

# Sachiko Ozawa, Ph.D., M.H.S.

## A. PERSONAL INFORMATION

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Division of Practice Advancement and Clinical Education  
UNC Eshelman School of Pharmacy  
University of North Carolina at Chapel Hill  
CB# 7574, Beard Hall 115G, Chapel Hill, NC 27599  
Phone 919-966-2626  
Fax 919-843-3861  
Email [ozawa@unc.edu](mailto:ozawa@unc.edu)  
Web <https://pharmacy.unc.edu/research/faculty-labs/ghep/>

## B. EDUCATION

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- 2007-2010 **Doctor of Philosophy (Ph.D.) in International Health**  
Specialization in International Health Economics  
Certificate in Public Health Economics  
Johns Hopkins University, School of Public Health, Baltimore, MD
- 2005-2007 **Master of Health Science (M.H.S.) in Public Health**  
Department of International Health, Health Systems Program  
Johns Hopkins University, School of Public Health, Baltimore, MD
- 1999-2003 **Bachelor of Science (B.S.) in Science, Technology and International Affairs**  
Concentration in Business, Communication and Information  
Certificate in International Business Diplomacy  
Georgetown University, School of Foreign Service, Washington, DC

## C. PROFESSIONAL EXPERIENCE

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### C.1. POSITIONS

- 2020-Present **Associate Professor (tenured)**  
Division of Practice Advancement and Clinical Education (PACE)  
UNC Eshelman School of Pharmacy  
The University of North Carolina, Chapel Hill, NC
- 2020-Present **Director, UNC-USP Fellowship in Quality of Medical Products**  
UNC Eshelman School of Pharmacy  
The University of North Carolina, Chapel Hill, NC
- 2020-Present **Co-Director, UNC-Aesara Market Access and Informatics Fellowship**  
UNC Eshelman School of Pharmacy  
The University of North Carolina, Chapel Hill, NC
- 2017-Present **PACE Division Director, Research and Scholarship in Pharmacy (RASP)**  
UNC Eshelman School of Pharmacy  
The University of North Carolina, Chapel Hill, NC
- 2017-Present **Adjunct Associate Professor**  
Department of Maternal and Child Health  
UNC Gillings School of Global Public Health

The University of North Carolina, Chapel Hill, NC

- 2016-2020 **Associate Professor (tenure-track)**  
Division of Practice Advancement and Clinical Education (PACE)  
UNC Eshelman School of Pharmacy  
The University of North Carolina, Chapel Hill, NC
- 2010-2016 **Assistant Scientist**  
Department of International Health, Health Systems Program  
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- 2010-2016 **Health Economist**  
International Vaccine Access Center, Economics and Finance Team  
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- 2007-2010 **Research Assistant**  
Department of International Health, Health Systems Program  
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- 2009 **Dean's Teaching Fellow**  
Undergraduate Program in Public Health Studies  
Johns Hopkins Zanvyl Krieger School of Arts and Sciences, Baltimore, MD
- 2005-2009 **Consultant**  
Health, Nutrition and Population Unit, Human Development Network  
The World Bank, Washington, DC
- 2005 **Community Health/Medical Outreach Worker**  
Operation Crossroads Africa  
Consolata Mission Hospital, Nkubu, Kenya
- 2003-2005 **Risk Analyst**  
Department of Insurance and Benefits Services  
Marsh & McLennan Companies, Marsh Inc., New York, NY
- 2002 **Technology Risk Management Intern**  
Visa International, San Francisco, CA
- 2001 **Assistant Business Consultant**  
Japan Future Information Technology & Systems, Tokyo, Japan
- 2001-2003 **Student Technology Consultant**  
Georgetown University, Washington, DC
- 1999-2000 **Policy Research Intern**  
Japan Center for International Exchange, Tokyo, Japan
- 1998 **Legislative Intern**  
Office of Congressman John F. Tierney, Washington, DC

## C.2. PROFESSIONAL DEVELOPMENT

- 2021-present **Women ADVANCE Leadership**  
Team Advance, Center for Faculty Excellence, UNC Chapel Hill

- 2017-present **Center for Innovative Pharmacy Education & Research (CIPhER) Programs**  
CIPhER, UNC Eshelman School of Pharmacy, UNC Chapel Hill
- 2017, 2018 **Summer Writing Group Program**  
Center for Faculty Excellence, UNC Chapel Hill
- 2016-2020 **Bill and Karen Campbell Faculty Mentorship Program**  
UNC Eshelman School of Pharmacy, UNC Chapel Hill

#### **D. HONORS AND AWARDS**

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- 2020 Junior Faculty Development Award, the University of North Carolina at Chapel Hill
- 2020 Worthy of Recognition – Instructor (PHCY 725, Research and Scholarship in Pharmacy II, Fall 2020)
- 2019 Worthy of Recognition – Instructor and Course (PHCY 725, Research and Scholarship in Pharmacy II, Fall 2019)
- 2017-2020 Elected Co-Chair, Medicines in Health Systems Thematic Working Group, Health Systems Global
- 2016 Two First-Author Papers included in *Health Affairs'* Top 10 Most Read Articles
- 2014 First-Author Paper included in Top 10 downloaded papers by *Health Policy and Planning*
- 2012 Teaching Excellence, Health Financing in Low and Middle Income Countries Course, Johns Hopkins School of Public Health
- 2011 Teaching Excellence, Health Financing in Low and Middle Income Countries Course, Johns Hopkins School of Public Health
- 2010 Faculty Grants in Global Health Research, Center for Global Health, Johns Hopkins University
- 2010 The Toyota Foundation Research Grant Award, the Toyota Foundation
- 2009 New Investigator in Global Health Award, Global Health Council
- 2009 Nancy Stephens Student Support Award, Johns Hopkins School of Public Health
- 2009 The Ruth Rice Puffer Award for International Student Support, Johns Hopkins School of Public Health
- 2008 The Dean's Teaching Fellowship, Johns Hopkins School of Arts and Sciences
- 2008 Baker, Reinke, Taylor Scholarship in International Health, Johns Hopkins School of Public Health
- 2007 *Delta Omega Public Health Honors Society* Inductee, Alpha Chapter
- 2007 Dean's Alumni Advisory Council Scholarship, Johns Hopkins School of Public Health
- 2007 Global Field Experience Fund Award, Johns Hopkins School of Public Health

- 2006 Department of International Health Full Tuition Scholarship, Johns Hopkins School of Public Health
- 2005 Associate in Risk Management (ARM) Designation Awarded from RIMS - the Risk Management Society
- 2003 *Phi Beta Kappa National Honors Society* Inductee, Georgetown University Chapter
- 2003 *Magna Cum Laude* Undergraduate Distinction, Honors in the Major in Science, Technology and International Affairs, Georgetown University

## E. BIBLIOGRAPHY

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### E.1. BOOK CHAPTERS (3)

3. Anchorena J, Ronconi L and **Ozawa S**. Social Capital and Health in Low- and Middle- Income Countries. In Folland S and Rocco L (Eds), *The Economics of Social Capital and Health*. World Scientific Series in Global Healthcare Economics and public Policy – Vol. 2. (p.153 – 175). Hackensack NJ: World Scientific Publishing Co. Pte. Ltd, 2013.
2. **Ozawa S**, Walker DG. Villagers' evaluation of a community-based health insurance scheme in Thmar Pouk, Cambodia. In Jalilian H and Sen V (Eds.), *Improving Health Sector Performance: Institutions, Motivations and Incentives – The Cambodian Dialogue* (p.365-384). Singapore: Institute of Southeast Asian Studies Press, 2011.
1. **Ozawa S**. Private health insurance. In Guinness L and Wiseman V (Eds.), *Introduction to Health Economics: Understanding Public Health* (p.160-172). London: Open University Press, 2011.

### E.2. REFEREED MANUSCRIPTS (74)

(§Corresponding author; \*Lead author mentored by S. Ozawa; †Authors contributed equally)

74. **Ozawa S**, Higgins C, Nwokike J, Phanouvong, S. Modeling the health and economic impact of substandard and falsified medicines: A review of existing models and approaches. *American Journal of Tropical Medicine & Hygiene*. 2022 Accepted.
73. Sun Y\*, Hendrix A, Muluneh B, **Ozawa S**§. Online pharmacy accessibility of imatinib, an oral chemotherapy medication. *Journal of the National Comprehensive Cancer Network*. 2022 Accepted.
72. Penley B\*, Minshew L, Chen H, Eckel S, **Ozawa S**§. Accessibility of low-cost insulin from illegitimate internet pharmacies: Cross-sectional study. *Journal of Medical Internet Research*. 2022;24(1):e25855. <http://doi.org/10.2196/25855>.
71. **Ozawa S**§, Billings J, Sun C, Yu S, Penley B. COVID-19 treatments sold online without prescription requirements in the United States. *Journal of Medical Internet Research*. 2021 Sep 18. <http://doi.org/10.2196/27704>. PMID: 34662286.
70. Bui V\*, Higgins C, Laing S, **Ozawa S**§. Assessing the impact of substandard and falsified antimalarials in Benin. *American Journal of Tropical Medicine and Hygiene*. 2021 Nov 8;tpmd210450. <http://doi.org/10.4269/ajtmh.21-0450>. PMID: 34749311.

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68. **Ozawa S<sup>§</sup>**, Chen HH, Rao G, Eguale T, Stringer A. Value of pneumococcal vaccination in controlling the development of antimicrobial resistance (AMR): Case study using DREAMR in Ethiopia. *Vaccine*. 2021. Oct 29;39(45):6700-6711. <http://doi.org/10.1016/j.vaccine.2021.04.024>. PMID: 34538697.
67. **Ozawa S<sup>§</sup>**, Yemeke TT, Mitgang E, Wedlock PT, Higgins C, Chen HH, Pallas SW, Abimbola T, Wallace A, Bartsch SM, Lee BY. Systematic review of the costs for vaccinators to reach vaccination sites: Incremental costs of reaching hard-to-reach populations. *Vaccine*. 2021 Jul 30;39(33):4598-4610. <http://doi.org/10.1016/j.vaccine.2021.05.019>. PMID: 34238610.
66. Yemeke TT\*, Mitgang E, Wedlock PT, Higgins C, Chen HH, Pallas SW, Abimbola T, Wallace A, Bartsch SM, Lee BY, **Ozawa S<sup>§</sup>**. Promoting, seeking, and reaching vaccination services: A systematic review of costs to immunization programs, beneficiaries, and caregivers. *Vaccine*. 2021 Jul 22;39(32):4437-4449. <http://doi.org/10.1016/j.vaccine.2021.05.075>. PMID: 34218959.
65. Cox SN, Wedlock PT, Pallas SW, Mitgang EA, Yemeke TT, Bartsch SM, Abimbola T, Sigemund SS, Wallace A, **Ozawa S**, Lee BY. A systems map of the economic considerations for vaccination: Application to hard-to-reach populations. *Vaccine*. 2021 Nov 5;39(46):6796-6804. <http://doi.org/10.1016/j.vaccine.2021.05.033>. PMID: 34045101.
64. Lu E\*, Chen H, Zhao H, **Ozawa S<sup>§</sup>**. Health and economic impact of the pneumococcal conjugate vaccine in hindering antimicrobial resistance in China. *Proceedings of the National Academy of Sciences*. 2021;118: e2004933118. <http://doi.org/10.1073/pnas.2004933118>. PMID: 33758096.
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57. Jackson KD\*, Higgins CR, Laing SK, Mwila C, Kobayashi T, Ippolito MM, Sylvia S, **Ozawa S<sup>§</sup>**. Impact of substandard and falsified antimalarials in Zambia: application of the SAFARI model. BMC Public Health. 2020 Jul 9;20(1):1083. <http://doi.org/10.1186/s12889-020-08852-w>. PMID: 32646393.
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48. Chen H\*, Stringer A, Eguale T, Rao G, **Ozawa S<sup>§</sup>**. Impact of antibiotic resistance on treatment of pneumococcal disease in Ethiopia: An agent-based modeling simulation. American Journal of Tropical Medicine and Hygiene. 2019 Sep 16. 101(5):1042-1053. <http://dx.doi.org/10.4269/ajtmh.18-0930> PMID: 31516111.

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44. Beargie S\*, Higgins C, Evans D, Laing S, Erim D, **Ozawa S**<sup>§</sup>. The economic impact of substandard and falsified antimalarial medications in Nigeria. *PLoS One*. 2019 Aug 15; 14(8):e0217910. <http://dx.doi.org/10.1371/journal.pone.0217910> PMID: 31415560.  
*\*Top 10% Most Cited PLOS ONE papers published in 2019 (as of July 2021)*
43. Lee B, Brown S, Haidari L, Clark S, Abimbola T, Pallas S, Wallace A, Mitgang E, Leonard J, Bartsch S, Yemeke T, Zenkov E, **Ozawa S**. Economic value of vaccinating geographically hard-to-reach populations with measles vaccine: A modelling application in Kenya. *Vaccine*. 2019 Apr 17; 37(17):2377-2386. <http://dx.doi.org/10.1016/j.vaccine.2019.03.007> PMID: 30922700.
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41. **Ozawa S**<sup>§</sup>, Evans D, Higgins C, Laing S, Awor P. Development of an agent-based model to assess the impact of substandard and falsified anti-malarials: Uganda case study. *Malaria Journal*. 2019 Jan 9; 18(1):5. <http://dx.doi.org/10.1186/s12936-018-2628-3> PMID: 30626380.
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37. **Ozawa S**<sup>§</sup>, Zhou M, Wonodi C, Chen H, Bridges J. Parents' preferences for interventions to improve childhood immunization uptake in northern Nigeria. *Vaccine*. 2018 May 11; 36(20):2833-2841. <http://dx.doi.org/10.1016/j.vaccine.2018.03.073> PMID: 29661582.
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29. **Ozawa S<sup>§</sup>**, Grewal S, Portnoy A, Sinha A, Arilotta R, Stack M, Brenzel L. Funding gap for immunization across 94 low- and middle-income countries. *Vaccine*. 2016 Dec 7; 34(50): 6408-6416. <http://dx.doi.org/10.1016/j.vaccine.2016.09.036> PMID: 28029541.
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<https://www.healthaffairs.org/doi/10.1377/hblog20161221.058008/full/>
27. **Ozawa S<sup>§</sup>**, Singh S, Singh K, Chhabra V, Bennett S. The Avahan Transition: Effects of transition readiness on program institutionalization and sustained outcomes. *PLoS One*. 2016 Jul 19; 11(7):e0158659. <http://dx.doi.org/10.1371/journal.pone.0158659> PMID: 27434542.
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24. **Ozawa S<sup>§</sup>**, Clark S, Portnoy A, Grewal S, Brenzel L, Walker D. Return on investment from childhood immunizations in low- and middle-income countries, 2011-20. Health Affairs. 2016 Feb; 35(2):199-207. <http://dx.doi.org/10.1377/hlthaff.2015.1086> PMID: 26858370.  
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 (Health Affairs, December 2016)  
<https://www.healthaffairs.org/doi/10.1377/hblog20161221.058008/full/>
23. **Ozawa S<sup>§</sup>**, Grewal S, Bridges J. Household size and the decision to purchase health insurance in Cambodia: Results of a scale-adjusted discrete-choice experiment. Applied Health Economics & Health Policy. 2016 Apr; 14(2):195-204. <http://dx.doi.org/10.1007/s40258-016-0222-9> PMID: 26860280.
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19. Bennett S, **Ozawa S**, Rodriguez D, Paul A, Singh K, Singh S. Monitoring and evaluating transition and sustainability of donor-funded programs: Reflections on the Avahan experience. Evaluation and Program Planning. 2015 Oct; 52:148-58. <http://dx.doi.org/10.1016/j.evalprogplan.2015.05.003> PMID: 26099560.
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3. **Ozawa S<sup>§</sup>**, Walker DG. Trust in the context of community-based health insurance schemes in Cambodia: villagers' trust in health insurers. Advances in Health Economics and Health Services Research. 2009; 21:107-132. <https://www.ncbi.nlm.nih.gov/pubmed/19791701> PMID: 19791701.
2. **Ozawa S**, Baker TD. An international comparison of physician workforce: how many doctors does it take to make a nation healthy? Maryland Medicine. 2008 Summer; 9(3):18-21. <https://www.ncbi.nlm.nih.gov/pubmed/18980058> PMID: 18980058.

1. **Ozawa S<sup>§</sup>**. The role of trust in healthcare settings: Does trust matter? Oxford Policy Institute. 2008 (Peer Reviewed) \**Most read paper on OPI website July-Sept 2008.*  
<https://www.researchgate.net/publication/273696497> The role of trust in health care settings does trust matter

### MANUSCRIPTS UNDER PEER REVIEW (10)

1. **Ozawa S<sup>§</sup>**, Chen HH, Lee YF, Higgins C, Yemeke T. Characterizing medicine quality by active pharmaceutical ingredient levels: A systematic review and meta-analysis across low- and middle-income countries. *American Journal of Tropical Medicine and Hygiene*. Submitted
2. **Ozawa S<sup>§</sup>**, Schuh H, Nakamura T, Yemeke T, Lee YF, MacDonald N. How to increase and maintain high immunization coverage: Vaccination demand resilience (VDR) framework. *Vaccine*. Submitted
3. **Ozawa S<sup>§</sup>**, Annis I, Penley B, Fang G. Online pharmacies – user characteristics and medication costs from the medical expenditure panel survey. *PLOS One*. Submitted.
4. Stocker K, Tiemann A, Brunk K, Agegnehu B, Buhlinger K, Amerine L, Roberts M, McLaughlin J, Clark S, Rose R, Mekonnen B, Bhakta N, Fentie AM, Alexander T, **Ozawa S**, Chargualaf M, Muluneh B. Processes and perceptions of chemotherapy supply chain in Ethiopia: A mixed-method study. *Global Health: Science and Policy*. Submitted
5. Richmond J\*, Boynton M, **Ozawa S**, Muessig K, Cykert S, Ribisl K. Development and validation of the trust in my doctor (T-MD), trust in doctors in general (T-DiG), and trust in the health care system (T-HCS) scales. *Social Science & Medicine*. Submitted
6. Cheng A, Hughes T, Chen HH, **Ozawa S**, Ferreri S. Beyond refill alignment: evaluating the impact of appointment-based model. *Research in Social and Administrative Pharmacy*. Submitted
7. Black R\*, Hughes R, Ma F, Hudzik A, Shepherd G, Ferreri S, **Ozawa S<sup>§</sup>**. Systematic review of pharmacist administration of long-acting injectable antipsychotic medications. *Journal of the American Pharmacists Association*. Submitted
8. Higgins C\*, Kobia B, **Ozawa S<sup>§</sup>**. Comparing the return on investment of technologies to detect substandard and falsified Amoxicillin: A Kenya case study. *PLOS One*. Submitted
9. Burbage S, Parikh M, Campbell P, Ramachandran S, Gatwood J, **Ozawa S**, Urick B. Associations between pharmacy choice and influenza vaccination: mail order vs. community pharmacy users. *Vaccine*. Submitted
10. Bui A, Chen HH, Lee YF, **Ozawa S<sup>§</sup>**. Value of vaccination against antimicrobial resistance in Indonesia. *PLOS One*. Submitted

### E.3. REFEREED JOURNAL ISSUE EDITOR (1)

**Ozawa S** (Guest Editor), Health Policy and Planning. Volume 34, Issue Supplement\_3, December 2019. Special issue on “Access to medicines through health systems in low- and middle-income countries.” [https://academic.oup.com/heapol/issue/34/Supplement\\_3](https://academic.oup.com/heapol/issue/34/Supplement_3)

### E.4. NON-REFEREED PUBLICATIONS (3)

3. **Ozawa S**, Pribluda VS, Yemeke T, Higgins C, Hajjou M, Evans III L, Nwokike JI (2019). Integrating medicines quality assurance into universal health coverage programming: A path to increasing efficiency, access, and coverage. Rockville, MD: United States Pharmacopeial Convention, Promoting the Quality of Medicines Program.  
<https://www.usp-pqm.org/sites/default/files/field/image/pgm-uhc-white-paper.pdf>
2. Bao J, Rodriguez D, Paina L, **Ozawa S**, Bennett S (2015). Guide for the monitoring and evaluation of the transition of health programs. Bethesda, MD: Health Finance & Governance Project, Abt Associates Inc. United States Agency for International Development.  
<https://www.hfgproject.org/guide-monitoring-evaluation-transition-health-programs/>
1. Brown L, **Ozawa S**, Chitama D, Killewo J, Baqui A. Bridges J (2015). Stakeholder preferences for an integrated national community health worker program. Knowledge Brief. Dar Es Salaam, Tanzania: Community Health Worker Learning Agenda Project. United States Agency for International Development.

#### E.5. WEB PAGES / ELECTRONIC MEDIA (87) – 22 Med Quality; 65 Vaccine (61 UNC, 26 Hopkins)

**Media Appearances on Medicine Quality & Access.** Our work to examine the prevalence and economic impact of substandard and falsified medicines received attention from various media sources. Our work examining the impact of poor quality antimalarials in various low-income countries also received local media coverage.

87. UNC Eshelman School of Pharmacy  
“UNC Ethiopia Alliance”, November 2020 (Listed under team member)  
<https://wp.media.unc.edu/ethiopia/>
86. UNC Eshleman School of Pharmacy  
“New UNC-USP fellowship will support original research in medicine quality”, March 2020  
<https://pharmacy.unc.edu/2020/03/new-unc-usp-fellowship-will-support-original-research-in-medicine-quality/>
85. Health Policy and Planning Debated / Health Systems Global Blog  
“Supplement launch: Access to medicines through health systems in low- and middle-income countries,” by Ebiwei Orubu and **Sachiko Ozawa**, December 2019  
<https://blogs.lshtm.ac.uk/hppdebated/2019/12/11/supplement-launch-access-to-medicines-through-health-systems-in-low-and-middle-income-countries/>  
<https://healthsystemsglobal.org/blog/387/Supplement-launch-Access-to-Medicines-through-Health-Systems-in-Low-and-Middle-Income-Countries.html>
84. ASTMH Annual Meeting 2019 Blog  
“Poor quality drugs, AMR resistance and ‘murder by medicine’”, November 2019  
<http://iamtropmed.org/blog/2019/11/22/poor-quality-drugs-amr-resistance-and-murder-by-medicine>
83. SciDev.Net (Sub-Saharan Africa Edition)  
“Time to get quality drugs and healthcare access is now”, October 2019  
<https://www.scidev.net/sub-saharan-africa/health/opinion/time-to-get-quality-drugs-and-healthcare-access-is-now.html>
82. Devex  
“Opinion: The hidden drain on universal health coverage gains and health care budgets,” by Lawrence Evans and **Sachiko Ozawa**, September 2019

<https://www.devex.com/news/sponsored/opinion-the-hidden-drain-on-universal-health-coverage-gains-and-health-care-budgets-95622>

81. Central Africa News Agency (in French) / Econfin Hebdo (in French)  
 “The fake medicine industry: a new plague in Africa”, September 2019  
<https://www.adiac-congo.com/content/lindustrie-des-faux-medicaments-une-nouvelle-plaie-de-lafrique-105231>  
<https://www.agenceecofin.com/hebdop2/2908-68779-l-industrie-des-faux-medicaments-la-nouvelle-plaie-de-l-afrique>
80. UNC Eshleman School of Pharmacy  
 “UNC Eshelman School of Pharmacy, United States Pharmacopeial Convention launch fellowship opportunity”, June 2019  
<https://pharmacy.unc.edu/2019/06/unc-eshelman-school-of-pharmacy-united-states-pharmacoepial-convention-launch-fellowship-opportunity/>
79. SciDev.Net (Sub-Saharan Africa Edition)  
 “Up to 43 percent of malaria costs due to fake drugs”, January 2019  
<https://www.scidev.net/sub-saharan-africa/medicine/news/malaria-costs-due-to-fake-drugs.html>
78. The Medicine Maker  
 “The true cost of falsified medicine”, October 2018  
<https://themedicinemaker.com/business-regulation/the-true-cost-of-falsified-medicine>
77. EurekAlert / Science Daily / UNC Gillings School of Global Public Health /Medical Press  
 “New study finds fake, low-quality medicines prevalent in the developing world”, August 2018  
[https://www.eurekalert.org/pub\\_releases/2018-08/uonc-nsf081018.php](https://www.eurekalert.org/pub_releases/2018-08/uonc-nsf081018.php)  
<https://www.sciencedaily.com/releases/2018/08/180810120019.htm>  
<https://sph.unc.edu/sph-news/new-study-finds-fake-low-quality-medicines-prevalent-in-the-developing-world/>  
<https://medicalxpress.com/news/2018-08-fake-low-quality-medicines-prevalent-world.html>
76. Reuters / Business Ghana / Sierra Leone Press  
 “Fake, low quality drugs come at high cost”, August 2018  
<https://www.reuters.com/article/us-health-drugs-counterfeits/fake-low-quality-drugs-come-at-high-cost-idUSKCN1LG2TM>  
<https://www.businessghana.com/site/news/general/171658/Fake-low-quality-drugs-come-at-high-cost>  
<https://www.sierraleonepress.com/fake-low-quality-drugs-come-at-high-cost/>
75. UNC Eshelman School of Pharmacy  
 “Fake, low-quality medicines burden developing world, UNC study finds,” August 2018  
<https://pharmacy.unc.edu/news/2018/08/10/fake-low-quality-medicines-burden-developing-world-unc-study-finds/>
74. Association of Schools & Programs of Public Health  
 “UNC study finds fake, low-quality medicine prevalent in developing world”, August 2018  
<https://www.aspph.org/unc-study-finds-fake-low-quality-medicines-prevalent-in-developing-world/>
73. Outbreak News Today  
 “Fake medicines in developing countries: An interview with Dr. Sachiko Ozawa”, August 2018

<http://outbreaknewstoday.com/fake-medicines-developing-countries-interview-dr-sachiko-ozawa-27634/>

72. MD Magazine

“Substandard, falsified medicines most prevalent, costly in Africa and Asia”, August 2018  
<https://www.mdmag.com/medical-news/substandard-falsified-medicines-most-prevalent-costly-in-africa-and-asia>

71. VOA News

“Fake, low quality drugs come at high cost”, August 2018  
<https://www.voanews.com/a/fake-low-quality-drugs-come-at-high-cost/4553145.html>

70. The Guardian Nigeria / Nigerian Bulletin

“Antimalarial, antibiotics, most falsified drugs in developing countries”, August 2018  
<https://guardian.ng/features/science/antimalarial-antibiotics-most-falsified-drugs-in-developing-countries/>  
<https://www.nigerianbulletin.com/threads/%E2%80%98antimalarial-antibiotics-most-falsified-drugs-in-developing-countries%E2%80%99-%E2%80%93-the-guardian-nigeria-newspaper.335406/>

69. Business Highlights Nigeria

“Antimalarials, antibiotics most faked, substandard in African countries – US report”, August 2018  
<https://businesshighlights.com.ng/antimalarials-antibiotics-most-faked-substandard-in-african-countries-us-report/>

68. Times Live South Africa

“19% of African medicines fake or dicey, say pharmacists”, August 2018  
<https://www.timeslive.co.za/news/south-africa/2018-08-11-19-of-african-medicines-fake-or-dicey-say-pharmacists/>

67. Rynekaptek.pl (in Polish)

“Africa: Up to 19% of medicines are deficient or adulterated”, August 2018  
<https://www.rynekaptek.pl/farmakologia/afryka-nawet-19-lekow-to-produkty-niepelnowartosciowe-lub-sfalszowane,27514.html>

66. Medline news line

“Study finds prevalence of substandard and falsified medicines in developing countries”, August 2018  
<https://medkit.info/2018/08/11/study-finds-prevalence-of-substandard-and-falsified-medicines-in-developing-countries/>

**Media Appearances on the Value of Vaccination.** I have prepared news releases, media advisories and conducted interviews on radio (e.g. NPR) and print media (e.g. Forbes, Washington Post, ResearchGate) to describe my research as an expert on the economics of vaccination. These articles were also endorsed by organizations such as the Bill and Melinda Gates Foundation, Gavi, the World Health Organization, UNICEF and the Sabin Vaccine Institute on Twitter.

65. UNC University Communications

“UNC-Chapel Hill awarded \$11.7 million to improve HPV vaccination among adolescents”, October 2021  
<https://uncnews.unc.edu/2021/10/06/unc-chapel-hill-awarded-11-7-million-to-improve-hpv-vaccination-among-adolescents/>

64. UNC Gillings School of Public Health / UNC Lineberger Comprehensive Cancer Center  
“UNC awarded \$11.7 million to help providers improve HPV vaccine communication, uptake among adolescents”, October 2021  
<https://sph.unc.edu/sph-news/unc-awarded-11-7-million-to-help-providers-improve-hpv-vaccine-communication-uptake-among-adolescents/>  
<https://unclineberger.org/news/unc-awarded-11-7-million-to-help-providers-improve-hpv-vaccine-communication-uptake-among-adolescents/>
63. UNC Eshelman School of Pharmacy, Featured News  
“Vaccination slows antimicrobial resistance”, October 2021  
[https://pharmacy.unc.edu/2021/10/vaccination-slows-antimicrobial-resistance/?utm\\_campaign=Eshelman](https://pharmacy.unc.edu/2021/10/vaccination-slows-antimicrobial-resistance/?utm_campaign=Eshelman)
62. NC State News  
“Vaccination slows antimicrobial resistance”, September 2021  
<https://news.ncsu.edu/2021/09/vaccination-slows-antimicrobial-resistance/>
61. NC State Veterinary Medicine News  
“Study: Vaccination slows antimicrobial resistance”, September 2021  
<https://cvm.ncsu.edu/study-vaccination-slows-antimicrobial-resistance/>
60. Medical Xpress  
“Vaccination guards against certain bacterial infections and slows the spread of superbugs in populations”, September 2021  
<https://medicalxpress.com/news/2021-09-vaccination-bacterial-infections-superbugs-populations.html>
59. Association of Schools & Programs of Public Health  
“UNC: The right vaccination plan can speed up U.S. economic recovery. Here’s what it should include (Dr. Sachiko Ozawa for CNN)”, February 2021  
<https://www.aspph.org/unc-the-right-vaccination-plan-can-speed-up-u-s-economic-recovery-heres-what-it-should-include-dr-sachiko-ozawa-for-cnn/>
58. CNN Business Perspectives  
“The right vaccination plan can speed up US economic recovery. Here’s what it should include”, by **Sachiko Ozawa**, January 2021  
<https://www.cnn.com/2021/01/28/perspectives/vaccines-us-economic-recovery/index.html>
57. USP COVID-Connect  
“Interview topic: Economic modeling and access to vaccines”, September 2020  
<https://www.usp.org/usp-india/covid-connect-interview-series>
56. Consultant 360, Immunizations  
“Sachiko Ozawa, PhD, MHS, on defining hard-to-reach populations for vaccination”, December 2019  
<https://www.consultant360.com/exclusive/infectious-diseases/vaccines/5-questions-about-defining-hard-reach-populations>
55. Fondation Merieux  
7<sup>th</sup> Vaccine Acceptance Meeting  
“Exploring pathways for building trust in vaccination and strengthening health systems resilience”, September 2019  
<https://www.fondation-merieux.org/wp-content/uploads/2019/02/7th-vaccine-acceptance-meeting-2019-sachiko-ozawa.pdf>

54. India Spend  
 “47% of India’s poorest children, 30% of richest not fully immunized”, September 2019  
<https://www.indiaspend.com/47-of-indias-poorest-children-30-of-richest-not-fully-immunised/>
53. YAHOO! Finance  
 “Anti-vaxxers are costing Americans billions each year”, April 2019  
<https://finance.yahoo.com/news/antivaxxers-costing-americans-billions-each-year-191839191.html>
52. U.S. Department of Health & Human Services  
 National Vaccine Advisory Committee Meeting  
 “Valuing Vaccines: Direct and Indirect Costs”, September 2018  
<https://www.hhs.gov/vaccines/nvac/meetings/2018/09-12/index.html>
51. Times Live South Africa  
 “19% of African medicines fake or dicey say pharmacists”, August 2018  
<https://www.timeslive.co.za/news/south-africa/2018-08-11-19-of-african-medicines-fake-or-dicey-say-pharmacists/>
50. UNC Carolina Stories  
 “The economic upside to vaccinating”, February 2018  
<https://stories.unc.edu/?economic-upside-vaccinating>
49. National Public Radio (NPR), WUNC 91.5  
 “UNC Research: Vaccines saved 20M lives”, September 2017  
<http://wunc.org/post/unc-research-vaccines-saved-20m-lives#stream/0>
48. UNC News / EurekAlert / Science Alert / Science Daily  
 “Vaccines save 20 million lives, \$350 billion in poor countries since 2001”, September 2017  
<https://uncnews.unc.edu/2017/09/01/vaccines-save-20-million-lives-350-billion-poor-countries-since-2001/>  
[https://www.eurekalert.org/pub\\_releases/2017-09/uonc-vs2090117.php](https://www.eurekalert.org/pub_releases/2017-09/uonc-vs2090117.php)  
<https://www.sciencealert.com/vaccines-have-saved-nearly-20-million-children-s-lives-in-poor-countries-since-2001>  
<https://www.sciencedaily.com/releases/2017/09/170901101035.htm>
47. ResearchGate  
 “Vaccinations in the world’s poorest countries will have prevented 20 million deaths and saved \$350 billion by 2020”, September 2017  
<https://www.researchgate.net/blog/post/vaccines-in-poor-countries-have-saved-20-million-lives-and-350-billion-dollars-since-2001>
46. The Hill WCHL 97.9, Chapelboro  
 “UNC researchers: Vaccination in world’s poorest countries will prevent 20 million deaths and save \$350 billion by 2020”, September 2017  
<http://chapelboro.com/news/health/unc-researchers-vaccinations-worlds-poorest-countries-will-prevent-20-million-deaths-save-350-billion-2020>
45. Fierce Pharma  
 “Gavi’s vaccine program to save 20M lives, \$350B by 2020: study”, September 2017  
<https://www.fiercepharma.com/vaccines/gavi-s-vaccine-program-to-save-20-million-lives-350b-by-2020-study>



44. Healio  
 “Vaccination efforts estimated to prevent 20 million deaths by 2020”, September 2017  
<https://www.healio.com/pediatrics/vaccine-preventable-diseases/news/online/%7Bb4b77b18-cdab-42f8-a6d0-083b535aad0%7D/vaccination-efforts-estimated-to-prevent-20-million-deaths-by-2020>
43. Global Citizen  
 “Vaccines will prevent 20 million deaths and save poor countries \$820 billion by 2020, study finds”, September 2017  
<https://www.globalcitizen.org/en/content/vaccines-will-prevent-20-million-deaths-and-save-p/>
42. Scientias (in Dutch)  
 “Vaccines save 20 million children’s lives in the world’s poorest countries”, September 2017  
<https://scientias.nl/vaccins-redden-twintig-miljoen-kinderlevens-armste-landen-wereld/>
41. SciencePost (in French)  
 “How many lives have been saved since the beginning of the 21<sup>st</sup> century thanks to vaccines?”, September 2017  
<https://sciencepost.fr/combien-de-vies-ont-ete-sauvees-debut-21e-siecle-grace-aux-vaccins/>
40. World Health Organization  
 Immunization, Vaccines and Biologicals: Analysis of immunization financing  
 “Return on investment from childhood immunization in low- and middle-income countries, 2011-20”, June 2017  
[https://www.who.int/immunization/programmes\\_systems/financing/analyses/en/](https://www.who.int/immunization/programmes_systems/financing/analyses/en/)
39. The Daily Tar Heel  
 “Q&A with professor Sachiko Ozawa about \$9 billion economic cost of vaccine-preventable diseases”, November 2016  
<http://www.dailytarheel.com/article/2016/11/qa-with-professor-sachiko-ozawa-about-the-9-billion-cost-of-not-vaccinating>
38. UNC-TV: Science  
 “The economics and communications of vaccines”, November 2016  
<http://science.unctv.org/content/economics-and-communications-vaccines>
37. Health Affairs media advisory / blog  
 “The cost of US adult vaccine avoidance: \$8.95 billion in 2015”, October 2016  
<https://www.healthaffairs.org/doi/10.1377/hblog20161012.057059/full/>  
<http://web.healthaffairs.org/acton/rif/17576/s-020f-1610/-/l-0105:c52/l-0105/showPreparedMessage?sid=TV2:8l0lr2x8i>
36. UNC Eshelman School of Pharmacy News / Infection Control Today / Medical Xpress / Global Biodefense / Drug Discovery & Development  
 “Unvaccinated adults cost the U.S. more than \$7 billion a year”, October 2016  
<https://pharmacy.unc.edu/unvaccinated-adults-cost-u-s-7-billion-year/>  
<https://www.infectioncontroltoday.com/vaccines-vaccination/unvaccinated-adults-cost-us-more-7-billion-year>  
<https://medicalxpress.com/news/2016-10-unvaccinated-adults-billion-year.html>  
<https://globalbiodefense.com/2016/10/24/unvaccinated-adults-cost-us-7b-annually/>  
<https://www.drugdiscoverytrends.com/unvaccinated-adults-cost-u-s-more-than-7b-a-year/>
35. Forbes  
 “Adults not getting vaccinated cost the U.S. \$7.1B in 2015”, October 2016

<http://www.forbes.com/sites/brucelee/2016/10/12/adults-not-getting-vaccinated-cost-u-s-7-1-billion-in-2015/#ae8841e6c961>

34. Washington Post

“The \$5.8 billion argument for getting your flu shot”, October 2016

<https://www.washingtonpost.com/news/wonk/wp/2016/10/13/the-5-8-billion-argument-for-getting-your-flu-shot/>

33. Healthline

“People who don’t get vaccinations cost U.S. economy \$7 billion a year”, October 2016

<https://www.healthline.com/health-news/vaccinations-cost-us-economy-7-billion-a-year>

32. Business Insider

“People who refuse vaccines cost the US billions of dollars a year”, October 2016

<https://www.businessinsider.com/economic-impact-of-vaccine-preventable-diseases-2016-10>

31. MDedge Clinician Reviews

“Unvaccinated patients rack up billions in preventable costs”, October 2016

<https://www.mdedge.com/clinicianreviews/article/115935/vaccines/unvaccinated-patients-rack-billions-preventable-costs>

30. Xtalks

“Unvaccinated adults place \$7 billion burden on US healthcare system”, October 2016

<https://xtalks.com/unvaccinated-adults-healthcare-system-506/>

29. Medscape

“Adult vaccine avoidance cost \$7 billion in 2015”, October 2016

<https://www.medscape.com/viewarticle/870362>

28. The Open University

“Is norovirus an economic threat?”, April 2016

<https://www.open.edu/openlearn/health-sports-psychology/health/health-studies/norovirus-economic-threat>

27. Forbes

“Norovirus costs over \$60 billion each year”, April 2016

<https://www.forbes.com/sites/brucelee/2016/04/26/norovirus-costs-over-60-billion-each-year/#20903245223d>

**Decade of Vaccine Economics (DOVE) Videos & Infographics.** This project for which I was the principal investigator for over 5 years, generated economic models (cost of illness, DALYs averted, value of life years, cost of vaccine programs, financing of vaccine programs, funding gap, return on investment) to estimate the economic impact of vaccines during the Decade of Vaccines (2011-2020) across 94 countries. Results from this work have been used in Bill Gates’ speeches (2011 annual letter and 2011 World Economic Forum), cited by Gavi, the Vaccine Alliance (2012 Gavi Partner’s Forum and Gavi value of vaccinations website), and was instrumental in securing the funding replenishment for Gavi of \$7.5 billion for 2016-2020 (2015 Gavi Replenishment). The work also contributed to vaccine adoptions in Ghana and Nigeria in 2012. The analysis was presented at the 2012 World Health Organization Strategic Advisory Group of Experts (SAGE) Meeting and at the Immunization and Vaccines related Implementation Research (IVIR), Advisory Committee in 2012, 2014 and 2015.

2016 results on the return on investment of childhood vaccination led to press releases issued by Health Affairs and the Johns Hopkins Bloomberg School of Public Health, as well as original tweets by Bill Gates, Seth Berkley and others. The work was cited to contribute to a declaration signed by 20 health ministers at the Ministerial Conference on Immunization in Africa to increase the use of vaccines in preventing infectious diseases. Research evidence generated from the project have been picked up by various media channels (Reuters, Huffington Post, Global Health Magazine, Johns Hopkins Gazette, Kaiser Family Foundation, American Pharmacists' Association, Market Watch, Google News, Fox News, Business Day Online, Leadership Newspapers, Daily Graphic). Below are videos and infographics generated using DOVE project estimates and disseminated by various organizations for vaccine advocacy & communications (active links only).

26. Measles & Rubella Initiative

"Return on investment from childhood immunization, June 2016

<https://measlesrubellainitiative.org/return-on-investment-from-childhood-immunization-in-low/>

25. UNICEF

"There's a \$16 return on every \$1 invested in immunization", June 2016

<https://twitter.com/UNICEF/status/747587925446115328>

24. Bill & Melinda Gates Foundation

"Spread the Word that #VaccinesWork", April 2016

<http://www.vaccineswork.org/post/143326090862/world-immunization-week-2016-7-days-7-ways-to>

23. US Agency for International Development (USAID)

"Vaccines save lives in the present and costs in the future", April 2016

<https://twitter.com/gavi/status/725020416180408320>

22. Chicago Policy Review

"A milliliter of cure: how investment in vaccine provision could yield substantial economic returns", March 2016

<http://chicagopolicyreview.org/tag/sachiko-ozawa/>

21. Gavi, the Vaccine Alliance

"New data confirms immunization as a best buy in public health", February 2016

<http://www.gavi.org/Library/News/GAVI-features/2016/New-data-confirms-immunisation-as-best-buy-in-public-health/>

20. Bill & Melinda Gates Foundation

"Every \$1 invested in vaccines leads to more than \$16 economic benefits", February 2016

[https://twitter.com/hashtag/ha\\_vaccines](https://twitter.com/hashtag/ha_vaccines)

19. RT Magazine / Infection Control Today

"Expanding use of vaccines could save up to \$44 for every dollar spent, February 2016

<https://www.rtmagazine.com/disorders-diseases/infectious-diseases/influenza/expanding-use-vaccines-could-save/>

<https://www.infectioncontroltoday.com/view/expanding-use-vaccines-could-save-44-every-dollar-spent-study-suggests>

18. Borgen Magazine

"Economic benefits of vaccines in developing countries", February 2016

<https://www.borgenmagazine.com/vaccines-in-developing-countvaccines-in-developing-countries/>

17. Gavi, the Vaccine Alliance  
 “Immunization: The gateway to health and economic development”, February 2016  
<http://www.gavi.org/library/audio-visual/presentations/immunisation--the-gateway-to-health-and-economic-development/>
16. Contemporary Clinic  
 “Expanded vaccine use may reap economic benefits”, February 2016  
<https://contemporaryclinic.pharmacytimes.com/preventive-care/expanded-vaccine-use-may-reap-economic-benefits>
15. IFL Science  
 “Vaccines return up to \$44 to society for every \$1 spent on them” February 2016  
<https://www.iflscience.com/health-and-medicine/vaccines-return-44-every-1-spent-them/>
14. Vaccines Today  
 “Vaccines save lives – and money”, February 2016  
<https://www.vaccinestoday.eu/stories/vaccines-save-lives-and-money/>
13. Gavi, the Vaccine Alliance  
 “Economic benefits of immunization”, May 2014  
<http://www.gavi.org/replenishment-launch/investment-opportunity/>
12. UN Foundation  
 “The Global Economic Value of Vaccination” Infographic, December 2012  
[http://shotatlife.org/assets/downloadables/shotatlife\\_economic\\_infographic.pdf](http://shotatlife.org/assets/downloadables/shotatlife_economic_infographic.pdf)
11. Bill & Melinda Gates Foundation  
 “Vaccines work” Infographic, June 2012  
<http://www.gatesfoundation.org/What-We-Do/Global-Development/Vaccine-Delivery/Infographics>  
<http://www.trendhunter.com/trends/vaccines-work-infographic>  
<https://visual.ly/community/Infographics/health/vaccines-work>
10. Kaiser Family Foundation  
 Report identifies challenges, solutions to increasing routine vaccination in Nigeria, May 2012  
<https://www.kff.org/news-summary/report-identifies-challenges-solutions-to-increasing-routine-vaccination-in-nigeria/>
9. Huffington Post  
 Routine vaccination solutions for Nigeria will save lives and money, May 2012  
[http://www.huffingtonpost.com/tom-murphy/routine-vaccination-solutions-for-nigeria\\_b\\_1506066.html?utm\\_hp\\_ref=nigeria](http://www.huffingtonpost.com/tom-murphy/routine-vaccination-solutions-for-nigeria_b_1506066.html?utm_hp_ref=nigeria)
8. Reuters  
 Two new vaccines give Ghana hope for healthy growth, April 2012  
<http://www.reuters.com/article/2012/04/26/us-ghana-vaccines-idUSBRE83P0E620120426>
7. Shout Africa / AllAfrica  
 New study identifies promising, achievable solutions to Nigeria’s childhood mortality crisis, April 2012  
<http://www.shout-africa.com/health-lifestyle/new-study-identifies-promising-achievable-solutions-to-nigerias-childhood-mortality-crisis/>  
<https://allafrica.com/stories/201204170968.html>

6. Huffington Post  
Global motherhood: Perils and promise in Ghana, April 2012  
[http://www.huffingtonpost.com/dr-orin-levine/ghana-child-mortality-\\_b\\_1455473.html](http://www.huffingtonpost.com/dr-orin-levine/ghana-child-mortality-_b_1455473.html)
5. Bill & Melinda Gates Foundation  
Nigeria: Breaking down barriers to immunization coverage, April 2012  
<http://www.gavialliance.org/library/news/gavi-features/2012/ivac-study-nigeria/>
4. Johns Hopkins Gazette  
Vaccinations in 72 poorest countries could avert 6.4 million deaths, September 2011  
<https://gazette.jhu.edu/2011/09/12/vaccinations-in-72-poorest-countries-could-avert-6-4-million-deaths/>
3. Johns Hopkins Public Health Magazine  
“Value of vaccines”, Fall 2011  
[https://magazine.jhsph.edu/2011/fall/news\\_briefs/value\\_of\\_vaccines/](https://magazine.jhsph.edu/2011/fall/news_briefs/value_of_vaccines/)
2. Reuters / Fox News  
More vaccines for poor could save 6.4 million lives, June 2011  
<https://www.reuters.com/article/us-vaccines-coverage/more-vaccines-for-poor-could-save-6-4-million-lives-idUSTRE7581BQ20110609>  
<https://www.foxnews.com/health/more-vaccines-for-poor-could-save-6-4-million-lives>
1. Bill & Melinda Gates Foundation  
“We did the math” Video, February 2011  
<https://www.youtube.com/watch?v=IY-XJFHKjd0>

#### **E.6. INVITED ORAL PRESENTATIONS (102) – 50 International; 30 National; 22 State/Local**

102. IMPACT diversity equity inclusion working group. IMPACT Center Integration meeting. Virtual (hosted from Chapel Hill, NC), January 24, 2022.
101. IMPACT project 4. Modelers advisory board kickoff meeting. Virtual (hosted from Chapel Hill, NC), January 6, 2022.
100. Project 4 – cost and rurality. IMPACT clinical advisory board kickoff meeting. Virtual (hosted from Chapel Hill, NC), December 17, 2021 & January 21, 2022.
99. Economic evaluations. Academy of Managed Care Pharmacy (AMCP) Pharmacy and Therapeutics (P&T) competition bootcamp. Virtual (hosted from Chapel Hill, NC), December 13, 2021.
98. Estimating the cost of Covid-19 vaccine misinformation in Canada. Council of Canadian Academies Misinformation Assessment Panel. Virtual (hosted from Ottawa, Canada), December 10, 2021.
97. Nigeria health, population, and nutrition (HPN) multi-activity evaluation. Data for Impact meeting with Integrated health project (IHP), president’s malaria initiative for states (PMI-S), breakthrough action-Nigeria (BA-N), global health supply chain program procurement and supply management (PSM). Virtual (hosted from Chapel Hill, NC), December 14, 2021.
96. Nigeria health, population, and nutrition (HPN) multi-activity evaluation. Data for Impact meeting with USAID Nigeria. Virtual (hosted from Chapel Hill, NC), December 8, 2021.

95. Vaccines, medicine quality & antimicrobial resistance. PharmAlliance Student Medication Safety Team, Antibiotic Awareness Week Event. Chapel Hill, NC, November 15, 2021.
94. Direct and Indirect Benefits of Vaccination. PharmAlliance Student Vaccine Champion Workshop. Chapel Hill, NC, November 3, 2021.
93. COVID-19 treatments sold online without prescription requirements – A global concern. American Society of Tropical Medicine and Hygiene. Virtual (hosted from Washington, DC), November 3, 2021.
92. Cost savings of paper analytical devices (PADs) to detect substandard and falsified antibiotics: Kenya case study. International Health Economics Association. Virtual (from Dubai, UAE), July 14, 2021.
91. COVID-19 Vaccines. Innovations and Transformations in Pharmaceutical Sciences 2021, UNC Eshelman School of Pharmacy. Virtual (hosted from Chapel Hill, NC), July 13, 2021.
90. Return on investment of risk-based post market surveillance. World Health Organization Informal technical experts working group meeting on risk-based post market surveillance (rb-PMS). Virtual (hosted from Geneva, Switzerland), April 16, 2021.
89. COVID-19 vaccines. COVID-19 Health Disparities Panel. The Equity and Inclusion Committee of the Alumni Council, Phillips Academy, Andover. Virtual (hosted from Massachusetts), March 22, 2021.
88. COVID-19 vaccine hesitancy. COVID-19 Vaccines: Ending the Pandemic, Restarting the Economy. Clinton Foundation, moderated by Chelsea Clinton. Virtual (hosted from New York), March 18, 2021. <https://www.clintonfoundation.org/press-releases/chelsea-clinton-host-virtual-event-covid-19-vaccines-ending-pandemic-restarting>  
**\*700 registered participants, plus live stream online and on Facebook. Other panelists: Bechara Choucair, White House COVID Response Team, Mayor Robert Garcia of Long Beach California, and Dr. Richard Besser CEO of Robert Wood Johnson Foundation.**
87. Review of models estimating the health and economic impact of substandard & falsified medicines. United States Pharmacopeia Convention Substandard and Falsified Model Advisory Group. Virtual (hosted from Rockville, MD), February 10, 2021.
86. Vaccine safety: Science, Myth, and Society. UNC Chancellor's Global Leadership Council, Virtual January Meeting, Virtual (hosted from Chapel Hill, NC), January 29, 2021.  
**\*Invited by the UNC Chancellor's Global Leadership Council**
85. The broader impact of maternal immunization in sub-Saharan Africa and Asia: a multisite study in randomized clinical control trial cohorts. Value of Vaccination Research Network Work-in-Progress Webinar Series, Virtual (hosted from Harvard School of Public Health, Boston), January 19, 2021.
84. Impact of poor-quality medicines on achieving universal health coverage. Quality maternal health medicines: key to achieving universal health coverage. FIGO Africa Regional Kigali Congress, International Federation of Gynecology and Obstetrics, Virtual (hosted from Kigali, Rwanda), December 14, 2020. **\*230 participants in meeting, including half gathered in Rwanda**
83. Economic evaluations. Academy of Managed Care Pharmacy (AMCP) Pharmacy and Therapeutics (P&T) competition bootcamp. Virtual (hosted from Chapel Hill, NC), December 8, 2020.

82. Universal health coverage and quality-assured medicines: A systems mapping approach. 6<sup>th</sup> Global Symposium on Health Systems Research. Virtual (hosted from Dubai, United Arab Emirates), November 8-12, 2020.
81. The economic impact of falsified and substandard medicines. Fighting falsified and substandard medicines during the Corona crisis Session. World Health Summit, Virtual (hosted from Berlin, Germany), October 27, 2020. <https://www.youtube.com/watch?v=aV7Gr0fKcxE>  
**\*150 participants from 33 countries, plus 260+ views online**
80. Preliminary findings on the return on investment of risk-based post market surveillance. Briefing session for the informal experts advisory group on risk-based post market surveillance. World Health Organization, Virtual (hosted from Geneva, Switzerland), October 22, 2020.
79. Economic impact of vaccinations. UNC PACE Faculty meeting presentation, Virtual (hosted from Chapel Hill, NC), September 17, 2020.
78. Economic modeling and access to vaccines. USP COVID-Connect Webinar Interview Series, United States Pharmacopeia. Virtual (hosted from Delhi, India), September 14, 2020.  
**\*83 participants, mostly from India**
77. Global pandemic of substandard and falsified medicines. University of Michigan School of Pharmacy. Virtual (hosted from Ann Arbor, MI), August 12, 2020.
76. Value of vaccines. University of Michigan School of Pharmacy. Virtual (hosted from Ann Arbor, MI), August 10, 2020.
75. Vaccines and global immunization programs. Innovations and Transformations in Pharmaceutical Sciences 2020, UNC Eshelman School of Pharmacy. Virtual (hosted from Chapel Hill, NC), July 27, 2020.
74. Medicines access and quality during the COVID-19 pandemic: spotlight on South Africa, Bolivia and Nigeria. Medicines in Health Systems Thematic Working Group, Health Systems Global. Moderator. Virtual (hosted from Chapel Hill, NC), June 25, 2020.
73. Global pandemic of substandard and falsified medicines. Global Engagement Organization, UNC Eshelman School of Pharmacy. Chapel Hill, NC, January 28, 2020.
72. Return on investment of risk-based post market surveillance. Planning meeting to conduct RBPMS on medicine quality in Tanzania. World Health Organization. Dar Es Salaam, Tanzania, January 20-23, 2020.  
**\*Engaged the Tanzanian Medicine and Medical Devices Authority**
71. Modeling the health and economic costs of substandard and falsified drugs in sub-Saharan Africa. American Society of Tropical Medicine and Hygiene. Washington, DC, November 22, 2019.
70. Return on investment of risk-based post market surveillance. World Health Organization Informal Technical Experts Working Group. Geneva, Switzerland, October 21, 2019.  
**\*Informed the World Health Organization's Member State Mechanism**
69. Exploring pathways for building trust in vaccination and strengthening health systems resilience. 7<sup>th</sup> Vaccine Acceptance Meeting. Fondation Mérieux, Annecy, France, September 25, 2019.

68. Integrating Medicines quality assurance into universal health coverage programming: A path to increasing efficiency, access, and coverage. United States Pharmacopeial Convention (USP). Rockville MD, August 29, 2019.

**\*Launched a White Paper with USP**

67. Integrating Medicines quality assurance into universal health coverage programming: A path to increasing efficiency, access, and coverage. United States Agency for International Development (USAID). Brownbag presentation, Crystal City VA, August 29, 2019.

66. Impact of antibiotic resistance on treatment of pneumococcal disease in Ethiopia: an agent-based modeling simulation. International Health Economics Association. Basel, Switzerland, July 17, 2019.

65. Hard-to-reach populations: A systems mapping approach to bridging the gaps for vaccination. International Health Economics Association. Basel, Switzerland, July 15, 2019.

64. Economic considerations of vaccinating hard-to-reach populations. Centers for Disease Control and Prevention. Atlanta GA, May 10, 2019.

63. Improving provider communication about HPV vaccination: P01 program project proposal. National Cancer Institute. Washington DC, May 7, 2019.

**\*Invited by NCI to present P01 proposal**

62. Importance of medicine quality in achieving universal health coverage. United States Pharmacopeial Convention (USP). Rockville MD, May 6, 2019.

61. Reaching the hard to reach for vaccination: definitions and economic considerations. Centers for Disease Control and Prevention, Atlanta GA, November 27, 2018.

60. Lessons from vaccines that could be adapted to cancer: Gavi case study. Health Systems Global Medicines in Health Systems Thematic Working Group organized session: Global cancer medicines' initiatives: what are we missing in the debate? Global Symposium for Health Systems Research, Liverpool, UK, October 12, 2018.

59. Development of an agent-based model to assess the impact of substandard and falsified antimalarials in Uganda. Medicine Quality and Public Health. Oxford, UK, September 25, 2018.

58. Prevalence and estimates of economic impact of substandard and falsified medicines in low- and middle-income countries: A systematic review and meta-analysis. Medicine Quality and Public Health. Oxford, UK, September 24, 2018.

**\*Led to Oxford Statement on Global Access to Quality-Assured Medicines**

57. Benefits of vaccines. National Vaccine Advisory Committee. U.S. Department of Health and Human Services, Washington DC, September 12, 2018.

**\*Recorded with Live Webcast to the Public**

56. Systematic review of the incremental costs of interventions that increase immunization coverage. EPIC3 Immunization Costing Project Technical Advisory Group meeting. Harvard T.H. Chan School of Public Health, Center for Health Decision Sciences, Boston MA, July 16, 2018.

55. Antibiotic Stewardship: Right drug, right time, right dose, right duration. Lightning Round, CIPhER Center for Innovative Pharmacy Educational & Research. Chapel Hill NC, May 16, 2018.



54. Value of vaccination in controlling the development of antimicrobial resistance. UNC Institute for Global Health and Infectious Diseases. Friday Morning Conference. Chapel Hill NC, March 2, 2018.
53. Global Health Economics for Pharmacy. UNC Pharmacy Global Engagement Organization. General Body Meeting. Chapel Hill NC, February 20, 2018.
52. Online pharmacy. Lightening Round, CIPhER Center for Innovative Pharmacy Educational & Research. Chapel Hill NC, December 1, 2017.  
**\*Voted No.1 for “Most likely to be funded”**
51. Antimicrobial stewardship and antimicrobial resistance practice and policy: UNC perspectives. PharmAlliance Research Symposium, Chapel Hill NC, November 17, 2017.
50. Global Health Economics for Pharmacy (GHEP). GlaxoSmithKline meeting, Chapel Hill NC, November 6, 2017.
49. Economic impact of vaccinations. UNC PACE Faculty meeting presentation, Chapel Hill NC, October 19, 2017.
48. Global Health Economics for Pharmacy (GHEP). Maternal Child Health Department Faculty Talk, Chapel Hill NC, October 2, 2017.
47. The global pandemic of substandard and falsified medicines. Triangle Global Health Annual Conference. Raleigh NC, September 28, 2017.
46. Prevalence and economic impact of substandard and falsified medicines in low- and middle-income countries: a systematic review and meta-analysis. World Congress of Pharmacy and Pharmaceutical Sciences. Seoul, Korea, September 12, 2017.
45. Resource requirements and cost-effectiveness of achieving maternal and neonatal tetanus elimination by 2020. International Health Economics Association (IHEA) World Congress Symposium, Boston MA, July 10, 2017.
44. Impact of online pharmacies. Triangle Health Economics Workshop, Durham NC, June 30, 2017.
43. Impact of online pharmacies. Center for Safe Internet Pharmacies Board Meeting, New York NY, June 9, 2017.
42. Childhood immunization: What’s the value? Toward a Carolina Improvement Science Initiative, A lightening symposium, University of North Carolina, Chapel Hill NC, May 19, 2017.
41. Value of health. Workshop on Innovative Approaches to Widening and Deepening Research on the Value of Vaccination, Value of Vaccination Research Network, Harvard T.H. Chan School of Public Health, Boston, MA, May 12, 2017.
40. Survey Tools to Estimate Cost of Treatment and Productivity Loss for Vaccine Preventable Diseases. Immunization Costing Workshop, Bill & Melinda Gates Foundation, Washington, DC, May 18, 2016.
39. Return on Investment in Childhood Immunization. Advancing the Value of Vaccines Research Agenda Meeting, Harvard T.H. Chan School of Public Health, Boston, April 27, 2016.

38. Return on Investment From Childhood Immunizations In Low- And Middle-Income Countries, 2011-20. Health Affairs February 2016 Issue Briefing on Vaccines, National Press Club, Washington, DC, February 9, 2016.  
**\*Recorded with Live Webcast from the National Press Club**
37. Decade of Vaccine Economics (DOVE) Supplementary Immunization Activities (SIA) Global Operational Cost Estimates. Convening on Immunization Delivery Costs, University of Washington, Seattle, October 15, 2015.
36. Decade of Vaccine Economics (DOVE) Return on Investment (ROI) Analysis. Bill & Melinda Gates Foundation Dissemination Meeting, Seattle, September 24, 2015.
35. Stakeholder Preferences for an Integrated National Community Health Worker Program. Community Health Worker Learning Agenda Project Stakeholder Dialogue Workshop, hosted by Tanzania Ministry of Health and Social Welfare, US Agency for International Development, Johns Hopkins Bloomberg School of Public Health, Dar Es Salaam, Tanzania, September 1, 2015.
34. Economic benefits of vaccination – the full income approach. International Health Economics Association (IHEA) World Congress Symposium, Milan, Italy, July 13-15, 2015.
33. Decade of Vaccine Economics (DOVE). Immunization and Vaccines related Implementation Research (IVIR) Advisory Committee meeting, World Health Organization, Geneva, June 9, 2015.
32. Decade of Vaccine Economics (DOVE). Gavi-BMGF Modeling the Health Impacts of Vaccination meeting, Gavi & Bill and Melinda Gates Foundation, Geneva, May 7-8, 2015.
31. Decade of Vaccine Economics (DOVE): Costing, Financing & Funding Gap Model Training. Global Vaccine Action Plan Costing & Financing Steering Committee meeting, Gavi, Geneva, March 30, 2015
30. Decade of Vaccine Economics (DOVE) project. Broader Economic Impact of Vaccines (BEIV) meeting, World Health Organization, Bangkok, November 24-25, 2014  
**\*Led to Research Grant with the Centers for Disease Control and Prevention**
29. Decade of Vaccines Economics (DOVE): Costing, Financing & Return on Investment Analysis. Gavi Secretariat Dissemination meeting, Gavi, Geneva, October 7, 2014.
28. Decade of Vaccines Economics (DOVE): Return on Investment Preliminary Results. Global Vaccine Action Plan Costing & Financing Steering Committee meeting, World Health Organization, Geneva, October 6, 2014.
27. Decade of Vaccines Economics (DOVE) Models. Immunization and Vaccines related Implementation Research (IVIR) Advisory Committee meeting, World Health Organization, Geneva, September 17, 2014.  
**\*Evaluated by WHO's IVIR-AC on Methodological Rigor of Proposed Research**
26. Decade of Vaccines Economics (DOVE): Costing, Financing & Funding Gap Model. Immunization and Vaccines related Implementation Research (IVIR) Advisory Committee Ad Hoc Working Group meeting, World Health Organization, Geneva, June 17, 2014.
25. Decade of Vaccines Economics (DOVE): Costing, Financing & Return on Investment Analysis. Gavi Secretariat Dissemination meeting, Gavi, Washington DC, March 6, 2014.

24. Decade of Vaccines Economics (DOVE): Costing, Financing, Funding Gap & Economic Benefits Analyses. Gavi-BMGF Vaccination Impact meeting, Gavi & Bill and Melinda Gates Foundation, Washington DC, February 25-26, 2014.
23. Decade of Vaccines Economics (DOVE): Costing, Financing & Funding Gap Analyses. Global Vaccine Action Plan Costing & Financing Steering Committee meeting, The United Nations, Copenhagen, Denmark, February 5, 2014.
22. Decade of Vaccines Economics (DOVE): Costing, Financing & Funding Gap Analyses. Global Vaccine Action Plan Costing & Financing Steering Committee meeting, Gavi, Washington DC, December 17, 2013; October 3, 2013.
21. Decade of Vaccines Economics (DOVE): Costing and Return on Investment Analyses. Global Vaccine Action Plan Costing & Financing Steering Committee meeting, UNICEF, New York, July 22, 2013.
20. Decade of Vaccines Economics (DOVE) Project. Data Day, Johns Hopkins University International Vaccine Access Center, Baltimore, July 17, 2013
19. Measuring Trust in the Health System: A Systematic Review. International Health Economics Association (IHEA) World Congress Symposium, Sydney, Australia, July 6-10, 2013.
18. Treatment costs saved and economic burden of averted mortality & morbidity over the 'Decade of Vaccines'. International Health Economics Association (IHEA) World Congress Symposium, Sydney, Australia, July 6-10, 2013.
17. Decade of Vaccines Economics (DOVE): Scope of Return on Investment Analysis. Technical consultation on methods for estimating global immunization costs for the Decade of Vaccines, Gavi, Geneva, Switzerland, June 14, 2013.
16. Decade of Vaccines Economics (DOVE) Project. Value of vaccines working group meeting, Gavi, Geneva, January 14-15, 2013.  
**\*Invited as One of 25 Global Leaders on the Value of Vaccines**
15. Where's the evidence at: The current status of value of vaccines work globally. Gavi Partners' Forum, Gavi, Dar es Salaam, Tanzania, December 5-7, 2012.  
**\*Presented to Ministers of Health, Ministers of Finance and Parliamentarians**
14. Decade of Vaccines Economics (DOVE) Project. Workshop on Gavi's vaccine impact estimates, Gavi, Washington DC, October 12, 2012.
13. Use of Value of Statistical Life (VSL) for the Decade of Vaccines. Immunization and Vaccine related Implementation Research (IVIR) Advisory Committee meeting, World Health Organization, Geneva, Switzerland, September 25-26, 2012.  
**\*Evaluated by WHO's IVIR-AC on Methodological Rigor of Proposed Research**
12. Decade of Vaccines Economics (DOVE) Project. Bill and Melinda Gates Foundation Dissemination Meeting, Seattle, September 11, 2012.
11. Building informed trust: Injection practices in Cambodia. Social Science and Medicine Conference on Health System Reform in Asia, Hong Kong, December 9-12, 2011.

10. Trust matters: Villager's trust in providers and insurers and their demand for community-based health insurance in Cambodia. Social Science and Medicine Conference on Health System Reform in Asia, Hong Kong, December 9-12, 2011.
  9. Decade of Vaccines Economics (DOVE) Project. Bill and Melinda Gates Foundation Dissemination Meeting, Seattle, February 4, 2011 & December 12, 2010
  8. How do you measure 'trust' in health systems? First Global Symposium on Health Systems Research, Montreux, Switzerland, November 16-19, 2010.
  7. Trust & voluntary health insurance in Cambodia. Workshop on Social Capital and Health, Social Capital and Health Global Network, Oslo, Norway, September 10-11, 2010.
  6. Trust & voluntary health insurance in Cambodia. Regional Conference on Health Sector: Institutions, Motivation and Incentives, Phnom Penh, Cambodia, April 26-28, 2010.
  5. Trust and community-based health insurance schemes in Cambodia: Trust in providers and insurers. Workshop in Institutional Development for Rural Health Service, School of Social Development and Public Policy, Beijing Normal University, Beijing, China, July 17-18, 2009.
  4. The role of trust in the demand for community-financed schemes in Cambodia. Panel on *Healthcare Market Failures in Low Income Countries* chaired by David Bishai. International Health Economics Association (IHEA) World Congress Symposium, Beijing, China, July 12-15, 2009.
  3. Trust in private providers in rural Cambodia. Pre-IHEA World Congress Symposium on the Role of the Private Sector in Health, Beijing, China, July 11, 2009.
  2. Meaning of 'Trust' in Health Systems in Cambodia. Global Health Council, Annual International Conference on Global Health: New Technology + Proven Strategies = Healthy Communities, Washington, D.C., May 26-30, 2009.
- \*New Investigator in Global Health Award Winner**
1. Investigation of Trust in the context of a Community-Based Health Insurance scheme in Cambodia. Panel on *Experiences with the design of health financing interventions and evidence on their performance*. Health and Social Protection - Meeting the Needs of the Poor by Consortium POVILL: Protecting the rural poor against the economic consequences of major illness, Vientiane, Laos, October 9-10, 2008.

## **F. TEACHING ACTIVITIES**

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### **F.1. COURSE COORDINATOR**

1. Course Title: Research and Scholarship in Pharmacy 2  
Course Details: PHCY 725 (PY3 Elective, Honors)  
Role: Course Director, UNC Eshelman School of Pharmacy  
Dates: 2018 – Present
2. Course Title: Health Systems in Low- and Middle-Income Countries  
Course Details: 221.646.81 Online Course (Masters' and PhD Elective)  
Role: Co-Instructors with Sara Bennett, Johns Hopkins School of Public Health  
Dates: 2013 – 2016
3. Course Title: Health Financing in Low- and Middle-Income Countries

Course Details: 221.845.01 (Masters' and PhD Elective)  
 Role: Co-Instructors with Krishna Rao, Johns Hopkins School of Public Health  
 Dates: 2010 – 2016 (course developer)

## F2. LECTURER

### The University of North Carolina at Chapel Hill: 2017 – Present

Term / Year	Course Number, Title, Type	Students	Approx. Enrolled	Teaching Responsibility	Evaluation
Spring 2022	PHCY 619, Business of Healthcare: Focus on the Pharmacy Enterprise, 2 credits, Required for PY2	PharmD	120 (60 Block1; 60 Block2)	Lecturer	n/a
Fall 2021	PHCY 725, Research and Scholarship in Pharmacy 2, 1.5 credits, PY3 Elective	PharmD	44 (21 Block1; 23 Block2)	Course Director, Lecturer, PACE Division Director, Faculty Mentor	4.1/5 Overall 4.8/5 Lecturer
Fall 2021	PACE 815, Evaluation Research and Project Design, 3 credits, Required for Masters in Pharmaceutical Sciences	Masters'	14	Lecturer	4.0/5 Overall 4.7/5 Lecturer
Fall 2021	PHRS 899, Pharmacy Outcomes and Policy Seminar, 1 credit, Required for DPOP PhD	PhD	17	Lecturer	n/a
Fall 2021	PHCY 100, Pharmaceuticals: Ethical and Social Issues, 1 credit, Undergraduate Elective	Under-graduate	14	Lecturer	n/a
Fall 2021	HPM 715, Health Economics for Policy and Management, 3 credits, Masters' and PhD Elective <b>(UNC Gillings School of Global Public Health)</b>	Masters' PhD	40	Lecturer, Poster Grader	n/a
Spring 2021	PHCY 624, Research and Scholarship in Pharmacy 1, 1.5 credits, PY2 Elective	PharmD	47 (21 Block1; 26 Block2)	PACE Division Director, Faculty Mentor	n/a
Spring 2021	PHCY 625, Research and Scholarship in Pharmacy 3, 3 credits, PY3 Elective	PharmD	26	PACE Division Director, Faculty Mentor	n/a
Spring 2021	DPOP 991, Research, PhD Elective	PhD	1	Faculty Mentor	n/a
Fall 2020	PHCY 725, Research and Scholarship in Pharmacy 2, 1.5 credits, PY3 Elective	PharmD	27 (12 Block1; 15 Block2)	Course Director, Lecturer, PACE Division Director, Faculty Mentor	4.3/5 Overall 4.8/5 Lecturer
Fall 2020	PACE 815, Evaluation Research and Project Design, 3 credits, Required for Masters in Pharmaceutical Sciences	Masters'	15	Lecturer	4.9/5 Overall 4.8/5 Lecturer
Fall 2020	DPOP 806, Pharmaceutical Policy, 3 credits, Required for DPOP PhD	PhD	8	Lecturer	n/a

Fall 2020	PHCY 504, Evidence Based Practice, 3 credits, Required for PY1 PharmD	PharmD	123	Lecturer	3.8/5 Overall 4.4/5 Lecturer
Fall 2020	PLCY 575, Innovation, Science, and Public Policy, 3 credits, Public Policy Elective	Masters' Under-graduate	24	Lecturer	n/a
Spring 2020	PHCY 624, Research and Scholarship in Pharmacy 1, 1.5 credits, PY2 Elective	PharmD	30 (16 Block1; 14 Block2)	PACE Division Director, Faculty Mentor	n/a
Spring 2020	PHCY 625, Research and Scholarship in Pharmacy 3, 3 credits, PY3 Elective	PharmD	26	PACE Division Director, Faculty Mentor	n/a
Fall 2019	PHCY 725, Research and Scholarship in Pharmacy 2, 1.5 credits, PY3 Elective	PharmD	28 (18 Block1; 10 Block2)	Course Director, Lecturer, PACE Division Director, Faculty Mentor	4.8/5 & 4.7/5 Overall 4.9/5 & 4.9/5 Lecturer
Fall 2019	PACE 815, Evaluation Research and Project Design, 3 credits, Required for Masters in Pharmaceutical Sciences	Masters'	15	Lecturer	4.3/5 Overall 4.7/5 Lecturer
Fall 2019	HPM 715, Health Economics for Policy and Management, 3 credits, Masters' and PhD Elective ( <b>UNC Gillings School of Global Public Health</b> )	Masters' PhD	40	Lecturer, Poster Grader	n/a
Spring 2019	PHCY 624, Research and Scholarship in Pharmacy 1, 1.5 credits, PY2 Elective	PharmD	28 (13 Block1; 15 Block2)	Lecturer, PACE Division Director, Faculty Mentor	4.9/5 Overall 4.6/5 Lecturer
Spring 2019	PHCY 625, Research and Scholarship in Pharmacy 3, 3 credits, PY3 Elective	PharmD	25	PACE Division Director, Faculty Mentor	n/a
Spring 2019	DPOP 870, Pharmaceutical Outcomes Research, 3 credits, Required for DPOP PhD	PhD	5	Lecturer	n/a
Fall 2018	PHCY 725, Research and Scholarship in Pharmacy 2, 1.5 credits, PY3 Elective	PharmD	25 (14 Block1; 11 Block2)	Course Director, Lecturer, PACE Division Director, Faculty Mentor	4.4/5 & 4.0/5 Overall 4.7/5 & 4.8/5 Lecturer
Fall 2018	PHCY 504, Evidence Based Practice, 3 credits, Required for PY1 PharmD	PharmD	145 (130 CH; 15 ASH)	Lecturer	2.3/5 & 2.0/5 Overall 3.9/5 & 4.5/5 Lecturer
Fall 2018	PACE 815, Evaluation Research and Project Design, 3 credits, Required for Masters in Pharmaceutical Sciences	Masters'	10	Lecturer	3.9/5 Overall 4.7/5 Lecturer
Fall 2018	HPM 715, Health Economics for Policy and Management, 3 credits, Masters' and PhD Elective ( <b>UNC Gillings School of Global Public Health</b> )	Masters' PhD	35	Lecturer	n/a

Spring 2018	PHCY 624, Research and Scholarship in Pharmacy 1, 1.5 credits, PY2 Elective	PharmD	26 (14 Block1; 12 Block2)	Lecturer, PACE Division Director, Faculty Mentor	4.4/5 & 4.2/5 Overall 4.7/5 & 4.3/5 Lecturer
Spring 2018	PHCY 726, Research and Scholarship in Pharmacy 3, 3 credits, PY3 Elective	PharmD	26	Lecturer, PACE Division Director, Faculty Mentor	4.7/5 Overall 4.5/5 Lecturer
Spring 2018	PHRS 899, Pharmacy Outcomes and Policy Seminar, 1 credits, Required for DPOP PhD	PhD	15	Lecturer	n/a
Fall 2017	PHCY 725, Research and Scholarship in Pharmacy 2, 1.5 credits, PY3 Elective	PharmD	26 (17 Block1; 9 Block2)	PACE Division Director, Faculty Mentor	n/a
Fall 2017	PHCY 504, Evidence Based Practice, 3 credits, Required for PY1 PharmD	PharmD	154 (126 CH; 28 ASH)	Lecturer	2.7/5 & 3.6/5 Overall 4.2/5 & 4.5/5 Lecturer
Fall 2017	PACE 815, Evaluation Research and Project Design, 3 credits, Required for Masters in Pharmaceutical Sciences	Masters'	9	Lecturer	4.2/5 Overall 4.3/5 Lecturer
Spring 2017	PHCY 624, Research and Scholarship in Pharmacy 1, 1.5 credits, PY2 Elective	PharmD	27 (18 Block1; 9 Block2)	PACE Division Director, Faculty Mentor	n/a

#### Johns Hopkins University: 2007 – 2016

Term / Year	Course Number, Title, Type	Students	Approx. Enrolled	Teaching Responsibility	Evaluation
Spring 2016	221.652.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	35	Course Developer, Co-Coordinator, Lecturer	3.1/4 Overall 3.2/4 Lecturer
Fall 2015	221.646.81 Health Systems in Low and Middle Income Countries, 3 credits, Elective, * <i>Online Course</i>	Masters' PhD	63	Course Redesign, Co-Coordinator, Lecturer	3.2/4 Overall 3.4/4 Lecturer
Fall 2015	221.861.01 Doctoral Seminar in Health Systems, 1 credit, Required for Health Systems PhD	PhD	12	Lecturer	n/a
Spring 2015	221.845.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	27	Course Developer, Co-Coordinator, Lecturer	3.5/4 Overall 3.5/4 Lecturer
Spring 2015	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	26	Lecturer	n/a
Spring 2015	221.860.01 Health Systems Program Seminar, 1 credit, Required for Health Systems Students and Faculty	Masters' PhD	57	Lecturer	n/a

Fall 2014	221.646.81 Health Systems in Low and Middle Income Countries, 3 credits, Elective, * <i>Online Course</i>	Masters' PhD	65	Course Redesign, Co-Coordinator, Lecturer	3.3/4 Overall 3.5/4 Lecturer
Spring 2014	221.845.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	16	Course Developer, Co-Coordinator, Lecturer	3.5/4 Overall 3.3/4 Lecturer
Fall 2013	221.646.81 Health Systems in Low and Middle Income Countries, 3 credits, Elective, * <i>Online Course</i>	Masters' PhD	24	Course Redesign, Co-Coordinator, Lecturer	3.4/4 Overall 3.7/4 Lecturer
Fall 2013	221.646.01 Health Systems in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	55	Lecturer	n/a
Fall 2013	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	20	Lecturer	n/a
Fall 2013	221.860.01 Health Systems Program Seminar, 1 credit, Required for Health Systems Students and Faculty	Masters' PhD	44	Lecturer	n/a
Spring 2013	221.845.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	25	Course Developer, Co-Coordinator, Lecturer	3.3/4 Overall 3.3/4 Lecturer
Fall 2012	221.646.01 Health Systems in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	60	Lecturer	n/a
Fall 2012	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	21	Lecturer	n/a
Spring 2012	221.845.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective	Masters' PhD	12	Course Developer, Co-Coordinator, Lecturer	3.2/4 Overall 3.8/4 Lecturer <b>*Teaching Excellence</b>
Spring 2011	221.652.01 Health Financing in Low and Middle Income Countries, 3 credits, Elective (offered as special studies)	Masters' PhD	14	Course Developer, Co-Coordinator, Lecturer	3.7/4 Overall 3.7/4 Lecturer <b>*Teaching Excellence</b>
Spring 2011	221.860.01 Health Systems Program Seminar, 1 credit, Required for Health Systems Students and Faculty	Masters' PhD	38	Lecturer	n/a
Fall 2010	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	17	Lecturer	n/a
Spring 2010	221.861.01 Doctoral Seminar in Health Systems, 1 credit, Required for Health Systems PhD	PhD	10	Lecturer	n/a



Spring 2010	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	12	Lecturer	n/a
Spring 2010	221.860.01 Health Systems Program Seminar, 1 credit, Required for Health Systems Students and Faculty	Masters' PhD	52	Lecturer	n/a
Fall 2009	AS.280.307 Health Financing in the Global Arena: Paying for Healthcare, 3 credits, Undergraduate Elective <b>*Dean's Teaching Fellow (School of Arts and Sciences)</b>	Undergraduate	22	Course Developer, Course Director, Lecturer, 25 weeks	4.9/5 Overall 5.0/5 Lecturer <b>*Teaching Excellence</b>
Spring 2009	313.861.01 Public Health Economics Seminar, 1 credit, Required for Masters' and PhD in Health Economics	Masters' PhD	15	Lecturer	n/a
Spring 2009	221.860.01 Health Systems Program Seminar, 1 credit, Required for Health Systems Students and Faculty	Masters' PhD	45	Lecturer	n/a
Spring 2009	221.616.01 Ethics of Public Health Practice in Developing Countries, 3 credits, Elective	Masters' PhD	60	Teaching Assistant	n/a
Fall 2008	313.641.01 Health Economics, 3 credits, Required for Health Economics Masters' and PhD	Masters' PhD	77	Teaching Assistant	n/a
Fall 2008	221.614.01 International Political Science for Public Health Practitioners, 3 credits, Elective	Masters' PhD	43	Teaching Assistant	n/a
Spring 2008	313.630.01 Concepts and Applications in Economic Evaluation, 3 credits, Elective	Masters' PhD	40	Teaching Assistant	n/a
Spring 2008	313.790.81 Understanding Cost-Effectiveness, 3 credits, Elective <i>*Online Course</i>	Masters' PhD	96	Teaching Assistant	n/a
Fall 2007	220.601.01 Introduction to International Health, 3 credits, Required for Masters' and PhD in International Health	Masters' PhD	151	Teaching Assistant, Group Facilitator	n/a
Spring 2007	221.661.01 Project Development for Primary Healthcare in Developing Countries, 3 credits, Elective	Masters' PhD	47	Teaching Assistant	n/a
Spring 2007	221.609.01 Comparative Health Systems, 3 credits, Elective	Masters' PhD	73	Teaching Assistant, Group Facilitator	n/a

### F.3. MENTORING

#### UNC-USP Quality of Medical Products Fellows

2020-present Ashley Yi-Fang Lee, Master in Healthcare Administration

2019: Research Associate, UNC Eshelman School of Pharmacy  
 2020-present: UNC-USP Quality of Medical Products Fellow

2020-present Tatenda Yemeke, Master of Science in Global Health  
 2016-2019: Research Associate, UNC Eshelman School of Pharmacy  
 2020-present: UNC-USP Quality of Medical Products Fellow

### **UNC-AESARA Market Access and Health Informatics Fellows**

2021-present Anthony Hudzik, PharmD  
 UNC-AESARA Market Access and Health Informatics Fellow

2020-present Rachel Black, PharmD  
 UNC-AESARA Market Access and Health Informatics Fellow

### **Post-Doctoral Fellows**

2019-present Catherine Habashy, Doctor of Medicine (MD), Masters of Public Health (MPH)  
 Clinical Fellow in Pediatric Hematology and Oncology

### **Research Associates**

2018-present Colleen Higgins, Master of Science in Public Health  
 Independent Consultant, UNC Eshelman School of Pharmacy

2017-2019 Sarah Laing, Master of Public Health  
 Research Associate, UNC Eshelman School of Pharmacy  
 2019-present: Research Program Leader, Duke Global Health Institute

2017-2018 Daniel Evans, Master of Science in Global Health  
 Research Associate, UNC Eshelman School of Pharmacy  
 2018-present: Duke University Medical School

2016-2017 Sophia Bessias, Joint European Masters' in Public Health. MS in Analytics  
 Research Associate, UNC Eshelman School of Pharmacy  
 2017-2018: Institute for Advanced Analytics, North Carolina State University  
 2018-present: Statistician/Data Scientist at UNC Health Care

2017 Deson Haynie, MHS in Health Economics  
 Independent Consultant, UNC Eshelman School of Pharmacy  
 2017-present: University of Virginia School of Medicine

2015-2016 Grace Morgan, MHS in Health Economics  
 Research Data Analyst, Johns Hopkins School of Public Health  
 2016-present: Manager, Cost-Effectiveness Analysis, Evidence Action

2016 Diane Coraggio, MHS in International Health  
 Research Data Analyst, Johns Hopkins School of Public Health  
 2017-present: Center for Public Health Advocacy, Johns Hopkins University

2014-2016 Samantha Clark, MHS in Health Economics  
 Research Associate, Johns Hopkins School of Public Health  
 2017-present: PhD Student, University of Washington School of Pharmacy

- 2013-2015 Allison Portnoy, MSPH in Health Policy and Management, PhD  
 Research Associate, Johns Hopkins School of Public Health  
 2016-2019: PhD Student, Harvard School of Public Health  
 2020-present: Post-doctoral fellow, Harvard Center for Health Decision Science
- 2013-2014 Simrun Grewal, MHS in Health Economics, PhD  
 Research Associate, Johns Hopkins School of Public Health  
 2015-present: PhD Student, Pharmaceutical Outcomes Research & Policy,  
 Strategic Analysis, Research & Training Center, U Washington
- 2011-2013 Meghan Stack, MHS in International Health  
 Research Associate, Johns Hopkins School of Public Health

### **Research and Scholarship in Pharmacy (RASP) PharmD Honors Students**

- 2022-present Savannah Moody, PharmD candidate  
*Role of pharmacists in vaccination globally during the Covid-19 pandemic*
- Cecilia Kim, PharmD candidate  
*Impact of online pharmacies on pharmacy practice*
- Kiara Bautista, PharmD candidate  
*Impact of substandard and falsified medicines in developing countries*
- Sendy Lin, PharmD candidate  
*Building the rationale for a national vaccination registry in the U.S.*
- 2021-present SiTong Shu, PharmD candidate  
*Impact of sampling on post-market surveillance: South Africa case study*
- Sophia Nies, PharmD candidate  
*Understanding Covid-19 vaccine hesitancy in the US*
- Noelia Goti, PharmD candidate  
*Availability of Oxycodone and Percocet through online pharmacies*
- 2020-present Jordan (Peijie) Sun, PharmD candidate  
*Substandard and falsified medicines during the Covid-19 pandemic*
- Betty Kobia, PharmD candidate  
*Value of risk-based post market surveillance on medication quality in Kenya*
- 2019-2021 Arden Bui, PharmD candidate  
*Value of vaccination against antimicrobial resistance in Indonesia*
- Vy Bui, PharmD candidate  
*Impact of substandard and falsified antimalarials in Benin*
- Ben Penley, PharmD candidate  
*Online pharmacies: Assessing medication safety, marketing, and price*
- 2018-2020 Yiwei (Ember) Lu, PharmD candidate  
*Impact of PCV in controlling antimicrobial resistance in China*

Jinah Han, PharmD candidate  
*Economic impact of substandard and falsified antimalarials in Myanmar*

2017-2020 Stephen McMillan, PharmD candidate  
*The role of pharmacists in immunization services in low- and middle-income countries*

2017-2019 Sarah Beargie, PharmD  
*Economic impact of substandard and falsified antimalarial medications in Nigeria*  
 2019-present: Pharmacy Resident, Vanderbilt University Medical Center

### **Other PharmD Students beyond RASP**

2021 Catherine Sun, Adam Hendrix, PharmD candidates  
*Availability of Imatinib through online pharmacies*

2020 Joanna Billings, Catherine Sun, Sushan Yu, PharmD candidates  
*Online pharmacy: Medication safety in the COVID-19 pandemic*

2020 Aliyah Cruz, Monica Cozad, Michael Laskowitz, Kyle Ritter, PharmD candidates  
*VAXCESS – barriers to implementation of a national vaccination registry*

2018 Akshara Kumar, PharmD candidate  
*Impact of substandard and falsified antimalarials in Kenya*

Vraj Patel, PharmD candidate  
*Impact of PCV in controlling antimicrobial resistance in India*

2017-2018 Christine Chong, PharmD  
*Economic and educational returns to cognitive ability*  
 2019-present: United Therapeutics Medical Affairs Fellow, UNC Eshelman School of Pharmacy

2017-2018 Paige Morizio, PharmD  
*Cost-effectiveness of oral bisphosphonates in osteoporosis patients*  
 2019-present: Pharmacy Resident, Durham Veterans Affairs

### **Doctor of Philosophy (PhD) Students (Advisee)**

2020-present Hui-Han Chen, MHS in Health Economics, PhD candidate  
 Pharmaceutical Outcomes and Policy, UNC Eshelman School of Pharmacy  
 2017-2020: Research Associate, UNC Eshelman School of Pharmacy  
 2020-present: PhD student

### **Doctor of Philosophy (PhD) Students (non-Advisee)**

2021-present Lauren Passero, PhD candidate, Pharmaceutical Outcomes and Policy  
 UNC Eshelman School of Pharmacy  
 Student Advisory Committee

2020-present Wei Yi (Shirley) Kong, PhD candidate in Health Behavior  
 Research assistant, UNC Gillings School of Global Public Health  
*Impact of COVID-19 on routine immunizations*

2019-2020 Rachel Parry, PhD candidate, Pharmaceutical Outcomes and Policy

UNC Eshelman School of Pharmacy  
Student Advisory Committee

- 2019-2020 Jennifer Richmond, PhD, Health Behavior  
UNC Gillings School of Global Public Health  
Doctoral Thesis Committee  
*Development and validation of the trust in my doctor (T-MD), trust in doctors in general (T-DiG), and trust in the health care system (T-HCS) scales*
- 2015-2016 Lauren Brown, PhD, International Health – Health Systems  
Johns Hopkins School of Public Health  
Doctoral Thesis Committee  
Preliminary Oral Exam, March 2016  
*Preferences and perceptions of services and governance of community-level health providers in Morogoro, Tanzania*  
2018-present: U.S. Food and Drug Administration
- 2014 Taufique Joarder, PhD, International Health – Health Systems  
Johns Hopkins School of Public Health  
Preliminary Oral Exam, March 2014  
*Understanding and measuring human resources for health responsiveness in a non-urban Bangladeshi setting*  
2018-present: Research Director, FHI 360 in Bangladesh
- 2012-2015 Pooja Sripad, PhD, International Health – Health Systems  
Johns Hopkins School of Public Health  
Doctoral Thesis Committee  
Preliminary Oral Exam, October 2012  
Final Thesis Defense, May 2015  
*Health systems trust and women's experiences of facility-based maternity care in peri-urban Kenya*  
2016-present: Associate in Reproductive Health Program, Population Council

### **Masters' (MSPH, MPH, MHS, MBA, MPP) Students**

- 2019-2020 Shah Nomair Alam, MSPH candidate in Health Policy & Management  
Masters' thesis project, UNC Gillings School of Global Public Health  
*Cost-effectiveness of dengue screening & Dengvaxia vaccine in Southeast Asia and Latin America*
- Chidera Agwu, MSPH candidate in Health Policy & Management  
Research assistant, UNC Gillings School of Global Public Health  
*Impact of PCV on antimicrobial resistance in Nigeria*
- Li (Amanda) Lin, MSPH in Biostatistics  
Research assistant, UNC Gillings School of Global Public Health  
*Providers' antibiotic prescribing behavior in Yunnan, China*
- 2018-2019 Kathryn Jackson, MBA-MSPH in Health Policy & Management  
Masters' thesis project, UNC Gillings School of Global Public Health  
*Application of an agent-based model to assess the impact of substandard and falsified antimalarials: Zambia case study*  
2019-present: Senior Associate, Medtronic

Tsion Ghedamu, MSPH in Health Policy & Management  
Masters' thesis project, UNC Gillings School of Global Public Health  
*Assessing global health program readiness for transition*  
2019-present: Program Manager, The Aspen Institute

2015-2016 Jennifer Wenjing Tao, MPH program  
Academic & Capstone advisor, Johns Hopkins School of Public Health  
*A systems dynamics approach to assess the impact of PEPFAR transition on key population access to HIV/AIDS services: A study of peer case managers in Ghana*

Thomas Ngonde Ajah, MPH program  
Academic advisor, Johns Hopkins School of Public Health

Radhika Tampi, MHS in Health Economics  
Academic advisor, Johns Hopkins School of Public Health

Joshua Cole, MSPH in Health Systems  
Academic advisor, Johns Hopkins School of Public Health

2014-2016 Rachel Rosen, MPH-MBA program  
Academic advisor, Johns Hopkins School of Public Health

2015 Raheem Noormohamed, MSPH Program, International Health – Health Systems  
MSPH essay reader  
*Sustainable financing for HIV/AIDS in middle-income countries in the age of universal health coverage*

2014-2015 Nobuhiro Koba, MPH program  
Academic & Capstone advisor, Johns Hopkins School of Public Health  
*An evaluation of mobile health applications in Japan*

Ahmad Alkasir, MPH program  
Academic advisor, Johns Hopkins School of Public Health

Hnin (Julia) Lwin, MPH program  
Academic advisor, Johns Hopkins School of Public Health

2014 Hiwote Getaneh, MPP program  
Practicum advisor, Johns Hopkins School of Public Health  
*Modeling the economic burden of vaccine-preventable diseases (VPDs) among adults in the United States*

Michelle Hsin Yi Ferng, MSPH Program, International Health – Health Systems  
MSPH Essay Reader  
*Faculty retention strategies at higher education institutions: a companion paper on the USAID/Ethiopia human resources for health (HRH) project (2012-17)*

2013-2014 Reetu Verma, MPH program  
Academic & Practicum advisor, Johns Hopkins School of Public Health  
*Economic burden of vaccine preventable diseases in US adults*

Joseph Nwadiuko, MPH program  
Academic & Capstone advisor, Johns Hopkins School of Public Health  
*The Diaspora Health Network: A business plan*

- Junun Bae, MHS in Health Economics program  
Academic advisor, Johns Hopkins School of Public Health
- 2013 Vivek Kulkarni, MSPH Program, International Health – Health Systems  
MSPH Essay Reader  
*A descriptive analysis of medical injections among rural healthcare providers within the context of Cambodia's health financing system*
- 2012-2013 Yukako Ichimiya, MPH program  
Academic advisor, Johns Hopkins School of Public Health
- Yuta Yokobori, MPH program  
Academic advisor, Johns Hopkins School of Public Health
- 2011-2012 Kyung Min Song, MPH-MBA program  
Capstone advisor, Johns Hopkins School of Public Health  
*Policy survey for the introduction of Hepatitis A vaccine in Korea*
- 2010-2011 Adaora Chima, MPH program  
Academic & Capstone advisor, Johns Hopkins School of Public Health  
*Where are the physicians in Ghana found? Addressing the inequitable distribution of physicians between rural and urban regions in Ghana through policy*

### Undergraduate Students

- 2020-present Anna Ilyasova, BS candidate in Public Health and Biology  
Research assistant, UNC Gillings School of Global Public Health  
*Impact of COVID-19 on routine immunizations*

### G. GRANTS

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- Notes: (1) Listed funding total represents total of direct and indirect costs unless otherwise indicated.  
(2) For grants I am a Co-Investigator, only costs to my lab or myself are listed.

#### Ongoing Research Support (10 Grants, \$3,547,500)

38. **Ozawa (PI)** U.S. Pharmacopeial Convention (USP) / U.S. Agency for International Development \$7,500 (1% effort) 1/22-9/22  
Estimating Health and Economic Costs of Substandard and Falsified Medicines, PQM+ Project  
The purpose of this research is to help validate the substandard and falsified cost model tool which will be pilot tested in Kenya and Pakistan.
37. **Ozawa (PI)** Merck & Co. Inc. \$400,000 (20% effort) 4/21-4/23  
Assessing the Economic Burden of Covid-19 Vaccine Hesitancy in the US and Globally  
The purpose of this research is to evaluate the immediate impact of the Covid-19 outbreak and response measures on people's confidence in Covid-19 vaccines, by forecasting the expected demand and examining the economic burden of Covid-19 vaccine hesitancy.
36. **Ozawa (PI)** Concept Foundation; Merck & Co. Inc.; Global Financing Facility; Johnson & Johnson \$300,000 (20% effort) 1/21-6/23  
Uterotonic Medication Quality: Contributions toward Universal Health Coverage

The purpose of this research is to demonstrate the health and economic impact of poor-quality uterotonics across low- and middle-income countries (LMICs).

35. **Ozawa (PI)** Council of Canadian Academies \$32,000 (1% effort) 11/21-8/22  
Assessing the Burden of Misinformation on Covid-19 Vaccine Hesitancy in Canada  
 The purpose of this research is to use a quantitative model to estimate the economic costs of the contribution of misinformation to vaccine hesitancy in Canada.
34. **Ozawa (PI)** U.S. Pharmacopeial Convention (USP) \$480,000 (20% effort) 2/20-1/22  
UNC-USP Fellowship in Quality of Medical Products  
 The purpose of this research is for USP to support two fellows at UNC Eshelman School of Pharmacy to conduct research examining the role of procurement on quality of medical products.
33. **Ozawa and Seyerle (Co-PI)** AESARA, Inc. \$305,000 (10% effort) 7/20-6/22  
UNC-AESARA Market Access and Informatics Fellowship  
 The purpose of this research is for AESARA to support a post-doctoral fellowship for PharmD graduates to conduct research in market access, informatics and communication of evidence.
32. **Ozawa (PI)** U.S. Agency for International Development \$258,000 (4% effort) 7/20-6/21  
Data 4 Impact (D4I): Costs of vertical vs. horizontal programs in Nigeria  
 The purpose of this research is to estimate the differences in costs between vertical versus horizontal health programs supported by USAID in Nigeria.
31. Brewer (overall PI), Wheeler & **Ozawa (Project 4 Co-PI)** National Institutes of Health (NIH) \$11,700,000 Overall; \$1,700,000 Project 4 (17% effort) 9/21-8/26  
Improving Provider Announcement Communication Training (IMPACT)  
 The purpose of the P01 Program Project IMPACT is to improve provider communication and HPV vaccine coverage among adolescents. IMPACT's specific aims are to 1) build evidence on opportunities to improve providers' HPV vaccine communication; 2) evaluate the impact and cost of HPV vaccine communication interventions in large healthcare systems; and 3) support implementation of interventions to improve HPV vaccine uptake in large healthcare systems.
30. Omer (PI) **Ozawa (Site PI)** Bill & Melinda Gates Foundation \$60,000 (4% effort) 8/18-12/22  
Estimating the impact of maternal flu immunization  
 The purpose of this research is to estimate the impact of maternal flu immunization on economic productivity gains by examining the linkage between children's cognitive function, educational attainment and employment outcomes.
29. Boyce (PI) **Ozawa (Co-I)** Creativity Hub, University of North Carolina at Chapel Hill \$1000 (0% effort) 8/20-7/22 Vector-Borne Disease: Epidemiology, Ecology & Response  
 The purpose of this research is to develop and implement evidence-based, cost-effective surveillance and response systems to address vector-borne disease, an epidemic affecting the entire state, but particularly those living in rural and underserved communities in North Carolina.

### Completed Research Support (28 Grants, Total \$4,638,500)

39. **Ozawa (PI)** U.S. Pharmacopeial Convention (USP) / U.S. Agency for International Development \$14,000 (2% effort) 2/21-9/21  
Estimating Health and Economic Costs of Substandard and Falsified Medicines, PQM+ Project  
 The purpose of this research is to support the development of a model to estimate the costs of substandard and falsified medicines by reviewing existing models and data sources.
27. Brewer (PI) **Ozawa (Co-I)** North Carolina Department of Health and Human Services (NCDHHS) \$10,000 (7% effort) 6/21-8/21



Rapid evaluation of North Carolina Covid-19 vaccine incentive program

The purpose of this research is to evaluate the Covid-19 vaccination incentives program, which includes lotteries and guaranteed cash payments.

26. **Ozawa (PI)** University of North Carolina at Chapel Hill \$10,000 (0% effort) 1/20-12/20  
UNC Junior Faculty Development Award  
The purpose of this research is to estimate the health and economic impact of buying antibiotics from illicit online pharmacies.
25. **Ozawa (PI)** World Health Organization \$100,000 (10% effort) 1/20-10/20  
Return on Investment of Risk-Based Post Market Surveillance  
The purpose of this research is to develop a business case for strengthening national regulatory authorities to conduct risk-based post market surveillance to counter the threat of substandard and falsified medicines.
24. **Ozawa (PI)** U.S. Pharmacopeial Convention (USP) \$30,000 (5% effort) 3/19-6/19  
Importance of medicine quality in achieving universal health coverage  
The purpose of this research is to develop a white paper on the importance of medicine quality in low- and middle-income countries toward achieving universal health coverage.
23. Lee (PI) **Ozawa (Co-I)** Centers for Disease Control & Prevention \$63,000 (7% effort) 8/18-6/19  
Hard-to-reach populations bridging the gaps for immunization (H2R BTG)  
The purpose of this research is to identify gaps in literature on populations that are hard-to-reach for immunization, including the mechanisms that make individuals hard-to-reach and the economic impact of not reaching them.
22. **Ozawa (PI)** World Health Organization \$25,000 (10% effort) 3/17-9/17  
Estimation of financial resource requirements for achieving and sustaining maternal and neo-natal tetanus elimination  
The purpose of this research is to develop an investment case that presents the cost-effectiveness of maternal and neo-natal tetanus elimination and show the resource requirements needed for achieving maternal and neo-natal tetanus elimination.
21. Thompson (PI) **Ozawa (Co-I)** Centers for Disease Control & Prevention \$62,500 (32% effort) 3/17-7/17  
Characterization of the costs of expanded measles and rubella immunization efforts to achieve eradication  
The purpose of this research is to gather known evidence on the costs of immunization and develop cost functions to assess the necessary costs towards disease eradication.
20. Wonodi, Chugbo, Rakshani (PIs) **Ozawa (Co-I)** 3ie \$8,000 Direct (6% effort) 1/16-12/16  
Community distribution of vaccine indicator and reminder (VIR) band to improve vaccine initiation and completion in Nigeria  
The purpose of this research is to assess the change in vaccination timeliness and completion among newborn infants following community engagement through social mobilization campaign and administration of the Vaccine Indicator and Reminder (VIR) band.
19. Moss, Hayford (PIs) **Ozawa (Co-I)** Bill & Melinda Gates Foundation \$6,000 (5% effort) 11/15-9/16  
Assessing the feasibility of using serological data to monitor and guide immunization programs in low income countries  
The purpose of this research is to demonstrate the resource needs, feasibility and sustainability of serological surveillance in low income countries.
18. **Ozawa (PI)** Bill & Melinda Gates Foundation \$1,650,000 (50% effort) 10/15-9/16  
Decade of Vaccine Economics IV

The purpose of this research is to assess the economic impact of vaccination by gathering primary data on the averted cost of illness due to vaccine preventable diseases in low- or middle-income countries, as well as update and extend the existing DOVE vaccine economic models to inform the progress of the Global Vaccine Action Plan.

17. Bennett (PI) **Ozawa (Co-I)** U.S. Agency for International Development \$8,000 (5% effort)  
10/15-9/16 Project SOAR  
The purpose of this research is to assess the effects of the geographic prioritization process undertaken under PEPFAR on key service delivery and health systems indicators in sub-Saharan Africa.
  
16. Lee (PI) **Ozawa (Co-I)** Center for Disease Control and Prevention \$16,000 (10% effort)  
8/15-8/16 Demonstrating the Incremental Economic and Societal Impact of Reaching Hard-to-Reach Population through Routine Immunization  
The purpose of this research is to identify various pockets of hard-to-reach populations and model the economic and societal impact of reaching these populations through specific vaccines.
  
15. Constenla (PI) **Ozawa (Co-I)** Gavi, the Vaccine Alliance \$10,000 (5% effort) 1/15-9/16  
Economic evaluation of the pneumococcal conjugate vaccine in urban Nepal  
The purpose of this research is to determine the economic impact of pneumonia of any cause, clinical meningitis and/or invasive pneumococcal disease (IPD) and the impact of PCV on the health systems and households in urban Nepal.
  
14. Baqui (PI) **Ozawa (Co-I)** U.S. Agency for International Development \$24,000 (10% effort)  
10/13-3/15 Evaluation Support for the Development of an Integrated Community Program in Tanzania The purpose of this research is to conduct discrete choice experiments to identify characteristics of a community health worker (CHW) program that would recruit, retain and motivate CHWs and govern at the local level.
  
13. **Ozawa (PI)** Merck & Co, Inc. \$210,000 (15% effort) 6/13-12/14  
Economic Burden of Adult Vaccine Preventable Diseases in the United States  
The purpose of this research is to model the economic burden of 14 vaccine preventable diseases in US adults, including direct and indirect costs associated with illness using two methodologies (cost of illness and full income method).
  
12. **Ozawa (PI)** Bill & Melinda Gates Foundation \$1,076,000 (50% effort) 1/13-9/15  
Decade of Vaccine Economics III  
The purpose of this research is to generate new evidence on the economic impact of vaccines by developing 7 models (cost of illness, disability adjusted life year averted, value of life years, cost of vaccine programs, financing of vaccine programs, funding gap, return on investment) to estimate the economic impact of vaccines during the Decade of Vaccines (2011-2020) across 18 antigens in 94 countries.
  
11. **Ozawa (PI)** Gavi, The Vaccine Alliance \$138,000 (5% effort) 1/13-12/13  
Equity of Vaccine Coverage & Trust in Vaccines  
The purpose of this research is to conduct primary data collection in northern Nigeria to understand the importance of trust in routine immunization uptake, develop a measure of trust in vaccines, and discuss possible solutions to improve trust.
  
10. Bennett (PI) **Ozawa (Co-I)** U.S. Agency for International Development \$16,000 (5% effort)  
10/12-9/14 Health Financing and Governance  
The purpose of this research is to improve health financing in priority health services and improve measurement of global health systems progress through increased use of evidence-based tools and innovative measurement techniques.

9. **Ozawa (PI)** Merck & Co. Inc \$285,000 (15% effort) 11/11-12/12  
Policy Surveys for the Introduction of Hepatitis A Vaccine in Six Countries  
 The purpose of this research is to understand the process used by key stakeholders in 6 countries for vaccine adoption decision-making including introduction of the Hepatitis A vaccine.
8. **Ozawa (PI)** Bill & Melinda Gates Foundation \$425,000 (50% effort) 10/11-2/13  
Decade of Vaccine Economics II  
 The purpose of this research is to generate new evidence on the economic benefits of vaccines (value of statistical life, cost of illness & DALY analyses) and feed into strategies developed by the Decade of Vaccine Collaboration, the WHO Strategic Advisory Group of Experts (SAGE) on Immunization and Gavi.
7. Niessen (PI) **Ozawa (Co-I)** PATH Malaria Vaccine Initiative \$18,000 (20% effort) 4/11-12/11  
Accelerated Vaccine Initiative (AVI) Economics Component  
 The purpose of this research is to conduct a multi criteria decision analysis in Uganda to weigh criteria for priority setting in health among policy makers with a focus on malaria control.
6. Bennett (PI) **Ozawa (Co-I)** UK Aid \$80,000 (10% effort) 1/11-12/15  
Future Health Systems II: Innovations for Equity  
 The purpose of this research consortium program is to understand how institutional arrangements and technologies can be introduced, tested and expanded to meet the needs of the poor.
5. **Ozawa (PI)** Johns Hopkins Center for Global Health \$50,000 (0% effort) 1/11-6/13  
Building informed trust: injections and health insurance  
 The purpose of this research is to develop an educational tool for injection practices and health insurance in Cambodia.
4. **Ozawa (PI)** The Toyota Foundation \$14,000 (0% effort) 11/10-10/12  
Comparison of People's Trust in Education vs. Health Systems in Cambodia  
 The purpose of this research is to examine measures and compare people's trust in the public education system and the public health system in Cambodia.
3. **Ozawa (PI)** Bill & Melinda Gates Foundation \$110,000 (50% effort) 11/10-4/11  
Decade of Vaccine Economics  
 The purpose of this research is to link vaccination to tangible economic benefits beyond mortality savings by modeling the value of statistical life and cost of illness, and conducting a systematic literature review.
2. Frick (PI) **Ozawa (Co-I)** Bill & Melinda Gates Foundation \$10,000 (25% effort) 4/10-7/10  
Cost-Effectiveness of Trachoma Antibiotic Treatment in Tanzania  
 The purpose of this research is to examine the cost-effectiveness of the Antibiotic treatment for Trachoma operated by the Partnership for the Rapid Elimination of Trachoma (PRET).
1. Bennett (PI) **Ozawa (Co-I)** Bill & Melinda Gates Foundation \$170,000 (30% effort) 1/10-6/14  
Evaluative Assessment of the Avahan HIV/AIDS Prevention Program  
 The purpose of this research is to assess the transition of the Avahan HIV/AIDS prevention program from the donor to the local government and communities and to evaluate its influence on HIV/AIDS policy.

**Pending Research Support (6 Grants, Total \$2,205,977,000)**

1. **Ozawa (PI)** National Institutes of Health (NIH) \$1,908,000 (25% effort) 7/22-6/27

R01: Real-world safety, cost-effectiveness, and pharmacological quality of generic imatinib from traditional and online pharmacies for treatment of chronic myeloid leukemia

The purpose of this research is to assess the safety, cost-effectiveness, and pharmacological quality of generic imatinib from traditional and online pharmacies. We expect generated evidence to guide pharmaceutical policies and prescribing practices to improve chronic myeloid leukemia patients' health and economic outcomes.

2. Lieberman, Smilowitz, **Ozawa (co-PI)** National Science Foundation \$252,000 (5% effort) 1/22-12/25  
Collaborative Research: D-1SN: Track 1: Reimagining post-market surveillance for substandard and falsified pharmaceuticals: adaptive sampling with low-cost technology  
 The purpose of this research is to adapt our ESTEEM (Examining Screening Technologies with Economic Evaluations for Medicines) model to demonstrate the population-level economic and health impact of using various sampling methods to remove substandard and falsified pharmaceuticals in partnering sites (Ethiopia, Kenya, Liberia).
3. Lieberman (PI) **Ozawa (Site PI)** National Institute of Health \$427,000 (6% effort) 4/22-3/27  
Adapting a point of use test card, the chemoPAD, for protecting chemotherapy drug quality in sub-Saharan Africa  
 The purpose of this research is to address the challenge of assuring the quality of chemotherapy drugs in low- and middle-income countries. A point-of-use test card, the chemoPAD, will be adapted and validated to screen the quality of injectable chemotherapy drugs. This technology will be implemented in hospitals in Ethiopia, Malawi, Kenya, and Cameroon.
4. Thomas (PI) **Ozawa (Co-I)** National Institute of Health \$3,389,000 (2% effort) 4/22-3/27  
Diagnostic Applications in Resource limited settings using Global Advances in Nanopore technologies (DARGAN)  
 The purpose of this research is to use advanced assay development, context assessment, feasibility testing, validation, and implementation in two Pakistan and El Salvador to advance a novel cost-effective sequencing approach to improve comprehensive pediatric cancer diagnosis in low- and middle-income countries.
5. Shahi (PI) Kumar, **Ozawa (Site co-PI)** U.S. Agency for International Development \$2,200,000,000 2/22-2/32  
Comprehensive Technical Assistance for Health Supply Chain and Pharmaceutical Management  
 The purpose of this indefinite delivery, indefinite quantity contract is to provide technical assistance services for health supply chain and pharmaceutical management over a 10-year period. This was submitted with DAI as the prime.
6. Brice (PI) Kumar, **Ozawa (Site co-PI)** U.S. Agency for International Development \$2,200,000,000 2/22-2/32  
Comprehensive Technical Assistance for Health Supply Chain and Pharmaceutical Management  
 The purpose of this indefinite delivery, indefinite quantity contract is to provide technical assistance services for health supply chain and pharmaceutical management over a 10-year period. This was submitted with the Panagora Group as the prime.

## H. PROFESSIONAL SERVICE

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### ***American Society of Tropical Medicine & Hygiene (ASTMH)***

2020-present      Invited Scientific Program Committee member, Global Health Subcommittee  
 Reviewer, Abstracts for 2020 ASTMH Annual Meeting

### ***Bill & Melinda Gates Foundation (BMGF)***

- 2016 Invited workshop participant, BMGF-Gavi Impact Modeling Meeting, co-hosted by Gavi and BMGF, Washington DC, April 19-20, 2016.
- 2015 Invited workshop participant/presenter, Convening on Immunization Delivery Costs, University of Washington and BMGF, Seattle, October 14-15, 2015.
- 2014 Invited workshop participant/presenter, Vaccination Impact Estimates Phase 2 Meeting, co-hosted by Gavi and BMGF, Washington DC, February 25-26, 2014.

### ***Boston Consulting Group (BCG)***

- 2014-2015 Advisor, Maternal Immunization Health Impact Assessment funded by BMGF, Advising individuals at BCG on cost-effectiveness modeling methodology, November 13, 2014 – April 6, 2015.

### ***Centers for Disease Control and Prevention (CDC)***

- 2019 Invited brownbag speaker, Economic considerations of vaccinating hard-to-reach populations. Atlanta GA, May 10, 2019.
- 2018 Invited brownbag speaker, Reaching the hard to reach for vaccination: definitions and economic considerations. Atlanta GA, November 27, 2018.

### ***Copenhagen Consensus Center***

- 2018-2019 Reviewer, Cost-benefit analysis of Gavi, Global Polio Eradication Initiative, Global Fund and the Global Finance Facility for the Bill and Melinda Gates Foundation. Presented by Bill Gates at the World Economic Forum, January 25, 2019.

### ***Council of Canadian Academies (CCA)***

- 2021-present Invited Expert Panel Member, Assessment on Socio-Economic Impacts of Science and Health Misinformation

### ***Fondation Mérieux***

- 2019 Invited participant/presenter, 7<sup>th</sup> Vaccine Acceptance Meeting, Annecy, France, September 25, 2019.
- 2016 Workshop participant, Estimating the full public health value of vaccines. Annecy, France, December 5-7, 2016.

### ***Gavi, the Vaccine Alliance***

- 2013 Invited workshop participant/presenter, Value of Vaccines Meeting, presented as one of 26 worldwide experts on the values of vaccines. Gavi, Geneva, Switzerland, January 14-15, 2013.
- 2012 Invited workshop participant/presenter, The Gavi Partners Forum; hosted by Gavi, Dar Es Salaam, Tanzania, December 5-7, 2012.
- 2012 Invited workshop participant/presenter, Revising Gavi's Vaccine Impact Estimates Meeting, hosted by Gavi, Washington DC, October 12, 2012.

### ***Health Research Council of New Zealand***

- 2020 Review of grant proposal for 2020 Achieving equitable access to medicines request for proposal, December 1, 2020.

### ***Health Systems Global (HSG)***

- 2020 Organizer, Webinar "From IP to falsifications to shortages: what COVID-19 teaches us about medicines access during a pandemic," Hosted by Medicines in Health Systems Thematic Working Group, May 13, 2020.
- 2018 Chair, "Medicines in Health Systems TWG Business Meeting" Global Symposium for Health Systems Research, Liverpool, UK, October 12, 2018.
- 2018-present Reviewer, Abstracts for Global Symposium for Health Systems Research

- 2018-2019 Organizer, Supplement to *Health Policy and Planning*, “Access to Medicines through Health Systems in Low- and Middle-Income Countries”
- 2018 Called for and Reviewed 33 papers for a Journal Supplement on Access to Medicines through Health Systems in Low- and Middle-Income Countries.
- 2017-present Elected Co-chair of Medicines in Health Systems Thematic Working Group (TWG) to facilitate positive change in medicines availability, access, affordability, and use, by informing and promoting dialogue among stakeholders in health systems.
- 2013 Chair, “The evolution of the global health marketplace: Implications for health systems,” Private Sector in Health Symposium, Sydney, Australia July 6, 2013.

***Institute of Medicine and National Academy of Engineering***

- 2015 Reviewer, *Ranking Vaccines: Applications of a Prioritization Software Tool, Phase III: Use Case Studies and Data Framework*. Committee on Identifying and Prioritizing Preventive Vaccines for Development, Phase III. Washington, DC: The National Academies Press. <https://www.nap.edu/read/18763/chapter/1>

***International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B)***

- 2010 Reviewer, Impact of educational intervention on knowledge, attitude and practice to and willingness to pay for micro health insurance among low-income workers in informal sector in urban Bangladesh

***International Health Economics Association (iHEA)***

- 2016-present Selected Member of the Scientific Committee Review Panel
- 2015 Chair, Session on “Utilization of Development Funds” and “Cost of Vaccination” iHEA World Congress Symposium, Milan, Italy, July 13-15, 2015.

***Johns Hopkins Bloomberg School of Public Health (JHSPH)***

- 2016 Workshop organizer/participant/presenter, Workshop on Strategic Issues in Global Health Program Transitions; co-hosted by Results for Development and JHSPH, Warrenton, Virginia, March 30-April 1, 2016.
- 2011 Strategic Directions Committee, Representative
- 2009-2010 Students Promoting Healthcare Reform (SPHERE), Co-VP of Education
- 2007-2008 International Health Student Group, Co-President
- 2006-2007 International Health Student Group, Vice President
- 2006-2007 Deans for Students Network, Elected Student Representative
- 2005-2006 Curriculum and Credentials Committee, Masters Student Representative
- 2005-2006 Self-Study Committee, Student Representative

***Merck Inc.***

- 2020 Invited presenter. FIGO Africa Regional Kigali Congress, Virtual (hosted from Kigali, Rwanda), December 14, 2020.
- 2017 Consultant, Economic burden of select diseases for which vaccines are available among adults in the United States

***Pan American Health Organization (PAHO)***

- 2016 Invited Expert Reviewer, Expert review of ProVac e-toolkit. Washington DC, October 20-21, 2016.

***Public Health Agency of Canada***

- 2018-present Economic Guidelines Task Group Member, reporting to the National Advisory Committee on Immunization (NACI), to develop economic guidelines to help standardize and facilitate the economic evaluation of vaccines in Canada.

***Public Health Foundation of India (PHFI)***

2015-16 Member of Steering Committee, “Cost of delivering routine immunization services in India” led by Immunization Technical Support Unit (ITSU) at PHFI.

**United States Agency for International Development (USAID)**

2019 Invited brownbag presenter, Integrating medicines quality assurance into universal health coverage programming. USAID, Crystal City, VA, August 29, 2019.

2015 Invited workshop participant/presenter, Community Health Worker Learning Agenda Project Stakeholder Dialogue Workshop, with Tanzania Ministry of Health and Social Welfare, Dar Es Salaam, Tanzania, September 1, 2015.

2013-2015 Quality Advisor, Discrete Choice Experiment (DCE) in Bangladesh, Advising on DCE literature and methodology for Health Financing and Governance Project funded by USAID

**U.S. Department of Health and Human Services (HHS)**

2018 Invited expert presenter, National Vaccine Advisory Committee. Live Webcast to the Public. Washington DC, September 12, 2018.

**United States Pharmacopeial Convention (USP)**

2020 Invited speaker, USP COVID-Connect Webinar Interview Series. Virtual (hosted from Delhi, India), September 14, 2020.

2019-present Invited member of the Evidence Curation Working Group of the Medicines We Can Trust campaign led by USP: <https://medswecantrust.org/the-campaign/>

2019 Invited brownbag speaker, Integrating Medicines quality assurance into universal health coverage programming. Rockville MD, August 29, 2019.

2019 Invited workshop/presenter, Importance of medicine quality in achieving universal health coverage. Rockville MD, May 6, 2019.

**University of North Carolina Eshelman School of Pharmacy**

2021 5-year service to the University and the State of North Carolina

2021 Invited presenter, Chancellor’s Global Leadership Council meeting

2021-present PharmAlliance Practice Domain Deputy Chair

2021-present Postdoc Advisory Committee (PAC)

2020-present Graduate Education Committee (GEC)

2020-present UNC-AESARA Market Access and Health Informatics Fellowship Director

2020-present UNC-USP Quality of Medical Products Fellowship Director

2020-2021 PACE Fellowship Working Group Co-Lead

2020-2021 Global Engagement Committee

2019 Search Committee Member for PACE Division Chair

2019 Chair, Search Committee for Research Associate position in PACE

2018-2019 Chair, Search Committee for Clinical Assistant Professor position in PACE

2018-2019 Accreditation Self-Study, Standards (18-19) Reviewer

2018 Strategic Plan Refresh, Global Engagement Committee Member

2017-2018 Search Committee for Open Rank Position in Health Economics in DPOP

2017 PharmAlliance Research Symposium on Antimicrobial Resistance, Discussion Lead on Practice and Policy

2017 Chair, Search Committee for Research Associate position in PACE

2016-present Research and Scholarship in Pharmacy (RASP) Oversight Committee

2016-present Research and Scholarship in Pharmacy (RASP) PACE Division Director

2016 Chair, Search Committee for Research Associate position in PACE

**Vaccine, Journal**

2014 Invited Editorial Board Member, Supplementary Issue, “Expanding the evidence base to inform vaccine introduction: program costing and cost-effectiveness analyses” <https://www.sciencedirect.com/journal/vaccine/vol/33/suppl/S1>

**Value of Vaccines Research Network (VoVRN)**

- 2021 Invited webinar presenter, Value of Vaccination Research Network Work-in-Progress Webinar Series, Virtual (hosted from Harvard School of Public Health, Boston), January 19, 2021.
- 2016 Invited workshop participant/presenter, Advancing the Value of Vaccines Research Agenda, hosted by Harvard T.H. Chan School of Public Health, Boston, April 26-27, 2016.

**The World Bank**

- 2009 Consultant, Analysis of monitoring and evaluation considerations across 35 health, nutrition and population projects. Washington DC, May 11- June 30, 2009.
- 2008 Consultant, Review thematic codes to monitor/track World Bank lending in Health, Nutrition and Population projects. Washington DC, May 26 – June 30, 2008.
- 2007 Consultant, Analyze Quality Enhancement Reviews for the Health, Nutrition and Population Quality Group. Washington DC, November 10, 2005 - June 30, 2007.

**World Health Organization (WHO)**

- 2021 Invited participant/presenter, Informal technical experts working group meeting on risk-based post market surveillance (rb-PMS). Virtual (hosted from Geneva, Switzerland), April 16, 2021.
- 2020 Invited participant/presenter, Briefing session for the informal experts advisory group on risk-based post market surveillance. Virtual (hosted from Geneva, Switzerland), October 22, 2020.
- Invited planning meeting participant/presenter, Risk-based post market surveillance on medicine quality. Dar Es Salaam, Tanzania, January 20-23, 2020.
- 2019 Invited participant/presenter, WHO Informal Technical Expert Working Group on Risk-Based Post Market Surveillance. Geneva, Switzerland, October 21, 2019.
- 2016 Invited workshop participant, Technical meeting on costing surveillance. Geneva, Switzerland, December 7-8 2016.
- 2015-16 Member of WHO Strategic Advisory Group of Experts (SAGE) Global Vaccine Action Plan (GVAP) Working Group on Strategic Objective Two, Demand for Immunization to define and develop indicators to measure how individuals and communities understand the value of vaccines and demand immunization.
- 2014 Invited workshop participant/presenter, WHO Consultation on the Broader Economic Impact of Vaccines and Immunization Programs, co-hosted by WHO and Health Intervention and Technology Assessment Program, Ministry of Public Health, Bangkok, Thailand, November 24-25, 2014.
- 2014 Invited participant/presenter, Immunization and Vaccines related Implementation Research (IVIR) Advisory Committee meeting. Geneva, September 17, 2014.
- 2012 Invited participant/presenter, Immunization and Vaccine related Implementation Research (IVIR) Advisory Committee meeting. Geneva, Switzerland, September 25-26, 2012.

**JOURNAL REVIEWER (2006-present)**

BMC Health Services Research  
 BMC Public Health  
 BMC Medicine  
 Bulletin of the World Health Organization  
 Cochrane Review Group  
 Health Affairs

Acknowledged in April 2021 <https://doi.org/10.1377/hlthaff.2021.00231>  
 Health Economics



Health Policy and Planning  
International Journal for Equity in Health  
The Lancet  
Lancet Global Health  
Medicine Access @ Point in Care  
Ophthalmologic Epidemiology  
Social Science and Medicine  
Vaccine  
World Development

## **PROFESSIONAL AFFILIATIONS**

International Pharmaceutical Federation (FIP), Member since 2017  
American College of Clinical Pharmacy, Member since 2017  
International Society for Pharmacoeconomics and Outcomes Research, Member since 2015  
International Health Economics Association, Member since 2010  
    Scientific Committee, Milan 2015, Boston 2017, Basel 2019, Virtual 2021  
Health Systems Global, Member since 2012  
    Scientific Committee, Vancouver 2016, Liverpool 2018, Dubai 2020  
Society of Medical Decision Making, Member since 2014  
American Society of Health Economists, Member since 2007  
Delta Omega Honors Society in Public Health, Alpha Chapter, *Lifetime membership* since 2007  
American Public Health Association, Member since 2006  
Global Health Council, Member since 2006