin BR, Lipsitch M, Perrot V, Schrag S, Antia R, Simonsen L, Walker NM, Stewart FM. The population genetics of antibiotic resistance. *Clin Infect Dis*. 1997 Jan;24 Suppl 1:S9-16. doi: [10.1093/clinids/24.supplement_1.s9](https://doi.org/10.1093/clinids/24.supplement_1.s9). PMID: 8994776.
10. Lipsitch M, Levin BR. The within-host population dynamics of antibacterial chemotherapy: conditions for the evolution of resistance. *Ciba Found Symp*. 1997;207:112-27; discussion 127-30. doi: [10.1002/9780470515358.ch8](https://doi.org/10.1002/9780470515358.ch8). PMID: 9189638.
11. Lipsitch M, Levin BR. The population dynamics of antimicrobial chemotherapy. *Antimicrob Agents Chemother*. 1997 Feb;41(2):363-73. doi: [10.1128/AAC.41.2.363](https://doi.org/10.1128/AAC.41.2.363). PMID: 9021193; PMCID: PMC163715.
12. Lipsitch M. Vaccination against colonizing bacteria with multiple serotypes. *Proc Natl Acad Sci U S A*. 1997 Jun 10;94(12):6571-6. doi: [10.1073/pnas.94.12.6571](https://doi.org/10.1073/pnas.94.12.6571). PMID: 9177259; PMCID: PMC21091.
13. Lipsitch M. Evolution in health and disease. *Trends Microbiol*. 1997 Aug;5(8):303-5. doi: [10.1016/S0966-842X\(97\)01087-1](https://doi.org/10.1016/S0966-842X(97)01087-1). PMID: 9263405.
14. Datta A, Hendrix M, Lipsitch M, Jinks-Robertson S. Dual roles for DNA sequence identity and the mismatch repair system in the regulation of mitotic

- crossing-over in yeast. *Proc Natl Acad Sci U S A*. 1997 Sep 2;94(18):9757-62. doi: [10.1073/pnas.94.18.9757](https://doi.org/10.1073/pnas.94.18.9757). PMID: 9275197; PMCID: PMC23263.
15. Bonhoeffer S, Lipsitch M, Levin BR. Evaluating treatment protocols to prevent antibiotic resistance. *Proc Natl Acad Sci U S A*. 1997 Oct 28;94(22):12106-11. doi: [10.1073/pnas.94.22.12106](https://doi.org/10.1073/pnas.94.22.12106). PMID: 9342370; PMCID: PMC23718.
16. Lipsitch M. Transmission Rates and HIV Virulence: Comments to Massad. *Evolution*. 1997 Feb;51(1):319-320. doi: [10.1111/j.1558-5646.1997.tb02416.x](https://doi.org/10.1111/j.1558-5646.1997.tb02416.x). PMID: 28568797.
17. Levin BR, Antia R, Berliner E, Bloland P, Bonhoeffer S, Cohen M, DeRouin T, Fields PI, Jafari H, Jernigan D, Lipsitch M, McGowan JE Jr, Mead P, Nowak M, Porco T, Sykora P, Simonsen L, Spitznagel J, Tauxe R, Tenover F. Resistance to antimicrobial chemotherapy: a prescription for research and action. *Am J Med Sci*. 1998 Feb;315(2):87-94. doi: [10.1097/00000441-199802000-00004](https://doi.org/10.1097/00000441-199802000-00004). PMID: 9472907.
18. Lipsitch M, Levin BR. Population dynamics of tuberculosis treatment: mathematical models of the roles of non-compliance and bacterial heterogeneity in the evolution of drug resistance. *Int J Tuberc Lung Dis*. 1998 Mar;2(3):187-99. PMID: [9526190](https://pubmed.ncbi.nlm.nih.gov/9526190/).
19. Stewart FM, Antia R, Levin BR, Lipsitch M, Mittler JE. The population genetics of antibiotic resistance. II: Analytic theory for sustained populations of bacteria in a community of hosts. *Theor Popul Biol*. 1998 Apr;53(2):152-65. doi: [10.1006/tpbi.1997.1352](https://doi.org/10.1006/tpbi.1997.1352). PMID: 9615474.
20. Levin BR, Lipsitch M, Bonhoeffer S. Population biology, evolution, and infectious disease: convergence and synthesis. *Science*. 1999 Feb 5;283(5403):806-9. doi: [10.1126/science.283.5403.806](https://doi.org/10.1126/science.283.5403.806). PMID: 9933155.
21. Lipsitch M. Bacterial vaccines and serotype replacement: lessons from *Haemophilus influenzae* and prospects for *Streptococcus pneumoniae*. *Emerg Infect Dis*. 1999 May-Jun;5(3):336-45. doi: [10.3201/eid0503.990304](https://doi.org/10.3201/eid0503.990304). Erratum in: *Emerg Infect Dis* 1999 Sep-Oct;5(5):734. PMID: 10341170; PMCID: PMC2640786.
22. Lipsitch M, Bergstrom CT, Levin BR. The epidemiology of antibiotic resistance in hospitals: paradoxes and prescriptions. *Proc Natl Acad Sci U S A*. 2000 Feb 15;97(4):1938-43. doi: [10.1073/pnas.97.4.1938](https://doi.org/10.1073/pnas.97.4.1938). PMID: 10677558; PMCID: PMC26540.
23. Lipsitch M, Dykes JK, Johnson SE, Ades EW, King J, Briles DE, Carlone GM. Competition among *Streptococcus pneumoniae* for intranasal colonization in a mouse model. *Vaccine*. 2000 Jun 15;18(25):2895-901. doi: [10.1016/s0264-410x\(00\)00046-3](https://doi.org/10.1016/s0264-410x(00)00046-3). Erratum in: *Vaccine* 2000 Oct 15;19(4-5):598. PMID: 10812233.
24. Bergstrom CT, Lipsitch M, Levin BR. Natural selection, infectious transfer and the existence conditions for bacterial plasmids. *Genetics*. 2000 Aug;155(4):1505-19. PMID: [10924453](https://pubmed.ncbi.nlm.nih.gov/10924453/); PMCID: PMC1461221.
25. Negri MC, Lipsitch M, Blázquez J, Levin BR, Baquero F. Concentration-dependent selection of small phenotypic differences in TEM beta-lactamase-mediated antibiotic resistance. *Antimicrob Agents Chemother*. 2000

- Sep;44(9):2485-91. doi: [10.1128/aac.44.9.2485-2491.2000](https://doi.org/10.1128/aac.44.9.2485-2491.2000). PMID: 10952599; PMCID: PMC90089.
26. Lipsitch M, Bacon TH, Leary JJ, Antia R, Levin BR. Effects of antiviral usage on transmission dynamics of herpes simplex virus type 1 and on antiviral resistance: predictions of mathematical models. *Antimicrob Agents Chemother*. 2000 Oct;44(10):2824-35. doi: [10.1128/aac.44.10.2824-2835.2000](https://doi.org/10.1128/aac.44.10.2824-2835.2000). PMID: 10991866; PMCID: PMC90157.
27. Ebert D, Lipsitch M, Mangin KL. The Effect of Parasites on Host Population Density and Extinction: Experimental Epidemiology with *Daphnia* and Six Microparasites. *Am Nat*. 2000 Nov;156(5):459-477. doi: [10.1086/303404](https://doi.org/10.1086/303404). PMID: 29587512.
28. Lipsitch M. Measuring and interpreting associations between antibiotic use and penicillin resistance in *Streptococcus pneumoniae*. *Clin Infect Dis*. 2001 Apr 1;32(7):1044-54. doi: [10.1086/319604](https://doi.org/10.1086/319604). Epub 2001 Mar 23. PMID: 11264033.
29. Lipsitch M. Microbiology. Bacterial population genetics and disease. *Science*. 2001 Apr 6;292(5514):59-60. doi: [10.1126/science.1060498](https://doi.org/10.1126/science.1060498). PMID: 11294216.
30. Francis KP, Yu J, Bellinger-Kawahara C, Joh D, Hawkinson MJ, Xiao G, Purchio TF, Caparon MG, Lipsitch M, Contag PR. Visualizing pneumococcal infections in the lungs of live mice using bioluminescent *Streptococcus pneumoniae* transformed with a novel gram-positive lux transposon. *Infect Immun*. 2001 May;69(5):3350-8. doi: [10.1128/IAI.69.5.3350-3358.2001](https://doi.org/10.1128/IAI.69.5.3350-3358.2001). PMID: 11292758; PMCID: PMC98294.
31. Lipsitch M. Interpreting results from trials of pneumococcal conjugate vaccines: a statistical test for detecting vaccine-induced increases in carriage of nonvaccine serotypes. *Am J Epidemiol*. 2001 Jul 1;154(1):85-92. doi: [10.1093/aje/154.1.85](https://doi.org/10.1093/aje/154.1.85). PMID: 11427408.
32. Malley R, Lipsitch M, Stack A, Saladino R, Fleisher G, Pelton S, Thompson C, Briles D, Anderson P. Intranasal immunization with killed unencapsulated whole cells prevents colonization and invasive disease by capsulated pneumococci. *Infect Immun*. 2001 Aug;69(8):4870-3. doi: [10.1128/IAI.69.8.4870-4873.2001](https://doi.org/10.1128/IAI.69.8.4870-4873.2001). PMID: 11447162; PMCID: PMC98576.
33. Lipsitch M. The rise and fall of antimicrobial resistance. *Trends Microbiol*. 2001 Sep;9(9):438-44. doi: [10.1016/s0966-842x\(01\)02130-8](https://doi.org/10.1016/s0966-842x(01)02130-8). PMID: 11553456.
34. Bonten MJ, Austin DJ, Lipsitch M. Understanding the spread of antibiotic resistant pathogens in hospitals: mathematical models as tools for control. *Clin Infect Dis*. 2001 Nov 15;33(10):1739-46. doi: [10.1086/323761](https://doi.org/10.1086/323761). Epub 2001 Oct 10. PMID: 11595995.
35. Lipsitch M, Samore MH. Antimicrobial use and antimicrobial resistance: a population perspective. *Emerg Infect Dis*. 2002 Apr;8(4):347-54. doi: [10.3201/eid0804.010312](https://doi.org/10.3201/eid0804.010312). Erratum in: *Emerg Infect Dis* 2002 May;8(5):540. PMID: 11971765; PMCID: PMC2730242.
36. Lipsitch M, Singer RS, Levin BR. Antibiotics in agriculture: when is it time to close the barn door? *Proc Natl Acad Sci U S A*. 2002 Apr 30;99(9):5752-4. doi: [10.1073/pnas.092142499](https://doi.org/10.1073/pnas.092142499). PMID: 11983874; PMCID: PMC122845.
37. Harris AD, Samore MH, Lipsitch M, Kaye KS, Perencevich E, Carmeli Y. Control-group selection importance in studies of antimicrobial resistance:

- examples applied to *Pseudomonas aeruginosa*, *Enterococci*, and *Escherichia coli*. *Clin Infect Dis*. 2002 Jun 15;34(12):1558-63. doi: [10.1086/340533](https://doi.org/10.1086/340533). Epub 2002 May 23. PMID: 12032889.
38. Lipsitch M, Davis G, Corey L. Potential benefits of a serodiagnostic test for herpes simplex virus type 1 (HSV-1) to prevent neonatal HSV-1 infection. *Sex Transm Dis*. 2002 Jul;29(7):399-405. doi: [10.1097/00007435-200207000-00007](https://doi.org/10.1097/00007435-200207000-00007). PMID: 12170129.
39. Lipsitch M, Sousa AO. Historical intensity of natural selection for resistance to tuberculosis. *Genetics*. 2002 Aug;161(4):1599-607. PMID: [12196403](https://pubmed.ncbi.nlm.nih.gov/12196403/); PMCID: PMC1462208.
40. Fisman DN, Lipsitch M, Hook EW 3rd, Goldie SJ. Projection of the future dimensions and costs of the genital herpes simplex type 2 epidemic in the United States. *Sex Transm Dis*. 2002 Oct;29(10):608-22. doi: [10.1097/00007435-200210000-00008](https://doi.org/10.1097/00007435-200210000-00008). PMID: 12370529.
41. Singer RS, Finch R, Wegener HC, Bywater R, Walters J, Lipsitch M. Antibiotic resistance--the interplay between antibiotic use in animals and human beings. *Lancet Infect Dis*. 2003 Jan;3(1):47-51. doi: [10.1016/s1473-3099\(03\)00490-0](https://doi.org/10.1016/s1473-3099(03)00490-0). PMID: 12505035.
42. Lipsitch M, Bergstrom CT, Antia R. Effect of human leukocyte antigen heterozygosity on infectious disease outcome: the need for allele-specific measures. *BMC Med Genet*. 2003 Jan 24;4:2. doi: [10.1186/1471-2350-4-2](https://doi.org/10.1186/1471-2350-4-2). Epub 2003 Jan 24. PMID: 12542841; PMCID: PMC149356.
43. Malley R, Henneke P, Morse SC, Cieslewicz MJ, Lipsitch M, Thompson CM, Kurt-Jones E, Paton JC, Wessels MR, Golenbock DT. Recognition of pneumolysin by Toll-like receptor 4 confers resistance to pneumococcal infection. *Proc Natl Acad Sci U S A*. 2003 Feb 18;100(4):1966-71. doi: [10.1073/pnas.0435928100](https://doi.org/10.1073/pnas.0435928100). Epub 2003 Feb 4. PMID: 12569171; PMCID: PMC149942.
44. O'Brien KL, Nohynek H; World Health Organization Pneumococcal Vaccine Trials Carriage Working Group. Report from a WHO working group: standard method for detecting upper respiratory carriage of *Streptococcus pneumoniae*. *Pediatr Infect Dis J*. 2003 Feb;22(2):133-40. doi: [10.1097/01.inf.0000048676.93549.d1](https://doi.org/10.1097/01.inf.0000048676.93549.d1). PMID: 12586977.
45. Lipsitch M, Murray MB. Multiple equilibria: tuberculosis transmission require unrealistic assumptions. *Theor Popul Biol*. 2003 Mar;63(2):169-70. doi: [10.1016/s0040-5809\(02\)00037-0](https://doi.org/10.1016/s0040-5809(02)00037-0). PMID: 12615499.
46. McCormick AW, Whitney CG, Farley MM, Lynfield R, Harrison LH, Bennett NM, Schaffner W, Reingold A, Hadler J, Cieslak P, Samore MH, Lipsitch M. Geographic diversity and temporal trends of antimicrobial resistance in *Streptococcus pneumoniae* in the United States. *Nat Med*. 2003 Apr;9(4):424-30. doi: [10.1038/nm839](https://doi.org/10.1038/nm839). Epub 2003 Mar 10. PMID: 12627227.
47. Lipsitch M, Cohen T, Cooper B, Robins JM, Ma S, James L, Gopalakrishna G, Chew SK, Tan CC, Samore MH, Fisman D, Murray M. Transmission dynamics and control of severe acute respiratory syndrome. *Science*. 2003 Jun 20;300(5627):1966-70. doi: [10.1126/science.1086616](https://doi.org/10.1126/science.1086616). Epub 2003 May 23. PMID: 12766207; PMCID: PMC2760158.

48. Trzcinski K, Thompson CM, Lipsitch M. Construction of otherwise isogenic serotype 6B, 7F, 14, and 19F capsular variants of *Streptococcus pneumoniae* strain TIGR4. *Appl Environ Microbiol*. 2003 Dec;69(12):7364-70. doi: [10.1128/aem.69.12.7364-7370.2003](https://doi.org/10.1128/aem.69.12.7364-7370.2003). PMID: 14660386; PMCID: PMC309976.
49. Cooper B, Lipsitch M. The analysis of hospital infection data using hidden Markov models. *Biostatistics*. 2004 Apr;5(2):223-37. doi: [10.1093/biostatistics/5.2.223](https://doi.org/10.1093/biostatistics/5.2.223). PMID: 15054027.
50. Perencevich EN, Fisman DN, Lipsitch M, Harris AD, Morris JG Jr, Smith DL. Projected benefits of active surveillance for vancomycin-resistant enterococci in intensive care units. *Clin Infect Dis*. 2004 Apr 15;38(8):1108-15. doi: [10.1086/382886](https://doi.org/10.1086/382886). Epub 2004 Apr 5. PMID: 15095215.
51. Trzcinski K, Thompson CM, Lipsitch M. Single-step capsular transformation and acquisition of penicillin resistance in *Streptococcus pneumoniae*. *J Bacteriol*. 2004 Jun;186(11):3447-52. doi: [10.1128/JB.186.11.3447-3452.2004](https://doi.org/10.1128/JB.186.11.3447-3452.2004). PMID: 15150231; PMCID: PMC415782.
52. Laine C, Mwangi T, Thompson CM, Obiero J, Lipsitch M, Scott JA. Age-specific immunoglobulin g (IgG) and IgA to pneumococcal protein antigens in a population in coastal kenya. *Infect Immun*. 2004 Jun;72(6):3331-5. doi: [10.1128/IAI.72.6.3331-3335.2004](https://doi.org/10.1128/IAI.72.6.3331-3335.2004). PMID: 15155637; PMCID: PMC415695.
53. Teklehaimanot HD, Schwatz J, Teklehaimanot A, Lipsitch M. Alert threshold algorithms and malaria epidemic detection. *Emerg Infect Dis*. 2004 Jul;10(7):1220-6. doi: [10.3201/eid1007.030722](https://doi.org/10.3201/eid1007.030722). PMID: 15324541; PMCID: PMC3323320.
54. Bergstrom CT, Lo M, Lipsitch M. Ecological theory suggests that antimicrobial cycling will not reduce antimicrobial resistance in hospitals. *Proc Natl Acad Sci U S A*. 2004 Sep 7;101(36):13285-90. doi: [10.1073/pnas.0402298101](https://doi.org/10.1073/pnas.0402298101). Epub 2004 Aug 12. PMID: 15308772; PMCID: PMC516561.
55. Lipsitch M, Bergstrom CT. Invited commentary: real-time tracking of control measures for emerging infections. *Am J Epidemiol*. 2004 Sep 15;160(6):517-9; discussion 520. doi: [10.1093/aje/kwh256](https://doi.org/10.1093/aje/kwh256). PMID: 15353410.
56. Teklehaimanot HD, Lipsitch M, Teklehaimanot A, Schwartz J. Weather-based prediction of *Plasmodium falciparum* malaria in epidemic-prone regions of Ethiopia I. Patterns of lagged weather effects reflect biological mechanisms. *Malar J*. 2004 Nov 12;3:41. doi: [10.1186/1475-2875-3-41](https://doi.org/10.1186/1475-2875-3-41). PMID: 15541174; PMCID: PMC535540.
57. Teklehaimanot HD, Schwartz J, Teklehaimanot A, Lipsitch M. Weather-based prediction of *Plasmodium falciparum* malaria in epidemic-prone regions of Ethiopia II. Weather-based prediction systems perform comparably to early detection systems in identifying times for interventions. *Malar J*. 2004 Nov 19;3:44. doi: [10.1186/1475-2875-3-44](https://doi.org/10.1186/1475-2875-3-44). PMID: 15555061; PMCID: PMC535541.
58. Mills CE, Robins JM, Lipsitch M. Transmissibility of 1918 pandemic influenza. *Nature*. 2004 Dec 16;432(7019):904-6. doi: [10.1038/nature03063](https://doi.org/10.1038/nature03063). PMID: 15602562; PMCID: PMC7095078.
59. Lipsitch M, Whitney CG, Zell E, Kajjalainen T, Dagan R, Malley R. Are anticapsular antibodies the primary mechanism of protection against invasive pneumococcal disease? *PLoS Med*. 2005 Jan;2(1):e15. doi:

- [10.1371/journal.pmed.0020015](https://doi.org/10.1371/journal.pmed.0020015). Epub 2005 Jan 25. PMID: 15696204; PMCID: PMC545206.
60. Lipsitch M. Ethics of rationing the flu vaccine. *Science*. 2005 Jan 7;307(5706):41. doi: [10.1126/science.307.5706.41b](https://doi.org/10.1126/science.307.5706.41b). PMID: 15637252.
61. Malley R, Trzcinski K, Srivastava A, Thompson CM, Anderson PW, Lipsitch M. CD4+ T cells mediate antibody-independent acquired immunity to pneumococcal colonization. *Proc Natl Acad Sci U S A*. 2005 Mar 29;102(13):4848-53. doi: [10.1073/pnas.0501254102](https://doi.org/10.1073/pnas.0501254102). Epub 2005 Mar 21. PMID: 15781870; PMCID: PMC555733.
62. Trzciński K, MacNeil A, Klugman KP, Lipsitch M. Capsule homology does not increase the frequency of transformation of linked penicillin binding proteins PBP 1a and PBP 2x in *Streptococcus pneumoniae*. *Antimicrob Agents Chemother*. 2005 Apr;49(4):1591-2. doi: [10.1128/AAC.49.4.1591-1592.2005](https://doi.org/10.1128/AAC.49.4.1591-1592.2005). PMID: 15793147; PMCID: PMC1068637.
63. Lipsitch M. Pandemic flu: we are not prepared. *MedGenMed*. 2005 Apr 15;7(2):56. PMID: [16369434](https://pubmed.ncbi.nlm.nih.gov/16369434/); PMCID: PMC1681602.
64. Huang SS, Finkelstein JA, Lipsitch M. Modeling community- and individual-level effects of child-care center attendance on pneumococcal carriage. *Clin Infect Dis*. 2005 May 1;40(9):1215-22. doi: [10.1086/428580](https://doi.org/10.1086/428580). Epub 2005 Mar 23. PMID: 15825020.
65. Dagan R, Givon-Lavi N, Fraser D, Lipsitch M, Siber GR, Kohberger R. Serum serotype-specific pneumococcal anticapsular immunoglobulin g concentrations after immunization with a 9-valent conjugate pneumococcal vaccine correlate with nasopharyngeal acquisition of pneumococcus. *J Infect Dis*. 2005 Aug 1;192(3):367-76. doi: [10.1086/431679](https://doi.org/10.1086/431679). Epub 2005 Jun 28. PMID: 15995949.
66. Trzcinski K, Thompson C, Malley R, Lipsitch M. Antibodies to conserved pneumococcal antigens correlate with, but are not required for, protection against pneumococcal colonization induced by prior exposure in a mouse model. *Infect Immun*. 2005 Oct;73(10):7043-6. doi: [10.1128/IAI.73.10.7043-7046.2005](https://doi.org/10.1128/IAI.73.10.7043-7046.2005). PMID: 16177389; PMCID: PMC1230924.
67. Samore MH, Lipsitch M, Alder SC, Haddadin B, Stoddard G, Williamson J, Sebastian K, Carroll K, Ergonul O, Carmeli Y, Sande MA. Mechanisms by which antibiotics promote dissemination of resistant pneumococci in human populations. *Am J Epidemiol*. 2006 Jan 15;163(2):160-70. doi: [10.1093/aje/kwj021](https://doi.org/10.1093/aje/kwj021). Epub 2005 Nov 30. PMID: 16319292.
68. Asquith B, Edwards CT, Lipsitch M, McLean AR. Inefficient cytotoxic T lymphocyte-mediated killing of HIV-1-infected cells in vivo. *PLoS Biol*. 2006 Apr;4(4):e90. doi: [10.1371/journal.pbio.0040090](https://doi.org/10.1371/journal.pbio.0040090). Epub 2006 Mar 14. PMID: 16515366; PMCID: PMC1395353.
69. Malley R, Srivastava A, Lipsitch M, Thompson CM, Watkins C, Tzianabos A, Anderson PW. Antibody-independent, interleukin-17A-mediated, cross-serotype immunity to pneumococci in mice immunized intranasally with the cell wall polysaccharide. *Infect Immun*. 2006 Apr;74(4):2187-95. doi: [10.1128/IAI.74.4.2187-2195.2006](https://doi.org/10.1128/IAI.74.4.2187-2195.2006). PMID: 16552049; PMCID: PMC1418935.
70. Trzcinski K, Thompson CM, Gilbey AM, Dowson CG, Lipsitch M. Incremental increase in fitness cost with increased beta -lactam resistance in pneumococci

- evaluated by competition in an infant rat nasal colonization model. *J Infect Dis*. 2006 May 1;193(9):1296-303. doi: [10.1086/501367](https://doi.org/10.1086/501367). Epub 2006 Mar 17. PMID: 16586368.
71. Palmer ME, Lipsitch M. The influence of hitchhiking and deleterious mutation upon asexual mutation rates. *Genetics*. 2006 May;173(1):461-72. doi: [10.1534/genetics.105.049445](https://doi.org/10.1534/genetics.105.049445). Epub 2006 Feb 19. PMID: 16489233; PMCID: PMC1461451.
72. Cohen T, Lipsitch M, Walensky RP, Murray M. Beneficial and perverse effects of isoniazid preventive therapy for latent tuberculosis infection in HIV-tuberculosis coinfecting populations. *Proc Natl Acad Sci U S A*. 2006 May 2;103(18):7042-7. doi: [10.1073/pnas.0600349103](https://doi.org/10.1073/pnas.0600349103). Epub 2006 Apr 21. PMID: 16632605; PMCID: PMC1459015.
73. Lipsitch M, Robins JM, Mills CE, Bergstrom CT. Multiple outbreaks and flu containment plans. *Science*. 2006 May 12;312(5775):845. doi: [10.1126/science.312.5775.845b](https://doi.org/10.1126/science.312.5775.845b). PMID: 16690840.
74. Mills CE, Robins JM, Bergstrom CT, Lipsitch M. Pandemic influenza: risk of multiple introductions and the need to prepare for them. *PLoS Med*. 2006 Jun;3(6):e135. doi: [10.1371/journal.pmed.0030135](https://doi.org/10.1371/journal.pmed.0030135). PMID: 17214503; PMCID: PMC1370924.
75. Wang YC, Lipsitch M. Upgrading antibiotic use within a class: tradeoff between resistance and treatment success. *Proc Natl Acad Sci U S A*. 2006 Jun 20;103(25):9655-60. doi: [10.1073/pnas.0600636103](https://doi.org/10.1073/pnas.0600636103). Epub 2006 Jun 13. PMID: 16772381; PMCID: PMC1480462.
76. Regev-Yochay G, Trzeinski K, Thompson CM, Malley R, Lipsitch M. Interference between *Streptococcus pneumoniae* and *Staphylococcus aureus*: In vitro hydrogen peroxide-mediated killing by *Streptococcus pneumoniae*. *J Bacteriol*. 2006 Jul;188(13):4996-5001. doi: [10.1128/JB.00317-06](https://doi.org/10.1128/JB.00317-06). PMID: 16788209; PMCID: PMC1482988.
77. Lipsitch M, Cohen T, Murray M, Levin BR. Antiviral resistance and the control of pandemic influenza. *PLoS Med*. 2007 Jan;4(1):e15. doi: [10.1371/journal.pmed.0040015](https://doi.org/10.1371/journal.pmed.0040015). PMID: 17253900; PMCID: PMC1779817.
78. Hanage WP, Huang SS, Lipsitch M, Bishop CJ, Godoy D, Pelton SI, Goldstein R, Huot H, Finkelstein JA. Diversity and antibiotic resistance among nonvaccine serotypes of *Streptococcus pneumoniae* carriage isolates in the post-heptavalent conjugate vaccine era. *J Infect Dis*. 2007 Feb 1;195(3):347-52. doi: [10.1086/510249](https://doi.org/10.1086/510249). Epub 2006 Dec 27. PMID: 17205472.
79. Wallinga J, Lipsitch M. How generation intervals shape the relationship between growth rates and reproductive numbers. *Proc Biol Sci*. 2007 Feb 22;274(1609):599-604. doi: [10.1098/rspb.2006.3754](https://doi.org/10.1098/rspb.2006.3754). PMID: 17476782; PMCID: PMC1766383.
80. Högberg L, Geli P, Ringberg H, Melander E, Lipsitch M, Ekdahl K. Age- and serogroup-related differences in observed durations of nasopharyngeal carriage of penicillin-resistant pneumococci. *J Clin Microbiol*. 2007 Mar;45(3):948-52. doi: [10.1128/JCM.01913-06](https://doi.org/10.1128/JCM.01913-06). Epub 2007 Jan 3. PMID: 17202280; PMCID: PMC1829115.

81. McCormick AW, Walensky RP, Lipsitch M, Losina E, Hsu H, Weinstein MC, Paltiel AD, Freedberg KA, Seage GR 3rd. The effect of antiretroviral therapy on secondary transmission of HIV among men who have sex with men. *Clin Infect Dis*. 2007 Apr 15;44(8):1115-22. doi: [10.1086/512816](https://doi.org/10.1086/512816). Epub 2007 Mar 9. PMID: 17366461; PMCID: PMC2365722.
82. Hatchett RJ, Mecher CE, Lipsitch M. Public health interventions and epidemic intensity during the 1918 influenza pandemic. *Proc Natl Acad Sci U S A*. 2007 May 1;104(18):7582-7. doi: [10.1073/pnas.0610941104](https://doi.org/10.1073/pnas.0610941104). Epub 2007 Apr 6. PMID: 17416679; PMCID: PMC1849867.
83. Basset A, Trzcinski K, Hermos C, O'Brien KL, Reid R, Santosham M, McAdam AJ, Lipsitch M, Malley R. Association of the pneumococcal pilus with certain capsular serotypes but not with increased virulence. *J Clin Microbiol*. 2007 Jun;45(6):1684-9. doi: [10.1128/JCM.00265-07](https://doi.org/10.1128/JCM.00265-07). Epub 2007 Mar 28. PMID: 17392439; PMCID: PMC1933072.
84. Pitzer VE, Olsen SJ, Bergstrom CT, Dowell SF, Lipsitch M. Little evidence for genetic susceptibility to influenza A (H5N1) from family clustering data. *Emerg Infect Dis*. 2007 Jul;13(7):1074-6. doi: [10.3201/eid1307.061538](https://doi.org/10.3201/eid1307.061538). PMID: 18214184; PMCID: PMC2878232.
85. Pitzer VE, Leung GM, Lipsitch M. Estimating variability in the transmission of severe acute respiratory syndrome to household contacts in Hong Kong, China. *Am J Epidemiol*. 2007 Aug 1;166(3):355-63. doi: [10.1093/aje/kwm082](https://doi.org/10.1093/aje/kwm082). Epub 2007 May 10. PMID: 17493952; PMCID: PMC7110150.
86. Regev-Yochay G, Trzcinski K, Thompson CM, Lipsitch M, Malley R. SpxB is a suicide gene of *Streptococcus pneumoniae* and confers a selective advantage in an in vivo competitive colonization model. *J Bacteriol*. 2007 Sep;189(18):6532-9. doi: [10.1128/JB.00813-07](https://doi.org/10.1128/JB.00813-07). Epub 2007 Jul 13. PMID: 17631628; PMCID: PMC2045178.
87. Malley R, Lipsitch M, Bogaert D, Thompson CM, Hermans P, Watkins AC, Sethi S, Murphy TF. Serum antipneumococcal antibodies and pneumococcal colonization in adults with chronic obstructive pulmonary disease. *J Infect Dis*. 2007 Sep 15;196(6):928-35. doi: [10.1086/520937](https://doi.org/10.1086/520937). Epub 2007 Aug 7. PMID: 17703425.
88. Lipsitch M, O'Neill K, Cordy D, Bugalter B, Trzcinski K, Thompson CM, Goldstein R, Pelton S, Huot H, Bouchet V, Reid R, Santosham M, O'Brien KL. Strain characteristics of *Streptococcus pneumoniae* carriage and invasive disease isolates during a cluster-randomized clinical trial of the 7-valent pneumococcal conjugate vaccine. *J Infect Dis*. 2007 Oct 15;196(8):1221-7. doi: [10.1086/521831](https://doi.org/10.1086/521831). Epub 2007 Sep 17. PMID: 17955441; PMCID: PMC3350793.
89. Lipsitch M, O'Hagan JJ. Patterns of antigenic diversity and the mechanisms that maintain them. *J R Soc Interface*. 2007 Oct 22;4(16):787-802. doi: [10.1098/rsif.2007.0229](https://doi.org/10.1098/rsif.2007.0229). PMID: 17426010; PMCID: PMC2394542.
90. Basset A, Thompson CM, Hollingshead SK, Briles DE, Ades EW, Lipsitch M, Malley R. Antibody-independent, CD4+ T-cell-dependent protection against pneumococcal colonization elicited by intranasal immunization with purified pneumococcal proteins. *Infect Immun*. 2007 Nov;75(11):5460-4. doi:

- [10.1128/IAI.00773-07](#). Epub 2007 Aug 13. PMID: 17698570; PMCID: PMC2168310.
91. Regev-Yochay G, Malley R, Rubinstein E, Raz M, Dagan R, Lipsitch M. In vitro bactericidal activity of *Streptococcus pneumoniae* and bactericidal susceptibility of *Staphylococcus aureus* strains isolated from cocolonized versus noncocolonized children. *J Clin Microbiol*. 2008 Feb;46(2):747-9. doi: [10.1128/JCM.01781-07](#). Epub 2007 Nov 26. PMID: 18039795; PMCID: PMC2238136.
92. Dagan R, Barkai G, Givon-Lavi N, Sharf AZ, Vardy D, Cohen T, Lipsitch M, Greenberg D. Seasonality of antibiotic-resistant *streptococcus pneumoniae* that causes acute otitis media: a clue for an antibiotic-restriction policy? *J Infect Dis*. 2008 Apr 15;197(8):1094-102. doi: [10.1086/528995](#). PMID: 18419528; PMCID: PMC2652754.
93. Walensky RP, Wood R, Weinstein MC, Martinson NA, Losina E, Fofana MO, Goldie SJ, Divi N, Yazdanpanah Y, Wang B, Paltiel AD, Freedberg KA; CEPAC-International Investigators. Scaling up antiretroviral therapy in South Africa: the impact of speed on survival. *J Infect Dis*. 2008 May 1;197(9):1324-32. doi: [10.1086/587184](#). PMID: 18422445; PMCID: PMC2423492.
94. Kenah E, Lipsitch M, Robins JM. Generation interval contraction and epidemic data analysis. *Math Biosci*. 2008 May;213(1):71-9. doi: [10.1016/j.mbs.2008.02.007](#). Epub 2008 Feb 29. PMID: 18394654; PMCID: PMC2365921.
95. Weinberger DM, Dagan R, Givon-Lavi N, Regev-Yochay G, Malley R, Lipsitch M. Epidemiologic evidence for serotype-specific acquired immunity to pneumococcal carriage. *J Infect Dis*. 2008 Jun 1;197(11):1511-8. doi: [10.1086/587941](#). PMID: 18471062.
96. Trzciński K, Thompson CM, Srivastava A, Basset A, Malley R, Lipsitch M. Protection against nasopharyngeal colonization by *Streptococcus pneumoniae* is mediated by antigen-specific CD4+ T cells. *Infect Immun*. 2008 Jun;76(6):2678-84. doi: [10.1128/IAI.00141-08](#). Epub 2008 Apr 7. PMID: 18391006; PMCID: PMC2423086.
97. Cohen T, Lipsitch M. Too little of a good thing: a paradox of moderate infection control. *Epidemiology*. 2008 Jul;19(4):588-9. doi: [10.1097/EDE.0b013e31817734ba](#). PMID: 18552592; PMCID: PMC2652751.
98. Regev-Yochay G, Bogaert D, Malley R, Hermans PW, Veenhoven RH, Sanders EA, Lipsitch M, Rubinstein E. Does pneumococcal conjugate vaccine influence *Staphylococcus aureus* carriage in children? *Clin Infect Dis*. 2008 Jul 15;47(2):289-91; author reply 291-2. doi: [10.1086/589573](#). PMID: 18564933.
99. McDonnell Norms Group. Antibiotic overuse: the influence of social norms. *J Am Coll Surg*. 2008 Aug;207(2):265-75. doi: [10.1016/j.jamcollsurg.2008.02.035](#). Epub 2008 May 12. PMID: 18656057.
100. Lu YJ, Gross J, Bogaert D, Finn A, Bagrade L, Zhang Q, Kolls JK, Srivastava A, Lundgren A, Forte S, Thompson CM, Harney KF, Anderson PW, Lipsitch M, Malley R. Interleukin-17A mediates acquired immunity to pneumococcal colonization. *PLoS Pathog*. 2008 Sep 19;4(9):e1000159. doi: [10.1371/journal.ppat.1000159](#). PMID: 18802458; PMCID: PMC2528945.

101. Klugman KP, Astley CM, Lipsitch M. Time from illness onset to death, 1918 influenza and pneumococcal pneumonia. *Emerg Infect Dis.* 2009 Feb;15(2):346-7. doi: [10.3201/eid1502.081208](https://doi.org/10.3201/eid1502.081208). PMID: 19193293; PMCID: PMC2657896.
102. Lipsitch M, Viboud C. Influenza seasonality: lifting the fog. *Proc Natl Acad Sci U S A.* 2009 Mar 10;106(10):3645-6. doi: [10.1073/pnas.0900933106](https://doi.org/10.1073/pnas.0900933106). PMID: 19276125; PMCID: PMC2656132.
103. Regev-Yochay G, Lipsitch M, Basset A, Rubinstein E, Dagan R, Raz M, Malley R. The pneumococcal pilus predicts the absence of *Staphylococcus aureus* co-colonization in pneumococcal carriers. *Clin Infect Dis.* 2009 Mar 15;48(6):760-3. doi: [10.1086/597040](https://doi.org/10.1086/597040). PMID: 19207082; PMCID: PMC2674784.
104. Bogaert D, Weinberger D, Thompson C, Lipsitch M, Malley R. Impaired innate and adaptive immunity to *Streptococcus pneumoniae* and its effect on colonization in an infant mouse model. *Infect Immun.* 2009 Apr;77(4):1613-22. doi: [10.1128/IAI.00871-08](https://doi.org/10.1128/IAI.00871-08). Epub 2009 Jan 21. PMID: 19168741; PMCID: PMC2663178.
105. Wu JT, Leung GM, Lipsitch M, Cooper BS, Riley S. Hedging against antiviral resistance during the next influenza pandemic using small stockpiles of an alternative chemotherapy. *PLoS Med.* 2009 May 19;6(5):e1000085. doi: [10.1371/journal.pmed.1000085](https://doi.org/10.1371/journal.pmed.1000085). Epub 2009 May 19. PMID: 19440354; PMCID: PMC2680070.
106. Weinberger DM, Trzciński K, Lu YJ, Bogaert D, Brandes A, Galagan J, Anderson PW, Malley R, Lipsitch M. Pneumococcal capsular polysaccharide structure predicts serotype prevalence. *PLoS Pathog.* 2009 Jun;5(6):e1000476. doi: [10.1371/journal.ppat.1000476](https://doi.org/10.1371/journal.ppat.1000476). Epub 2009 Jun 12. PMID: 19521509; PMCID: PMC2689349.
107. Huang SS, Hinrichsen VL, Stevenson AE, Rifas-Shiman SL, Kleinman K, Pelton SI, Lipsitch M, Hanage WP, Lee GM, Finkelstein JA. Continued impact of pneumococcal conjugate vaccine on carriage in young children. *Pediatrics.* 2009 Jul;124(1):e1-11. doi: [10.1542/peds.2008-3099](https://doi.org/10.1542/peds.2008-3099). PMID: 19564254; PMCID: PMC2782668.
108. Lipsitch M, Riley S, Cauchemez S, Ghani AC, Ferguson NM. Managing and reducing uncertainty in an emerging influenza pandemic. *N Engl J Med.* 2009 Jul 9;361(2):112-5. doi: [10.1056/NEJMp0904380](https://doi.org/10.1056/NEJMp0904380). Epub 2009 May 27. PMID: 19474417; PMCID: PMC3066026.
109. Lee GM, Huang SS, Rifas-Shiman SL, Hinrichsen VL, Pelton SI, Kleinman K, Hanage WP, Lipsitch M, McAdam AJ, Finkelstein JA. Epidemiology and risk factors for *Staphylococcus aureus* colonization in children in the post-PCV7 era. *BMC Infect Dis.* 2009 Jul 11;9:110. doi: [10.1186/1471-2334-9-110](https://doi.org/10.1186/1471-2334-9-110). PMID: 19594890; PMCID: PMC2716346.
110. McCaw JM, Wood JG, McBryde ES, Nolan TM, Wu JT, Lipsitch M, McVernon J. Understanding Australia's influenza pandemic policy on the strategic use of the antiviral drug stockpile. *Med J Aust.* 2009 Aug 3;191(3):136-7. doi: [10.1186/1471-2334-9-110](https://doi.org/10.1186/1471-2334-9-110). PMID: 19645639; PMCID: PMC3073016.
111. Walensky RP, Wolf LL, Wood R, Fofana MO, Freedberg KA, Martinson NA, Paltiel AD, Anglaret X, Weinstein MC, Losina E; CEPAC (Cost-Effectiveness of Preventing AIDS Complications)-International Investigators. When to start

- antiretroviral therapy in resource-limited settings. *Ann Intern Med.* 2009 Aug 4;151(3):157-66. doi: [10.7326/0003-4819-151-3-200908040-00138](https://doi.org/10.7326/0003-4819-151-3-200908040-00138). Epub 2009 Jul 20. PMID: 19620143; PMCID: PMC3092478.
112. Goldstein E, Paur K, Fraser C, Kenah E, Wallinga J, Lipsitch M. Reproductive numbers, epidemic spread and control in a community of households. *Math Biosci.* 2009 Sep;221(1):11-25. doi: [10.1016/j.mbs.2009.06.002](https://doi.org/10.1016/j.mbs.2009.06.002). Epub 2009 Jun 25. PMID: 19559715; PMCID: PMC2731010.
113. Lipsitch M, Lajous M, O'Hagan JJ, Cohen T, Miller JC, Goldstein E, Danon L, Wallinga J, Riley S, Dowell SF, Reed C, McCarron M. Use of cumulative incidence of novel influenza A/H1N1 in foreign travelers to estimate lower bounds on cumulative incidence in Mexico. *PLoS One.* 2009 Sep 9;4(9):e6895. doi: [10.1371/journal.pone.0006895](https://doi.org/10.1371/journal.pone.0006895). PMID: 19742302; PMCID: PMC2731883.
114. Pitzer VE, Lipsitch M. Exploring the relationship between incidence and the average age of infection during seasonal epidemics. *J Theor Biol.* 2009 Sep 21;260(2):175-85. doi: [10.1016/j.jtbi.2009.06.008](https://doi.org/10.1016/j.jtbi.2009.06.008). Epub 2009 Jun 13. PMID: 19527734; PMCID: PMC2745250.
115. Losina E, Touré H, Uhler LM, Anglaret X, Paltiel AD, Balestre E, Walensky RP, Messou E, Weinstein MC, Dabis F, Freedberg KA; ART-LINC Collaboration of International Epidemiological Databases to Evaluate AIDS (IeDEA); CEPAC International investigators. Cost-effectiveness of preventing loss to follow-up in HIV treatment programs: a Côte d'Ivoire appraisal. *PLoS Med.* 2009 Oct;6(10):e1000173. doi: [10.1371/journal.pmed.1000173](https://doi.org/10.1371/journal.pmed.1000173). Epub 2009 Oct 27. PMID: 19859538; PMCID: PMC2762030.
116. Lipsitch M, Hayden FG, Cowling BJ, Leung GM. How to maintain surveillance for novel influenza A H1N1 when there are too many cases to count. *Lancet.* 2009 Oct 3;374(9696):1209-11. doi: [10.1016/S0140-6736\(09\)61377-5](https://doi.org/10.1016/S0140-6736(09)61377-5). Epub 2009 Aug 11. PMID: 19679345.
117. White LF, Wallinga J, Finelli L, Reed C, Riley S, Lipsitch M, Pagano M. Estimation of the reproductive number and the serial interval in early phase of the 2009 influenza A/H1N1 pandemic in the USA. *Influenza Other Respir Viruses.* 2009 Nov;3(6):267-76. doi: [10.1111/j.1750-2659.2009.00106.x](https://doi.org/10.1111/j.1750-2659.2009.00106.x). PMID: 19903209; PMCID: PMC2782458.
118. Presanis AM, De Angelis D; New York City Swine Flu Investigation Team, Hagy A, Reed C, Riley S, Cooper BS, Finelli L, Biedrzycki P, Lipsitch M. The severity of pandemic H1N1 influenza in the United States, from April to July 2009: a Bayesian analysis. *PLoS Med.* 2009 Dec;6(12):e1000207. doi: [10.1371/journal.pmed.1000207](https://doi.org/10.1371/journal.pmed.1000207). Epub 2009 Dec 8. PMID: 19997612; PMCID: PMC2784967.
119. Reed C, Angulo FJ, Swerdlow DL, Lipsitch M, Meltzer MI, Jernigan D, Finelli L. Estimates of the prevalence of pandemic (H1N1) 2009, United States, April-July 2009. *Emerg Infect Dis.* 2009 Dec;15(12):2004-7. doi: [10.3201/eid1512.091413](https://doi.org/10.3201/eid1512.091413). PMID: 19961687; PMCID: PMC3375879.
120. Lipsitch M, Colijn C, Cohen T, Hanage WP, Fraser C. No coexistence for free: neutral null models for multistrain pathogens. *Epidemics.* 2009 Mar;1(1):2-13. doi: [10.1016/j.epidem.2008.07.001](https://doi.org/10.1016/j.epidem.2008.07.001). Epub 2008 Nov 4. PMID: 21352747; PMCID: PMC3099423.

121. Goldstein E, Dushoff J, Ma J, Plotkin JB, Earn DJ, Lipsitch M. Reconstructing influenza incidence by deconvolution of daily mortality time series. *Proc Natl Acad Sci U S A*. 2009 Dec 22;106(51):21825-9. doi: [10.1073/pnas.0902958106](https://doi.org/10.1073/pnas.0902958106). Epub 2009 Dec 18. PMID: 20080801; PMCID: PMC2796142.
122. Bogaert D, Thompson CM, Trzcinski K, Malley R, Lipsitch M. The role of complement in innate and adaptive immunity to pneumococcal colonization and sepsis in a murine model. *Vaccine*. 2010 Jan 8;28(3):681-5. doi: [10.1016/j.vaccine.2009.10.085](https://doi.org/10.1016/j.vaccine.2009.10.085). Epub 2009 Nov 3. PMID: 19892042; PMCID: PMC2810519.
123. Wallinga J, van Boven M, Lipsitch M. Optimizing infectious disease interventions during an emerging epidemic. *Proc Natl Acad Sci U S A*. 2010 Jan 12;107(2):923-8. doi: [10.1073/pnas.0908491107](https://doi.org/10.1073/pnas.0908491107). Epub 2009 Dec 28. PMID: 20080777; PMCID: PMC2818907.
124. Shaman J, Pitzer VE, Viboud C, Grenfell BT, Lipsitch M. Absolute humidity and the seasonal onset of influenza in the continental United States. *PLoS Biol*. 2010 Feb 23;8(2):e1000316. doi: [10.1371/journal.pbio.1000316](https://doi.org/10.1371/journal.pbio.1000316). Erratum in: *PLoS Biol*. 2010;8(3). doi: [10.1371/annotation/35686514-b7a9-4f65-9663-7baefc0d63c0](https://doi.org/10.1371/annotation/35686514-b7a9-4f65-9663-7baefc0d63c0). PMID: 20186267; PMCID: PMC2826374.
125. Goldstein E, Miller JC, O'Hagan JJ, Lipsitch M. Pre-dispensing of antivirals to high-risk individuals in an influenza pandemic. *Influenza Other Respir Viruses*. 2010 Mar;4(2):101-12. doi: [10.1111/j.1750-2659.2009.00128.x](https://doi.org/10.1111/j.1750-2659.2009.00128.x). PMID: 20167050; PMCID: PMC3075926.
126. Lipsitch M, Tchetgen Tchetgen E, Cohen T. Negative controls: a tool for detecting confounding and bias in observational studies. *Epidemiology*. 2010 May;21(3):383-8. doi: [10.1097/EDE.0b013e3181d61eeb](https://doi.org/10.1097/EDE.0b013e3181d61eeb). Erratum in: *Epidemiology*. 2010 Jul;21(4):589. PMID: 20335814; PMCID: PMC3053408.
127. Miller JC, Danon L, O'Hagan JJ, Goldstein E, Lajous M, Lipsitch M. Student behavior during a school closure caused by pandemic influenza A/H1N1. *PLoS One*. 2010 May 5;5(5):e10425. doi: [10.1371/journal.pone.0010425](https://doi.org/10.1371/journal.pone.0010425). PMID: 20463960; PMCID: PMC2864742.
128. Goldstein E, Apolloni A, Lewis B, Miller JC, Macauley M, Eubank S, Lipsitch M, Wallinga J. Distribution of vaccine/antivirals and the 'least spread line' in a stratified population. *J R Soc Interface*. 2010 May 6;7(46):755-64. doi: [10.1098/rsif.2009.0393](https://doi.org/10.1098/rsif.2009.0393). Epub 2009 Oct 14. PMID: 19828505; PMCID: PMC2874227.
129. Lau LL, Cowling BJ, Fang VJ, Chan KH, Lau EH, Lipsitch M, Cheng CK, Houck PM, Uyeki TM, Peiris JS, Leung GM. Viral shedding and clinical illness in naturally acquired influenza virus infections. *J Infect Dis*. 2010 May 15;201(10):1509-16. doi: [10.1086/652241](https://doi.org/10.1086/652241). PMID: 20377412; PMCID: PMC3060408.
130. Van Kerkhove MD, Asikainen T, Becker NG, Bjorge S, Desenclos JC, dos Santos T, Fraser C, Leung GM, Lipsitch M, Longini IM Jr, McBryde ES, Roth CE, Shay DK, Smith DJ, Wallinga J, White PJ, Ferguson NM, Riley S; WHO Informal Network for Mathematical Modelling for Pandemic Influenza H1N1 2009 (Working Group on Data Needs). Studies needed to address public health challenges of the 2009 H1N1 influenza pandemic: insights from modeling. *PLoS*

- Med. 2010 Jun 1;7(6):e1000275. doi: [10.1371/journal.pmed.1000275](https://doi.org/10.1371/journal.pmed.1000275). PMID: 20532237; PMCID: PMC2879409.
131. Colijn C, Cohen T, Fraser C, Hanage W, Goldstein E, Givon-Lavi N, Dagan R, Lipsitch M. What is the mechanism for persistent coexistence of drug-susceptible and drug-resistant strains of *Streptococcus pneumoniae*? *J R Soc Interface*. 2010 Jun 6;7(47):905-19. doi: [10.1098/rsif.2009.0400](https://doi.org/10.1098/rsif.2009.0400). Epub 2009 Nov 25. PMID: 19940002; PMCID: PMC2871802.
132. Regev-Yochay G, Hanage WP, Trzcinski K, Rifas-Shiman SL, Lee G, Bessolo A, Huang SS, Pelton SI, McAdam AJ, Finkelstein JA, Lipsitch M, Malley R. Re-emergence of the type 1 pilus among *Streptococcus pneumoniae* isolates in Massachusetts, USA. *Vaccine*. 2010 Jul 5;28(30):4842-6. doi: [10.1016/j.vaccine.2010.04.042](https://doi.org/10.1016/j.vaccine.2010.04.042). Epub 2010 Apr 29. PMID: 20434550; PMCID: PMC2897942.
133. Goldstein E, Cowling BJ, O'Hagan JJ, Danon L, Fang VJ, Hagy A, Miller JC, Reshef D, Robins J, Biedrzycki P, Lipsitch M. Oseltamivir for treatment and prevention of pandemic influenza A/H1N1 virus infection in households, Milwaukee, 2009. *BMC Infect Dis*. 2010 Jul 20;10:211. doi: [10.1186/1471-2334-10-211](https://doi.org/10.1186/1471-2334-10-211). PMID: 20642862; PMCID: PMC2919545.
134. Walensky RP, Paltiel AD, Losina E, Morris BL, Scott CA, Rhode ER, Seage GR, Freedberg KA; CEPAC Investigators. Test and treat DC: forecasting the impact of a comprehensive HIV strategy in Washington DC. *Clin Infect Dis*. 2010 Aug 15;51(4):392-400. doi: [10.1086/655130](https://doi.org/10.1086/655130). Erratum in: *Clin Infect Dis*. 2011 Sep;53(5):502. PMID: 20617921; PMCID: PMC2906630.
135. Lajous M, Danon L, López-Ridaura R, Astley CM, Miller JC, Dowell SF, O'Hagan JJ, Goldstein E, Lipsitch M. Mobile messaging as surveillance tool during pandemic (H1N1) 2009, Mexico. *Emerg Infect Dis*. 2010 Sep;16(9):1488-9. doi: [10.3201/eid1609.100671](https://doi.org/10.3201/eid1609.100671). PMID: 20735942; PMCID: PMC3294993.
136. Rydzak CE, Cotich KL, Sax PE, Hsu HE, Wang B, Losina E, Freedberg KA, Weinstein MC, Goldie SJ; CEPAC Investigators. Assessing the performance of a computer-based policy model of HIV and AIDS. *PLoS One*. 2010 Sep 9;5(9):e12647. doi: [10.1371/journal.pone.0012647](https://doi.org/10.1371/journal.pone.0012647). PMID: 20844741; PMCID: PMC2936574.
137. Uhler LM, Kumarasamy N, Mayer KH, Saxena A, Losina E, Muniyandi M, Stoler AW, Lu Z, Walensky RP, Flanigan TP, Bender MA, Freedberg KA, Swaminathan S; CEPAC International investigators. Cost-effectiveness of HIV testing referral strategies among tuberculosis patients in India. *PLoS One*. 2010 Sep 16;5(9):e12747. doi: [10.1371/journal.pone.0012747](https://doi.org/10.1371/journal.pone.0012747). PMID: 20862279; PMCID: PMC2940842.
138. Weinberger DM, Harboe ZB, Sanders EA, Ndiritu M, Klugman KP, Rückinger S, Dagan R, Adegbola R, Cutts F, Johnson HL, O'Brien KL, Scott JA, Lipsitch M. Association of serotype with risk of death due to pneumococcal pneumonia: a meta-analysis. *Clin Infect Dis*. 2010 Sep 15;51(6):692-9. doi: [10.1086/655828](https://doi.org/10.1086/655828). PMID: 20715907; PMCID: PMC2927802.
139. Huang SS, Avery TR, Song Y, Elkins KR, Nguyen CC, Nutter SK, Nafday AA, Condon CJ, Chang MT, Chrest D, Boos J, Bobashev G, Wheaton W, Frank SA, Platt R, Lipsitch M, Bush RM, Eubank S, Burke DS, Lee BY. Quantifying

- interhospital patient sharing as a mechanism for infectious disease spread. *Infect Control Hosp Epidemiol*. 2010 Nov;31(11):1160-9. doi: [10.1086/656747](https://doi.org/10.1086/656747). PMID: 20874503; PMCID: PMC3064463.
140. Goldhaber-Fiebert JD, Lipsitch M, Mahal A, Zaslavsky AM, Salomon JA. Quantifying child mortality reductions related to measles vaccination. *PLoS One*. 2010 Nov 4;5(11):e13842. doi: [10.1371/journal.pone.0013842](https://doi.org/10.1371/journal.pone.0013842). PMID: 21079809; PMCID: PMC2973966.
141. Shaman J, Goldstein E, Lipsitch M. Absolute humidity and pandemic versus epidemic influenza. *Am J Epidemiol*. 2011 Jan 15;173(2):127-35. doi: [10.1093/aje/kwq347](https://doi.org/10.1093/aje/kwq347). Epub 2010 Nov 16. PMID: 21081646; PMCID: PMC3011950.
142. Yildirim I, Hanage WP, Lipsitch M, Shea KM, Stevenson A, Finkelstein J, Huang SS, Lee GM, Kleinman K, Pelton SI. Serotype specific invasive capacity and persistent reduction in invasive pneumococcal disease. *Vaccine*. 2010 Dec 16;29(2):283-8. doi: [10.1016/j.vaccine.2010.10.032](https://doi.org/10.1016/j.vaccine.2010.10.032). Epub 2010 Oct 26. PMID: 21029807; PMCID: PMC3139683.
143. Weinberger DM, Harboe ZB, Flasche S, Scott JA, Lipsitch M. Prediction of serotypes causing invasive pneumococcal disease in unvaccinated and vaccinated populations. *Epidemiology*. 2011 Mar;22(2):199-207. doi: [10.1097/EDE.0b013e3182087634](https://doi.org/10.1097/EDE.0b013e3182087634). PMID: 21646962; PMCID: PMC3142570.
144. Hanage WP, Bishop CJ, Huang SS, Stevenson AE, Pelton SI, Lipsitch M, Finkelstein JA. Carried pneumococci in Massachusetts children: the contribution of clonal expansion and serotype switching. *Pediatr Infect Dis J*. 2011 Apr;30(4):302-8. doi: [10.1097/INF.0b013e318201a154](https://doi.org/10.1097/INF.0b013e318201a154). PMID: 21085049; PMCID: PMC3175614.
145. Ciaranello AL, Lockman S, Freedberg KA, Hughes M, Chu J, Currier J, Wood R, Holmes CB, Pillay S, Conradie F, McIntyre J, Losina E, Walensky RP; CEPAC-International and OCTANE Investigators. First-line antiretroviral therapy after single-dose nevirapine exposure in South Africa: a cost-effectiveness analysis of the OCTANE trial. *AIDS*. 2011 Feb 20;25(4):479-92. doi: [10.1097/QAD.0b013e3283428cbe](https://doi.org/10.1097/QAD.0b013e3283428cbe). PMID: 21293199; PMCID: PMC3068908.
146. Hsu HE, Rydzak CE, Cotich KL, Wang B, Sax PE, Losina E, Freedberg KA, Goldie SJ, Lu Z, Walensky RP; CEPAC Investigators. Quantifying the risks and benefits of efavirenz use in HIV-infected women of childbearing age in the USA. *HIV Med*. 2011 Feb;12(2):97-108. doi: [10.1111/j.1468-1293.2010.00856.x](https://doi.org/10.1111/j.1468-1293.2010.00856.x). PMID: 20561082; PMCID: PMC3010302.
147. Ford CB, Lin PL, Chase MR, Shah RR, Iartchouk O, Galagan J, Mohaideen N, Ioerger TR, Sacchettini JC, Lipsitch M, Flynn JL, Fortune SM. Use of whole genome sequencing to estimate the mutation rate of *Mycobacterium tuberculosis* during latent infection. *Nat Genet*. 2011 May;43(5):482-6. doi: [10.1038/ng.811](https://doi.org/10.1038/ng.811). Epub 2011 Apr 24. PMID: 21516081; PMCID: PMC3101871.
148. Lipsitch M, Finelli L, Heffernan RT, Leung GM, Redd SC; 2009 H1n1 Surveillance Group. Improving the evidence base for decision making during a pandemic: the example of 2009 influenza A/H1N1. *Biosecur Bioterror*. 2011 Jun;9(2):89-115. doi: [10.1089/bsp.2011.0007](https://doi.org/10.1089/bsp.2011.0007). PMID: 21612363; PMCID: PMC3102310.

149. Smith J, Lipsitch M, Almond JW. Vaccine production, distribution, access, and uptake. *Lancet*. 2011 Jul 30;378(9789):428-38. doi: [10.1016/S0140-6736\(11\)60478-9](https://doi.org/10.1016/S0140-6736(11)60478-9). Epub 2011 Jun 12. PMID: 21664680; PMCID: PMC3164579.
150. Goldstein E, Cobey S, Takahashi S, Miller JC, Lipsitch M. Predicting the epidemic sizes of influenza A/H1N1, A/H3N2, and B: a statistical method. *PLoS Med*. 2011 Jul;8(7):e1001051. doi: [10.1371/journal.pmed.1001051](https://doi.org/10.1371/journal.pmed.1001051). Epub 2011 Jul 5. PMID: 21750666; PMCID: PMC3130020.
151. Mostofsky E, Lipsitch M, Regev-Yochay G. Is methicillin-resistant *Staphylococcus aureus* replacing methicillin-susceptible *S. aureus*? *J Antimicrob Chemother*. 2011 Oct;66(10):2199-214. doi: [10.1093/jac/dkr278](https://doi.org/10.1093/jac/dkr278). Epub 2011 Jul 7. PMID: 21737459; PMCID: PMC3172038.
152. Shaman J, Jeon CY, Giovannucci E, Lipsitch M. Shortcomings of vitamin D-based model simulations of seasonal influenza. *PLoS One*. 2011;6(6):e20743. doi: [10.1371/journal.pone.0020743](https://doi.org/10.1371/journal.pone.0020743). Epub 2011 Jun 3. PMID: 21677774; PMCID: PMC3108988.
153. Hernán MA, Lipsitch M. Oseltamivir and risk of lower respiratory tract complications in patients with flu symptoms: a meta-analysis of eleven randomized clinical trials. *Clin Infect Dis*. 2011 Aug 1;53(3):277-9. doi: [10.1093/cid/cir400](https://doi.org/10.1093/cid/cir400). Epub 2011 Jun 15. PMID: 21677258; PMCID: PMC3137795.
154. Goldstein E, Cowling BJ, Aiello AE, Takahashi S, King G, Lu Y, Lipsitch M. Estimating incidence curves of several infections using symptom surveillance data. *PLoS One*. 2011;6(8):e23380. doi: [10.1371/journal.pone.0023380](https://doi.org/10.1371/journal.pone.0023380). Epub 2011 Aug 24. PMID: 21887246; PMCID: PMC3160845.
155. Presanis AM, Pebody RG, Paterson BJ, Tom BD, Birrell PJ, Charlett A, Lipsitch M, De Angelis D. Changes in severity of 2009 pandemic A/H1N1 influenza in England: a Bayesian evidence synthesis. *BMJ*. 2011 Sep 8;343:d5408. doi: [10.1136/bmj.d5408](https://doi.org/10.1136/bmj.d5408). PMID: 21903689; PMCID: PMC3168935.
156. Hanage WP, Bishop CJ, Lee GM, Lipsitch M, Stevenson A, Rifas-Shiman SL, Pelton SI, Huang SS, Finkelstein JA. Clonal replacement among 19A *Streptococcus pneumoniae* in Massachusetts, prior to 13 valent conjugate vaccination. *Vaccine*. 2011 Nov 8;29(48):8877-81. doi: [10.1016/j.vaccine.2011.09.075](https://doi.org/10.1016/j.vaccine.2011.09.075). Epub 2011 Sep 29. PMID: 21964059; PMCID: PMC3221484.
157. Weinberger DM, Malley R, Lipsitch M. Serotype replacement in disease after pneumococcal vaccination. *Lancet*. 2011 Dec 3;378(9807):1962-73. doi: [10.1016/S0140-6736\(10\)62225-8](https://doi.org/10.1016/S0140-6736(10)62225-8). Epub 2011 Apr 12. PMID: 21492929; PMCID: PMC3256741.
158. O'Hagan JJ, Hernán MA, Walensky RP, Lipsitch M. Apparent declining efficacy in randomized trials: examples of the Thai RV144 HIV vaccine and South African CAPRISA 004 microbicide trials. *AIDS*. 2012 Jan 14;26(2):123-6. doi: [10.1097/QAD.0b013e32834e1ce7](https://doi.org/10.1097/QAD.0b013e32834e1ce7). PMID: 22045345; PMCID: PMC3319457.
159. Shaman J, Lipsitch M. The El Niño-Southern Oscillation (ENSO)-pandemic influenza connection: coincident or causal? *Proc Natl Acad Sci U S A*. 2013 Feb 26;110 Suppl 1(Suppl 1):3689-91. doi: [10.1073/pnas.1107485109](https://doi.org/10.1073/pnas.1107485109). Epub 2012 Jan 17. PMID: 22308322; PMCID: PMC3586607.

160. Grad YH, Lipsitch M, Aiello AE. Secular trends in *Helicobacter pylori* seroprevalence in adults in the United States: evidence for sustained race/ethnic disparities. *Am J Epidemiol*. 2012 Jan 1;175(1):54-9. doi: [10.1093/aje/kwr288](https://doi.org/10.1093/aje/kwr288). Epub 2011 Nov 15. PMID: 22085628; PMCID: PMC3244610.
161. Scott JR, Millar EV, Lipsitch M, Moulton LH, Weatherholtz R, Perilla MJ, Jackson DM, Beall B, Craig MJ, Reid R, Santosham M, O'Brien KL. Impact of more than a decade of pneumococcal conjugate vaccine use on carriage and invasive potential in Native American communities. *J Infect Dis*. 2012 Jan 15;205(2):280-8. doi: [10.1093/infdis/jir730](https://doi.org/10.1093/infdis/jir730). Epub 2011 Nov 29. PMID: 22128315; PMCID: PMC3244367.
162. Abdullahi O, Karani A, Tigoi CC, Mugo D, Kungu S, Wanjiru E, Jomo J, Musyimi R, Lipsitch M, Scott JA. The prevalence and risk factors for pneumococcal colonization of the nasopharynx among children in Kilifi District, Kenya. *PLoS One*. 2012;7(2):e30787. doi: [10.1371/journal.pone.0030787](https://doi.org/10.1371/journal.pone.0030787). Epub 2012 Feb 20. PMID: 22363489; PMCID: PMC3282706.
163. Cobey S, Lipsitch M. Niche and neutral effects of acquired immunity permit coexistence of pneumococcal serotypes. *Science*. 2012 Mar 16;335(6074):1376-80. doi: [10.1126/science.1215947](https://doi.org/10.1126/science.1215947). Epub 2012 Mar 1. PMID: 22383809; PMCID: PMC3341938.
164. Scott JR, Hanage WP, Lipsitch M, Millar EV, Moulton LH, Hinds J, Reid R, Santosham M, O'Brien KL. Pneumococcal sequence type replacement among American Indian children: a comparison of pre- and routine-PCV7 eras. *Vaccine*. 2012 Mar 16;30(13):2376-81. doi: [10.1016/j.vaccine.2011.11.004](https://doi.org/10.1016/j.vaccine.2011.11.004). Epub 2011 Nov 15. PMID: 22094283.
165. Lipsitch M, Abdullahi O, D'Amour A, Xie W, Weinberger DM, Tchetgen Tchetgen E, Scott JA. Estimating rates of carriage acquisition and clearance and competitive ability for pneumococcal serotypes in Kenya with a Markov transition model. *Epidemiology*. 2012 Jul;23(4):510-9. doi: [10.1097/EDE.0b013e31824f2f32](https://doi.org/10.1097/EDE.0b013e31824f2f32). Erratum in: *Epidemiology*. 2013 Jan;24(1):177. PMID: 22441543; PMCID: PMC3670084.
166. Wroe PC, Lee GM, Finkelstein JA, Pelton SI, Hanage WP, Lipsitch M, Stevenson AE, Rifas-Shiman SL, Kleinman K, Dutta-Linn MM, Hinrichsen VL, Lakoma M, Huang SS. Pneumococcal carriage and antibiotic resistance in young children before 13-valent conjugate vaccine. *Pediatr Infect Dis J*. 2012 Mar;31(3):249-54. doi: [10.1097/INF.0b013e31824214ac](https://doi.org/10.1097/INF.0b013e31824214ac). PMID: 22173142; PMCID: PMC3288953.
167. Grad YH, Lipsitch M, Feldgarden M, Arachchi HM, Cerqueira GC, Fitzgerald M, Godfrey P, Haas BJ, Murphy CI, Russ C, Sykes S, Walker BJ, Wortman JR, Young S, Zeng Q, Abouelleil A, Bochicchio J, Chauvin S, Desmet T, Gujja S, McCowan C, Montmayeur A, Steelman S, Frimodt-Møller J, Petersen AM, Struve C, Krogfelt KA, Bingen E, Weill FX, Lander ES, Nusbaum C, Birren BW, Hung DT, Hanage WP. Genomic epidemiology of the *Escherichia coli* O104:H4 outbreaks in Europe, 2011. *Proc Natl Acad Sci U S A*. 2012 Feb 21;109(8):3065-70. doi: [10.1073/pnas.1121491109](https://doi.org/10.1073/pnas.1121491109). Epub 2012 Feb 6. Erratum in: *Proc Natl Acad Sci U S A*. 2012 Apr 3;109(14):5547. PMID: 22315421; PMCID: PMC3286951.
168. Pitzer VE, Burgner D, Viboud C, Simonsen L, Andreasen V, Steiner CA, Lipsitch M. Modelling seasonal variations in the age and incidence of Kawasaki disease to

- explore possible infectious aetiologies. *Proc Biol Sci.* 2012 Jul 22;279(1739):2736-43. doi: [10.1098/rspb.2011.2464](https://doi.org/10.1098/rspb.2011.2464). Epub 2012 Mar 7. PMID: 22398170; PMCID: PMC3367771.
169. Ke W, Huang SS, Hudson LO, Elkins KR, Nguyen CC, Spratt BG, Murphy CR, Avery TR, Lipsitch M. Patient sharing and population genetic structure of methicillin-resistant *Staphylococcus aureus*. *Proc Natl Acad Sci U S A.* 2012 Apr 24;109(17):6763-8. doi: [10.1073/pnas.1113578109](https://doi.org/10.1073/pnas.1113578109). Epub 2012 Mar 19. PMID: 22431601; PMCID: PMC3340079.
170. Grad YH, Miller JC, Lipsitch M. Cholera modeling: challenges to quantitative analysis and predicting the impact of interventions. *Epidemiology.* 2012 Jul;23(4):523-30. doi: [10.1097/EDE.0b013e3182572581](https://doi.org/10.1097/EDE.0b013e3182572581). PMID: 22659546; PMCID: PMC3380087.
171. Van Kerkhove MD, Riley S, Lipsitch M, Guan Y, Monto AS, Webster RG, Zambon M, Nicoll A, Peiris JS, Ferguson NM. Comment on "Seroevidence for H5N1 influenza infections in humans: meta-analysis". *Science.* 2012 Jun 22;336(6088):1506; author reply 1506. doi: [10.1126/science.1221434](https://doi.org/10.1126/science.1221434). PMID: 22723396.
172. Lipsitch M, Plotkin JB, Simonsen L, Bloom B. Evolution, safety, and highly pathogenic influenza viruses. *Science.* 2012 Jun 22;336(6088):1529-31. doi: [10.1126/science.1223204](https://doi.org/10.1126/science.1223204). PMID: 22723411; PMCID: PMC3467308.
173. Goldstein E, Wallinga J, Lipsitch M. Vaccine allocation in a declining epidemic. *J R Soc Interface.* 2012 Nov 7;9(76):2798-803. doi: [10.1098/rsif.2012.0404](https://doi.org/10.1098/rsif.2012.0404). Epub 2012 Jul 6. PMID: 22772378; PMCID: PMC3479926.
174. Abdullahi O, Karani A, Tigoi CC, Mugo D, Kungu S, Wanjiru E, Jomo J, Musyimi R, Lipsitch M, Scott JA. Rates of acquisition and clearance of pneumococcal serotypes in the nasopharynxes of children in Kilifi District, Kenya. *J Infect Dis.* 2012 Oct 1;206(7):1020-9. doi: [10.1093/infdis/jis447](https://doi.org/10.1093/infdis/jis447). Epub 2012 Jul 24. PMID: 22829650; PMCID: PMC3433858.
175. Jacobs JH, Archer BN, Baker MG, Cowling BJ, Heffernan RT, Mercer G, Uez O, Hanshaoworakul W, Viboud C, Schwartz J, Tchetgen Tchetgen E, Lipsitch M. Searching for sharp drops in the incidence of pandemic A/H1N1 influenza by single year of age. *PLoS One.* 2012;7(8):e42328. doi: [10.1371/journal.pone.0042328](https://doi.org/10.1371/journal.pone.0042328). Epub 2012 Aug 2. PMID: 22876316; PMCID: PMC3410923.
176. Goldstein E, Kirkcaldy RD, Reshef D, Berman S, Weinstock H, Sabeti P, Del Rio C, Hall G, Hook EW, Lipsitch M. Factors related to increasing prevalence of resistance to ciprofloxacin and other antimicrobial drugs in *Neisseria gonorrhoeae*, United States. *Emerg Infect Dis.* 2012 Aug;18(8):1290-7. doi: [10.3201/eid1808.111202](https://doi.org/10.3201/eid1808.111202). PMID: 22840274; PMCID: PMC3414012.
177. Lipsitch M, Bloom BR. Rethinking biosafety in research on potential pandemic pathogens. *mBio.* 2012 Oct 9;3(5):e00360-12. doi: [10.1128/mBio.00360-12](https://doi.org/10.1128/mBio.00360-12). PMID: 23047752; PMCID: PMC3484391.
178. Li Y, Gierahn T, Thompson CM, Trzciński K, Ford CB, Croucher N, Gouveia P, Flechtner JB, Malley R, Lipsitch M. Distinct effects on diversifying selection by two mechanisms of immunity against *Streptococcus pneumoniae*. *PLoS Pathog.* 2012;8(11):e1002989. doi: [10.1371/journal.ppat.1002989](https://doi.org/10.1371/journal.ppat.1002989). Epub 2012 Nov 8.

- PMID: 23144610; PMCID: PMC3493470. **Highlighted in the PLoS Pathogens Tenth Anniversary Collection of the Editors' Choice of 42 articles from the first 10 years.**
179. Goldstein E, Viboud C, Charu V, Lipsitch M. Improving the estimation of influenza-related mortality over a seasonal baseline. *Epidemiology*. 2012 Nov;23(6):829-38. doi: [10.1097/EDE.0b013e31826c2dda](https://doi.org/10.1097/EDE.0b013e31826c2dda). PMID: 22992574; PMCID: PMC3516362.
 - A commentary on this paper was published alongside it, to which we published a rejoinder: Goldstein E, Viboud C, Charu V, Lipsitch M. The authors respond. *Epidemiology*. 2012 Nov;23(6):829-38.
 180. Hyams C, Trzcinski K, Camberlein E, Weinberger DM, Chimalapati S, Noursadeghi M, Lipsitch M, Brown JS. Streptococcus pneumoniae capsular serotype invasiveness correlates with the degree of factor H binding and opsonization with C3b/iC3b. *Infect Immun*. 2013 Jan;81(1):354-63. doi: [10.1128/IAI.00862-12](https://doi.org/10.1128/IAI.00862-12). Epub 2012 Nov 12. PMID: 23147038; PMCID: PMC3536142.
 181. Palmer ME, Lipsitch M, Moxon ER, Bayliss CD. Broad conditions favor the evolution of phase-variable loci. *mBio*. 2013 Jan 8;4(1):e00430-12. doi: [10.1128/mBio.00430-12](https://doi.org/10.1128/mBio.00430-12). PMID: 23300246; PMCID: PMC3546556.
 182. Cobey S, Lipsitch M. Pathogen diversity and hidden regimes of apparent competition. *Am Nat*. 2013 Jan;181(1):12-24. doi: [10.1086/668598](https://doi.org/10.1086/668598). Epub 2012 Nov 27. PMID: 23234842; PMCID: PMC3716377.
 183. Grad YH, Godfrey P, Cerquiera GC, Mariani-Kurkdjian P, Gouali M, Bingen E, Shea TP, Haas BJ, Griggs A, Young S, Zeng Q, Lipsitch M, Waldor MK, Weill FX, Wortman JR, Hanage WP. Comparative genomics of recent Shiga toxin-producing Escherichia coli O104:H4: short-term evolution of an emerging pathogen. *mBio*. 2013 Jan 22;4(1):e00452-12. doi: [10.1128/mBio.00452-12](https://doi.org/10.1128/mBio.00452-12). PMID: 23341549; PMCID: PMC3551546.
 184. Koep TH, Enders FT, Pierret C, Ekker SC, Krageschmidt D, Neff KL, Lipsitch M, Shaman J, Huskins WC. Predictors of indoor absolute humidity and estimated effects on influenza virus survival in grade schools. *BMC Infect Dis*. 2013 Feb 5;13:71. doi: [10.1186/1471-2334-13-71](https://doi.org/10.1186/1471-2334-13-71). PMID: 23383620; PMCID: PMC3568414.
 185. Grad YH, Lipsitch M, Griggs AD, Haas BJ, Shea TP, McCowan C, Montmayeur A, FitzGerald M, Wortman JR, Krogfelt KA, Bingen E, Weill FX, Tietze E, Flieger A, Lander ES, Nusbaum C, Birren BW, Hung DT, Hanage WP. Reply to Guy et al.: Support for a bottleneck in the 2011 Escherichia coli O104:H4 outbreak in Germany. *Proc Natl Acad Sci U S A*. 2012 Dec 26;109(52):E3629-30. doi: [10.1073/pnas.1209419110](https://doi.org/10.1073/pnas.1209419110). PMID: 23479789; PMCID: PMC3535640.
 186. Croucher NJ, Finkelstein JA, Pelton SI, Mitchell PK, Lee GM, Parkhill J, Bentley SD, Hanage WP, Lipsitch M. Population genomics of post-vaccine changes in pneumococcal epidemiology. *Nat Genet*. 2013 Jun;45(6):656-63. doi: [10.1038/ng.2625](https://doi.org/10.1038/ng.2625). Epub 2013 May 5. PMID: 23644493; PMCID: PMC3725542.
 187. Joice R, Lipsitch M. Targeting imperfect vaccines against drug-resistance determinants: a strategy for countering the rise of drug resistance. *PLoS One*.

- 2013 Jul 25;8(7):e68940. doi: [10.1371/journal.pone.0068940](https://doi.org/10.1371/journal.pone.0068940). PMID: 23935910; PMCID: PMC3723804.
188. Ford CB, Shah RR, Maeda MK, Gagneux S, Murray MB, Cohen T, Johnston JC, Gardy J, Lipsitch M, Fortune SM. Mycobacterium tuberculosis mutation rate estimates from different lineages predict substantial differences in the emergence of drug-resistant tuberculosis. *Nat Genet.* 2013 Jul;45(7):784-90. doi: [10.1038/ng.2656](https://doi.org/10.1038/ng.2656). Epub 2013 Jun 9. PMID: 23749189; PMCID: PMC3777616.
189. Link-Gelles R, Thomas A, Lynfield R, Petit S, Schaffner W, Harrison L, Farley MM, Aragon D, Nicols M, Kirley PD, Zansky S, Jorgensen J, Juni BA, Jackson D, Moore MR, Lipsitch M. Geographic and temporal trends in antimicrobial nonsusceptibility in *Streptococcus pneumoniae* in the post-vaccine era in the United States. *J Infect Dis.* 2013 Oct 15;208(8):1266-73. doi: [10.1093/infdis/jit315](https://doi.org/10.1093/infdis/jit315). Epub 2013 Jul 12. PMID: 23852588; PMCID: PMC3778966.
190. Weinberger DM, Bruden DT, Grant LR, Lipsitch M, O'Brien KL, Pelton SI, Sanders EA, Feikin DR. Using pneumococcal carriage data to monitor postvaccination changes in invasive disease. *Am J Epidemiol.* 2013 Nov 1;178(9):1488-95. doi: [10.1093/aje/kwt156](https://doi.org/10.1093/aje/kwt156). Epub 2013 Sep 7. PMID: 24013204; PMCID: PMC3813314.
191. Li Y, Weinberger DM, Thompson CM, Trzciński K, Lipsitch M. Surface charge of *Streptococcus pneumoniae* predicts serotype distribution. *Infect Immun.* 2013 Dec;81(12):4519-24. doi: [10.1128/IAI.00724-13](https://doi.org/10.1128/IAI.00724-13). Epub 2013 Sep 30. PMID: 24082068; PMCID: PMC3837974.
192. Li Y, Thompson CM, Trzciński K, Lipsitch M. Within-host selection is limited by an effective population of *Streptococcus pneumoniae* during nasopharyngeal colonization. *Infect Immun.* 2013 Dec;81(12):4534-43. doi: [10.1128/IAI.00527-13](https://doi.org/10.1128/IAI.00527-13). Epub 2013 Sep 30. PMID: 24082074; PMCID: PMC3837969.
193. Feikin DR, Kagucia EW, Loo JD, Link-Gelles R, Puhon MA, Cherian T, Levine OS, Whitney CG, O'Brien KL, Moore MR; Serotype Replacement Study Group. Serotype-specific changes in invasive pneumococcal disease after pneumococcal conjugate vaccine introduction: a pooled analysis of multiple surveillance sites. *PLoS Med.* 2013;10(9):e1001517. doi: [10.1371/journal.pmed.1001517](https://doi.org/10.1371/journal.pmed.1001517). Epub 2013 Sep 24. PMID: 24086113; PMCID: PMC3782411.
194. Quandelacy TM, Viboud C, Charu V, Lipsitch M, Goldstein E. Age- and sex-related risk factors for influenza-associated mortality in the United States between 1997-2007. *Am J Epidemiol.* 2014 Jan 15;179(2):156-67. doi: [10.1093/aje/kwt235](https://doi.org/10.1093/aje/kwt235). Epub 2013 Nov 4. PMID: 24190951; PMCID: PMC3873104.
195. O'Hagan JJ, Lipsitch M, Hernán MA. Estimating the per-exposure effect of infectious disease interventions. *Epidemiology.* 2014 Jan;25(1):134-8. doi: [10.1097/EDE.0000000000000003](https://doi.org/10.1097/EDE.0000000000000003). PMID: 24240656; PMCID: PMC3898464.
196. Shaman J, Karspeck A, Yang W, Tamerius J, Lipsitch M. Real-time influenza forecasts during the 2012-2013 season. *Nat Commun.* 2013;4:2837. doi: [10.1038/ncomms3837](https://doi.org/10.1038/ncomms3837). PMID: 24302074; PMCID: PMC3873365.
197. Huang KE, Lipsitch M, Shaman J, Goldstein E. The US 2009 A(H1N1) influenza epidemic: quantifying the impact of school openings on the reproductive number.

- Epidemiology. 2014 Mar;25(2):203-6. doi: [10.1097/EDE.0000000000000055](https://doi.org/10.1097/EDE.0000000000000055). PMID: 24434751; PMCID: PMC3960948.
198. Grad YH, Kirkcaldy RD, Trees D, Dordel J, Harris SR, Goldstein E, Weinstock H, Parkhill J, Hanage WP, Bentley S, Lipsitch M. Genomic epidemiology of *Neisseria gonorrhoeae* with reduced susceptibility to cefixime in the USA: a retrospective observational study. *Lancet Infect Dis*. 2014 Mar;14(3):220-6. doi: [10.1016/S1473-3099\(13\)70693-5](https://doi.org/10.1016/S1473-3099(13)70693-5). Epub 2014 Jan 22. PMID: 24462211; PMCID: PMC4030102.
199. Patterson-Lomba O, Van Noort S, Cowling BJ, Wallinga J, Gomes MG, Lipsitch M, Goldstein E. Utilizing syndromic surveillance data for estimating levels of influenza circulation. *Am J Epidemiol*. 2014 Jun 1;179(11):1394-401. doi: [10.1093/aje/kwu061](https://doi.org/10.1093/aje/kwu061). Epub 2014 Apr 18. PMID: 24748609; PMCID: PMC4036214.
200. Gomes MG, Lipsitch M, Wargo AR, Kurath G, Rebelo C, Medley GF, Coutinho A. A missing dimension in measures of vaccination impacts. *PLoS Pathog*. 2014 Mar 6;10(3):e1003849. doi: [10.1371/journal.ppat.1003849](https://doi.org/10.1371/journal.ppat.1003849). PMID: 24603721; PMCID: PMC3946326.
201. Worby CJ, Lipsitch M, Hanage WP. Within-host bacterial diversity hinders accurate reconstruction of transmission networks from genomic distance data. *PLoS Comput Biol*. 2014 Mar 27;10(3):e1003549. doi: [10.1371/journal.pcbi.1003549](https://doi.org/10.1371/journal.pcbi.1003549). PMID: 24675511; PMCID: PMC3967931.
202. Grad YH, Newman R, Zody M, Yang X, Murphy R, Qu J, Malboeuf CM, Levin JZ, Lipsitch M, DeVincenzo J. Within-host whole-genome deep sequencing and diversity analysis of human respiratory syncytial virus infection reveals dynamics of genomic diversity in the absence and presence of immune pressure. *J Virol*. 2014 Jul;88(13):7286-93. doi: [10.1128/JVI.00038-14](https://doi.org/10.1128/JVI.00038-14). Epub 2014 Apr 16. PMID: 24741088; PMCID: PMC4054443.
203. McCormick AW, Abuelelam NN, Rhode ER, Hou T, Walensky RP, Pei PP, Becker JE, DiLorenzo MA, Losina E, Freedberg KA, Lipsitch M, Seage GR 3rd. Development, calibration and performance of an HIV transmission model incorporating natural history and behavioral patterns: application in South Africa. *PLoS One*. 2014 May 27;9(5):e98272. doi: [10.1371/journal.pone.0098272](https://doi.org/10.1371/journal.pone.0098272). PMID: 24867402; PMCID: PMC4035281.
204. Lipsitch M, Galvani AP. Ethical alternatives to experiments with novel potential pandemic pathogens. *PLoS Med*. 2014 May 20;11(5):e1001646. doi: [10.1371/journal.pmed.1001646](https://doi.org/10.1371/journal.pmed.1001646). PMID: 24844931; PMCID: PMC4028196.
205. Li Y, Thompson CM, Lipsitch M. A modified Janus cassette (Sweet Janus) to improve allelic replacement efficiency by high-stringency negative selection in *Streptococcus pneumoniae*. *PLoS One*. 2014 Jun 24;9(6):e100510. doi: [10.1371/journal.pone.0100510](https://doi.org/10.1371/journal.pone.0100510). PMID: 24959661; PMCID: PMC4068995.
206. Ascioğlu S, Samore MH, Lipsitch M. A new approach to the analysis of antibiotic resistance data from hospitals. *Microb Drug Resist*. 2014 Dec;20(6):583-90. doi: [10.1089/mdr.2013.0173](https://doi.org/10.1089/mdr.2013.0173). PMID: 25055133.
207. Johnson SR, Grad Y, Ganakammal SR, Burroughs M, Frace M, Lipsitch M, Weil R, Trees D. In Vitro selection of *Neisseria gonorrhoeae* mutants with elevated MIC values and increased resistance to cephalosporins. *Antimicrob Agents*

- Chemother. 2014 Nov;58(11):6986-9. doi: [10.1128/AAC.03082-14](https://doi.org/10.1128/AAC.03082-14). Epub 2014 Sep 8. PMID: 25199775; PMCID: PMC4249396.
208. Jacobs JH, Viboud C, Tchetgen ET, Schwartz J, Steiner C, Simonsen L, Lipsitch M. The association of meningococcal disease with influenza in the United States, 1989-2009. PLoS One. 2014 Sep 29;9(9):e107486. doi: [10.1371/journal.pone.0107486](https://doi.org/10.1371/journal.pone.0107486). PMID: 25265409; PMCID: PMC4180274.
209. Russell CA, Kasson PM, Donis RO, Riley S, Dunbar J, Rambaut A, Asher J, Burke S, Davis CT, Garten RJ, Gnanakaran S, Hay SI, Herfst S, Lewis NS, Lloyd-Smith JO, Macken CA, Maurer-Stroh S, Neuhaus E, Parrish CR, Pepin KM, Shepard SS, Smith DL, Suarez DL, Trock SC, Widdowson MA, George DB, Lipsitch M, Bloom JD. Improving pandemic influenza risk assessment. Elife. 2014 Oct 16;3:e03883. doi: [10.7554/eLife.03883](https://doi.org/10.7554/eLife.03883). PMID: 25321142; PMCID: PMC4199076.
210. Worby CJ, Chang HH, Hanage WP, Lipsitch M. The distribution of pairwise genetic distances: a tool for investigating disease transmission. Genetics. 2014 Dec;198(4):1395-404. doi: [10.1534/genetics.114.171538](https://doi.org/10.1534/genetics.114.171538). Epub 2014 Oct 13. PMID: 25313129; PMCID: PMC4256759.
211. Grad YH, Lipsitch M. Epidemiologic data and pathogen genome sequences: a powerful synergy for public health. Genome Biol. 2014 Nov 18;15(11):538. doi: [10.1186/s13059-014-0538-4](https://doi.org/10.1186/s13059-014-0538-4). PMID: 25418119; PMCID: PMC4282151.
212. Abel S, Abel zur Wiesch P, Chang HH, Davis BM, Lipsitch M, Waldor MK. Sequence tag-based analysis of microbial population dynamics. Nat Methods. 2015 Mar;12(3):223-6, 3 p following 226. doi: [10.1038/nmeth.3253](https://doi.org/10.1038/nmeth.3253). Epub 2015 Jan 19. PMID: 25599549; PMCID: PMC4344388.
213. Lipsitch M, Inglesby TV. Reply to "Studies on influenza virus transmission between ferrets: the public health risks revisited". mBio. 2015 Jan 23;6(1):e00041-15. doi: [10.1128/mBio.00041-15](https://doi.org/10.1128/mBio.00041-15). PMID: 25616376; PMCID: PMC4323416.
214. Lipsitch M, Inglesby TV. Moratorium on research intended to create novel potential pandemic pathogens. mBio. 2014 Dec 12;5(6):e02366-14. doi: [10.1128/mBio.02366-14](https://doi.org/10.1128/mBio.02366-14). Erratum in: MBio. 2015;6(1). pii: e02534-14. doi: [10.1128/mBio.02534-14](https://doi.org/10.1128/mBio.02534-14). PMID: 25505122; PMCID: PMC4271556.
215. Chang Q, Stevenson AE, Croucher NJ, Lee GM, Pelton SI, Lipsitch M, Finkelstein JA, Hanage WP. Stability of the pneumococcal population structure in Massachusetts as PCV13 was introduced. BMC Infect Dis. 2015 Feb 18;15:68. doi: [10.1186/s12879-015-0797-z](https://doi.org/10.1186/s12879-015-0797-z). PMID: 25887323; PMCID: PMC4336693.
216. Chang HH, Cohen T, Grad YH, Hanage WP, O'Brien TF, Lipsitch M. Origin and proliferation of multiple-drug resistance in bacterial pathogens. Microbiol Mol Biol Rev. 2015 Mar;79(1):101-16. doi: [10.1128/MMBR.00039-14](https://doi.org/10.1128/MMBR.00039-14). PMID: 25652543; PMCID: PMC4402963.
217. Croucher NJ, Kagedan L, Thompson CM, Parkhill J, Bentley SD, Finkelstein JA, Lipsitch M, Hanage WP. Selective and genetic constraints on pneumococcal serotype switching. PLoS Genet. 2015 Mar 31;11(3):e1005095. doi: [10.1371/journal.pgen.1005095](https://doi.org/10.1371/journal.pgen.1005095). PMID: 25826208; PMCID: PMC4380333.
218. Yang W, Lipsitch M, Shaman J. Inference of seasonal and pandemic influenza transmission dynamics. Proc Natl Acad Sci U S A. 2015 Mar 3;112(9):2723-8.

- doi: [10.1073/pnas.1415012112](https://doi.org/10.1073/pnas.1415012112). Epub 2015 Feb 17. PMID: 25730851; PMCID: PMC4352784.
219. Lipsitch M, Eyal N, Halloran ME, Hernán MA, Longini IM, Perencevich EN, Grais RF. Ebola and beyond. *Science*. 2015 Apr 3;348(6230):46-8. doi: [10.1126/science.aaa3178](https://doi.org/10.1126/science.aaa3178). PMID: 25838371; PMCID: PMC4408019.
220. Li Y, Croucher NJ, Thompson CM, Trzciński K, Hanage WP, Lipsitch M. Identification of pneumococcal colonization determinants in the stringent response pathway facilitated by genomic diversity. *BMC Genomics*. 2015 May 9;16(1):369. doi: [10.1186/s12864-015-1573-6](https://doi.org/10.1186/s12864-015-1573-6). PMID: 25956132; PMCID: PMC4424882.
221. Chang Q, Wang W, Regev-Yochay G, Lipsitch M, Hanage WP. Antibiotics in agriculture and the risk to human health: how worried should we be? *Evol Appl*. 2015 Mar;8(3):240-7. doi: [10.1111/eva.12185](https://doi.org/10.1111/eva.12185). Epub 2014 Aug 2. PMID: 25861382; PMCID: PMC4380918.
222. Kunkel A, Colijn C, Lipsitch M, Cohen T. How could preventive therapy affect the prevalence of drug resistance? Causes and consequences. *Philos Trans R Soc Lond B Biol Sci*. 2015 Jun 5;370(1670):20140306. doi: [10.1098/rstb.2014.0306](https://doi.org/10.1098/rstb.2014.0306). PMID: 25918446; PMCID: PMC4424438.
223. Mitchell PK, Lipsitch M, Hanage WP. Carriage burden, multiple colonization and antibiotic pressure promote emergence of resistant vaccine escape pneumococci. *Philos Trans R Soc Lond B Biol Sci*. 2015 Jun 5;370(1670):20140342. doi: [10.1098/rstb.2014.0342](https://doi.org/10.1098/rstb.2014.0342). PMID: 25918447; PMCID: PMC4424439.
224. Goldstein E, Greene SK, Olson DR, Hanage WP, Lipsitch M. Estimating the hospitalization burden associated with influenza and respiratory syncytial virus in New York City, 2003-2011. *Influenza Other Respir Viruses*. 2015 Sep;9(5):225-33. doi: [10.1111/irv.12325](https://doi.org/10.1111/irv.12325). PMID: 25980600; PMCID: PMC4548992.
225. Worby CJ, Chaves SS, Wallinga J, Lipsitch M, Finelli L, Goldstein E. On the relative role of different age groups in influenza epidemics. *Epidemics*. 2015 Dec;13:10-16. doi: [10.1016/j.epidem.2015.04.003](https://doi.org/10.1016/j.epidem.2015.04.003). PMID: 26097505; PMCID: PMC4469206.
226. Lipsitch M, Donnelly CA, Fraser C, Blake IM, Cori A, Dorigatti I, Ferguson NM, Garske T, Mills HL, Riley S, Van Kerkhove MD, Hernán MA. Potential Biases in Estimating Absolute and Relative Case-Fatality Risks during Outbreaks. *PLoS Negl Trop Dis*. 2015 Jul 16;9(7):e0003846. doi: [10.1371/journal.pntd.0003846](https://doi.org/10.1371/journal.pntd.0003846). PMID: 26181387; PMCID: PMC4504518. **Awarded 2nd Prize for Publication with Impact on the Field in 2015-6 by International Society for Disease Surveillance.**
227. Evans NG, Lipsitch M, Levinson M. The ethics of biosafety considerations in gain-of-function research resulting in the creation of potential pandemic pathogens. *J Med Ethics*. 2015 Nov;41(11):901-8. doi: [10.1136/medethics-2014-102619](https://doi.org/10.1136/medethics-2014-102619). Epub 2015 Aug 28. PMID: 26320212; PMCID: PMC4623968.
228. Worby CJ, Kenyon C, Lynfield R, Lipsitch M, Goldstein E. Examining the role of different age groups, and of vaccination during the 2012 Minnesota pertussis outbreak. *Sci Rep*. 2015 Aug 17;5:13182. doi: [10.1038/srep13182](https://doi.org/10.1038/srep13182). PMID: 26278132; PMCID: PMC4538373.

229. Trzeński K, Li Y, Weinberger DM, Thompson CM, Cordy D, Bessolo A, Malley R, Lipsitch M. Effect of Serotype on Pneumococcal Competition in a Mouse Colonization Model. *mBio*. 2015 Sep 15;6(5):e00902-15. doi: [10.1128/mBio.00902-15](https://doi.org/10.1128/mBio.00902-15). PMID: 26374118; PMCID: PMC4600102.
230. Althouse BM, Scarpino SV, Meyers LA, Ayers JW, Bargsten M, Baumbach J, Brownstein JS, Castro L, Clapham H, Cummings DA, Del Valle S, Eubank S, Fairchild G, Finelli L, Generous N, George D, Harper DR, Hébert-Dufresne L, Johansson MA, Konty K, Lipsitch M, Milinovich G, Miller JD, Nsoesie EO, Olson DR, Paul M, Polgreen PM, Priedhorsky R, Read JM, Rodríguez-Barraquer I, Smith DJ, Stefansen C, Swerdlow DL, Thompson D, Vespignani A, Wesolowski A. Enhancing disease surveillance with novel data streams: challenges and opportunities. *EPJ Data Sci*. 2015;4(1):17. doi: [10.1140/epjds/s13688-015-0054-0](https://doi.org/10.1140/epjds/s13688-015-0054-0). Epub 2015 Oct 16. PMID: 27990325; PMCID: PMC5156315.
231. Chang Q, Lipsitch M, Hanage WP. Impact of Host Heterogeneity on the Efficacy of Interventions to Reduce *Staphylococcus aureus* Carriage. *Infect Control Hosp Epidemiol*. 2016 Feb;37(2):197-204. doi: [10.1017/ice.2015.269](https://doi.org/10.1017/ice.2015.269). Epub 2015 Nov 24. Erratum in: *Infect Control Hosp Epidemiol*. 2016 Feb;37(2):244. PMID: 26598029; PMCID: PMC4760641.
232. Grad YH, Goldstein E, Lipsitch M, White PJ. Improving Control of Antibiotic-Resistant Gonorrhea by Integrating Research Agendas Across Disciplines: Key Questions Arising From Mathematical Modeling. *J Infect Dis*. 2016 Mar 15;213(6):883-90. doi: [10.1093/infdis/jiv517](https://doi.org/10.1093/infdis/jiv517). Epub 2015 Oct 30. PMID: 26518045; PMCID: PMC4760416.
233. García-Albéniz X, Hsu J, Lipsitch M, Logan RW, Hernández-Díaz S, Hernán MA. Infective endocarditis and cancer in the elderly. *Eur J Epidemiol*. 2016 Jan;31(1):41-9. doi: [10.1007/s10654-015-0111-9](https://doi.org/10.1007/s10654-015-0111-9). Epub 2015 Dec 18. PMID: 26683995; PMCID: PMC5354127.
234. Chang HH, Dordel J, Donker T, Worby CJ, Feil EJ, Hanage WP, Bentley SD, Huang SS, Lipsitch M. Identifying the effect of patient sharing on between-hospital genetic differentiation of methicillin-resistant *Staphylococcus aureus*. *Genome Med*. 2016 Feb 13;8(1):18. doi: [10.1186/s13073-016-0274-3](https://doi.org/10.1186/s13073-016-0274-3). PMID: 26873713; PMCID: PMC4752745.
235. Lipsitch M, Siber GR. How Can Vaccines Contribute to Solving the Antimicrobial Resistance Problem? *mBio*. 2016 Jun 7;7(3):e00428-16. doi: [10.1128/mBio.00428-16](https://doi.org/10.1128/mBio.00428-16). PMID: 27273824; PMCID: PMC4959668.
236. Lipsitch M, Evans NG, Cotton-Barratt O. Underprotection of Unpredictable Statistical Lives Compared to Predictable Ones. *Risk Anal*. 2017 May;37(5):893-904. doi: [10.1111/risa.12658](https://doi.org/10.1111/risa.12658). Epub 2016 Jul 9. PMID: 27393181; PMCID: PMC5222861.
237. Lipsitch M, Jha A, Simonsen L. Observational studies and the difficult quest for causality: lessons from vaccine effectiveness and impact studies. *Int J Epidemiol*. 2016 Dec 1;45(6):2060-2074. doi: [10.1093/ije/dyw124](https://doi.org/10.1093/ije/dyw124). PMID: 27453361; PMCID: PMC5841615.
238. Abuelezam NN, McCormick AW, Fussell T, Afriyie AN, Wood R, DeGruttola V, Freedberg KA, Lipsitch M, Seage GR 3rd. Can the Heterosexual HIV Epidemic

- be Eliminated in South Africa Using Combination Prevention? A Modeling Analysis. *Am J Epidemiol*. 2016 Aug 1;184(3):239-48. doi: [10.1093/aje/kwv344](https://doi.org/10.1093/aje/kwv344). Epub 2016 Jul 13. PMID: 27416841; PMCID: PMC4967594.
239. García-Albéniz X, Hsu J, Lipsitch M, Bretthauer M, Logan RW, Hernández-Díaz S, Hernán MA. Colonoscopy and Risk of Infective Endocarditis in the Elderly. *J Am Coll Cardiol*. 2016 Aug 2;68(5):570-571. doi: [10.1016/j.jacc.2016.05.041](https://doi.org/10.1016/j.jacc.2016.05.041). PMID: 27470461; PMCID: PMC5287292.
240. Lipsitch M, Cowling BJ. Zika vaccine trials. *Science*. 2016 Sep 9;353(6304):1094-5. doi: [10.1126/science.aai8126](https://doi.org/10.1126/science.aai8126). PMID: 27609872.
241. Grad YH, Harris SR, Kirkcaldy RD, Green AG, Marks DS, Bentley SD, Trees D, Lipsitch M. Genomic Epidemiology of Gonococcal Resistance to Extended-Spectrum Cephalosporins, Macrolides, and Fluoroquinolones in the United States, 2000-2013. *J Infect Dis*. 2016 Nov 15;214(10):1579-1587. doi: [10.1093/infdis/jiw420](https://doi.org/10.1093/infdis/jiw420). Epub 2016 Sep 16. PMID: 27638945; PMCID: PMC5091375. **Nominee, Charles R. Shepard Science Award, CDC.**
242. Goldstein E, Pitzer VE, O'Hagan JJ, Lipsitch M. Temporally Varying Relative Risks for Infectious Diseases: Implications for Infectious Disease Control. *Epidemiology*. 2017 Jan;28(1):136-144. doi: [10.1097/EDE.0000000000000571](https://doi.org/10.1097/EDE.0000000000000571). PMID: 27748685; PMCID: PMC5131868.
243. Wu JT, Peak CM, Leung GM, Lipsitch M. Fractional dosing of yellow fever vaccine to extend supply: a modelling study. *Lancet*. 2016 Dec 10;388(10062):2904-2911. doi: [10.1016/S0140-6736\(16\)31838-4](https://doi.org/10.1016/S0140-6736(16)31838-4). Epub 2016 Nov 10. PMID: 27837923; PMCID: PMC5161610.
244. Lipsitch M, Barclay W, Raman R, Russell CJ, Belser JA, Cobey S, Kasson PM, Lloyd-Smith JO, Maurer-Stroh S, Riley S, Beauchemin CA, Bedford T, Friedrich TC, Handel A, Herfst S, Murcia PR, Roche B, Wilke CO, Russell CA. Viral factors in influenza pandemic risk assessment. *Elife*. 2016 Nov 11;5:e18491. doi: [10.7554/eLife.18491](https://doi.org/10.7554/eLife.18491). PMID: 27834632; PMCID: PMC5156527.
245. Leung K, Lipsitch M, Yuen KY, Wu JT. Monitoring the fitness of antiviral-resistant influenza strains during an epidemic: a mathematical modelling study. *Lancet Infect Dis*. 2017 Mar;17(3):339-347. doi: [10.1016/S1473-3099\(16\)30465-0](https://doi.org/10.1016/S1473-3099(16)30465-0). Epub 2016 Dec 1. PMID: 27914853; PMCID: PMC5470942.
246. Croucher NJ, Campo JJ, Le TQ, Liang X, Bentley SD, Hanage WP, Lipsitch M. Diverse evolutionary patterns of pneumococcal antigens identified by pangenome-wide immunological screening. *Proc Natl Acad Sci U S A*. 2017 Jan 17;114(3):E357-E366. doi: [10.1073/pnas.1613937114](https://doi.org/10.1073/pnas.1613937114). Epub 2017 Jan 4. PMID: 28053228; PMCID: PMC5255586.
247. Lehtinen S, Blanquart F, Croucher NJ, Turner P, Lipsitch M, Fraser C. Evolution of antibiotic resistance is linked to any genetic mechanism affecting bacterial duration of carriage. *Proc Natl Acad Sci U S A*. 2017 Jan 31;114(5):1075-1080. doi: [10.1073/pnas.1617849114](https://doi.org/10.1073/pnas.1617849114). Epub 2017 Jan 17. PMID: 28096340; PMCID: PMC5293062.
248. Azarian T, Grant LR, Georgieva M, Hammitt LL, Reid R, Bentley SD, Goldblatt D, Santosham M, Weatherholtz R, Burbidge P, Goklish N, Thompson CM, Hanage WP, O'Brien KL, Lipsitch M. Association of Pneumococcal Protein Antigen Serology With Age and Antigenic Profile of Colonizing Isolates. *J Infect*

- Dis. 2017 Mar 1;215(5):713-722. doi: [10.1093/infdis/jiw628](https://doi.org/10.1093/infdis/jiw628). PMID: 28035010; PMCID: PMC6005115.
249. Hitchings MD, Grais RF, Lipsitch M. Using simulation to aid trial design: Ring-vaccination trials. *PLoS Negl Trop Dis*. 2017 Mar 22;11(3):e0005470. doi: [10.1371/journal.pntd.0005470](https://doi.org/10.1371/journal.pntd.0005470). PMID: 28328984; PMCID: PMC5378415.
250. McCormick AW, Abuelezam NN, Fussell T, Seage GR 3rd, Lipsitch M. Displacement of sexual partnerships in trials of sexual behavior interventions: A model-based assessment of consequences. *Epidemics*. 2017 Sep;20:94-101. doi: [10.1016/j.epidem.2017.03.007](https://doi.org/10.1016/j.epidem.2017.03.007). Epub 2017 Apr 2. PMID: 28416219; PMCID: PMC5610917.
251. Eyal N, Lipsitch M. Vaccine testing for emerging infections: the case for individual randomisation. *J Med Ethics*. 2017 Sep;43(9):625-631. doi: [10.1136/medethics-2015-103220](https://doi.org/10.1136/medethics-2015-103220). Epub 2017 Apr 10. PMID: 28396558; PMCID: PMC5577361.
252. Worby CJ, Wallinga J, Lipsitch M, Goldstein E. Population effect of influenza vaccination under co-circulation of non-vaccine variants and the case for a bivalent A/H3N2 vaccine component. *Epidemics*. 2017 Jun;19:74-82. doi: [10.1016/j.epidem.2017.02.008](https://doi.org/10.1016/j.epidem.2017.02.008). Epub 2017 Feb 21. PMID: 28262588; PMCID: PMC5533618.
253. Cobey S, Baskerville EB, Colijn C, Hanage W, Fraser C, Lipsitch M. Host population structure and treatment frequency maintain balancing selection on drug resistance. *J R Soc Interface*. 2017 Aug;14(133):20170295. doi: [10.1098/rsif.2017.0295](https://doi.org/10.1098/rsif.2017.0295). PMID: 28835542; PMCID: PMC5582124.
254. Lipsitch M, Eyal N. Improving vaccine trials in infectious disease emergencies. *Science*. 2017 Jul 14;357(6347):153-156. doi: [10.1126/science.aam8334](https://doi.org/10.1126/science.aam8334). PMID: 28706038; PMCID: PMC5568786.
255. Corander J, Fraser C, Gutmann MU, Arnold B, Hanage WP, Bentley SD, Lipsitch M, Croucher NJ. Frequency-dependent selection in vaccine-associated pneumococcal population dynamics. *Nat Ecol Evol*. 2017 Dec;1(12):1950-1960. doi: [10.1038/s41559-017-0337-x](https://doi.org/10.1038/s41559-017-0337-x). Epub 2017 Oct 16. PMID: 29038424; PMCID: PMC5708525.
256. Lee GM, Kleinman K, Pelton S, Lipsitch M, Huang SS, Lakoma M, Dutta-Linn M, Rett M, Hanage WP, Finkelstein JA. Immunization, Antibiotic Use, and Pneumococcal Colonization Over a 15-Year Period. *Pediatrics*. 2017 Nov;140(5):e20170001. doi: [10.1542/peds.2017-0001](https://doi.org/10.1542/peds.2017-0001). Epub 2017 Oct 4. PMID: 28978716; PMCID: PMC5654389.
257. Langwig KE, Wargo AR, Jones DR, Viss JR, Rutan BJ, Egan NA, Sá-Guimarães P, Kim MS, Kurath G, Gomes MGM, Lipsitch M. Vaccine Effects on Heterogeneity in Susceptibility and Implications for Population Health Management. *mBio*. 2017 Nov 21;8(6):e00796-17. doi: [10.1128/mBio.00796-17](https://doi.org/10.1128/mBio.00796-17). PMID: 29162706; PMCID: PMC5698548.
258. Lewnard JA, Givon-Lavi N, Weinberger DM, Lipsitch M, Dagan R. Pan-serotype Reduction in Progression of *Streptococcus pneumoniae* to Otitis Media After Rollout of Pneumococcal Conjugate Vaccines. *Clin Infect Dis*. 2017 Nov 13;65(11):1853-1861. doi: [10.1093/cid/cix673](https://doi.org/10.1093/cid/cix673). PMID: 29020218; PMCID: PMC6248775.

259. Goldstein E, Nguyen HH, Liu P, Viboud C, Steiner CA, Worby CJ, Lipsitch M. On the Relative Role of Different Age Groups During Epidemics Associated With Respiratory Syncytial Virus. *J Infect Dis*. 2018 Jan 4;217(2):238-244. doi: [10.1093/infdis/jix575](https://doi.org/10.1093/infdis/jix575). PMID: 29112722; PMCID: PMC5853559.
260. Masala GL, Lipsitch M, Bottomley C, Flasche S. Exploring the role of competition induced by non-vaccine serotypes for herd protection following pneumococcal vaccination. *J R Soc Interface*. 2017 Nov;14(136):20170620. doi: [10.1098/rsif.2017.0620](https://doi.org/10.1098/rsif.2017.0620). PMID: 29093131; PMCID: PMC5721164.
261. Kahn R, Hitchings M, Bellan S, Lipsitch M. Impact of stochastically generated heterogeneity in hazard rates on individually randomized vaccine efficacy trials. *Clin Trials*. 2018 Apr;15(2):207-211. doi: [10.1177/1740774517752671](https://doi.org/10.1177/1740774517752671). Epub 2018 Jan 27. PMID: 29374974; PMCID: PMC5891371.
262. Halloran ME, Auranen K, Baird S, Basta NE, Bellan SE, Brookmeyer R, Cooper BS, DeGruttola V, Hughes JP, Lessler J, Lofgren ET, Longini IM, Onnela JP, Özler B, Seage GR, Smith TA, Vespignani A, Vynnycky E, Lipsitch M. Simulations for designing and interpreting intervention trials in infectious diseases. *BMC Med*. 2017 Dec 29;15(1):223. doi: [10.1186/s12916-017-0985-3](https://doi.org/10.1186/s12916-017-0985-3). PMID: 29287587; PMCID: PMC5747936.
263. Lipsitch M, Li LM, Patterson S, Trammel J, Juergens C, Gruber WC, Scott DA, Dagan R. Serotype-specific immune responses to pneumococcal conjugate vaccine among children are significantly correlated by individual: Analysis of randomized controlled trial data. *Vaccine*. 2018 Jan 25;36(4):473-478. doi: [10.1016/j.vaccine.2017.12.015](https://doi.org/10.1016/j.vaccine.2017.12.015). Epub 2017 Dec 14. PMID: 29248266; PMCID: PMC5767551.
264. Arnold BJ, Gutmann MU, Grad YH, Sheppard SK, Corander J, Lipsitch M, Hanage WP. Weak Epistasis May Drive Adaptation in Recombining Bacteria. *Genetics*. 2018 Mar;208(3):1247-1260. doi: [10.1534/genetics.117.300662](https://doi.org/10.1534/genetics.117.300662). Epub 2018 Jan 12. PMID: 29330348; PMCID: PMC5844334.
265. Hitchings MDT, Lipsitch M, Wang R, Bellan SE. Competing Effects of Indirect Protection and Clustering on the Power of Cluster-Randomized Controlled Vaccine Trials. *Am J Epidemiol*. 2018 Aug 1;187(8):1763-1771. doi: [10.1093/aje/kwy047](https://doi.org/10.1093/aje/kwy047). PMID: 29522080; PMCID: PMC6070038.
266. Worby CJ, Lipsitch M, Hanage WP. Shared Genomic Variants: Identification of Transmission Routes Using Pathogen Deep-Sequence Data. *Am J Epidemiol*. 2017 Nov 15;186(10):1209-1216. doi: [10.1093/aje/kwx182](https://doi.org/10.1093/aje/kwx182). PMID: 29149252; PMCID: PMC5860558. **Selected as one of the 2017 Articles of the Year, *The American Journal of Epidemiology*.**
267. Johansson MA, Reich NG, Meyers LA, Lipsitch M. Preprints: An underutilized mechanism to accelerate outbreak science. *PLoS Med*. 2018 Apr 3;15(4):e1002549. doi: [10.1371/journal.pmed.1002549](https://doi.org/10.1371/journal.pmed.1002549). PMID: 29614073; PMCID: PMC5882117.
268. Azarian T, Grant LR, Arnold BJ, Hammitt LL, Reid R, Santosham M, Weatherholtz R, Goklish N, Thompson CM, Bentley SD, O'Brien KL, Hanage WP, Lipsitch M. The impact of serotype-specific vaccination on phylodynamic parameters of *Streptococcus pneumoniae* and the pneumococcal pan-genome.

- PLoS Pathog. 2018 Apr 4;14(4):e1006966. doi: [10.1371/journal.ppat.1006966](https://doi.org/10.1371/journal.ppat.1006966). PMID: 29617440; PMCID: PMC5902063.
269. Goldstein E, Worby CJ, Lipsitch M. On the Role of Different Age Groups and Pertussis Vaccines During the 2012 Outbreak in Wisconsin. *Open Forum Infect Dis*. 2018 Apr 16;5(5):ofy082. doi: [10.1093/ofid/ofy082](https://doi.org/10.1093/ofid/ofy082). PMID: 29942818; PMCID: PMC5961225.
270. Blanquart F, Lehtinen S, Lipsitch M, Fraser C. The evolution of antibiotic resistance in a structured host population. *J R Soc Interface*. 2018 Jun;15(143):20180040. doi: [10.1098/rsif.2018.0040](https://doi.org/10.1098/rsif.2018.0040). PMID: 29925579; PMCID: PMC6030642.
271. Lewnard JA, Tähtinen PA, Laine MK, Lindholm L, Jalava J, Huovinen P, Lipsitch M, Ruohola A. Impact of Antimicrobial Treatment for Acute Otitis Media on Carriage Dynamics of Penicillin-Susceptible and Penicillin-Nonsusceptible *Streptococcus pneumoniae*. *J Infect Dis*. 2018 Sep 22;218(9):1356-1366. doi: [10.1093/infdis/jiy343](https://doi.org/10.1093/infdis/jiy343). PMID: 29873739; PMCID: PMC6151080.
272. Olesen SW, Barnett ML, MacFadden DR, Lipsitch M, Grad YH. Trends in outpatient antibiotic use and prescribing practice among US older adults, 2011-15: observational study. *BMJ*. 2018 Jul 27;362:k3155. doi: [10.1136/bmj.k3155](https://doi.org/10.1136/bmj.k3155). PMID: 30054353; PMCID: PMC6062849.
273. Kahn R, Rid A, Smith PG, Eyal N, Lipsitch M. Choices in vaccine trial design in epidemics of emerging infections. *PLoS Med*. 2018 Aug 7;15(8):e1002632. doi: [10.1371/journal.pmed.1002632](https://doi.org/10.1371/journal.pmed.1002632). PMID: 30086139; PMCID: PMC6080746.
274. Eyal N, Lipsitch M, Bärnighausen T, Wikler D. Opinion: Risk to study nonparticipants: A procedural approach. *Proc Natl Acad Sci U S A*. 2018 Aug 7;115(32):8051-8053. doi: [10.1073/pnas.1810920115](https://doi.org/10.1073/pnas.1810920115). PMID: 30087210; PMCID: PMC6094093.
275. Cai FY, Fussell T, Cobey S, Lipsitch M. Use of an individual-based model of pneumococcal carriage for planning a randomized trial of a whole-cell vaccine. *PLoS Comput Biol*. 2018 Oct 1;14(10):e1006333. doi: [10.1371/journal.pcbi.1006333](https://doi.org/10.1371/journal.pcbi.1006333). PMID: 30273332; PMCID: PMC6181404.
276. Lewnard JA, Tedijanto C, Cowling BJ, Lipsitch M. Measurement of Vaccine Direct Effects Under the Test-Negative Design. *Am J Epidemiol*. 2018 Dec 1;187(12):2686-2697. doi: [10.1093/aje/kwy163](https://doi.org/10.1093/aje/kwy163). PMID: 30099505; PMCID: PMC6269249.
277. Relman DA, Lipsitch M. Microbiome as a tool and a target in the effort to address antimicrobial resistance. *Proc Natl Acad Sci U S A*. 2018 Dec 18;115(51):12902-12910. doi: [10.1073/pnas.1717163115](https://doi.org/10.1073/pnas.1717163115). PMID: 30559176; PMCID: PMC6304941.
278. Tedijanto C, Olesen SW, Grad YH, Lipsitch M. Estimating the proportion of bystander selection for antibiotic resistance among potentially pathogenic bacterial flora. *Proc Natl Acad Sci U S A*. 2018 Dec 18;115(51):E11988-E11995. doi: [10.1073/pnas.1810840115](https://doi.org/10.1073/pnas.1810840115). PMID: 30559213; PMCID: PMC6304942.
279. Sevilla JP, Bloom DE, Cadarette D, Jit M, Lipsitch M. Toward economic evaluation of the value of vaccines and other health technologies in addressing

- AMR. *Proc Natl Acad Sci U S A*. 2018 Dec 18;115(51):12911-12919. doi: [10.1073/pnas.1717161115](https://doi.org/10.1073/pnas.1717161115). PMID: 30559203; PMCID: PMC6305008.
280. Campo JJ, Le TQ, Pablo JV, Hung C, Teng AA, Tettelin H, Tate A, Hanage WP, Alderson MR, Liang X, Malley R, Lipsitch M, Croucher NJ. Panproteome-wide analysis of antibody responses to whole cell pneumococcal vaccination. *Elife*. 2018 Dec 28;7:e37015. doi: [10.7554/eLife.37015](https://doi.org/10.7554/eLife.37015). PMID: 30592459; PMCID: PMC6344088.
281. Olesen SW, Barnett ML, MacFadden DR, Brownstein JS, Hernández-Díaz S, Lipsitch M, Grad YH. The distribution of antibiotic use and its association with antibiotic resistance. *Elife*. 2018 Dec 18;7:e39435. doi: [10.7554/eLife.39435](https://doi.org/10.7554/eLife.39435). PMID: 30560781; PMCID: PMC6307856.
282. Georgieva M, Buckee CO, Lipsitch M. Models of immune selection for multi-locus antigenic diversity of pathogens. *Nat Rev Immunol*. 2019 Jan;19(1):55-62. doi: [10.1038/s41577-018-0092-5](https://doi.org/10.1038/s41577-018-0092-5). PMID: 30479379; PMCID: PMC6352731.
283. Abuelezam NN, McCormick AW, Surface ED, Fussell T, Freedberg KA, Lipsitch M, Seage GR. Modelling the epidemiologic impact of achieving UNAIDS fast-track 90-90-90 and 95-95-95 targets in South Africa. *Epidemiol Infect*. 2019 Jan;147:e122. doi: [10.1017/S0950268818003497](https://doi.org/10.1017/S0950268818003497). PMID: 30869008; PMCID: PMC6452860.
284. Mahmud AS, Lipsitch M, Goldstein E. On the role of different age groups during pertussis epidemics in California, 2010 and 2014. *Epidemiol Infect*. 2019 Jan;147:e184. doi: [10.1017/S0950268819000761](https://doi.org/10.1017/S0950268819000761). PMID: 31063110; PMCID: PMC6518560.
285. Olesen SW, Torrone EA, Papp JR, Kirkcaldy RD, Lipsitch M, Grad YH. Azithromycin Susceptibility Among *Neisseria gonorrhoeae* Isolates and Seasonal Macrolide Use. *J Infect Dis*. 2019 Jan 29;219(4):619-623. doi: [10.1093/infdis/jiy551](https://doi.org/10.1093/infdis/jiy551). PMID: 30239814; PMCID: PMC6350947.
286. Gallagher T, Lipsitch M. Postexposure Effects of Vaccines on Infectious Diseases. *Epidemiol Rev*. 2019 Jan 31;41(1):13-27. doi: [10.1093/epirev/mxz014](https://doi.org/10.1093/epirev/mxz014). PMID: 31680134; PMCID: PMC7159179.
287. Kahn R, Hitchings M, Wang R, Bellan SE, Lipsitch M. Analyzing Vaccine Trials in Epidemics With Mild and Asymptomatic Infection. *Am J Epidemiol*. 2019 Feb 1;188(2):467-474. doi: [10.1093/aje/kwy239](https://doi.org/10.1093/aje/kwy239). PMID: 30329134; PMCID: PMC6357804.
288. Mitchell PK, Azarian T, Croucher NJ, Callendrello A, Thompson CM, Pelton SI, Lipsitch M, Hanage WP. Population genomics of pneumococcal carriage in Massachusetts children following introduction of PCV-13. *Microb Genom*. 2019 Feb;5(2):e000252. doi: [10.1099/mgen.0.000252](https://doi.org/10.1099/mgen.0.000252). Epub 2019 Feb 19. PMID: 30777813; PMCID: PMC6421351.
289. Langwig KE, Gomes MGM, Clark MD, Kwitny M, Yamada S, Wargo AR, Lipsitch M. Limited available evidence supports theoretical predictions of reduced vaccine efficacy at higher exposure dose. *Sci Rep*. 2019 Mar 1;9(1):3203. doi: [10.1038/s41598-019-39698-x](https://doi.org/10.1038/s41598-019-39698-x). PMID: 30824732; PMCID: PMC6397254.
290. Yang A, Cai F, Lipsitch M. Herd immunity alters the conditions for performing dose schedule comparisons: an individual-based model of pneumococcal carriage.

- BMC Infect Dis. 2019 Mar 5;19(1):227. doi: [10.1186/s12879-019-3833-6](https://doi.org/10.1186/s12879-019-3833-6). PMID: 30836941; PMCID: PMC6402138.
291. Hitchings MDT, Coldiron ME, Grais RF, Lipsitch M. Analysis of a meningococcal meningitis outbreak in Niger - potential effectiveness of reactive prophylaxis. PLoS Negl Trop Dis. 2019 Mar 11;13(3):e0007077. doi: [10.1371/journal.pntd.0007077](https://doi.org/10.1371/journal.pntd.0007077). PMID: 30856166; PMCID: PMC6428357.
292. Ray GT, Lewis N, Klein NP, Daley MF, Lipsitch M, Fireman B. Depletion-of-susceptibles Bias in Analyses of Intra-season Waning of Influenza Vaccine Effectiveness. Clin Infect Dis. 2020 Mar 17;70(7):1484-1486. doi: [10.1093/cid/ciz706](https://doi.org/10.1093/cid/ciz706). PMID: 31351439; PMCID: PMC7318775.
293. Lehtinen S, Blanquart F, Lipsitch M, Fraser C; with the Maela Pneumococcal Collaboration. On the evolutionary ecology of multidrug resistance in bacteria. PLoS Pathog. 2019 May 13;15(5):e1007763. doi: [10.1371/journal.ppat.1007763](https://doi.org/10.1371/journal.ppat.1007763). PMID: 31083687; PMCID: PMC6532944.
294. McAdams D, Wollein Waldetoft K, Tedijanto C, Lipsitch M, Brown SP. Resistance diagnostics as a public health tool to combat antibiotic resistance: A model-based evaluation. PLoS Biol. 2019 May 16;17(5):e3000250. doi: [10.1371/journal.pbio.3000250](https://doi.org/10.1371/journal.pbio.3000250). PMID: 31095567; PMCID: PMC6522007.
295. MacFadden DR, Fisman DN, Hanage WP, Lipsitch M. The Relative Impact of Community and Hospital Antibiotic Use on the Selection of Extended-spectrum Beta-lactamase-producing Escherichia coli. Clin Infect Dis. 2019 Jun 18;69(1):182-188. doi: [10.1093/cid/ciy978](https://doi.org/10.1093/cid/ciy978). PMID: 30462185; PMCID: PMC6771767.
296. Goldstein E, MacFadden DR, Karaca Z, Steiner CA, Viboud C, Lipsitch M. Antimicrobial resistance prevalence, rates of hospitalization with septicemia and rates of mortality with sepsis in adults in different US states. Int J Antimicrob Agents. 2019 Jul;54(1):23-34. doi: [10.1016/j.ijantimicag.2019.03.004](https://doi.org/10.1016/j.ijantimicag.2019.03.004). Epub 2019 Mar 6. PMID: 30851403; PMCID: PMC6571064.
297. Goldstein E, Olesen SW, Karaca Z, Steiner CA, Viboud C, Lipsitch M. Levels of outpatient prescribing for four major antibiotic classes and rates of septicemia hospitalization in adults in different US states - a statistical analysis. BMC Public Health. 2019 Aug 19;19(1):1138. doi: [10.1186/s12889-019-7431-8](https://doi.org/10.1186/s12889-019-7431-8). PMID: 31426780; PMCID: PMC6701127.
298. Lee RTC, Chang HH, Russell CA, Lipsitch M, Maurer-Stroh S. Influenza A Hemagglutinin Passage Bias Sites and Host Specificity Mutations. Cells. 2019 Aug 22;8(9):958. doi: [10.3390/cells8090958](https://doi.org/10.3390/cells8090958). PMID: 31443542; PMCID: PMC6770435.
299. Abuelezam NN, Reshef YA, Novak D, Grad YH, Seage Iii GR, Mayer K, Lipsitch M. Interaction Patterns of Men Who Have Sex With Men on a Geosocial Networking Mobile App in Seven United States Metropolitan Areas: Observational Study. J Med Internet Res. 2019 Sep 12;21(9):e13766. doi: [10.2196/13766](https://doi.org/10.2196/13766). PMID: 31516124; PMCID: PMC6746104.
300. Eyal N, Kimmelman J, Holtzman LG, Lipsitch M. Regulating impact on bystanders in clinical trials: An unsettled frontier. Clin Trials. 2019 Oct;16(5):450-454. doi: [10.1177/1740774519862783](https://doi.org/10.1177/1740774519862783). Epub 2019 Aug 1. PMID: 31368813; PMCID: PMC6742522.

301. Goldstein E, Finelli L, O'Halloran A, Liu P, Karaca Z, Steiner CA, Viboud C, Lipsitch M. Hospitalizations Associated with Respiratory Syncytial Virus and Influenza in Children, Including Children Diagnosed with Asthma. *Epidemiology*. 2019 Nov;30(6):918-926. doi: [10.1097/EDE.0000000000001092](https://doi.org/10.1097/EDE.0000000000001092). PMID: 31469696; PMCID: PMC6768705.
302. Hicks AL, Kissler SM, Lipsitch M, Grad YH. Surveillance to maintain the sensitivity of genotype-based antibiotic resistance diagnostics. *PLoS Biol*. 2019 Nov 12;17(11):e3000547. doi: [10.1371/journal.pbio.3000547](https://doi.org/10.1371/journal.pbio.3000547). PMID: 31714937; PMCID: PMC6874359.
303. Lipsitch M, Goldstein E, Ray GT, Fireman B. Depletion-of-susceptibles bias in influenza vaccine waning studies: how to ensure robust results. *Epidemiol Infect*. 2019 Nov 27;147:e306. doi: [10.1017/S0950268819001961](https://doi.org/10.1017/S0950268819001961). PMID: 31774051; PMCID: PMC7003633.
304. Knight GM, Davies NG, Colijn C, Coll F, Donker T, Gifford DR, Glover RE, Jit M, Klemm E, Lehtinen S, Lindsay JA, Lipsitch M, Llewelyn MJ, Mateus ALP, Robotham JV, Sharland M, Stekel D, Yakob L, Atkins KE. Mathematical modelling for antibiotic resistance control policy: do we know enough? *BMC Infect Dis*. 2019 Nov 29;19(1):1011. doi: [10.1186/s12879-019-4630-y](https://doi.org/10.1186/s12879-019-4630-y). PMID: 31783803; PMCID: PMC6884858.
305. Ryu S, Cowling BJ, Wu P, Olesen S, Fraser C, Sun DS, Lipsitch M, Grad YH. Case-based surveillance of antimicrobial resistance with full susceptibility profiles. *JAC Antimicrob Resist*. 2019 Dec;1(3):dlz070. doi: [10.1093/jacamr/dlz070](https://doi.org/10.1093/jacamr/dlz070). Epub 2019 Dec 10. PMID: 32280945; PMCID: PMC7134534.
306. Chua H, Feng S, Lewnard JA, Sullivan SG, Blyth CC, Lipsitch M, Cowling BJ. The Use of Test-negative Controls to Monitor Vaccine Effectiveness: A Systematic Review of Methodology. *Epidemiology*. 2020 Jan;31(1):43-64. doi: [10.1097/EDE.0000000000001116](https://doi.org/10.1097/EDE.0000000000001116). PMID: 31609860; PMCID: PMC6888869.
307. Tedijanto C, Grad YH, Lipsitch M. Potential impact of outpatient stewardship interventions on antibiotic exposures of common bacterial pathogens. *Elife*. 2020 Feb 5;9:e52307. doi: [10.7554/eLife.52307](https://doi.org/10.7554/eLife.52307). PMID: 32022685; PMCID: PMC7025820.
308. Goldstein E, Lipsitch M. The relation between prescribing of different antibiotics and rates of mortality with sepsis in US adults. *BMC Infect Dis*. 2020 Feb 22;20(1):169. doi: [10.1186/s12879-020-4901-7](https://doi.org/10.1186/s12879-020-4901-7). PMID: 32087679; PMCID: PMC7036250.
309. Lipsitch M, Swerdlow DL, Finelli L. Defining the Epidemiology of Covid-19 - Studies Needed. *N Engl J Med*. 2020 Mar 26;382(13):1194-1196. doi: [10.1056/NEJMp2002125](https://doi.org/10.1056/NEJMp2002125). Epub 2020 Feb 19. PMID: 32074416.
310. Kennedy-Shaffer L, de Gruttola V, Lipsitch M. Novel methods for the analysis of stepped wedge cluster randomized trials. *Stat Med*. 2020 Mar 30;39(7):815-844. doi: [10.1002/sim.8451](https://doi.org/10.1002/sim.8451). Epub 2019 Dec 26. PMID: 31876979; PMCID: PMC7247054.
311. Goldstein E, Lipsitch M. Temporal rise in the proportion of younger adults and older adolescents among coronavirus disease (COVID-19) cases following the introduction of physical distancing measures, Germany, March to April 2020.

- Euro Surveill. 2020 Apr;25(17):2000596. doi: [10.2807/1560-7917.ES.2020.25.17.2000596](https://doi.org/10.2807/1560-7917.ES.2020.25.17.2000596). PMID: 32372753; PMCID: PMC7201953.
312. Wu JT, Leung K, Bushman M, Kishore N, Niehus R, de Salazar PM, Cowling BJ, Lipsitch M, Leung GM. Estimating clinical severity of COVID-19 from the transmission dynamics in Wuhan, China. *Nat Med*. 2020 Apr;26(4):506-510. doi: [10.1038/s41591-020-0822-7](https://doi.org/10.1038/s41591-020-0822-7). Epub 2020 Mar 19. Erratum in: *Nat Med*. 2020 Jul;26(7):1149-1150. PMID: 32284616; PMCID: PMC7094929.
313. McGough SF, Johansson MA, Lipsitch M, Menzies NA. Nowcasting by Bayesian Smoothing: A flexible, generalizable model for real-time epidemic tracking. *PLoS Comput Biol*. 2020 Apr 6;16(4):e1007735. doi: [10.1371/journal.pcbi.1007735](https://doi.org/10.1371/journal.pcbi.1007735). PMID: 32251464; PMCID: PMC7162546.
314. MacFadden DR, Coburn B, Brinda K, Corbeil A, Daneman N, Fisman D, Lee RS, Lipsitch M, McGeer A, Melano RG, Mubareka S, Hanage WP. Using Genetic Distance from Archived Samples for the Prediction of Antibiotic Resistance in *Escherichia coli*. *Antimicrob Agents Chemother*. 2020 Apr 21;64(5):e02417-19. doi: [10.1128/AAC.02417-19](https://doi.org/10.1128/AAC.02417-19). PMID: 32152083; PMCID: PMC7179619.
315. Li R, Rivers C, Tan Q, Murray MB, Toner E, Lipsitch M. Estimated Demand for US Hospital Inpatient and Intensive Care Unit Beds for Patients With COVID-19 Based on Comparisons With Wuhan and Guangzhou, China. *JAMA Netw Open*. 2020 May 1;3(5):e208297. doi: [10.1001/jamanetworkopen.2020.8297](https://doi.org/10.1001/jamanetworkopen.2020.8297). PMID: 32374400; PMCID: PMC7203604.
316. Eyal N, Lipsitch M, Smith PG. Human Challenge Studies to Accelerate Coronavirus Vaccine Licensure. *J Infect Dis*. 2020 May 11;221(11):1752-1756. doi: [10.1093/infdis/jiaa152](https://doi.org/10.1093/infdis/jiaa152). PMID: 32232474; PMCID: PMC7184325.
317. Lehtinen S, Chewapreecha C, Lees J, Hanage WP, Lipsitch M, Croucher NJ, Bentley SD, Turner P, Fraser C, Mostowy RJ. Horizontal gene transfer rate is not the primary determinant of observed antibiotic resistance frequencies in *Streptococcus pneumoniae*. *Sci Adv*. 2020 May 20;6(21):eaaz6137. doi: [10.1126/sciadv.aaz6137](https://doi.org/10.1126/sciadv.aaz6137). PMID: 32671212; PMCID: PMC7314567.
318. Kissler SM, Tedijanto C, Goldstein E, Grad YH, Lipsitch M. Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period. *Science*. 2020 May 22;368(6493):860-868. doi: [10.1126/science.abb5793](https://doi.org/10.1126/science.abb5793). Epub 2020 Apr 14. PMID: 32291278; PMCID: PMC7164482.
319. Lipsitch M. Good science is good science: we need specialists, not sects. *Eur J Epidemiol*. 2020 Jun;35(6):519-522. doi: [10.1007/s10654-020-00651-2](https://doi.org/10.1007/s10654-020-00651-2). Epub 2020 Jun 20. PMID: 32564181; PMCID: PMC7305476.
320. Flasche S, Lipsitch M, Ojal J, Pinsent A. Estimating the contribution of different age strata to vaccine serotype pneumococcal transmission in the pre vaccine era: a modelling study. *BMC Med*. 2020 Jun 10;18(1):129. doi: [10.1186/s12916-020-01601-1](https://doi.org/10.1186/s12916-020-01601-1). PMID: 32517683; PMCID: PMC7285529.
321. Hicks AL, Kissler SM, Mortimer TD, Ma KC, Taiaroa G, Ashcroft M, Williamson DA, Lipsitch M, Grad YH. Targeted surveillance strategies for efficient detection of novel antibiotic resistance variants. *Elife*. 2020 Jun 30;9:e56367. doi: [10.7554/eLife.56367](https://doi.org/10.7554/eLife.56367). PMID: 32602459; PMCID: PMC7326491.

322. De Salazar PM, Niehus R, Taylor A, Buckee CO, Lipsitch M. Identifying Locations with Possible Undetected Imported Severe Acute Respiratory Syndrome Coronavirus 2 Cases by Using Importation Predictions. *Emerg Infect Dis.* 2020 Jul;26(7):1465-1469. doi: [10.3201/eid2607.200250](https://doi.org/10.3201/eid2607.200250). Epub 2020 Jun 21. PMID: 32207679; PMCID: PMC7323530.
323. Niehus R, De Salazar PM, Taylor AR, Lipsitch M. Using observational data to quantify bias of traveller-derived COVID-19 prevalence estimates in Wuhan, China. *Lancet Infect Dis.* 2020 Jul;20(7):803-808. doi: [10.1016/S1473-3099\(20\)30229-2](https://doi.org/10.1016/S1473-3099(20)30229-2). Epub 2020 Apr 1. PMID: 32246905; PMCID: PMC7270516.
324. Eyal N, Lipsitch M. Opinion: It's ethical to test promising coronavirus vaccines against less-promising ones. *Proc Natl Acad Sci U S A.* 2020 Aug 11;117(32):18898-18901. doi: [10.1073/pnas.2014154117](https://doi.org/10.1073/pnas.2014154117). Epub 2020 Jul 22. PMID: 32699147; PMCID: PMC7431044.
325. Peak CM, Kahn R, Grad YH, Childs LM, Li R, Lipsitch M, Buckee CO. Individual quarantine versus active monitoring of contacts for the mitigation of COVID-19: a modelling study. *Lancet Infect Dis.* 2020 Sep;20(9):1025-1033. doi: [10.1016/S1473-3099\(20\)30361-3](https://doi.org/10.1016/S1473-3099(20)30361-3). Epub 2020 May 20. PMID: 32445710; PMCID: PMC7239635.
326. Levinson M, Cevik M, Lipsitch M. Reopening Primary Schools during the Pandemic. *N Engl J Med.* 2020 Sep 3;383(10):981-985. doi: [10.1056/NEJMms2024920](https://doi.org/10.1056/NEJMms2024920). Epub 2020 Jul 29. PMID: 32726550.
327. Lipsitch M, Grad YH, Sette A, Crotty S. Cross-reactive memory T cells and herd immunity to SARS-CoV-2. *Nat Rev Immunol.* 2020 Nov;20(11):709-713. doi: [10.1038/s41577-020-00460-4](https://doi.org/10.1038/s41577-020-00460-4). Epub 2020 Oct 6. PMID: 33024281; PMCID: PMC7537578.
328. De Salazar PM, Gómez-Barroso D, Pampaka D, Gil JM, Peñalver B, Fernández-Escobar C, Lipsitch M, Larrauri A, Goldstein E, Hernán MA. Lockdown measures and relative changes in the age-specific incidence of SARS-CoV-2 in Spain. *Epidemiol Infect.* 2020 Oct 21;148:e268. doi: [10.1017/S0950268820002551](https://doi.org/10.1017/S0950268820002551). PMID: 33081851; PMCID: PMC7674783.
329. Azarian T, Martinez PP, Arnold BJ, Qiu X, Grant LR, Corander J, Fraser C, Croucher NJ, Hammitt LL, Reid R, Santosham M, Weatherholtz RC, Bentley SD, O'Brien KL, Lipsitch M, Hanage WP. Frequency-dependent selection can forecast evolution in *Streptococcus pneumoniae*. *PLoS Biol.* 2020 Oct 22;18(10):e3000878. doi: [10.1371/journal.pbio.3000878](https://doi.org/10.1371/journal.pbio.3000878). PMID: 33091022; PMCID: PMC7580979.
330. Alwan NA, Burgess RA, Ashworth S, Beale R, Bhadelia N, Bogaert D, Dowd J, Eckerle I, Goldman LR, Greenhalgh T, Gurdasani D, Hamdy A, Hanage WP, Hodcroft EB, Hyde Z, Kellam P, Kelly-Irving M, Krammer F, Lipsitch M, McNally A, McKee M, Nouri A, Pimenta D, Priesemann V, Rutter H, Silver J, Sridhar D, Swanton C, Walensky RP, Yamey G, Ziauddeen H. Scientific consensus on the COVID-19 pandemic: we need to act now. *Lancet.* 2020 Oct 31;396(10260):e71-e72. doi: [10.1016/S0140-6736\(20\)32153-X](https://doi.org/10.1016/S0140-6736(20)32153-X). Epub 2020 Oct 15. Erratum in: *Lancet.* 2020 Oct 19; PMID: 33069277; PMCID: PMC7557300.
331. Kennedy-Shaffer L, Lipsitch M. Statistical Properties of Stepped Wedge Cluster-Randomized Trials in Infectious Disease Outbreaks. *Am J Epidemiol.* 2020 Nov

- 2;189(11):1324-1332. doi: [10.1093/aje/kwaa141](https://doi.org/10.1093/aje/kwaa141). PMID: 32648891; PMCID: PMC7604531.
332. Lipsitch M, Dean NE. Understanding COVID-19 vaccine efficacy. *Science*. 2020 Nov 13;370(6518):763-765. doi: [10.1126/science.abe5938](https://doi.org/10.1126/science.abe5938). Epub 2020 Oct 21. PMID: 33087460.
333. Doan T, Worden L, Hinterwirth A, Arzika AM, Maliki R, Abdou A, Zhong L, Chen C, Cook C, Lebas E, O'Brien KS, Oldenburg CE, Chow ED, Porco TC, Lipsitch M, Keenan JD, Lietman TM. Macrolide and Nonmacrolide Resistance with Mass Azithromycin Distribution. *N Engl J Med*. 2020 Nov 12;383(20):1941-1950. doi: [10.1056/NEJMoa2002606](https://doi.org/10.1056/NEJMoa2002606). PMID: 33176084; PMCID: PMC7492079.
334. Olesen SW, Lipsitch M, Grad YH. The role of "spillover" in antibiotic resistance. *Proc Natl Acad Sci U S A*. 2020 Nov 17;117(46):29063-29068. doi: [10.1073/pnas.2013694117](https://doi.org/10.1073/pnas.2013694117). Epub 2020 Nov 2. PMID: 33139558; PMCID: PMC7682407.
335. Messinger CJ, Lipsitch M, Bateman BT, He M, Huybrechts KF, MacDonald S, Mogun H, Mott K, Hernández-Díaz S. Association Between Congenital Cytomegalovirus and the Prevalence at Birth of Microcephaly in the United States. *JAMA Pediatr*. 2020 Dec 1;174(12):1159-1167. doi: [10.1001/jamapediatrics.2020.3009](https://doi.org/10.1001/jamapediatrics.2020.3009). PMID: 32926077; PMCID: PMC7490747.
336. Gostic KM, McGough L, Baskerville EB, Abbott S, Joshi K, Tedijanto C, Kahn R, Niehus R, Hay JA, De Salazar PM, Hellewell J, Meakin S, Munday JD, Bosse NI, Sherratt K, Thompson RN, White LF, Huisman JS, Scire J, Bonhoeffer S, Stadler T, Wallinga J, Funk S, Lipsitch M, Cobey S. Practical considerations for measuring the effective reproductive number, Rt. *PLoS Comput Biol*. 2020 Dec 10;16(12):e1008409. doi: [10.1371/journal.pcbi.1008409](https://doi.org/10.1371/journal.pcbi.1008409). PMID: 33301457; PMCID: PMC7728287. Erratum in: *PLoS Comput Biol*. 2021 Dec 8;17(12):e1009679. PMID: 33301457; PMCID: PMC7728287.
337. Accorsi EK, Franzosa EA, Hsu T, Joice Cordy R, Maayan-Metzger A, Jaber H, Reiss-Mandel A, Kline M, DuLong C, Lipsitch M, Regev-Yochay G, Huttenhower C. Determinants of *Staphylococcus aureus* carriage in the developing infant nasal microbiome. *Genome Biol*. 2020 Dec 11;21(1):301. doi: [10.1186/s13059-020-02209-7](https://doi.org/10.1186/s13059-020-02209-7). PMID: 33308267; PMCID: PMC7731505.
338. Rid A, Lipsitch M, Miller FG. The Ethics of Continuing Placebo in SARS-CoV-2 Vaccine Trials. *JAMA*. 2021 Jan 19;325(3):219-220. doi: [10.1001/jama.2020.25053](https://doi.org/10.1001/jama.2020.25053). PMID: 33315080.
339. Harrow GL, Lees JA, Hanage WP, Lipsitch M, Corander J, Colijn C, Croucher NJ. Negative frequency-dependent selection and asymmetrical transformation stabilise multi-strain bacterial population structures. *ISME J*. 2021 May;15(5):1523-1538. doi: [10.1038/s41396-020-00867-w](https://doi.org/10.1038/s41396-020-00867-w). Epub 2021 Jan 6. PMID: 33408365.
340. Menkir TF, Chin T, Hay JA, Surface ED, De Salazar PM, Buckee CO, Watts A, Khan K, Sherbo R, Yan AWC, Mina MJ, Lipsitch M, Niehus R. Estimating internationally imported cases during the early COVID-19 pandemic. *Nat Commun*. 2021 Jan 12;12(1):311. doi: [10.1038/s41467-020-20219-8](https://doi.org/10.1038/s41467-020-20219-8). PMID: 33436574; PMCID: PMC7804934.

341. Greene SK, McGough SF, Culp GM, Graf LE, Lipsitch M, Menzies NA, Kahn R. Nowcasting for Real-Time COVID-19 Tracking in New York City: An Evaluation Using Reportable Disease Data From Early in the Pandemic. *JMIR Public Health Surveill.* 2021 Jan 15;7(1):e25538. doi: [10.2196/25538](https://doi.org/10.2196/25538). PMID: 33406053; PMCID: PMC7812916.
342. Kahn R, Kennedy-Shaffer L, Grad YH, Robins JM, Lipsitch M. Potential Biases Arising From Epidemic Dynamics in Observational Seroprotection Studies. *Am J Epidemiol.* 2021 Feb 1;190(2):328-335. doi: [10.1093/aje/kwaa188](https://doi.org/10.1093/aje/kwaa188). PMID: 32870977; PMCID: PMC7499481.
343. Goldstein E, Lipsitch M, Cevik M. On the Effect of Age on the Transmission of SARS-CoV-2 in Households, Schools, and the Community. *J Infect Dis.* 2021 Feb 13;223(3):362-369. doi: [10.1093/infdis/jiaa691](https://doi.org/10.1093/infdis/jiaa691). PMID: 33119738; PMCID: PMC7665686.
344. Tedijanto C, Nevers M, Samore MH, Lipsitch M. Antibiotic use and presumptive pathogens in the Veterans Affairs Healthcare System. *Clin Infect Dis.* 2021 Feb 23:ciab170. doi: [10.1093/cid/ciab170](https://doi.org/10.1093/cid/ciab170). Epub ahead of print. PMID: 33621326.
345. Accorsi EK, Qiu X, Rumpler E, Kennedy-Shaffer L, Kahn R, Joshi K, Goldstein E, Stensrud MJ, Niehus R, Cevik M, Lipsitch M. How to detect and reduce potential sources of biases in studies of SARS-CoV-2 and COVID-19. *Eur J Epidemiol.* 2021 Feb 25;36(2):179-196. doi: [10.1007/s10654-021-00727-7](https://doi.org/10.1007/s10654-021-00727-7). PMID: 33634345; PMCID: PMC7906244.
346. Eyal N, Lipsitch M. How to test SARS-CoV-2 vaccines ethically even after one is available. *Clin Infect Dis.* 2021 Feb 26:ciab182. doi: [10.1093/cid/ciab182](https://doi.org/10.1093/cid/ciab182). Epub ahead of print. PMID: 33639622.
347. Bubar KM, Reinholt K, Kissler SM, Lipsitch M, Cobey S, Grad YH, Larremore DB. Model-informed COVID-19 vaccine prioritization strategies by age and serostatus. *Science.* 2021 Feb 26;371(6532):916-921. doi: [10.1126/science.abe6959](https://doi.org/10.1126/science.abe6959). Epub 2021 Jan 21. PMID: 33479118.
348. Eyal N, Lipsitch M. Testing SARS-CoV-2 vaccine efficacy through deliberate natural viral exposure. *Clin Microbiol Infect.* 2021 Mar;27(3):372-377. doi: [10.1016/j.cmi.2020.12.032](https://doi.org/10.1016/j.cmi.2020.12.032). Epub 2021 Jan 6. PMID: 33421580; PMCID: PMC7787506.
349. Dagan N, Barda N, Kepten E, Miron O, Perchik S, Katz MA, Hernán MA, Lipsitch M, Reis B, Balicer RD. BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting. *N Engl J Med.* 2021 Apr 15;384(15):1412-1423. doi: [10.1056/NEJMoa2101765](https://doi.org/10.1056/NEJMoa2101765). Epub 2021 Feb 24. PMID: 33626250; PMCID: PMC7944975.
350. Cobey S, Larremore DB, Grad YH, Lipsitch M. Concerns about SARS-CoV-2 evolution should not hold back efforts to expand vaccination. *Nat Rev Immunol.* 2021 May;21(5):330-335. doi: [10.1038/s41577-021-00544-9](https://doi.org/10.1038/s41577-021-00544-9). Epub 2021 Apr 1. PMID: 33795856; PMCID: PMC8014893.
351. Bloom JD, Chan YA, Baric RS, Bjorkman PJ, Cobey S, Deverman BE, Fisman DN, Gupta R, Iwasaki A, Lipsitch M, Medzhitov R, Neher RA, Nielsen R, Patterson N, Stearns T, van Nimwegen E, Worobey M, Relman DA. Investigate the origins of COVID-19. *Science.* 2021 May 14;372(6543):694. doi: [10.1126/science.abj0016](https://doi.org/10.1126/science.abj0016). PMID: 33986172.

352. Ma KC, Menkir TF, Kissler S, Grad YH, Lipsitch M. Modeling the impact of racial and ethnic disparities on COVID-19 epidemic dynamics. *Elife*. 2021 May 18;10:e66601. doi: [10.7554/eLife.66601](https://doi.org/10.7554/eLife.66601). PMID: 34003112; PMCID: PMC8221808.
353. Daugherty SE, Guo Y, Heath K, Dasmariñas MC, Jubilo KG, Samranvedhya J, Lipsitch M, Cohen K. Risk of clinical sequelae after the acute phase of SARS-CoV-2 infection: retrospective cohort study. *BMJ*. 2021 May 19;373:n1098. doi: [10.1136/bmj.n1098](https://doi.org/10.1136/bmj.n1098). PMID: 34011492.
354. Hay JA, Kennedy-Shaffer L, Kanjilal S, Lennon NJ, Gabriel SB, Lipsitch M, Mina MJ. Estimating epidemiologic dynamics from cross-sectional viral load distributions. *Science*. 2021 June 3. doi: [10.1126/science.abh0635](https://doi.org/10.1126/science.abh0635).
355. Lipsitch M, Kahn R. Interpreting vaccine efficacy trial results for infection and transmission. *Vaccine*. 2021 Jul 5;39(30):4082-4088. doi: [10.1016/j.vaccine.2021.06.011](https://doi.org/10.1016/j.vaccine.2021.06.011). Epub 2021 Jun 12. PMID: 34130883; PMCID: PMC8197448.
356. Lu FS, Nguyen AT, Link NB, Molina M, Davis JT, Chinazzi M, Xiong X, Vespignani A, Lipsitch M, Santillana M. Estimating the cumulative incidence of COVID-19 in the United States using influenza surveillance, virologic testing, and mortality data: Four complementary approaches. *PLoS Comput Biol*. 2021 Jun 17;17(6):e1008994. doi: [10.1371/journal.pcbi.1008994](https://doi.org/10.1371/journal.pcbi.1008994). PMID: 34138845.
357. Bergwerk M, Gonen T, Lustig Y, Amit S, Lipsitch M, Cohen C, Mandelboim M, Gal Levin E, Rubin C, Indenbaum V, Tal I, Zavitan M, Zuckerman N, Bar-Chaim A, Kreiss Y, Regev-Yochay G. Covid-19 Breakthrough Infections in Vaccinated Health Care Workers. *N Engl J Med*. 2021 Jul 28. doi: [10.1056/NEJMoa2109072](https://doi.org/10.1056/NEJMoa2109072). Epub ahead of print. PMID: 34320281; PMCID: PMC8362591.
358. Regev-Yochay G, Amit S, Bergwerk M, Lipsitch M, Leshem E, Kahn R, Lustig Y, Cohen C, Doolman R, Ziv A, Novikov I, Rubin C, Gimpelevich I, Huppert A, Rahav G, Afek A, Kreiss Y. Decreased infectivity following BNT162b2 vaccination: A prospective cohort study in Israel. *Lancet Reg Health Eur*. 2021 Aug;7:100150. doi: [10.1016/j.lanepe.2021.100150](https://doi.org/10.1016/j.lanepe.2021.100150). Epub 2021 Jul 7. PMID: 34250518; PMCID: PMC8261633.
359. Vekemans J, Hasso-Agopsowicz M, Kang G, Hausdorff WP, Fiore A, Tayler E, Klemm EJ, Laxminarayan R, Srikantiah P, Friede M, Lipsitch M. Leveraging Vaccines to Reduce Antibiotic Use and Prevent Antimicrobial Resistance: a WHO Action Framework. *Clin Infect Dis*. 2021 Aug 16;73(4):e1011-e1017. doi: [10.1093/cid/ciab062](https://doi.org/10.1093/cid/ciab062). PMID: 33493317; PMCID: PMC8366823.
360. Nikolay B, Ribeiro Dos Santos G, Lipsitch M, Rahman M, Luby SP, Salje H, Gurley ES, Cauchemez S. Assessing the feasibility of Nipah vaccine efficacy trials based on previous outbreaks in Bangladesh. *Vaccine*. 2021 Aug 20:S0264-410X(21)01047-1. doi: [10.1016/j.vaccine.2021.08.027](https://doi.org/10.1016/j.vaccine.2021.08.027). Epub ahead of print. PMID: 34426025.
361. Barda N, Dagan N, Ben-Shlomo Y, Kepten E, Waxman J, Ohana R, Hernán MA, Lipsitch M, Kohane I, Netzer D, Reis BY, Balicer RD. Safety of the BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Setting. *N Engl J Med*. 2021 Aug 25;NEJMoa2110475. doi: [10.1056/NEJMoa2110475](https://doi.org/10.1056/NEJMoa2110475). Epub ahead of print. PMID: 34432976; PMCID: PMC8427535.

362. Kennedy-Shaffer L, Kahn R, Lipsitch M. Estimating vaccine efficacy against transmission via effect on viral load. *Epidemiology*. 2021 Aug 30. doi: [10.1097/EDE.0000000000001415](https://doi.org/10.1097/EDE.0000000000001415). Epub ahead of print. PMID: 34469363.
363. Kahn R, Wang R, Leavitt SV, Hanage WP, Lipsitch M. Leveraging Pathogen Sequence and Contact Tracing Data to Enhance Vaccine Trials in Emerging Epidemics. *Epidemiology*. 2021 Sep 1;32(5):698-704. doi: [10.1097/EDE.0000000000001367](https://doi.org/10.1097/EDE.0000000000001367). PMID: 34039898; PMCID: PMC8338748.
364. Dagan N, Barda N, Biron-Shental T, Makov-Assif M, Key C, Kohane IS, Hernán MA, Lipsitch M, Hernandez-Diaz S, Reis BY, Balicer RD. Effectiveness of the BNT162b2 mRNA COVID-19 vaccine in pregnancy. *Nat Med*. 2021 Sep 7. doi: [10.1038/s41591-021-01490-8](https://doi.org/10.1038/s41591-021-01490-8). Epub ahead of print. PMID: 34493859.
365. Haas EJ, McLaughlin JM, Khan F, Angulo FJ, Anis E, Lipsitch M, Singer SR, Mircus G, Brooks N, Smaja M, Pan K, Southern J, Sverdlow DL, Jodar L, Levy Y, Alroy-Preis S. Infections, hospitalisations, and deaths averted via a nationwide vaccination campaign using the Pfizer-BioNTech BNT162b2 mRNA COVID-19 vaccine in Israel: a retrospective surveillance study. *Lancet Infect Dis*. 2021 Sep 22:S1473-3099(21)00566-1. doi: [10.1016/S1473-3099\(21\)00566-1](https://doi.org/10.1016/S1473-3099(21)00566-1). Epub ahead of print. PMID: 34562375; PMCID: PMC8457761.
366. Reis BY, Barda N, Leshchinsky M, Kepten E, Hernán MA, Lipsitch M, Dagan N, Balicer RD. Effectiveness of BNT162b2 Vaccine against Delta Variant in Adolescents. *N Engl J Med*. 2021 Nov 25. doi: [10.1056/NEJMc2114290](https://doi.org/10.1056/NEJMc2114290). Epub 2021 Oct 20. PMID: 34670036; PMCID: PMC8552532.
367. Barda N, Dagan N, Cohen C, Hernán MA, Lipsitch M, Kohane IS, Reis BY, Balicer RD. Effectiveness of a third dose of the BNT162b2 mRNA COVID-19 vaccine for preventing severe outcomes in Israel: an observational study. *Lancet*. 2021 Dec 4;398(10316):2093-2100. doi: [10.1016/S0140-6736\(21\)02249-2](https://doi.org/10.1016/S0140-6736(21)02249-2). Epub 2021 Oct 29. PMID: 34756184; PMCID: PMC8555967.
368. Singer SR, Angulo FJ, Sverdlow DL, McLaughlin JM, Hazan I, Ginish N, Anis E, Mendelson E, Mor O, Zuckerman NS, Erster O, Southern J, Pan K, Mircus G, Lipsitch M, Haas EJ, Jodar L, Levy Y, Alroy-Preis S. Effectiveness of BNT162b2 mRNA COVID-19 vaccine against SARS-CoV-2 variant Beta (B.1.351) among persons identified through contact tracing in Israel: A prospective cohort study. *EClinicalMedicine*. 2021 Dec;42:101190. doi: [10.1016/j.eclinm.2021.101190](https://doi.org/10.1016/j.eclinm.2021.101190). Epub 2021 Nov 29. PMID: 34870134; PMCID: PMC8628463.
369. Lipsitch M, Krammer F, Regev-Yochay G, Lustig Y, Balicer RD. SARS-CoV-2 breakthrough infections in vaccinated individuals: measurement, causes and impact. *Nat Rev Immunol*. 2021 Dec 7. doi: [10.1038/s41577-021-00662-4](https://doi.org/10.1038/s41577-021-00662-4). Epub ahead of print. PMID: 34876702; PMCID: PMC8649989.
370. Bushman M, Kahn R, Taylor BP, Lipsitch M, Hanage WP. Population impact of SARS-CoV-2 variants with enhanced transmissibility and/or partial immune escape. *Cell*. 2021 Dec 22. doi: [10.1016/j.cell.2021.11.026](https://doi.org/10.1016/j.cell.2021.11.026). Epub 2021 Nov 19. PMID: 34910927; PMCID: PMC8603072.
371. Tedijanto C, Nevers M, Samore MH, Lipsitch M. Antibiotic Use and Presumptive Pathogens in the Veterans Affairs Healthcare System. *Clin Infect Dis*. 2022 Jan 7;74(1):105-112. doi: [10.1093/cid/ciab170](https://doi.org/10.1093/cid/ciab170). PMID: 33621326; PMCID: PMC8752245.

372. de Kraker MEA, Lipsitch M. Burden of Antimicrobial Resistance: Compared to What? *Epidemiol Rev.* 2022 Jan 14;43(1):53-64. doi: [10.1093/epirev/mxab001](https://doi.org/10.1093/epirev/mxab001). PMID: 33710259; PMCID: PMC8763122.
373. Kahn R, Schrag SJ, Verani JR, Lipsitch M. Identifying and alleviating bias due to differential depletion of susceptible people in post-marketing evaluations of COVID-19 vaccines. *Am. J. Epidemiol.* 2022 Jan 27. doi: [10.1101/2021.07.15.21260595](https://doi.org/10.1101/2021.07.15.21260595). PMID: 35081612; PMCID: PMC8807238.
374. Hayek S, Shaham G, Ben-Shlomo Y, Kepten E, Dagan N, Nevo D, Lipsitch M, Reis BY, Balicer RD, Barda N. Indirect protection of children from SARS-CoV-2 infection through parental vaccination. *Science.* 2022 Jan 27:eabm3087. doi: [10.1126/science.abm3087](https://doi.org/10.1126/science.abm3087). Epub ahead of print. PMID: 35084938.
375. Cohen K, Ren S, Heath K, Dasmariñas MC, Jubilo KG, Guo Y, Lipsitch M, Daugherty SE. Risk of persistent and new clinical sequelae among adults aged 65 years and older during the post-acute phase of SARS-CoV-2 infection: retrospective cohort study. *BMJ.* 2022 Feb 9;376:e068414. doi: [10.1136/bmj-2021-068414](https://doi.org/10.1136/bmj-2021-068414). PMID: 35140117; PMCID: PMC8828141.
376. Magosi LE, Zhang Y, Golubchik T, DeGruttola V, Tchetgen Tchetgen E, Novitsky V, Moore J, Bachanas P, Segolodi T, Lebelonyane R, Pretorius Holme M, Moyo S, Makhema J, Lockman S, Fraser C, Essex MM, Lipsitch M; Botswana Combination Prevention Project and PANGEA consortium. Deep-sequence phylogenetics to quantify patterns of HIV transmission in the context of a universal testing and treatment trial - BCPP/Ya Tsie trial. *Elife.* 2022 Mar 1;11:e72657. doi: [10.7554/eLife.72657](https://doi.org/10.7554/eLife.72657). PMID: 35229714; PMCID: PMC8912920.
377. Sun DS, Kissler SM, Kanjilal S, Olesen SW, Lipsitch M, Grad YH. Analysis of multiple bacterial species and antibiotic classes reveals large variation in the association between seasonal antibiotic use and resistance. *PLoS Biol.* 2022 Mar 9;20(3):e3001579. doi: [10.1371/journal.pbio.3001579](https://doi.org/10.1371/journal.pbio.3001579). PMID: 35263322; PMCID: PMC8936496.
378. De Salazar PM, Lu F, Hay JA, Gómez-Barroso D, Fernández-Navarro P, Martínez EV, Astray-Mochales J, Amillategui R, García-Fulgueiras A, Chirlaque MD, Sánchez-Migallón A, Larrauri A, Sierra MJ, Lipsitch M, Simón F, Santillana M, Hernán MA. Near real-time surveillance of the SARS-CoV-2 epidemic with incomplete data. *PLoS Comput Biol.* 2022 Mar 31;18(3):e1009964. doi: [10.1371/journal.pcbi.1009964](https://doi.org/10.1371/journal.pcbi.1009964). Epub ahead of print. PMID: 35358171.
379. Magen O, Waxman JG, Makov-Assif M, Vered R, Dicker D, Hernán MA, Lipsitch M, Reis BY, Balicer RD, Dagan N. Fourth Dose of BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Setting. *N Engl J Med.* 2022 Apr 28;386(17):1603-1614. doi: [10.1056/NEJMoa2201688](https://doi.org/10.1056/NEJMoa2201688). Epub 2022 Apr 13. PMID: 35417631.
380. Figueiredo JC, Hirsch FR, Kushi LH, Nembhard WN, Crawford JM, Mantis N, Finster L, Merin NM, Merchant A, Reckamp KL, Melmed GY, Braun J, McGovern D, Parekh S, Corley DA, Zohoori N, Amick BC, Du R, Gregersen PK, Diamond B, Taioli E, Sariol C, Espino A, Weiskopf D, Gifoni A, Brien J, Hanege W, Lipsitch M, Zidar DA, McAlearney AS, Wajnberg A, LaBaer J, Lewis EY, Binder RA, Moormann AM, Forconi C, Forrester S, Batista J, Schieffelin J, Kim

- D, Biancon G, VanOudenhove J, Halene S, Fan R, Barouch DH, Alter G, Pinninti S, Boppana SB, Pati SK, Latting M, Karaba AH, Roback J, Sekaly R, Neish A, Brincks AM, Granger DA, Karger AB, Thyagarajan B, Thomas SN, Klein SL, Cox AL, Lucas T, Furr-Holden D, Key K, Jones N, Wrammerr J, Suthar M, Yu Wong S, Bowman NM, Simon V, Richardson LD, McBride R, Krammer F, Rana M, Kennedy J, Boehme K, Forrest C, Granger SW, Heaney CD, Knight Lapinski M, Wallet S, Baric RS, Schifanella L, Lopez M, Fernández S, Kenah E, Panchal AR, Britt WJ, Sanz I, Dhodapkar M, Ahmed R, Bartelt LA, Markmann AJ, Lin JT, Hagan RS, Wolfgang MC, Skarbinski J. Mission, Organization and Future Direction of the Serological Sciences Network for COVID-19 (SeroNet) Epidemiologic Cohort Studies. *Open Forum Infectious Diseases*. 2022 Apr 27;ofac171. doi: [10.1093/ofid/ofac171](https://doi.org/10.1093/ofid/ofac171).
381. Lewnard JA, Hong VX, Patel MM, Kahn R, Lipsitch M, Tartof SY. Clinical outcomes associated with SARS-CoV-2 Omicron (B.1.1.529) variant and BA.1/BA.1.1 or BA.2 subvariant infection in southern California. *Nat Med*. 2022 Jun 8. doi: [10.1038/s41591-022-01887-z](https://doi.org/10.1038/s41591-022-01887-z). Epub ahead of print. PMID: 35675841.
382. Malden DE, Hong V, Lewin BJ, Ackerson BK, Lipsitch M, Lewnard JA, Tartof SY. Hospitalization and Emergency Department Encounters for COVID-19 After Paxlovid Treatment - California, December 2021-May 2022. *MMWR Morb Mortal Wkly Rep*. 2022 Jun 24;71(25):830-833. doi: [15585/mmwr.mm7125e2](https://doi.org/10.15585/mmwr.mm7125e2). PMID: 35737591.
383. Cohen-Stavi CJ, Magen O, Barda N, Yaron S, Peretz A, Netzer D, Giaquinto C, Judd A, Leibovici L, Hernán MA, Lipsitch M, Reis BY, Balicer RD, Dagan N. BNT162b2 Vaccine Effectiveness against Omicron in Children 5 to 11 Years of Age. *N Engl J Med*. 2022 Jun 29;NEJMoa2205011. doi: [10.1056/NEJMoa2205011](https://doi.org/10.1056/NEJMoa2205011). Epub ahead of print. PMID: 35767475; PMCID: PMC9258754.
384. Boyer CB, Rumpler E, Kissler SM, Lipsitch M. Infectious disease dynamics and restrictions on social gathering size. *Epidemics*. 2022 Sep;40:100620. doi: [10.1016/j.epidem.2022.100620](https://doi.org/10.1016/j.epidem.2022.100620). Epub ahead of print. PMID: 36058184; PMCID: PMC9384337.
385. Kogan NE, Gantt S, Swerdlow D, Viboud C, Semakula M, Lipsitch M, Santillana M. Leveraging Serosurveillance and Postmortem Surveillance to Quantify the Impact of COVID-19 in Africa. *Clin Infect Dis*. 2022 Oct 5:ciac797. doi: [10.1093/cid/ciac797](https://doi.org/10.1093/cid/ciac797). Epub ahead of print. PMID: 36196586.
386. Goldstein E, Fireman BH, Klein NP, Lipsitch M, Ray GT. Prescribing for different antibiotic classes across age groups in the Kaiser Permanente Northern California population in association with influenza incidence, 2010-2018. *Epidemiol Infect*. 2022 Oct 26:1-30. doi: [10.1017/S0950268822001662](https://doi.org/10.1017/S0950268822001662). Epub ahead of print. PMID: 36285506.
387. Kahn R, Eyal N, Sow SO, Lipsitch M. Mass drug administration of azithromycin: an analysis. *Clin Microbiol Infect*. 2022 Oct 27:S1198-743X(22)00536-5. doi: [10.1016/j.cmi.2022.10.022](https://doi.org/10.1016/j.cmi.2022.10.022). Epub ahead of print. PMID: 36309328.
388. Pannu J, Palmer MJ, Cicero A, Relman DA, Lipsitch M, Inglesby T. Strengthen oversight of risky research on pathogens. *Science*. 2022 Dec 16;378(6625):1170-1172. doi: [10.1126/science.adf6020](https://doi.org/10.1126/science.adf6020). Epub 2022 Dec 8. PMID: 36480598.

389. Rumpler E, Feldman JM, Bassett MT, Lipsitch M. Fairness and efficiency considerations in COVID-19 vaccine allocation strategies: A case study comparing front-line workers and 65–74 year olds in the United States. *PLOS Global Public Health*. 2023 Feb 6;3(2):e0001378. doi: [10.1371/journal.pgph.0001378](https://doi.org/10.1371/journal.pgph.0001378).
390. Joshi K, Rumpler E, Kennedy-Shaffer L, Bosan R, Lipsitch M. Comparative performance of between-population vaccine allocation strategies with applications for emerging pandemics. *Vaccine*. 2023 Mar 10;41(11):1864-1874. doi: [10.1016/j.vaccine.2022.12.053](https://doi.org/10.1016/j.vaccine.2022.12.053). Epub 2023 Jan 23. PMID: 36697312; PMCID: PMC10075509.
391. Jernigan DB, George D, Lipsitch M. Learning From COVID-19 to Improve Surveillance for Emerging Threats. *Am J Public Health*. 2023 May;113(5):520-522. doi: [10.2105/AJPH.2023.307261](https://doi.org/10.2105/AJPH.2023.307261). Epub 2023 Mar 16. PMID: 36926966; PMCID: PMC10088952.
392. Jia KM, Kahn R, Fisher R, Balter S, Lipsitch M. Geographic Targeting of COVID-19 Testing to Maximize Detection in Los Angeles County. *Open Forum Infect Dis*. 2023 Jun 27;10(7):ofad331. doi: [10.1093/ofid/ofad331](https://doi.org/10.1093/ofid/ofad331). PMID: 37469616; PMCID: PMC10352645.
393. Lewnard JA, Hong V, Kim JS, Shaw SF, Lewin B, Takhar H, Lipsitch M, Tartof SY. Increased vaccine sensitivity of an emerging SARS-CoV-2 variant. *Nat Commun*. 2023 Jun 29;14(1):3854. doi: [10.1038/s41467-023-39567-2](https://doi.org/10.1038/s41467-023-39567-2). PMID: 37386005; PMCID: PMC10310822.
394. Jia KM, Hanage WP, Lipsitch M, Johnson AG, Amin AB, Ali AR, Scobie HM, Swerdlow DL. Estimated preventable COVID-19-associated deaths due to non-vaccination in the United States. *Eur J Epidemiol*. 2023 Nov;38(11):1125-1128. doi: [10.1007/s10654-023-01006-3](https://doi.org/10.1007/s10654-023-01006-3). Epub 2023 Apr 24. PMID: 37093505; PMCID: PMC10123459.
395. Kahn R, Feikin DR, Wiegand RE, Lipsitch M. Examining bias from differential depletion of susceptibles in vaccine effectiveness estimates in settings of waning. *Am J Epidemiol*. 2024 Jan 8;193(1):232-234. doi: [10.1093/aje/kwad191](https://doi.org/10.1093/aje/kwad191). PMID: 37771045; PMCID: PMC10773472.
396. Rosen JB, Arciuolo RJ, Pathela P, Boyer CB, Baumgartner J, Latash J, Malec L, Lee EH, Reddy V, King R, Edward Real J, Lipsitch M, Zucker JR. JYNNEOS™ effectiveness as post-exposure prophylaxis against mpox: Challenges using real-world outbreak data. *Vaccine*. 2024 Jan 25;42(3):548-555. doi: [10.1016/j.vaccine.2023.12.066](https://doi.org/10.1016/j.vaccine.2023.12.066). Epub 2024 Jan 13. PMID: 38218669; PMCID: PMC10960631.
397. Dagan N, Magen O, Leschinsky M, Makov-Assif M, Lipsitch M, Reis BY, Yaron S, Netzer D, Balicer RB. Prospective evaluation of machine-learning for public health screening: Identifying unknown hepatitis C carriers. *NEJM AI*. 2024 Jan 25;1(2). doi: [10.1056/AIoa2300012](https://doi.org/10.1056/AIoa2300012).
398. Richard DM, Lipsitch M. What's next: using infectious disease mathematical modelling to address health disparities. *Int J Epidemiol*. 2024 Feb 1;53(1):dyad180. doi: [10.1093/ije/dyad180](https://doi.org/10.1093/ije/dyad180). PMID: 38145617; PMCID: PMC10859128.

399. Olejarz JW, Roster KIO, Kissler SM, Lipsitch M, Grad YH. Optimal environmental testing frequency for outbreak surveillance. *Epidemics*. 2024 Mar;46:100750. doi: [10.1016/j.epidem.2024.100750](https://doi.org/10.1016/j.epidem.2024.100750). Epub 2024 Feb 15. PMID: 38394927; PMCID: PMC10979539.
400. Li G, Gerlovin H, Figueroa Muñoz MJ, Wise JK, Madenci AL, Robins JM, Aslan M, Cho K, Gaziano JM, Lipsitch M, Casas JP, Hernán MA, Dickerman BA. Comparison of the Test-negative Design and Cohort Design With Explicit Target Trial Emulation for Evaluating COVID-19 Vaccine Effectiveness. *Epidemiology*. 2024 Mar 1;35(2):137-149. doi: [10.1097/EDE.0000000000001709](https://doi.org/10.1097/EDE.0000000000001709). Epub 2023 Dec 18. PMID: 38109485.
401. Bi Q, Dickerman BA, Nguyen HQ, Martin ET, Gaglani M, Wernli KJ, Balasubramani GK, Flannery B, Lipsitch M, Cobey S; US Flu Vaccine Effectiveness Network Investigators. Reduced effectiveness of repeat influenza vaccination: distinguishing among within-season waning, recent clinical infection, and subclinical infection. *J Infect Dis*. 2024 Apr 30;jiae220. doi: [10.1093/infdis/jiae220](https://doi.org/10.1093/infdis/jiae220). Epub ahead of print. PMID: 38687898.
402. Raphson L, Lipsitch M. Estimated Excess Deaths Due to COVID-19 Among the Urban Population of Mainland China, December 2022 to January 2023. *Epidemiology*. 2024 May 1;35(3):372-376. doi: [10.1097/EDE.0000000000001723](https://doi.org/10.1097/EDE.0000000000001723). Epub 2024 Jan 29. PMID: 38300113; PMCID: PMC11023797.
403. Lipsitch M, Grad Y. Diagnostics for Public Health - Infectious Disease Surveillance and Control. *NEJM Evid*. 2024 May;3(5):EVIDra2300271. doi: [10.1056/EVIDra2300271](https://doi.org/10.1056/EVIDra2300271). Epub 2024 Apr 23. PMID: 38815175.
404. Chin T, Foxman EF, Watkins TA, Lipsitch M. Considerations for viral co-infection studies in human populations. *mBio*. 2024 Jul 17;15(7):e0065824. doi: [10.1128/mbio.00658-24](https://doi.org/10.1128/mbio.00658-24). Epub 2024 Jun 7. PMID: 38847531; PMCID: PMC11253623.
405. Lipsitch M, Bassett MT, Brownstein JS, Elliott P, Eyre D, Grabowski MK, Hay JA, Johansson MA, Kissler SM, Larremore DB, Layden JE, Lessler J, Lynfield R, MacCannell D, Madoff LC, Metcalf CJE, Meyers LA, Ofori SK, Quinn C, Bento AI, Reich NG, Riley S, Rosenfeld R, Samore MH, Sampath R, Slayton RB, Swerdlow DL, Truelove S, Varma JK, Grad YH. Infectious disease surveillance needs for the United States: lessons from Covid-19. *Front Public Health*. 2024 Jul 15;12:1408193. doi: [10.3389/fpubh.2024.1408193](https://doi.org/10.3389/fpubh.2024.1408193). PMID: 39076420; PMCID: PMC11285106.
406. Pham TM, Zhang Y, Nevers M, Li H, Khader K, Grad YH, Lipsitch M, Samore M. Trends in infection incidence and antimicrobial resistance in the US Veterans Affairs Healthcare System: a nationwide retrospective cohort study (2007-22). *Lancet Infect Dis*. 2024 Aug 13:S1473-3099(24)00416-X. doi: [10.1016/S1473-3099\(24\)00416-X](https://doi.org/10.1016/S1473-3099(24)00416-X). Epub ahead of print. PMID: 39151443.
407. Qiu X, McGee L, Hammitt L, Grant LR, O'Brien KL, Hanage WP, Lipsitch M. Prediction of post-PCV13 pneumococcal evolution using invasive disease data enhanced by inverse-invasiveness weighting. *mBio*. 2024 Aug 29:e0335523. doi: [10.1128/mbio.03355-23](https://doi.org/10.1128/mbio.03355-23). Epub ahead of print. PMID: 39207103.

408. Boyer C, Lipsitch M. Emulating target trials of postexposure vaccines using observational data. *Am J Epidemiol*. 2024 Sep 12:kwae350. doi: [10.1093/aje/kwae350](https://doi.org/10.1093/aje/kwae350). Epub ahead of print. PMID: 39270677.
409. Lewnard JA, Mahale P, Malden D, Hong V, Ackerson BK, Lewin BJ, Link-Gelles R, Feldstein LR, Lipsitch M, Tartof SY. Immune escape and attenuated severity associated with the SARS-CoV-2 BA.2.86/JN.1 lineage. *Nat Commun*. 2024 Oct 3;15(1):8550. doi: [10.1038/s41467-024-52668-w](https://doi.org/10.1038/s41467-024-52668-w). PMID: 39362845.
410. Jia KM, Boyer CB, Wallinga J, Lipsitch M. Causal Estimands for Analyses of Averted and Avertible Outcomes due to Infectious Disease Interventions. *Epidemiology in press*. *Epidemiology*; 2025 Jan 24. doi: [10.1097/EDE.0000000000001839](https://doi.org/10.1097/EDE.0000000000001839). Epub ahead of print. PMID: 39855261.
411. Ricotta EE, Bustos Carrillo FA, Angelli-Nichols S, Barugahare J, Benton A, Carlson CJ, Chang-Rabley E, Dean NE, Duda SN, Federer L, Fill MA, LeRoy EC, Linton NM, Lipsitch M, Mathur MB, Phelan AL, Rid A, Rosen JB, Sauer L, Sullivan SG, Zendt M, Evans N. Observational research in epidemic settings: a roadmap to reform. *BMJ Glob Health*. 2025 Feb 10;10(2):e017981. doi: [10.1136/bmjgh-2024-017981](https://doi.org/10.1136/bmjgh-2024-017981). PMID: 39929534
412. Budeski K, Lipsitch M. Focusing a viral risk ranking tool on prediction. *Proc Natl Acad Sci U S A*. 2025 Apr 22;122(16):e2419337122. doi: [10.1073/pnas.2419337122](https://doi.org/10.1073/pnas.2419337122). Epub 2025 Apr 17. PMID: 40244666; PMCID: PMC12036980
413. Katz MJ, Reeves M, Harris TG, Duque J, Fridkin SK, Rebolledo PA, Furuno JP, Short EK, Canaday DH, Abul Y, Gravenstein S, Cosgrove SE, Mody L, Meddings J, Nace DA, Handler S, Crnich CJ, Meece J, Webby RJ, Fabrizio TP, Harcourt JL, Healy JM, Lipsitch M, Lutgring JD, Paul P, Zipfel CM, Hernandez-Romieu AC, Reddy SC, Slayton RB. Kinetics of SARS-CoV-2 Shedding in Nursing Home Residents and Staff. *J Am Geriatr Soc*. 2025 May 2. doi: [10.1111/jgs.19499](https://doi.org/10.1111/jgs.19499). Epub ahead of print. PMID: 40317518
414. Deichmann J, Barda N, Canetti M, Peretz Y, Weiss-Ottolenghi Y, Lustig Y, Regev-Yochay G, Lipsitch M. Predicting antibody kinetics and duration of protection against SARS-CoV-2 following vaccination from sparse serological data. *PLoS Comput Biol*. 2025 Jun 18;21(6):e1013192. doi: [10.1371/journal.pcbi.1013192](https://doi.org/10.1371/journal.pcbi.1013192). Epub ahead of print. PMID: 40531962.
415. González Ojeda I, Palace SG, Martinez PP, Azarian T, Grant LR, Hammitt LL, Hanage WP, Lipsitch M. Linkage-based ortholog refinement in bacterial pangenomes with CLARC. *Nucleic Acids Res*. 2025 Jun 20;53(12):gkaf488. doi: [10.1093/nar/gkaf488](https://doi.org/10.1093/nar/gkaf488). PMID: 40539515.
416. Rumpler E, Lipsitch M. Equity considerations in COVID-19 vaccine allocation modelling: a methodological study. *Interface Focus*. 2025 Sep 26;15(4):20240037. doi: [10.1098/rsfs.2024.0037](https://doi.org/10.1098/rsfs.2024.0037). PMID: 41017906; PMCID: PMC12464572.
417. Gago J, Boyer C, Lipsitch M. How Should We Study the Indirect Effects of Antimicrobial Treatment Strategies?: A Causal Perspective. *Epidemiology*. 2025 Oct 28. doi: [10.1097/EDE.0000000000001921](https://doi.org/10.1097/EDE.0000000000001921). Epub ahead of print. PMID: 41176807.

418. Olejarz J, Hoffmann T, Zapf A, Mugahid D, Molinaro R, Brown C, Boltyenkov A, Dudykevych T, Gupta A, Lipsitch M, Atun R, Onnela JP, Fortune S, Sampath R, Grad YH. A binary prototype for time-series surveillance and intervention. *Epidemics*. 2025 Nov 11;53:100866. doi: [10.1016/j.epidem.2025.100866](https://doi.org/10.1016/j.epidem.2025.100866). Epub ahead of print. PMID: 41242306.

Data Sets

1. Croucher NJ, Finkelstein JA, Pelton SI, Parkhill J, Bentley SD, Lipsitch M, Hanage WP. Population genomic datasets describing the post-vaccine evolutionary epidemiology of *Streptococcus pneumoniae*. *Sci Data*. 2015 Oct 27;2:150058. doi: 10.1038/sdata.2015.58. eCollection 2015. PMID: 26528397; PMCID: PMC4622223.

Preprints and submitted mss

1. Mooring EQ, Marks M, Mitja O, Castro M, Lipsitch M, Murray MB. Programmatic goals and spatial epidemiology influence the merit of targeted versus of population-wide interventions for yaws eradication. *bioRxiv* [Preprint]. 2019 May 17. doi: [10.1101/640326](https://doi.org/10.1101/640326).
2. Luo W, Majumder MS, Liu D, Poirier C, Mandel KD, Lipsitch M, Santillana M. The role of absolute humidity on transmission rates of the COVID-19 outbreak. *medRxiv* [Preprint]. 2020 Feb 17. doi: [10.1101/2020.02.12.20022467](https://doi.org/10.1101/2020.02.12.20022467).
3. Johnson EK, Kahn R, Grad YH, Lipsitch M, Larremore DB. Test negative designs with uncertainty, sensitivity, and specificity. *medRxiv* [Preprint]. 2021 Jun 27. doi: [10.1101/2021.06.24.21259495](https://doi.org/10.1101/2021.06.24.21259495).
4. Boyer CB, Lipsitch M. Defining and emulating target trials of the effects of postexposure vaccination using observational data. *medRxiv* [Preprint]. 2023 May 03. doi: [10.1101/2023.05.03.23289471](https://doi.org/10.1101/2023.05.03.23289471).
5. Joshi K, Kahn R, Boyer C, Lipsitch M. Some principles for using epidemiologic study results to parameterize transmission models. *medRxiv* [Preprint]. 2023 Oct 03. doi: [10.1101/2023.10.03.23296455](https://doi.org/10.1101/2023.10.03.23296455).
6. Park SW, Akhmetzhanov AR, Charniga K, Cori A, Davies NG, Dushoff J, Funk S, Gostic K, Grenfell B, Linton NM, Lipsitch M, Lison A, Overton CE, Ward T, Abbott S. Estimating epidemiological delay distributions for infectious diseases. *medRxiv* [Preprint] 2024 Jan 13. doi: [10.1101/2024.01.12.24301247](https://doi.org/10.1101/2024.01.12.24301247).
7. Jia K, Boyer C, Wallinga J, Lipsitch M. Causal Estimands for Infectious Disease Count Outcomes to Investigate the Public Health Impact of Interventions. *medRxiv* [Preprint]. 2024 Jul 26. doi: [10.1101/2024.07.24.24310946](https://doi.org/10.1101/2024.07.24.24310946).
8. Magosi LE, Tchetgen ET, Novitsky V, Holme MP, Moore J, Bachanas P, Lebelonyane R, Fraser C, Moyo S, Hurwitz KE, Gaolathe T, Goyal R, Makhema J, Lockman S, Essex M, Gruttola VD, Lipsitch M. Unpacking sources of transmission in HIV prevention trials with deep-sequence pathogen data – BCPP/ Ya Tsie study. *medRxiv*. [Preprint]. 2024 Aug 30. doi: [2024.2024.08.30.24312845](https://doi.org/2024.2024.08.30.24312845).
9. Rumpler E, Lipsitch M. Equity considerations in COVID-19 vaccine allocation modelling: a literature review. 2024. *Arxiv* [preprint] <https://arxiv.org/abs/2409.11462>
10. Zhang Z, Boyer CB, Lipsitch M. Use of the test-negative design to estimate the protective effect of a scalar immune measure: A simulation analysis. *medRxiv* [Preprint]. 2024 Nov 22 doi:[10.1101/2024.11.22.24317757](https://doi.org/10.1101/2024.11.22.24317757) *medRxiv* [Preprint] 2024 Nov 30 doi:[10.1101/2024.07.24.24310946](https://doi.org/10.1101/2024.07.24.24310946)
11. Rubin IN, Bushman M, Lipsitch M, Hanage WP. Seasonal forcing and waning immunity drive the sub-annual periodicity of the COVID-19 epidemic. *medRxiv* [Preprint]. 2025 Mar 10. doi: [10.1101/2025.03.05.25323464](https://doi.org/10.1101/2025.03.05.25323464).
12. Pham TM, Zhang Y, Nevers M, Li H, Khader K, Grad YH, Samore M, Lipsitch M. Characterizing antimicrobial selection pressure on resistance across four major

- causes of infections: Insights from the US Veterans Affairs Healthcare System, 2007-2021. medRxiv [Preprint]. 2025 Mar 13. doi: [10.1101/2025.03.12.25323875](https://doi.org/10.1101/2025.03.12.25323875)
13. Srivathsan A, Arzika AM, Maliki R, Abdou A, Lipsitch M, Blumberg S, O'Brien KS, Porco TC, Hinterwirth A, Doan T, Keenan JD, Lietman TM, Arnold BF. Geographic spillover of antimicrobial resistance from mass distribution of azithromycin. medRxiv [Preprint]. 2025 July 23. doi: [10.1101/2025.07.22.25331994v1](https://doi.org/10.1101/2025.07.22.25331994v1)
 14. McQuade ER, Nabi R, Codi A, Dean N, Lipsitch M, Benkeser D. Vaccine efficacy against naturally asymptomatic infections: A novel estimand for quantifying vaccine effects. medRxiv [Preprint]. 2025 Aug 24. doi: [10.1101/2025.08.20.25334070](https://doi.org/10.1101/2025.08.20.25334070)
 15. Jia KM, Boyer CB, Bilinski A, Lipsitch M. Defining and Estimating Outcomes Directly Averted by a Vaccination Program when Rollout Occurs Over Time. Arxiv [preprint]. 2025 Sep 5. doi: [10.48550/arXiv.2509.05508](https://doi.org/10.48550/arXiv.2509.05508)

Group-authored book

1. COVID Crisis Group (ML, Senior Advisor). Lessons from the COVID War: An Investigative Report. New York: Public Affairs Books, 2023.

Book chapters

1. Lipsitch M, Levin BR. 1997. The within-host population dynamics of anti-bacterial chemotherapy: conditions for the evolution of resistance. Pp. 112-127 in Ciba Foundation Symposium No. 207: Antibiotic Resistance: Origins, Evolution, Selection and Spread. Chichester, UK: John Wiley & Sons.
2. Bangham C, Anderson R, Baquero F, Bax R, Hastings I, Koella J, Lipsitch M, McLean A, Smith T, Taddei F, Levin B. 1999. Evolution of infectious diseases: The impact of vaccines, drugs and social factors. Chapter 13 (pp. 152-160) in Evolution in Health and Disease, ed. S.C. Stearns. Oxford: Oxford University Press.
3. Lipsitch M, Bergstrom CT. Modeling of antibiotic resistance in the ICU. Chapter 18, pp. 231-43 in Infection Control in the ICU Environment, ed. R.A. Weinstein and M. Bonten. Kluwer Press. 2002.
4. Lipsitch M. Vaccination against *Haemophilus influenzae* and *Streptococcus pneumoniae*: a problem in virulence management. Chapter 26 in Virulence Management: The Adaptive Dynamics of Pathogen-Host Interactions, ed. U. Dieckmann, H. Metz, M. Sabelis & K. Sigmund. Cambridge: Cambridge University Press. 2002.
5. Lipsitch M. Antibiotic resistance: Strategies for managing resistance. Vol. 1, pp. 57-61 in The Oxford Encyclopedia of Evolution, ed. M. Pagel. Oxford University Press. 2002.
6. Dagan R, Lipsitch M. Ecological Effects of Vaccines and Antibiotics. Chapter 18 in The Pneumococcus, ed. E. Tuomanen, T. Mitchell, D. Morrison, B. Spratt. Washington, DC: ASM Press. 2004.

7. Lipsitch M. Infectious Disease Epidemiology. Chapter 16 in Teaching Epidemiology, 3rd Edition, ed. J. Olsen, G. Saracci, D. Trichopoulos. New York: Oxford University 2010.
8. Chapter 16 in 4th Ed., ed. Olsen J, Greene N, Saracci G, Trichopoulos D. New York: Oxford University 2015.
9. Lipsitch M and Smith D. Application of quantitative modeling to influenza virus transmission dynamics, antigenic and genetic evolution, and molecular structure. Chapter 27, pp. 434-452 in Webster R et al., eds. Textbook of Influenza. Oxford: Wiley-Blackwell. 2013.
10. Lipsitch M. (2018) Why Do Exceptionally Dangerous Gain-of-Function Experiments in Influenza? In: Yamauchi Y. (eds) Influenza Virus. Methods in Molecular Biology, vol 1836. Humana Press, New York, NY doi: 10.1007/978-1-4939-8678-1_29. 2018.
11. Lipsitch M, Santillana M. Enhancing Situational Awareness to Prevent Infectious Disease Outbreaks from Becoming Catastrophic. Curr Top Microbiol Immunol. 2019;424:59-74. doi: 10.1007/82_2019_172. PMID: 31292726.
12. Eyal, N., Lipsitch, M. (2024). 4.1 In Practice: Vaccine Efficacy and Safety Testing—An Ethical Case for Individual Randomization. In: Sorenson, R.A. (eds) *Principles and Practice of Emergency Research Response*. Springer, Cham. https://doi.org/10.1007/978-3-031-48408-7_5
13. Kahn R, Villar, SS, Dean NE, Lipsitch M. (2024). 22 Vaccine Trial Designs. In: Sorenson, R.A. (eds) *Principles and Practice of Emergency Research Response*. Springer, Cham. https://doi.org/10.1007/978-3-031-48408-7_32

Non-peer-reviewed journal articles, working papers, letters

1. Levin BR, Antia R, Berliner E, Bloland P, Bonhoeffer S, Cohen M, DeRouin T, Fields PI, Jafari H, Jernigan D, Lipsitch M, McGowan JE, Mead P, Nowak M, Porco T, Sykora P, Simonsen L, Spitznagel J, Tauxe R, Tenover F. 1998. Resistance to antimicrobial chemotherapy: A prescription for research and action. *American Journal of the Medical Sciences* 315: 87-94. PMID: 9472907.
2. Lipsitch M. Evolution in health and disease (meeting report). Trends in Microbiology 1997; 5: 303-4. PMID: 9263405.
3. Lipsitch M. Fifty Years of Antimicrobials: Past Perspectives and Future Trends, ed. P.A. Hunter, G.K. Darby, and N.J. Russell. (review) *Quarterly Review of Biology* 1997; 71: 570-1.
4. Lipsitch M. Modelling the AIDS Epidemic: Planning, Policy and Prevention, ed. E.H. Kaplan and Margaret L. Brandeau. (review) *Quarterly Review of Biology* 1995; 70: 123.
5. Lipsitch M. Microbiology: Bacterial Population Genetics and Disease. *Science* 2001; 292:59-60. PMID: 11294216.
6. Lipsitch M, Singer RS, Levin BR. Antibiotics in Agriculture: When is it Time to Close the Barn Door? *Proceedings of the National Academy of Sciences, USA* 2002; 99:5752-4. PMID: 11983874. PMCID: PMC122845.
7. Lipsitch M. Antibiotic Resistance – the Interplay between Antibiotic Use in Animals and Human Beings (contribution to a “Forum”). *Lancet Infectious Diseases* 2003; 3: 51. PMID: 12505035.

8. Lipsitch M, Bergstrom CT. Real-time tracking of control measures for emerging infections [commentary]. *American Journal of Epidemiology* 2004;160(6):517-9. PMID: 15353410.
9. Halloran ME, Lipsitch M. Infectious disease modeling contributions to the American Journal of Epidemiology [commentary]. *American Journal of Epidemiology* 2005; 161: 997-8.
10. Lipsitch M. Pandemic flu: We are not prepared. *Medscape General Medicine*. 2005; 7(2). <http://www.medscape.com/viewarticle/502709>. PMID: 16369434. PMCID: PMC1681602.
11. Lipsitch M. Ethics of rationing the flu vaccine. [letter]. *Science*. 2005; 307(5706):41. PMID: 15637252.
12. Lipsitch M. How Do Antimicrobial Agents Lead to Resistance in Pathogens Causing Acute Respiratory Tract Infections? *Infectious Diseases in Clinical Practice* 2006; 14 Supp 4: S6-S10.
13. Goossens H, Lipsitch M. Global Burden of Antimicrobial Resistance. *Johns Hopkins Advanced Studies in Medicine* 2006; 6(7C): S644-S651.
14. Regev-Yochay G, Bogaert D, Malley R, Hermans PW, Veenhoven RH, Sanders EA, Lipsitch M, Rubinstein E. Does pneumococcal conjugate vaccine influence *Staphylococcus aureus* carriage in children? [letter] *Clin Infect Dis*. 2008 Jul 15;47(2):289-91; author reply 291-2. PMID: 18564933.
15. Cohen T, Lipsitch M. Too little of a good thing: a paradox of moderate infection control. *Epidemiology*. 2008 Jul;19(4):588-9. PMID: 18552592. PMCID: PMC2652751.
16. Klugman KP, Astley CM, Lipsitch M. Time from illness onset to death, 1918 influenza and pneumococcal pneumonia (letter). *Emerg Infect Dis* 2009; 15(2):346-7. PMID: 19193293. PMCID: PMC2657896.
17. Lipsitch M, Viboud C. Influenza seasonality: lifting the fog. *Proc Natl Acad Sci U S A*. 2009 Mar 10;106(10):3645-6. PMID: 19276125.
18. Goldstein E, Lipsitch M. Antiviral usage for H1N1 treatment: pros, cons and an argument for broader prescribing guidelines in the United States. *PLoS Curr. Influenza* 2009 Oct 29:RRN1122.2.
19. Goldstein E, Lipsitch M. H1N1 vaccination and adults with underlying health conditions in the US. *PLoS Curr. Influenza*, 2009 November: RRN1132.
20. Holmes E, Palese P, Rambaut A, Moscona A, Viboud C, Webby RJ, Riley S, Katze M, Lipsitch M, Salzberg SL, Garcia-Sastre A, Miller M, Fouchier RA, Wolf
21. YI, Lipman DJ, Graeff A, Parrish CR, Donis R. PLoS Currents: Influenza: A moderated collection for rapid and open sharing of useful new scientific data, analyses, and ideas. *PLoS Curr. Influenza* 2010 Jan 4:RRN1142.
22. Hernán MA, Lipsitch M. Reply to cochrane neuraminidase inhibitors review team. [letter] *Clin Infect Dis*. 2011 Dec;53(12):1303-4. PMID: 22080125.
23. Lipsitch M, Hernán MA. Oseltamivir effect on antibiotic-treated lower respiratory tract complications in virologically positive randomized trial participants. *Clin Infect Dis*. 2013 Nov;57(9):1368-9. doi: [10.1093/cid/cit481](https://doi.org/10.1093/cid/cit481). Epub 2013 Jul 24. PMID: 23883518; PMCID: PMC3792722.

24. Lipsitch M. Avian influenza: Ferret H7N9 flu model questioned. *Nature*. 2013 Sep 5;501(7465):33. doi: [10.1038/501033e](https://doi.org/10.1038/501033e). PMID: 24005404.
25. Leung N, Worby C, Hanage WP, Lipsitch M, Cowling BJ. Probable person to person transmission of novel avian influenza A (H7N9) virus in Eastern China, 2013: epidemiological investigation. *BMJ*. 2013 Aug 6;347:f4752. doi: [10.1136/bmj.f4752](https://doi.org/10.1136/bmj.f4752). <http://www.bmj.com/content/347/bmj.f4752?tab=responses>.
26. Fisman DN, Leung GM, Lipsitch M. Nuanced risk assessment for emerging infectious diseases. *Lancet*. 2014 Jan 18;383(9913):189-90. doi: [10.1016/S0140-6736\(13\)62123-6](https://doi.org/10.1016/S0140-6736(13)62123-6). PMID: 24439726.
27. Lipsitch M. Can limited scientific value of potential pandemic pathogen experiments justify the risks? *MBio*. 2014 Oct 14;5(5):e02008-14. doi: [10.1128/mBio.02008-14](https://doi.org/10.1128/mBio.02008-14). PMID: 25316701; PMCID: PMC4205796.
28. Lipsitch M, Inglesby TV. Moratorium on research intended to create novel potential pandemic pathogens. *MBio*. 2014 Dec 12;5(6). pii: e02366-14. doi: [10.1128/mBio.02366-14](https://doi.org/10.1128/mBio.02366-14). PMID: 25505122; PMCID: PMC4271556.
29. Duprex WP, Fouchier RA, Imperiale MJ, Lipsitch M, Relman DA. Gain-of-function experiments: time for a real debate. *Nat Rev Microbiol*. 2015 Jan;13(1):58-64. doi: [10.1038/nrmicro3405](https://doi.org/10.1038/nrmicro3405). Epub 2014 Dec 8. PMID: 25482289.
30. Frank GM, Adalja A, Barbour A, Casadevall A, Dormitzer PR, Duchin J, Hayden FG, Hirsch MS, Hynes NA, Lipsitch M, Pavia AT, Relman DA. Infectious Diseases Society of America and Gain-of-Function Experiments With Pathogens Having Pandemic Potential. *J Infect Dis*. 2016 May 1;213(9):1359-61. doi: [10.1093/infdis/jiv474](https://doi.org/10.1093/infdis/jiv474). Epub 2015 Sep 27. PMID: 26416656; PMCID: PMC7313907.
31. Lipsitch M, Esvelt K, Inglesby T. Calls for caution in genome engineering should be a model for similar dialogue on pandemic pathogen research. *Ann Intern Med*. 2015 Nov 17;163(10):790-1. doi: [10.7326/M15-1048](https://doi.org/10.7326/M15-1048). Epub 2015 Sep 8. PMID: 26344802.
32. Lipsitch M, Relman DA, Inglesby TV. Six policy options for conducting gain-of-function research [commentary]. *CIDRAP*. 2016 Mar 8. <http://www.cidrap.umn.edu/news-perspective/2016/03/commentary-six-policy-options-conducting-gain-function-research>
33. Lipsitch M. Comment on Gain-of-Function Research and the Relevance to Clinical Practice. *J Infect Dis*. 2016 Aug 8. <http://jid.oxfordjournals.org/content/early/2016/08/05/infdis.jiw348.full.pdf?keytype=ref&ijkey=3UezwCgIHkSHZIP>
34. Lipsitch M. Zika vaccine trials: There are new and familiar challenges in the race for timely and effective vaccines. *Science*. 2016 Sep 9;353(6304):1094-5. doi: [10.1126/science.aai8126](https://doi.org/10.1126/science.aai8126). <http://science.sciencemag.org/content/353/6304/1094.full>
35. Lipsitch M. If a Global Catastrophic Biological Risk Materializes, at What Stage Will We Recognize It? *Health Secur*. 2017 Jul/Aug;15(4):331-334. doi: [10.1089/hs.2017.0037](https://doi.org/10.1089/hs.2017.0037). Epub 2017 Jul 26. PMID: 28745911; PMCID: PMC5576068.
36. MacFadden DR, Lipsitch M, Olesen SW, Grad Yonatan. Multidrug-resistant *Neisseria Gonorrhoeae*: Implications for Future Treatment Strategies. *The Lancet Infect Dis*. June 2018, Vol 18, No. 6, p.599. Letter to The Editor. [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(18\)30274-3/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(18)30274-3/fulltext)

37. Atkins KE, Lipsitch M. Can antibiotic resistance be reduced by vaccinating against respiratory disease? *Lancet Respir Med*. 2018 Jul 31. pii: S2213-2600(18)30328-X. doi: 10.1016/S2213-2600(18)30328-X. PubMed PMID: 30076121.
38. Lipsitch M. Challenges of vaccine effectiveness and waning studies. *Clin Infect Dis*. 2018 Sep 10. doi: 10.1093/cid/ciy773. PubMed PMID: 30204853.
39. Lewnard JA, Tedijanto C, Cowling BJ, Lipsitch M. Accounting for unobserved and differential susceptible time at risk in retrospective studies: response to Dean (2019). *Am J Epidemiol*. 2019 Apr 1;188(4):807-808. doi: 10.1093/aje/kwz018. PMID: 30689694; PMCID: PMC6676939.
40. Lipsitch M, Shaman J. Comment on: 'Antibiotic footprint' as a communication tool to aid reduction of antibiotic consumption. *J Antimicrob Chemother*. 2019 Nov 1;74(11):3404-3406. doi: 10.1093/jac/dkz320. PMID: 31314102.
41. Inglesby T and Lipsitch M. 2020. Proposed Changes to US Policy on Potential Pandemic Pathogen Oversight and Implementation. *mSphere* 5:e00990-19.
42. Buckee CO, Balsari S, Chan J, Crosas M, Dominici F, Gasser U, Grad YH, Grenfell B, Halloran ME, Kraemer MUG, Lipsitch M, Metcalf CJE, Meyers LA, Perkins TA, Santillana M, Scarpino SV, Viboud C, Wesolowski A, Schroeder A. Aggregated mobility data could help fight COVID-19. *Science*. 2020 Apr 10;368(6487):145-146. doi: 10.1126/science.abb8021. Epub 2020 Mar 23. PubMed PMID: 32205458.
43. Lipsitch M. Estimating case fatality rates of COVID-19. *Lancet Infect Dis*. 2020 Jul;20(7):775. doi: 10.1016/S1473-3099(20)30245-0. Epub 2020 Mar 31. PMID: 32243813; PMCID: PMC7270796.
44. Swerdlow DL, Finelli L, Lipsitch M. Epidemiology of Covid-19. Reply. *N Engl J Med*. 2020 May 7;382(19):1869-1870. doi: 10.1056/NEJMc2005157. Epub 2020 Mar 27. PMID: 32220201.
45. Lipsitch M, Kahn R, Mina MJ. Antibody testing will enhance the power and accuracy of COVID-19-prevention trials. *Nat Med*. 2020 Jun;26(6):818-819. doi: 10.1038/s41591-020-0887-3. PMID: 32341581.
46. Eyal N, Lipsitch M, Smith PG. Response to Cioffi. *J Infect Dis*. 2020 Jun 16;222(1):169-170. doi: 10.1093/infdis/jiaa217. PMID: 32348499.
47. Thaler DS, Lipsitch M. Coronavirus: sampling now for future analysis. *Nature*. 2020 Apr;580(7805):590. doi: 10.1038/d41586-020-01267-y. PubMed PMID: 32346142.
48. Lipsitch M, Perlman S, Waldor MK. Testing COVID-19 Therapies to prevent progression of mild disease. *Lancet Infect Dis*. 2020 May 6. doi:10.1016/S1473-3099(20)30372-8.
49. Ma KC, Lipsitch M. Big data and simple models used to track the spread of COVID-19 in cities. *Nature*. 2021 Jan;589(7840):26-28. doi: 10.1038/d41586-020-02964-4. PMID: 33173216.
50. Patel MK, Bergeri I, Bresee JS, Cowling BJ, Crowcroft NS, Fahmy K, Hirve S, Kang G, Katz MA, Lanata CF, L'Aizou Jackson M, Joshi S, Lipsitch M, Mwenda JM, Nogareda F, Orenstein WA, Ortiz JR, Pebody R, Schrag SJ, Smith PG, Srikantiah P, Subissi L, Valenciano M, Vaughn DW, Verani JR, Wilder-Smith A, Feikin DR. Evaluation of post-introduction COVID-19 vaccine effectiveness: Summary of interim guidance of the World Health Organization. *Vaccine*. 2021 Jul 5;39(30):4013-4024. doi: 10.1016/j.vaccine.2021.05.099. Epub 2021 Jun 1. PMID: 34119350; PMCID: PMC8166525.

51. Lipsitch M. Wrong question and the wrong standard of proof. *J Med Ethics*. 2022 Jun;48(6):378-379. doi: [10.1136/medethics-2022-108320](https://doi.org/10.1136/medethics-2022-108320). Epub 2022 Apr 20. PMID: 35444009.
52. Rubin EJ, Baden LR, Lipsitch M, Morrissey S. Audio Interview: Forecasting the Future of Covid. *N Engl J Med*. 2022 May 12;386(19):e58. doi: [10.1056/NEJMe2206326](https://doi.org/10.1056/NEJMe2206326). PMID: 35544392.
53. Jernigan DB, George D, Lipsitch M. Learning From COVID-19 to Improve Surveillance for Emerging Threats. *Am J Public Health*. 2023 Mar 16;e1–3. doi: [10.2105/AJPH.2023.307261](https://doi.org/10.2105/AJPH.2023.307261). PMID: 36926966
54. Lancet Commission on Strengthening the Use of Epidemiological Modelling of Emerging and Pandemic Infectious Diseases. Electronic address: mark.jit@lshtm.ac.uk. How modelling can better support public health policy making: the Lancet Commission on Strengthening the Use of Epidemiological Modelling of Emerging and Pandemic Infectious Diseases. *Lancet*. 2023 Dec 20:S0140-6736(23)02758-7. doi: [10.1016/S0140-6736\(23\)02758-7](https://doi.org/10.1016/S0140-6736(23)02758-7). Epub 2023 Dec 20. PMID: 38141627.
55. Lipsitch M, Inglesby TV, Cicero A, Relman DA. Public role in research oversight. *J Virol*. 2024 Mar 13:e0006124. doi: [10.1128/jvi.00061-24](https://doi.org/10.1128/jvi.00061-24). Epub ahead of print. PMID: 38477584.
56. Lipsitch M. Principal Investigator Responsibility for Flagging Research with Dual-Use or Pandemic Risk. *Applied Biosafety*, in press. DOI: 10.1089/apb.2024.0059.
57. Shearer FM, Lipsitch M. The importance of playing the long game when it comes to pandemic surveillance. *Proceedings of the National Academy of Sciences*. 2025 Apr 9;122(15):e2500328122. doi: [10.1073/pnas.2500328122](https://doi.org/10.1073/pnas.2500328122)
58. Lipsitch M. Principal Investigator Responsibility for Flagging Research with Dual-Use or Pandemic Risk. *Appl Biosaf*. 2025 Jun 5;30(2):139-142. doi: [10.1089/apb.2024.0059](https://doi.org/10.1089/apb.2024.0059). PMID: 40548084; PMCID: PMC12179358.
59. Pley C, Panovska-Griffiths J, Hinch R, Wymant C, Abeler-Dörner L, Ssemwanga D, Galiwango RM, Grabowski MK, Di Lauro F, Ferretti L, Hay J, Lipsitch M, Dunning J, Kagaayi J, Kaleebu P, Fraser C. Clade I mpox vaccination: strategies for deployment and evaluation. *EBioMedicine*. 2025 Aug 20;119:105890. doi: [10.1016/j.ebiom.2025.105890](https://doi.org/10.1016/j.ebiom.2025.105890). Epub ahead of print. PMID: 40840168.
60. Aatresh AV, Lipsitch M. What is the relationship between viral prospecting in animals and medical countermeasure development? *mBio*. 2025 Aug 25:e0203325. doi: [10.1128/mbio.02033-25](https://doi.org/10.1128/mbio.02033-25). Epub ahead of print. PMID: 40852983.

Popular articles

1. Lipsitch, M. Genetic Tug-of-War May Explain Many of the Troubles of Pregnancy. *New York Times*. 1993 Jul 20. Sect. B:6.
2. Lipsitch, M. Fears Growing over Bacteria Resistant to Antibiotics. *New York Times*. 1995 Sept 12. Sect. C:1.
3. Popular articles on the evolution-creationism debate in *School Board News*, *The Forward*, and *The Emory Report*.
4. Lipsitch, M. Prepare Now for the Return of SARS. Project Syndicate, syndicated to *Straits Times*, *Taiwan Times*, *Daily Times (Pakistan)*. 2003 Jul

13. Available from: <https://www.project-syndicate.org/commentary/prepare-now-for-the-return-of-sars?barrier=accesspaylog>
5. Lipsitch M and Bloom BR. Avian flu: Preparing for a Pandemic. Harvard Public Health Review. 2006. Winter 2006. Available from: http://www.hsph.harvard.edu/review/rvwwinter06_dean.html
6. Lipsitch M. The Risk to Academic Freedom That Lurks in Corporate Consulting Contracts. The Chronicle of Higher Education. 2010 Jun 27.
7. Lipsitch M, Pavia A, Uyeki T, Beigi R, Bernstein H, Bradley J. Data on Flu Treatment [Letter]. New York Times. 2012 April 19. Available from:
8. Lipsitch M. Exceptional Risks, Exceptional Precautions. The European 2013 Apr 23. Available from: <http://www.theeuropean-magazine.com/marc-lipsitch--2/6691-the-risk-from-super-viruses>
9. Lipsitch M. Keine Experimente! Das Züchten neuer Krankheitserreger ist sinnlos und gefährlich. Es muss aufhören. IPG. 2014 June 10. Available from: <http://www.ipg-journal.de/kommentar/artikel/keine-experimente-458/>.
10. Lipsitch M. Anthrax? That's Not the Real Worry. New York Times. 2014 Jun 30. Available from: <http://www.nytimes.com/2014/06/30/opinion/anthrax-thats-not-the-real-worry.html?ref=opinion>
11. Lipsitch M. Make the Pause on Risky Pathogen Research Permanent. Scientific American. 2015 Jan 2:312(2).
12. Lipsitch M and Relman DA. New Game, New Rules: Limiting the Risks of Biological Engineering. Foreign Affairs. 2015 Aug 31. Available from: <https://www.foreignaffairs.com/articles/2015-08-31/new-game-new-rules>
13. Lipsitch M. Keeping biological research safe. The Hill. 2016 Aug 18. Available from: <https://thehill.com/blogs/congress-blog/healthcare/291831-keeping-biological-research-safe>
14. Hanage W and Lipsitch M. How to Report on the COVID-19 Outbreak Responsibly. Scientific American. 2020 Feb 23. Available from: <https://blogs.scientificamerican.com/observations/how-to-report-on-the-covid-19-outbreak-responsibly/>
15. Lipsitch M and Inglesby T. The U.S. is funding dangerous experiments it doesn't want you to know about. Washington Post. 2019 Feb 27. Available from: https://www.washingtonpost.com/opinions/the-us-is-funding-dangerous-experiments-it-doesnt-want-you-to-know-about/2019/02/27/5f60e934-38ae-11e9-a2cd-307b06d0257b_story.html
16. Lipsitch M. Why it's so hard to pin down the risk from coronavirus. Washington Post. 2020 Mar 6. Available from: <https://www.washingtonpost.com/opinions/2020/03/06/why-its-so-hard-pin-down-risk-dying-coronavirus/>
17. Gottlieb S and Lipsitch M. Take smart steps to slow spread of the coronavirus. USA Today. 2020 Mar 9. Available from: <https://www.usatoday.com/story/opinion/2020/03/06/former-fda-chief-gottlieb-actions-needed-fight-coronavirus-covid-19-column/4967137002/>
18. Lipsitch M. The interventions we must take to control the coronavirus. Boston Globe. 2020 Mar 11. Available from: <https://www.bostonglobe.com/2020/03/11/opinion/interventions-we-must-take-control-coronavirus/>
19. Lipsitch M and Allen J. Coronavirus reality check: 7 myths about social distancing, busted. USA Today. 2020 Mar 16. Available from: <https://www.usatoday.com/story/opinion/2020/03/16/coronavirus-social-distancing-myths-realities-column/5053696002/>

20. Lipsitch M. We know enough now to act decisively against Covid-19. Social distancing is a good place to start. STAT News. 2020 Mar 18. Available from: <https://www.statnews.com/2020/03/18/we-know-enough-now-to-act-decisively-against-covid-19/>
21. Danzig R and Lipsitch M. Prepare Now for the Long War Against Covid-19. Bloomberg. 2020 Mar 20. Available from: <https://www.bloomberg.com/opinion/articles/2020-03-20/prepare-now-for-the-long-war-against-coronavirus>
22. Lipsitch M. Far more people in the U.S. have the coronavirus than you think. Washington Post. 2020 Mar 23. Available from: <https://www.washingtonpost.com/outlook/2020/03/23/coronavirus-count-confirmed-testing/>
23. Allen J and Lipsitch M. 6 things to know if you're living with someone who has coronavirus, or think you might be. USA Today. 2020 Mar 24. Available from: <https://www.usatoday.com/story/opinion/2020/03/24/coronavirus-testing-shortage-take-precautions-just-in-case-column/2899989001/>
24. Lipsitch M and Grad Y. Navigating the Covid-19 pandemic: We're just clambering into a life raft. Dry land is far away. STAT News. 2020 Apr 1. Available from: <https://www.statnews.com/2020/04/01/navigating-covid-19-pandemic/>
25. Lipsitch M. Who Is Immune to the Coronavirus? New York Times. 2020 Apr 13. Available from: <https://www.nytimes.com/2020/04/13/opinion/coronavirus-immunity.html>
26. Allen J, Friedman W, Lipsitch M. Keep parks open. The benefits of fresh air outweigh the risks of infection. Washington Post. 2020 Apr 13. Available from: <https://www.washingtonpost.com/outlook/2020/04/13/keep-parks-open-benefits-fresh-air-outweigh-risks-infection/>
27. Lipsitch M. 'Serology' is the new coronavirus buzzword. Here's why it matters. Washington Post. 2020 May 4. Available from: <https://www.washingtonpost.com/opinions/2020/05/04/serology-is-new-coronavirus-buzzword-heres-why-it-matters/>
28. Lipsitch M. Good Science is Good Science. Boston Review. 2020 May 12. Available from: <http://www.bostonreview.net/science-nature/marc-lipsitch-good-science-good-science>
29. Malley R and Lipsitch M. Treating Mild Coronavirus Cases Could Help Save Everyone. New York Times. 2020 May 22. Available from: <https://www.nytimes.com/2020/05/22/opinion/coronavirus-treatment-mild-symptoms.html>
30. Eyal N, Lipsitch M, Angell M. The True Cost of Vaccine Studies. New York Review of Books. 2020 Aug 20. Available from: <https://www.nybooks.com/articles/2020/08/20/true-cost-of-vaccine-studies/>
31. Grad Y and Lipsitch M. How to fix public health weaknesses before the next pandemic hits. Washington Post. 2020 Sept 24. Available from: <https://www.washingtonpost.com/opinions/2020/09/24/how-fix-public-health-weaknesses-before-next-pandemic-hits/>
32. Lipsitch M. Americans, we can fight COVID-19 and save lives now. Wear a mask! USA Today. 2020 Oct 8. Available from: <https://www.usatoday.com/story/opinion/2020/10/08/wear-mask-fight-covid-19-and-save-lives-now-medical-experts-column/5907452002/>
33. Lipsitch M, Gonsalves G, del Rio C, Walensky R. Trump wants to try herd immunity. Without a vaccine, it could kill millions. Washington Post. 2020 Oct

14. Available from: <https://www.washingtonpost.com/outlook/2020/10/14/herd-immunity-barrington-declaration/>
34. Esvelt KM and Lipsitch M. We lost to SARS-CoV-2 in 2020. We can defeat B-117 in 2021. STAT News. 2021 Jan 9. Available from: <https://www.statnews.com/2021/01/09/we-lost-to-sars-cov-2-in-2020-we-can-defeat-b-117-in-2021/>
35. Lawn J, Lipsitch M, Edmunds J, Pollard A, Gilbert S, Hotez P, Checchi F, Ferguson N, Hill A, Ghani A, Riley S, Roy P, Orellana JDY. Covid-19: We must put in place a financial plan of action for achieving vaccine equity. The BMJ Opinion. 2021 May 19. Available from: <https://blogs.bmj.com/bmj/2021/05/19/covid-19-we-must-put-in-place-a-financial-plan-of-action-for-achieving-vaccine-equity/>
36. Mordecai EA, Harris MJ, Lipsitch M. The U.S. May Never Hit the Herd Immunity Threshold. That's OK. New York Times. 2021 May 28. Available from: <https://www.nytimes.com/2021/05/28/opinion/herd-immunity-covid-us.html>
37. Lipsitch M, McClellan M, Rodriguez R. We're part of a planning group for a covid-19 commission. Here's why we need one. Washington Post. 2021 June 2. Available from: <https://www.washingtonpost.com/opinions/2021/06/02/needed-covid-commission-investigate-pandemic-response/>
38. Lipsitch M. New CDC Center Forecasting the Next Outbreak. Medscape. 2023 Feb 23. Available from: <https://www.medscape.com/viewarticle/988615>.
39. Inglesby T, Cicero A, Lipsitch M. How to Reduce the Risk of a Catastrophic Lab Accident. New York Times. 2024 July 23. <https://www.nytimes.com/2024/07/23/opinion/protect-accidental-pandemic.html>

Coauthored/group-authored reports

1. President's Council of Advisors on Science and Technology, H1N1 Working Group [member author]. Report to the President on US Preparations for 2009-H1N1 Influenza. 2010 Aug 9. Available from: https://www.globalsecurity.org/security/library/report/2009/pcast_h1n1-report_090807.htm
2. Wellcome Trust/CIDRAP Team B [member author]. Recommendations for Accelerating the Development of Ebola Vaccines, Report & Analysis. 2015 Feb. Available from: https://www.cidrap.umn.edu/sites/default/files/public/downloads/ebola_virus_team_b_report-final-021615.pdf
3. Wellcome Trust/CIDRAP Team B [member author]. Plotting the Course of Ebola Vaccines: Challenges and Unanswered Questions. 2016 Mar. Available from: https://www.cidrap.umn.edu/sites/default/files/public/downloads/ebola_team_b_report_2-033116-final.pdf
4. Wellcome Trust/CIDRAP Team B [member author]. Completing the Development of Ebola Vaccines: Current Status, Remaining Challenges and Recommendations. 2017 Jan. Available from: https://www.cidrap.umn.edu/sites/default/files/public/downloads/ebola_team_b_report_3-011717-final_0.pdf
5. Moore K, Lipsitch M, Barry JM, Osterholm MT. COVID-19: The CIDRAP Viewpoint. CIDRAP, University of Minnesota. 2020 Apr 30. Available from:

https://www.cidrap.umn.edu/sites/default/files/public/downloads/cidrap-covid19-viewpoint-part1_0.pdf